



Honeywell  
301 Plainfield Road  
Suite 330  
Syracuse, NY 13212  
www.honeywell.com

December 22, 2016

Mr. William Daigle, P.E.  
Division of Environmental Remediation  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, New York 12233-7016

RE: Groundwater Sampling Results  
Former Oak Matsui Mechanic Street "P" Site (442050)  
Village of Hoosick Falls, Rensselaer County, New York

Dear Mr. Daigle:

As required by the Order on Consent and Administrative Settlement Index Number CO 4-20160415-79 between Honeywell and the New York State Department of Environmental Conservation (NYSDEC), please find enclosed a letter report from ERM regarding the groundwater sampling results at the above-referenced property.

Based on the groundwater sampling results, Honeywell will evaluate suitable follow-up actions to be performed in conjunction with other ongoing area investigations and will also benefit the larger ongoing evaluation of the distribution of PFCs within the Town of Hoosick and Village of Hoosick Falls.

Thank you and please contact Jon Fox at 315-233-3035 or me at 315-552-9782 to discuss any questions or comments.

Sincerely,

John P. McAuliffe, P.E.  
Program Director

Cc: Richard Mustico, P.E. (NYSDEC)  
Andrew Guglielmi, Esq. (NYSDEC)  
Krista Anders, Ph.D. (NYSDOH)  
Justin Deming (NYSDOH)  
Albert DeMarco (NYSDOH)  
John Morris, P.E. (Honeywell)  
Mark Sweitzer, P.G. (Honeywell)  
Jon Fox, P.G. (ERM)

**Environmental  
Resources  
Management**

5788 Widewaters Parkway  
Syracuse, New York 13214  
315-445-2554  
315-445-2543 (fax)

22 December 2016

John McAuliffe, P.E.  
Program Director  
Honeywell  
301 Plainfield Road  
Suite 330  
Syracuse, New York 13212



RE: Groundwater Sampling Results  
Mechanic Street "P" Site  
Village of Hoosick Falls, Rensselaer County, New York  
NYSDEC Site Number 442050

Dear Mr. McAuliffe:

This letter transmits to Honeywell the results of groundwater sampling at the Mechanic Street "P" Site (Mechanic St property). The sampling was conducted in accordance with the approved scope of work in the letter dated 18 August 2016 from ERM to New York State Department of Environmental Conservation (NYSDEC) (ERM, 2016a). The sampling was performed at the above referenced property pursuant to the Order on Consent and Administrative Settlement Index Number CO 4-20160415-79 dated 3 June 2016 (the Order).

The Mechanic St property consists of three parcels - 27.15-2.1, 27.15-2.2 and 27.15-7.1, as shown on Figure 1. Parcel 27.15-2.1 is owned by Four J's 1 Mechanic Street LLC and Oak-Mitsui is the current tenant. Parcels 27.15-2.2 and 27.15-7.1 are owned by Rensselaer County and are currently unoccupied. Pursuant to the Order, groundwater data from the Mechanic Street property were to be delivered to NYSDEC within 45 days of receiving access to the property. ERM finalized the necessary access agreements on 16 November 2016.

Based on the groundwater sampling results, at Honeywell's direction, ERM will consider and propose additional investigation activities as discussed at the end of this letter.

## SAMPLING

The groundwater samples were collected to evaluate concentrations of perfluorinated compounds (PFCs) that may be present in groundwater. Sampling for PFCs was performed in conformance with applicable portions of the Site Characterization Field Sampling and Analysis Plan (FSAP) for the River Road and John Street properties (ERM, 2016b), which are also being characterized under the Order.

Based upon existing information, a total of six monitoring wells had been previously installed and sampled by others between 2001 and 2013. After receiving access, ERM visited the property on 17 November 2016 to locate and inspect the condition of the existing monitoring wells. The ERM team was accompanied by Jason Johnson of NYSDEC. Wells MW-6 and MW-7 could not be located. MW-5 was obstructed inside the well and could not be sampled. MW-9 was dry and could not be sampled. Therefore, only MW-4 and MW-8 were available for sampling. This modification from the work plan was approved in the field by NYSDEC.

Special sampling precautions were utilized to control possible contamination of environmental samples with PFCs from sampling equipment or other materials. These precautions involved avoiding materials that might potentially contain PFCs. Prior to mobilization, rinse blank samples of equipment and other materials proposed for use in the sampling effort were collected and analyzed for PFCs to ensure use of acceptable equipment and materials.

MW-8 was initially purged for 1.5 hours on 17 November 2016 but stabilization criteria were not met. ERM returned to the property on 18 November 2016 and completed purging activities at MW-4 and MW-8 with attainment of stabilization criteria. Purge water was placed into pre-labeled waste containers and temporarily staged at a secure location pending characterization, waste determination, and subsequent disposal.

One groundwater sample was collected from each monitoring well using low-flow/minimal drawdown sampling techniques. Additional samples were collected for Matrix Spike/Matrix Spike Duplicate analyses. Samples were placed into a pre-chilled cooler for transport under proper chain-of-custody procedures to Eurofins Lancaster Laboratories, a New York State Department of Health (NYSDOH)-approved environmental laboratory, for analysis. The locations of the sampled wells were measured by ERM

using global positioning system equipment. Relative elevations of monitoring wells MW-4 and MW-8 and the Hoosic River were not measured during this groundwater sampling event as initially planned (ERM, 2016a). These measurements will be collected later during a coordinated regional water level measurement event.

Groundwater samples were analyzed for the full list of twelve PFCs by United States Environmental Protection Agency (USEPA) Method 537 Revision 1.1. Additionally, they analyzed in the laboratory for pH by Method SM 4500-H+ B-2000 and Total Organic Carbon (TOC) by Method SM 5310 C-2000.

The laboratory analytical report contained NYSDEC ASP Category B deliverables. Electronic data deliverables were also provided by the project laboratory. The data packages were sent to a third-party for data validation.

## RESULTS

The analytical results are presented in Table 1 and Figure 1. Validation qualifiers, as required, have been added to the table and map. The laboratory analytical reports and validation reports are attached.

The pH values in groundwater were 7.1 and 7.4 at MW-4 and MW-8, respectively.

TOC in groundwater was 1.1 milligrams per liter (mg/L) in MW-4 and less than the detection limit (0.5 mg/L) at MW-8.

Perfluorooctanoic acid (PFOA) was detected in the groundwater samples from both wells MW-4 and MW-8 at concentrations of 890 and 2300 nanograms per liter (ng/L), respectively, which exceed the USEPA Health Advisory (HA) of 70 ng/L. The other PFCs that were detected at significantly lower concentrations were perfluorohexanoic acid (PFHxA) and perfluoroheptanoic acid (PFHpA). No USEPA HA or NYSDEC advisory levels, guidelines or standards exist for these two compounds.

Based on these findings, at Honeywell's direction, ERM will consider and propose follow-up actions to be performed in conjunction with other ongoing area investigations. Follow-up investigation will consider:



- review of locations for previously-installed wells with the firms that installed them;
- contemporaneous measurement of groundwater and nearby surface water elevations; and
- evaluation of nearby prior NYS groundwater sample locations and results (when received).

Actions to be considered to the next phase of investigation may include:

- seismic survey to define bedrock surface (as bedrock outcrops on the property);
- selection of appropriate locations for installation of additional monitoring wells; and
- soil sampling.

A letter describing proposed additional investigation activities will be prepared following further evaluation.

Thank you and please contact me at 315-256-5352 if you have any questions.

Sincerely,



Jon Fox, P.G.  
Principal Geologist

Attachments:

Figure 1 - Site Map - Mechanic Street "P" Site  
Table 1 - Groundwater Analytical Data from Monitoring Wells at  
Mechanic Street "P" Site  
Laboratory Analytical Reports  
Data Validation Reports

Cc: Mark Sweitzer, P.G. (Honeywell)  
John Morris, P.E. (Honeywell)

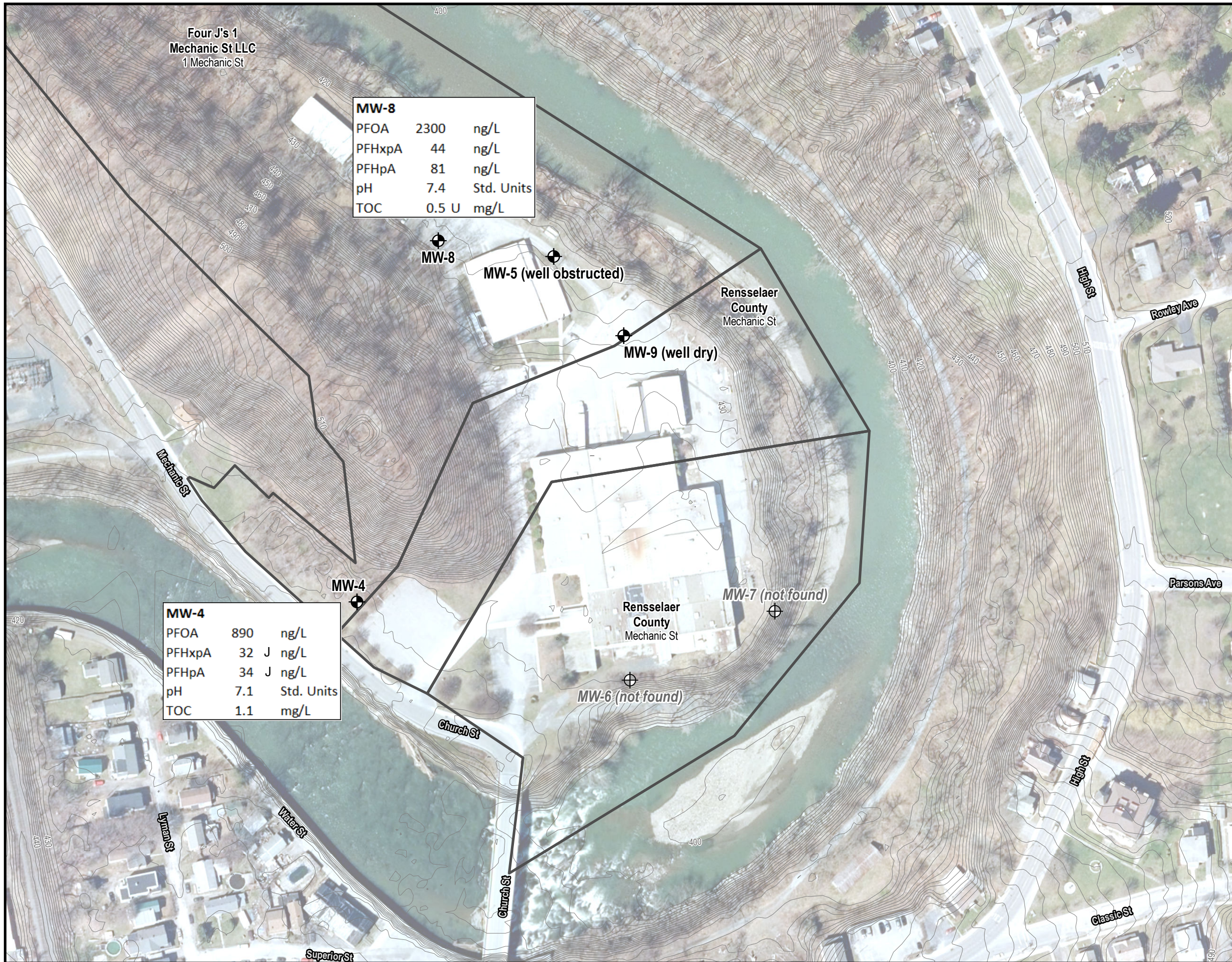
### ***REFERENCES CITED***

ERM, 2016a. Letter from Jon Fox (ERM) to William Daigle (NYSDEC) dated 16 August 2016 regarding groundwater sampling at Former Oak Matsui Facility on Mechanic Street (No. 442050).

ERM, 2016b. Final Site Characterization Field Sampling and Analysis Plan - Phase 1: Oak Materials - River Road 1, 2 and 3 (No. 442008) and Former Oak Materials Fluorglas Division - John Street (No. 442049). ERM Consulting and Engineering, Inc., Syracuse, New York, 20 July 2016.

*Figure*

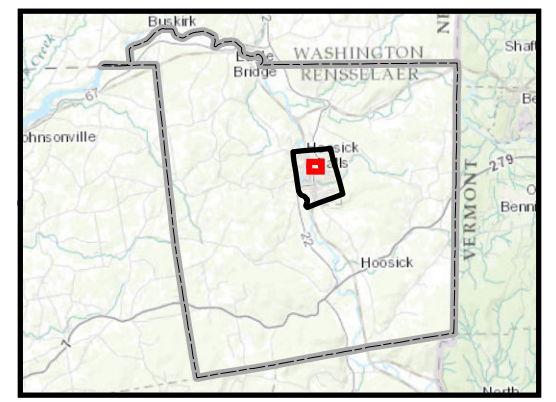




Four J's 1  
Mechanic St LLC  
1 Mechanic St

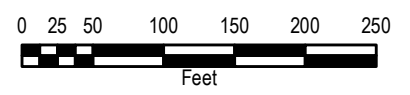
<b>MW-8</b>			
PFOA	2300	ng/L	
PFHxpA	44	ng/L	
PFHpA	81	ng/L	
pH	7.4	Std. Units	
TOC	0.5 U	mg/L	

<b>MW-4</b>			
PFOA	890	ng/L	
PFHxpA	32 J	ng/L	
PFHpA	34 J	ng/L	
pH	7.1	Std. Units	
TOC	1.1	mg/L	



**Legend**

- Monitoring Wells - Sampling Event 18 Nov 2016
- Well Not Found
- Elevation Contours (2 foot)
- Village of Hoosick Falls Boundary
- Hoosick Tax Parcels



**Figure 1: Site Map**  
Mechanic Street "P" Site  
Village of Hoosick Falls  
New York





## *Table*

**Table 1**  
**Groundwater Analytical Data from Monitoring Wells**  
**Former Oak Matsui Facility at Mechanic Street (No. 442050)**

Analytes	Units	USEPA HA	MW-4	MW-8	MW-8 dup
			18-Nov-2016	18-Nov-2016	18-Nov-2016
<b>Perfluorinated Compounds by USEPA Method 537 Revision 1.1 (modified)</b>					
Perfluorohexanoic acid (PFHxA)	ng/L	-	32 J	44	36
Perfluoroheptanoic acid (PFHpA)	ng/L	-	34 J	81	65
Perfluorooctanoic acid (PFOA)	ng/L	70	890	2300	2000
Perfluorononanoic acid (PFNA)	ng/L	-	1 UJ	1 U	1 U
Perfluorodecanoic acid (PFDA)	ng/L	-	1 U	1 U	1 U
Perfluoroundecanoic acid (PFUnA)	ng/L	-	2 UJ	2 U	2 U
Perfluorododecanoic acid (PFDoA)	ng/L	-	3 U	3 U	3 U
Perfluorotridecanoic acid (PFTrDA)	ng/L	-	2 UJ	2 U	2 U
Perfluorotetradecanoic acid (PFTA)	ng/L	-	3 UJ	3 U	3 U
Perfluorobutanesulfonic acid (PFBS)	ng/L	-	4 U	4 U	4 U
Perfluorohexanesulfonic acid (PFHxS)	ng/L	-	4 U	4 U	4 U
Perfluorooctanesulfonic acid (PFOS)	ng/L	70	5 U	5 U	5 U
<b>Total Organic Carbon (TOC) by Method SM 5310 C-2000</b>					
TOC	mg/L	-	1.1	0.5 U	0.53 J
<b>pH by Method SM 4500-H+ B-2000</b>					
pH	Std. Units	-	7.1	7.4	7.4

**Abbreviations:**

USEPA HA - United States Environmental Protection Agency Health Advisory

ng/L - nanograms per liter

mg/L - milligrams per liter

Std. Units - Standard Units

# *Laboratory Analytical Reports*

## NYSDEC ASP Category B Data Package

**Prepared for:**

**Honeywell International, Inc.**  
6100 Philadelphia Pike  
Claymont DE 19703

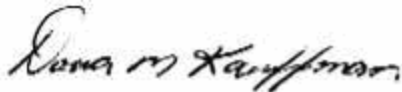
Project: Hoosick  
Groundwater and Water Samples  
Collected on 11/18/16

**SDG# PFO91**

<b>GROUP</b>	<b>SAMPLE NUMBERS</b>
1735634	8707403-8707408

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

**Authorized by:**



**Date: 12/02/2016**

Dana M. Kauffman  
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Kay Hower at (510) 672-3979.



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**Sample Reference List for SDG Number PFO91  
with a Data Package Type of NYSDEC B**

**10651 - Honeywell International, Inc.**

Project: Hoosick

<b>Lab Sample Number</b>	<b>Client Sample ID</b>	<b>Collection Date</b>	<b>Date Received</b>
8707403	MS-MW-8(11182016)	11/18/2016 09:45	11/19/2016 10:00
8707404	MS-MW-4(11182016)	11/18/2016 12:30	11/19/2016 10:00
8707405	MS-MW-4(11182016)-MS	11/18/2016 12:30	11/19/2016 10:00
8707406	MS-MW-4(11182016)-MSD	11/18/2016 12:30	11/19/2016 10:00
8707407	MS-DUP-001(11182016)	11/18/2016 12:00	11/19/2016 10:00
8707408	MS-EB-001(11182016)	11/18/2016 09:30	11/19/2016 10:00

# Sample pH Log

SDG: PFO91

<u>LLI Sample Number</u>	<u>Bottle Code</u>	<u>Actual pH</u>	<u>Exp. pH</u>	<u>pH Check Code</u>	<u>Adj. pH</u>	<u>Adjusted Date</u>	<u>Adjusted Time</u>	<u>Preservative Added</u>	<u>Preservative Lot #</u>	<u>LLI Supplied Bottle?</u>	<u>Sulfide Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Res. Cl. Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
8707403	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:49:49PM	0
8707403	201B	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:42:41PM	0
8707404	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:42:39PM	0
8707404	201B	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:36:46PM	0
8707405	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:42:27PM	0
8707405	201B	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:49:42PM	0
8707406	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:36:41PM	0
8707407	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:36:44PM	0
8707407	201B	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:42:36PM	0
8707408	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	11/21/2016 5:36:40PM	0

Check Code Key
<b>PK</b> = Original container checked - pH is within the correct range. (No preservative was added)
<b>PA</b> = Original container checked - pH adjusted to correct range. (Preservative was added)
<b>PV</b> = Volatile container checked
<b>PC</b> = pH checked (unpreserved container)
<b>SPK</b> = Subsampled from an original container. Original container checked - pH is within correct range
<b>SPA</b> = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
<b>SPC</b> = Subsampled from an original container. pH checked (unpreserved container).
<b>SUP</b> = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
<b>UP</b> = Unable to preserve due to matrix of the sample.
<b>NA</b> = Not applicable

---

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 · 717-656-2300 Fax: 717-656-2681 · www.lancasterlabs.com

**14091 PFAA Water Prep****10954 PFAAs in Water by LC/MS/MS**

A 100 ml sample of water is extracted using a solid phase extraction (SPE) cartridge. The resulting extract is analyzed by LC/MS/MS in negative electrospray ionization (ESI) mode.

Reference: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LCMSMS), Version 1.1, September 2009.

# **Analysis Reports / Field Chain of Custody**

## ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental  
2425 New Holland Pike  
Lancaster, PA 17601

Prepared for:

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Report Date: November 30, 2016

### Project: Hoosick

Submittal Date: 11/19/2016  
Group Number: 1735634  
SDG: PFO91  
PO Number: 4400034187  
State of Sample Origin: NY

#### Client Sample Description

	Lancaster Labs (LL) #
MS-MW-8(11182016) Grab	8707403
MS-MW-4(11182016) Grab	8707404
MS-MW-4(11182016)-MS Grab	8707405
MS-MW-4(11182016)-MSD Grab	8707406
MS-DUP-001(11182016) Grab	8707407
MS-EB-001(11182016) Grab	8707408

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	ERM	Attn: Andrew Coenen
Electronic Copy To	ERM	Attn: Jon Fox
Electronic Copy To	ERM	Attn: Maureen Leahy
Electronic Copy To	Honeywell International, Inc.	Attn: Helen Fahy

Respectfully Submitted,



Kay Hower

(510) 672-3979

Sample Description: MS-MW-8(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707403  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:45 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSM08 SDG#: PFO91-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2,300	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	44	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	81	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 15:29	Atulbhai Patel	1
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 19:35	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result



Sample Description: MS-MW-4(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707404  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSM04 SDG#: PFO91-02BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	<b>890</b>	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	<b>Perfluorohexanoic acid</b>	307-24-4	<b>32</b>	1	2	1
10954	<b>Perfluoroheptanoic acid</b>	375-85-9	<b>34</b>	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 14:40	Atulbhai Patel	1
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 19:18	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-MW-4(11182016)-MS Grab  
Groundwater  
Hoosick

LL Sample # WW 8707405  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSM04 SDG#: PFO91-02MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1,000	E	2	1
10954	Perfluorononanoic acid	375-95-1	150		2	1
10954	Perfluorodecanoic acid	335-76-2	150		2	1
10954	Perfluoroundecanoic acid	2058-94-8	160		4	1
10954	Perfluorododecanoic acid	307-55-1	160		5	1
10954	Perfluorotridecanoic acid	72629-94-8	160		4	1
10954	Perfluorotetradecanoic acid	376-06-7	140		5	1
10954	Perfluorohexanoic acid	307-24-4	220		2	1
10954	Perfluoroheptanoic acid	375-85-9	190		2	1
10954	Perfluorobutanesulfonate	375-73-5	150		10	1
10954	Perfluorohexanesulfonate	355-46-4	170		10	1
10954	Perfluoro-octanesulfonate	1763-23-1	160		10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 14:56	Atulbhai Patel	1
14091	PFAA Water Prep	EPA 537 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-MW-4(11182016)-MSD Grab  
Groundwater  
Hoosick

LL Sample # WW 8707406  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSM04 SDG#: PFO91-02MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	930 E	1	2	1
10954	Perfluorononanoic acid	375-95-1	130	1	2	1
10954	Perfluorodecanoic acid	335-76-2	150	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	130	2	4	1
10954	Perfluorododecanoic acid	307-55-1	140	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	140	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	120	3	5	1
10954	Perfluorohexanoic acid	307-24-4	170	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	160	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	130	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	140	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	140	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 15:13	Atulbhai Patel	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-DUP-001(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707407  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:00 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSMFD SDG#: PFO91-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2,000	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	36	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	65	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 15:45	Atulbhai Patel	1
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 19:51	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-EB-001(11182016) Grab  
Water  
Hoosick

LL Sample # WW 8707408  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSMEB SDG#: PFO91-04EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	1 U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1 U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1 U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water EPA 537	EPA 537 Rev. 1.1 modified	1	16330002	11/29/2016 16:02	Atulbhai Patel	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

Client Name: Honeywell International, Inc.  
Reported: 11/30/2016 12:07

Group Number: 1735634

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

### Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 16330002	Sample number(s): 8707403-8707408		
Perfluorooctanoic acid	1 U	1	2
Perfluorononanoic acid	1 U	1	2
Perfluorodecanoic acid	1 U	1	2
Perfluoroundecanoic acid	2 U	2	4
Perfluorododecanoic acid	3 U	3	5
Perfluorotridecanoic acid	2 U	2	4
Perfluorotetradecanoic acid	3 U	3	5
Perfluorohexanoic acid	1 U	1	2
Perfluoroheptanoic acid	1 U	1	2
Perfluorobutanesulfonate	4 U	4	10
Perfluorohexanesulfonate	4 U	4	10
Perfluoro-octanesulfonate	5 U	5	10

### LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16330002	Sample number(s): 8707403-8707408								
Perfluorooctanoic acid	200	173.48			87		70-130		
Perfluorononanoic acid	200	155.2			78		70-130		
Perfluorodecanoic acid	200	167.03			84		70-130		
Perfluoroundecanoic acid	200	174.26			87		70-130		
Perfluorododecanoic acid	200	180.48			90		70-130		
Perfluorotridecanoic acid	200	172.65			86		70-130		
Perfluorotetradecanoic acid	200	156.44			78		70-130		
Perfluorohexanoic acid	200	203.47			102		70-130		
Perfluoroheptanoic acid	200	167.02			84		70-130		
Perfluorobutanesulfonate	176.8	160.23			91		70-130		
Perfluorohexanesulfonate	189.2	168.81			89		70-130		
Perfluoro-octanesulfonate	191.2	161.95			85		70-130		

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

Client Name: Honeywell International, Inc.  
Reported: 11/30/2016 12:07

Group Number: 1735634

### MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16330002	Sample number(s): 8707403-8707408 UNSPK: 8707404									
Perfluorooctanoic acid	886.51	200.48	1039.02	199.9	928.04	76 (2)	21 (2)	70-130	11	30
Perfluorononanoic acid	1 U	200.48	147.32	199.9	129.17	73	65*	70-130	13	30
Perfluorodecanoic acid	1 U	200.48	150.6	199.9	151.71	75	76	70-130	1	30
Perfluoroundecanoic acid	2 U	200.48	161.26	199.9	130.23	80	65*	70-130	21	30
Perfluorododecanoic acid	3 U	200.48	161.21	199.9	139.29	80	70	70-130	15	30
Perfluorotridecanoic acid	2 U	200.48	164.97	199.9	136.54	82	68*	70-130	19	30
Perfluorotetradecanoic acid	3 U	200.48	141.54	199.9	120.87	71	60*	70-130	16	30
Perfluorohexanoic acid	31.7	200.48	215.26	199.9	168.29	92	68*	70-130	24	30
Perfluoroheptanoic acid	33.7	200.48	186.99	199.9	163.62	76	65*	70-130	13	30
Perfluorobutanesulfonate	4 U	177.23	148.4	176.71	128.67	84	73	70-130	14	30
Perfluorohexanesulfonate	4 U	189.66	166.95	189.11	135.89	88	72	70-130	21	30
Perfluoro-octanesulfonate	5 U	191.66	164.27	191.1	135.71	86	71	70-130	19	30

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

# Environmental Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

Acct. # 10651 Group # 1735634 Sample # 8707403-08

Client: <b>Honeywell</b>		Project Name/#: Hoosick		Site ID #:		Matrix		Analyses Requested										For Lab Use Only											
Project Manager: Maureen Leahy/Jon Fox		P.O. #: 357439		PWSID #:		<input type="checkbox"/> Tissue <input type="checkbox"/> Ground <input type="checkbox"/> Surface		Preservation Codes T H N N B P PFCs - EPA Method 537-1.1 VOCs - EPA Method 8260 SVOCS - EPA Method 8270 PCBs - EPA Method 8082 Pesticides - EPA Method 8081 Metals - EPA Method 6010 Mercury - EPA Method 7471 Cyanide - EPA Method 9010 TOC EPA Method 9060 pH - EPA Method 9045										SF #: _____											
Sampler: <u>Tom Daniluk</u>		Quote #:		State where samples were collected: <u>NY</u>		For Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>												SCR #: _____											
Sample Identification		Collection		Grab		Composite		Soil <input type="checkbox"/> Sediment <input type="checkbox"/>		Potable <input type="checkbox"/> NPDES		Water <input type="checkbox"/> Other:		Total # of Containers												Remarks			
		Date		Time																									
<u>MS-MW-8(11182016)</u>		<u>11-18-16</u>		<u>0945</u>		<u>X</u>				<u>GW</u>				<u>2</u>															
<u>MS-MW-4(11182016)</u>		<u>↓</u>		<u>1230</u>		<u>X</u>				<u>GW</u>				<u>2</u>															
<u>MS-MW-4(11182016)-MS</u>		<u>↓</u>		<u>1230</u>		<u>X</u>				<u>GW</u>				<u>2</u>															
<u>MS-MW-4(11182016)-MSD</u>		<u>↓</u>		<u>1230</u>		<u>X</u>				<u>GW</u>				<u>1</u>															
<u>MS-DUP-001(11182016)</u>		<u>↓</u>		<u>1200</u>		<u>X</u>				<u>GW</u>				<u>2</u>															
<u>MS-EB-001(11182016)</u>		<u>11-18-16</u>		<u>0930</u>		<u>X</u>				<u>GW</u>				<u>1</u>															
Turnaround Time Requested (TAT) (please check):		Standard <input checked="" type="checkbox"/>		Rush <input type="checkbox"/>		Relinquished by: <u>Terry Dault</u>		Date: <u>11-18-16</u>		Time:		Received by:		Date:		Time:													
(Rush TAT is subject to laboratory approval and surcharges.)																													
Date results are needed:						Relinquished by:		Date:		Time:		Received by:		Date:		Time:													
Rush results requested by (please check):		E-Mail <input type="checkbox"/>		Phone <input type="checkbox"/>		Relinquished by:		Date:		Time:		Received by:		Date:		Time:													
E-mail Address: <u>jon.fox@erm.com; maureen.leahy@erm.com</u>						Relinquished by:		Date:		Time:		Received by:		Date:		Time:													
Phone:						Relinquished by:		Date:		Time:		Received by:		Date:		Time:													
Data Package Options (please check if required)		Type I (Validation/non-CLP) <input type="checkbox"/>		MA MCP <input type="checkbox"/>		Relinquished by:		Date:		Time:		Received by:		Date:		Time:													
Type III (Reduced non-CLP) <input type="checkbox"/>		CT RCP <input type="checkbox"/>		Relinquished by:		Date:		Time:		Time:		Received by:		Date:		Time:													
Type VI (Raw Data Only) <input type="checkbox"/>		TX TRRP-13 <input type="checkbox"/>		Relinquished by:		Date:		Time:		Time:		Received by:		Date:		Time:													
NJ DKQP <input type="checkbox"/>		NYSDEC Category <input type="checkbox"/>		A or <input checked="" type="checkbox"/> B		Relinquished by Commercial Carrier:		Date:		Time:		Received by:		Date:		Time:													
EDD Required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		If yes, format: <u>NYSDEC EQUIS</u>		UPS _____ FedEx _____ Other _____		Temperature upon receipt: <u>2.5</u> °C																							



Client: Honeywell

**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>11/19/2016 10:00</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NY</u>		

**Arrival Condition Summary**

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3060) at 14:36 on 11/19/2016

**Samples Chilled Details**

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	2.5	DT	Wet	Y	Bagged	N

# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>BMQL</b>	Below Minimum Quantitation Level	<b>mg</b>	milligram(s)
<b>C</b>	degrees Celsius	<b>mL</b>	milliliter(s)
<b>cfu</b>	colony forming units	<b>MPN</b>	Most Probable Number
<b>CP Units</b>	cobalt-chloroplatinate units	<b>N.D.</b>	none detected
<b>F</b>	degrees Fahrenheit	<b>ng</b>	nanogram(s)
<b>g</b>	gram(s)	<b>NTU</b>	nephelometric turbidity units
<b>IU</b>	International Units	<b>pg/L</b>	picogram/liter
<b>kg</b>	kilogram(s)	<b>RL</b>	Reporting Limit
<b>L</b>	liter(s)	<b>TNTC</b>	Too Numerous To Count
<b>lb.</b>	pound(s)	<b>µg</b>	microgram(s)
<b>m3</b>	cubic meter(s)	<b>µL</b>	microliter(s)
<b>meq</b>	milliequivalents	<b>umhos/cm</b>	micromhos/cm
<b>&lt;</b>	less than		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value  $\geq$  the Method Detection Limit (MDL or DL) and  $<$  the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column  $>40\%$ . The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column  $>100\%$ . The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

## Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

# **PFAAs by LC/MS/MS Data**

# **Case Narrative/Conformance Summary**

## **PFAAs by LC/MS/MS**

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO91**

**Specialty Services Group**  
**Fraction: PFAAs by LC/MS/MS**

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
8707403	MS-MW-8(11182016)	X		1; 10	
8707404	MS-MW-4(11182016)	X		1; 10	Unspiked
8707405	MS-MW-4(11182016)-MS	X		1	Matrix Spike
8707406	MS-MW-4(11182016)-MSD	X		1	Matrix Spike Duplicate
8707407	MS-DUP-001(11182016)	X		1; 10	Field Duplicate Sample
8707408	MS-EB-001(11182016)	X		1	Equipment Blank

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

(Sample number(s): 8707403-8707408: Analysis: 10954)  
The internal standard response for PFOS in the closing calibration verification (CCV) standard was less than 50% of the average area measured during the initial calibration. The calculated CCV concentration was within specifications.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

#### MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

Batch#: 16330002 (Sample number(s): 8707403-8707408, UNSPK: 8707404)  
The recovery(ies) for the following analyte(s) in the MSD is outside the acceptance window: Perfluoroheptanoic acid, Perfluorohexanoic acid, Perfluorononanoic acid,

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO91**

**Specialty Services Group**  
**Fraction: PFAAs by LC/MS/MS**

Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid,  
Perfluoroundecanoic acid

**SAMPLE ANALYSIS:**

(Sample number(s): 8707403-8707404, 8707407: Analysis: 10954)  
The internal standard response for PFOA in this sample was less than 50% of the average area measured during the initial calibration.

**Abbreviation Key**

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

## PFC Calculations

An internal standard calibration curve is established using peak area ratio. The concentrations are entered into the calibration table in ng/L. The calculation performed by the data system using a linear calibration curve is as follows:

$$RRF = \frac{Area_a}{Area_{is}} \times \frac{Conc_{is}}{Conc_a}$$

**Where:**

RRF = Relative Response Factor

Area<sub>a</sub> = Area of Analyte

Area<sub>is</sub> = Area of Internal Standard

Conc<sub>is</sub> = Concentration of Internal Standard

Conc<sub>a</sub> = Concentration of Analyte

Analyte concentration:

$$Conc\ ng/g = \frac{RRF - int.}{Slope} \times DF$$

**Where:**

int = intercept

DF = dilution factor as needed

# **Quality Control and Calibration Summary Forms**

## **PFAAs by LC/MS/MS**



**Quality Control Reference List  
Specialty Services Group**

**CLIENT: Honeywell International, Inc.  
SDG: PFO91**

**Fraction: PFAAs by LC/MS/MS**

<b>Analysis</b>	<b>Batch Number</b>	<b>Sample Number</b>	<b>Analysis Date</b>
12 PFCCs Water EPA 537	16330002	BLK330002	11/29/2016 14:07:00
		LCS330002	11/29/2016 14:23:00
		8707403	11/29/2016 15:29:00
		8707403	11/29/2016 19:35:00
		8707404 UNSPK	11/29/2016 14:40:00
		8707404 UNSPK	11/29/2016 19:18:00
		8707405 MS	11/29/2016 14:56:00
		8707406 MSD	11/29/2016 15:13:00
		8707407	11/29/2016 15:45:00
		8707407	11/29/2016 19:51:00
		8707408	11/29/2016 16:02:00

Fraction: PFAAs by LC/MS/MS

<b>16330002 / BLK330002</b> <b>Analyte</b>	<b>Analysis Date</b>	<b>Blank Results</b>	<b>Units</b>	<b>MDL</b>	<b>LOQ</b>
Perfluorooctanoic acid	11/29/16	N.D.	ng/l	1	2
Perfluorononanoic acid	11/29/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	11/29/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	11/29/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	11/29/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	11/29/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	11/29/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	11/29/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	11/29/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	11/29/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	11/29/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	11/29/16	N.D.	ng/l	5	10

Specialty Services Group  
Fraction: PFAAs by LC/MS/MS

UNSPK: 8707404 MS: 8707405 MSD: 8707406 Analyte	Batch: <b>16330002</b> (Sample number(s): 8707403-8707408 )								
	Spike Added ng/l MS/MSD	Unspiked Conc ng/l	MS Conc ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	200.48 / 199.9	886.51	1039.02	928.04	76 (2)	21 (2)	70-130	11	30
Perfluorononanoic acid	200.48 / 199.9	N.D.	147.32	129.17	73	65 *	70-130	13	30
Perfluorodecanoic acid	200.48 / 199.9	N.D.	150.6	151.71	75	76	70-130	1	30
Perfluoroundecanoic acid	200.48 / 199.9	N.D.	161.26	130.23	80	65 *	70-130	21	30
Perfluorododecanoic acid	200.48 / 199.9	N.D.	161.21	139.29	80	70	70-130	15	30
Perfluorotridecanoic acid	200.48 / 199.9	N.D.	164.97	136.54	82	68 *	70-130	19	30
Perfluorotetradecanoic acid	200.48 / 199.9	N.D.	141.54	120.87	71	60 *	70-130	16	30
Perfluorohexanoic acid	200.48 / 199.9	31.7	215.26	168.29	92	68 *	70-130	24	30
Perfluoroheptanoic acid	200.48 / 199.9	33.7	186.99	163.62	76	65 *	70-130	13	30
Perfluorobutanesulfonate	177.22 / 176.71	N.D.	148.4	128.67	84	73	70-130	14	30
Perfluorohexanesulfonate	189.66 / 189.1	N.D.	166.95	135.89	88	72	70-130	21	30
Perfluoro-octanesulfonate	191.66 / 191.1	N.D.	164.27	135.71	86	71	70-130	19	30

Comments:

(2) The unspiked sample result is greater than four times the spike added.

\* = Out of Specification

Results are being reported on an as received basis.

SDG: PFO91  
Matrix: LIQUID

Specialty Services Group  
Fraction: PFAAs by LC/MS/MS

LCS: LCS330002	Batch: 16330002 (Sample number(s): 8707403-8707408 )							
	Analyte	Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD
Perfluorooctanoic acid	200	173.48	NA	87	NA	70-130	NA	NA
Perfluorononanoic acid	200	155.2	NA	78	NA	70-130	NA	NA
Perfluorodecanoic acid	200	167.03	NA	84	NA	70-130	NA	NA
Perfluoroundecanoic acid	200	174.26	NA	87	NA	70-130	NA	NA
Perfluorododecanoic acid	200	180.48	NA	90	NA	70-130	NA	NA
Perfluorotridecanoic acid	200	172.65	NA	86	NA	70-130	NA	NA
Perfluorotetradecanoic acid	200	156.44	NA	78	NA	70-130	NA	NA
Perfluorohexanoic acid	200	203.47	NA	102	NA	70-130	NA	NA
Perfluoroheptanoic acid	200	167.02	NA	84	NA	70-130	NA	NA
Perfluorobutanesulfonate	176.8	160.23	NA	91	NA	70-130	NA	NA
Perfluorohexanesulfonate	189.2	168.81	NA	89	NA	70-130	NA	NA
Perfluoro-octanesulfonate	191.2	161.95	NA	85	NA	70-130	NA	NA

SDG No.: PFO91

Matrix: WATER

Lab Sample ID: BLK330002

Sample Prep: SPE

Lab File ID: 14:07

Sample vol: 0.1000 (L)

Instrument ID: 24743

Date Analyzed: 11/29/2016 14:07

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS330002	14:23	11/29/2016 14:23
8707404	14:40	11/29/2016 14:40
8707405MS	14:56	11/29/2016 14:56
8707406MSD	15:13	11/29/2016 15:13
8707403	15:29	11/29/2016 15:29
8707407	15:45	11/29/2016 15:45
8707408	16:02	11/29/2016 16:02
8707404DL	19:18	11/29/2016 19:18
8707403DL	19:35	11/29/2016 19:35
8707407DL	19:51	11/29/2016 19:51

SDG No.: PFO91

Instrument ID: 24743

Init. Calib. Date/Times: 11/22/2016 12:35 11/22/2016 13:57

Lab File Names: CAL1=12:35; CAL2=12:52; CAL3=13:08;  
CAL4=13:24; CAL5=13:41; CAL6=13:57;

Analyte	Area						Ave Area
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	
Perfluorobutanesulfonate	40214	102598	492596	1687873	4128322	4579376	1838497
Perfluorohexanoic acid	16649	46059	217871	807452	2235261	2564848	981357
Perfluoroheptanoic acid	20399	62639	260948	827053	1758637	1998547	821371
Perfluorohexanesulfonate	32450	85776	417183	1421354	3384860	3810524	1525358
Perfluorooctanoic acid	29930	85539	404192	1444870	4116812	5038529	1853312
Perfluorononanoic acid	46368	128395	583288	1888363	3969963	4710903	1887880
Perfluoro- octanesulfonate	37558	90184	444945	1446651	3441547	3850522	1551901
Perfluorodecanoic acid	46337	122613	591290	2079267	5293621	6222969	2392683
Perfluoroundecanoic acid	44532	120506	562327	2024472	5296569	5251018	2216571
Perfluorododecanoic acid	110139	299605	1395880	4821537	12152076	15210861	5665016
Perfluorotridecanoic acid	83443	243629	1363253	4909620	11416689	13353720	5228392
Perfluorotetradecanoic acid	79271	197336	1101032	4023048	11377039	13192659	4995064
13C2-PFHXA	597404	616901	532868	591079	581604	471036	565149
13C4-PFHPA	479682	477945	388380	362354	239508	206112	358997
18O2-PFHXS	174090	182777	165200	147068	120583	93657	147229
13C4-PFOA	630784	630488	640651	635408	556149	466089	593262
13C5-PFNA	990244	1090176	907095	814227	559976	440622	800390
13C4-PFOS	193042	215638	190249	173928	130526	99316	167117
13C2-PFDA	829236	816592	720057	746887	620312	469834	700486
13C2-PFUNDA	972010	1014624	888769	882583	748576	626264	855471
13C2-PFDODA	1174358	1241604	1159531	1063582	863287	755937	1043050

SDG No. : PFO91

Instrument ID: 24743

Init. Calib. Date/Times: 11/22/2016 12:35 11/22/2016 13:57

Lab File Names: CAL1= 12:35; CAL2= 12:52; CAL3= 13:08;  
CAL4= 13:24; CAL5= 13:41; CAL6= 13:57;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.231	0.80	0.781	-2.3	±50
CAL2	0.561	2.00	1.897	-5.2	±40
CAL3	2.982	9.99	10.076	0.9	±40
CAL4	11.477	39.96	38.782	-2.9	±40
CAL5	34.236	119.90	115.690	-3.5	±40
CAL6	48.895	159.80	165.224	3.4	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.028	0.20	0.208	3.8	±50
CAL2	0.075	0.50	0.556	11.3	±30
CAL3	0.409	2.50	3.047	21.9	±30
CAL4	1.366	10.00	10.179	1.8	±30
CAL5	3.843	30.00	28.637	-4.5	±30
CAL6	5.445	40.00	40.573	1.4	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.175	-12.3	±50
CAL2	0.131	0.50	0.541	8.1	±30
CAL3	0.672	2.50	2.772	10.9	±30
CAL4	2.282	10.00	9.416	-5.8	±30
CAL5	7.343	30.00	30.293	1.0	±30
CAL6	9.696	40.00	40.003	0.0	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.186	0.80	0.760	-5.0	±50
CAL2	0.469	2.00	1.914	-4.3	±30
CAL3	2.525	10.00	10.299	3.0	±30
CAL4	9.665	40.00	39.415	-1.5	±30
CAL5	28.071	120.00	114.482	-4.6	±30
CAL6	40.686	160.00	165.930	3.7	±30

SDG No. : PFO91

Instrument ID: 24743

Init. Calib. Date/Times: 11/22/2016 12:35 11/22/2016 13:57

Lab File Names: CAL1= 12:35; CAL2= 12:52; CAL3= 13:08;  
CAL4= 13:24; CAL5= 13:41; CAL6= 13:57;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.185	-7.3	±50
CAL2	0.136	0.50	0.530	6.0	±30
CAL3	0.631	2.50	2.464	-1.4	±30
CAL4	2.274	10.00	8.882	-11.2	±30
CAL5	7.402	30.00	28.914	-3.6	±30
CAL6	10.810	40.00	42.225	5.6	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.186	-6.8	±50
CAL2	0.118	0.50	0.469	-6.3	±30
CAL3	0.643	2.50	2.559	2.4	±30
CAL4	2.319	10.00	9.229	-7.7	±30
CAL5	7.090	30.00	28.212	-6.0	±30
CAL6	10.691	40.00	42.545	6.4	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.195	0.80	0.847	5.9	±50
CAL2	0.418	2.00	1.820	-9.0	±30
CAL3	2.339	9.99	10.176	1.9	±30
CAL4	8.318	39.96	36.190	-9.4	±30
CAL5	26.367	119.90	114.724	-4.3	±30
CAL6	38.770	159.80	168.693	5.6	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.182	-9.2	±50
CAL2	0.150	0.50	0.488	-2.4	±30
CAL3	0.821	2.50	2.670	6.8	±30
CAL4	2.784	10.00	9.051	-9.5	±30
CAL5	8.534	30.00	27.746	-7.5	±30
CAL6	13.245	40.00	43.063	7.7	±30



SDG No. : PFO91

Instrument ID: 24743

Init. Calib. Date/Times: 11/22/2016 12:35 11/22/2016 13:57

Lab File Names: CAL1= 12:35; CAL2= 12:52; CAL3= 13:08;  
CAL4= 13:24; CAL5= 13:41; CAL6= 13:57;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.205	2.7	±50
CAL2	0.119	0.50	0.533	6.5	±30
CAL3	0.633	2.50	2.838	13.5	±30
CAL4	2.294	10.00	10.287	2.9	±30
CAL5	7.076	30.00	31.733	5.8	±30
CAL6	8.385	40.00	37.604	-6.0	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.094	0.40	0.388	-3.1	±50
CAL2	0.241	1.00	0.997	-0.3	±30
CAL3	1.204	5.00	4.974	-0.5	±30
CAL4	4.533	20.00	18.732	-6.3	±30
CAL5	14.077	60.00	58.165	-3.1	±30
CAL6	20.122	80.00	83.144	3.9	±30

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.071	0.40	0.320	-20.0	±50
CAL2	0.196	1.00	0.884	-11.6	±40
CAL3	1.176	5.00	5.295	5.9	±40
CAL4	4.616	20.00	20.789	3.9	±40
CAL5	13.225	60.00	59.558	-0.7	±40
CAL6	17.665	80.00	79.555	-0.6	±40

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.40	0.316	-21.1	±50
CAL2	0.159	1.00	0.743	-25.7	±40
CAL3	0.950	5.00	4.440	-11.2	±40
CAL4	3.783	20.00	17.686	-11.6	±40
CAL5	13.179	60.00	61.618	2.7	±40
CAL6	17.452	80.00	81.598	2.0	±40

SDG No.: PFO91

Instrument ID: 24743                                      Lab File ID: 15:03  
 Date/Time Analyzed: 11/22/2016 15:03              Lab Sample ID: CCV1  
 Init. Calib. Date/Times: 11/22/2016 12:35            11/22/2016 13:57

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1838497	488794	9.99	10.43	4.38	±40
Perfluorohexanoic acid	981357	213861	2.50	2.74	9.74	±30
Perfluoroheptanoic acid	821371	279595	2.50	2.71	8.46	±30
Perfluorohexanesulfonate	1525358	402329	10.00	10.36	3.59	±30
Perfluorooctanoic acid	1853312	414832	2.50	2.39	-4.53	±30
Perfluorononanoic acid	1887880	626925	2.50	2.91	16.59	±30
Perfluoro-octanesulfonate	1551901	465091	9.99	10.73	7.45	±30
Perfluorodecanoic acid	2392683	641676	2.50	2.76	10.40	±30
Perfluoroundecanoic acid	2216571	569626	2.50	2.77	10.78	±30
Perfluorododecanoic acid	5665016	1444714	5.00	5.20	3.94	±30
Perfluorotridecanoic acid	5228392	1299719	5.00	5.10	1.91	±40
Perfluorotetradecanoic acid	4995064	1110469	5.00	4.52	-9.60	±40

\* Outside QC Limits.

SDG No. : PFO91

Instrument ID: 24743

Lab File ID: 13:51

Date/Time Analyzed: 11/29/2016 13:51

Lab Sample ID: CCV1

Init. Calib. Date/Times: 11/22/2016 12:35

11/22/2016 13:57

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1838497	350701	9.99	9.40	-5.87	±40
Perfluorohexanoic acid	981357	205657	2.50	2.94	17.75	±30
Perfluoroheptanoic acid	821371	245067	2.50	2.63	5.18	±30
Perfluorohexanesulfonate	1525358	314496	10.00	10.18	1.77	±30
Perfluorooctanoic acid	1853312	350660	2.50	2.48	-0.92	±30
Perfluorononanoic acid	1887880	507658	2.50	2.43	-2.85	±30
Perfluoro- octanesulfonate	1551901	337985	9.99	9.84	-1.46	±30
Perfluorodecanoic acid	2392683	523495	2.50	2.51	0.38	±30
Perfluoroundecanoic acid	2216571	491674	2.50	2.73	9.36	±30
Perfluorododecanoic acid	5665016	1312552	5.00	5.20	4.07	±30
Perfluorotridecanoic acid	5228392	1207809	5.00	5.22	4.37	±40
Perfluorotetradecanoic acid	4995064	962407	5.00	4.32	-13.66	±40

\* Outside QC Limits.

SDG No.: PFO91

Instrument ID: 24743

Lab File ID: 18:13

Date/Time Analyzed: 11/29/2016 18:13

Lab Sample ID: CCV3

Init. Calib. Date/Times: 11/22/2016 12:35

11/22/2016 13:57

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1838497	2635083	119.90	119.84	-0.05	±40
Perfluorohexanoic acid	981357	1879501	30.00	37.43	24.76	±30
Perfluoroheptanoic acid	821371	1417144	30.00	30.99	3.30	±30
Perfluorohexanesulfonate	1525358	2320865	120.00	127.39	6.16	±30
Perfluorooctanoic acid	1853312	3202102	30.00	31.75	5.83	±30
Perfluorononanoic acid	1887880	3188927	30.00	29.73	-0.91	±30
Perfluoro-octanesulfonate	1551901	2471574	119.90	138.45	15.47	±30
Perfluorodecanoic acid	2392683	4362747	30.00	31.49	4.96	±30
Perfluoroundecanoic acid	2216571	3914249	30.00	33.32	11.06	±30
Perfluorododecanoic acid	5665016	10344309	60.00	62.18	3.63	±30
Perfluorotridecanoic acid	5228392	9244532	60.00	60.56	0.94	±40
Perfluorotetradecanoic acid	4995064	8187892	60.00	55.69	-7.18	±40

\* Outside QC Limits.

SDG No.: PFO91

Instrument ID: 24743 Lab File ID: 20:57

Date/Time Analyzed: 11/29/2016 20:57 Lab Sample ID: CCV4

Init. Calib. Date/Times: 11/22/2016 12:35 11/22/2016 13:57

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1838497	406254	9.99	10.77	7.84	±40
Perfluorohexanoic acid	981357	216882	2.50	3.19	27.53	±30
Perfluoroheptanoic acid	821371	237741	2.50	2.61	4.23	±30
Perfluorohexanesulfonate	1525358	325711	10.00	10.42	4.24	±30
Perfluorooctanoic acid	1853312	343123	2.50	2.50	0.14	±30
Perfluorononanoic acid	1887880	497197	2.50	2.47	-1.27	±30
Perfluoro-octanesulfonate	1551901	353452	9.99	10.12	1.27	±30
Perfluorodecanoic acid	2392683	514830	2.50	2.28	-8.62	±30
Perfluoroundecanoic acid	2216571	504015	2.50	2.77	10.84	±30
Perfluorododecanoic acid	5665016	1260199	5.00	4.99	-0.23	±30
Perfluorotridecanoic acid	5228392	1079623	5.00	4.66	-6.84	±40
Perfluorotetradecanoic acid	4995064	943923	5.00	4.23	-15.44	±40

\* Outside QC Limits.

SDG No.: PFO91  
Matrix: WATER

16330002	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
<b>Average ICAL Response</b>	700486	1043050	565149	855471
<b>UPPER LIMIT</b>	1050729	1564575	847724	1283207
<b>LOWER LIMIT</b>	350243	521525	282575	427736
<b>LAB SAMPLE ID</b>				
BLK330002	575152	891996	397884	688423
LCS330002	545271	851908	384718	580489
8707404	583532	839866	370744	730791
8707405MS	619175	927069	401667	675881
8707406MSD	625331	1072158	464623	788357
8707403	579031	858664	394948	714529
8707407	616921	998714	422427	808167
8707408	909292	762419	568288	781146
8707404DL	685879	1070024	521456	807348
8707403DL	685229	1019094	487495	837824
8707407DL	726487	1061338	462171	860331

AREA: Upper limit: 150% of the internal standard area.  
Lower Limit: 50% of the internal standard area.

\* = Outside of the QC Limits.

SDG No.: PFO91  
Matrix: WATER

16330002	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
<b>Average ICAL Response</b>	358997	593262	167117	800390
<b>UPPER LIMIT</b>	538496	889893	250676	1200585
<b>LOWER LIMIT</b>	179499	296631	83559	400195
<b>LAB SAMPLE ID</b>				
BLK330002	326945	405872	119519	666026
LCS330002	270434	367571	120302	610638
8707404	308142	292107 *	131029	707396
8707405MS	305511	309431	137534	678379
8707406MSD	326410	356904	158142	776899
8707403	315438	191974 *	136218	694739
8707407	342207	249714 *	152295	697255
8707408	468538	708462	183750	1055163
8707404DL	414033	501427	159044	837392
8707403DL	376665	467149	152915	821839
8707407DL	415698	475320	153100	811914

AREA: Upper limit: 150% of the internal standard area.  
Lower Limit: 50% of the internal standard area.

\* = Outside of the QC Limits.

SDG No.: PFO91  
Matrix: WATER

16330002	1802-PFHXS Area
<b>Average ICAL Response</b>	147229
<b>UPPER LIMIT</b>	220844
<b>LOWER LIMIT</b>	73615
<b>LAB SAMPLE ID</b>	
BLK330002	104356
LCS330002	104698
8707404	111044
8707405MS	113389
8707406MSD	127931
8707403	117613
8707407	115643
8707408	142786
8707404DL	129898
8707403DL	129024
8707407DL	137813

AREA: Upper limit: 150% of the internal standard area.  
Lower Limit: 50% of the internal standard area.

\* = Outside of the QC Limits.



**Sample Data**

**PFAAs by LC/MS/MS**

Fraction: PFAAs by LC/MS/MS

<b>10954: 12 PFCCs Water EPA 537</b> <b>Analyte Name</b>	<b>Default MDL</b>	<b>Default LOQ</b>	<b>Units</b>
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707403
Sample (vol): 0.1001 (L)		Lab File ID: 15:29
Sample Prep: SPE		Date Collected: 11/18/2016 09:45
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 15:29
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	44	
375-85-9	PFHpA	81	
355-46-4	PFHxS	4	U
335-67-1	PFOA	2900	E
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

Sample Name:	8707403	Data File:	16NOV29-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16330002 MS-MW-8(11182016) Grab	Acquis Date:	2016-11-29T15:29:30
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	17	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.10013	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

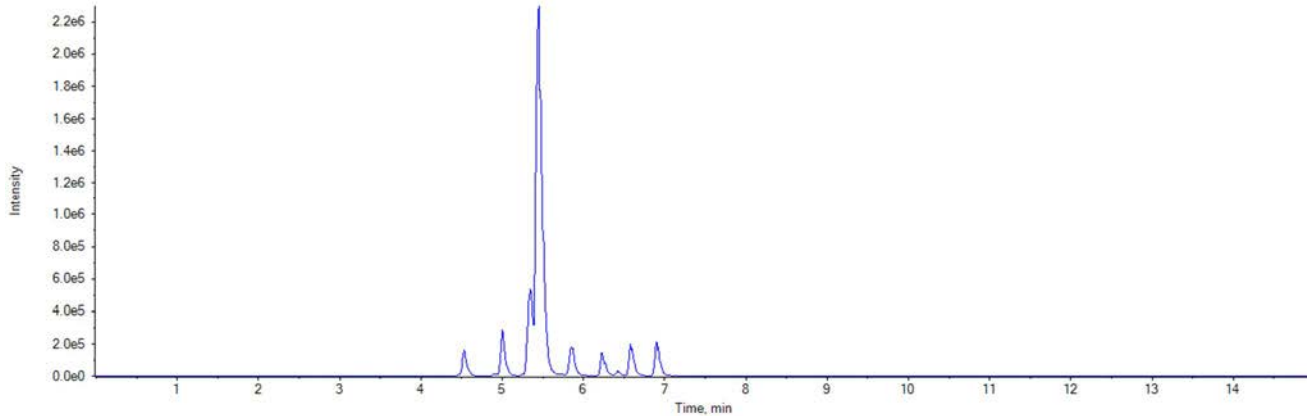
Quantitation Peak Table

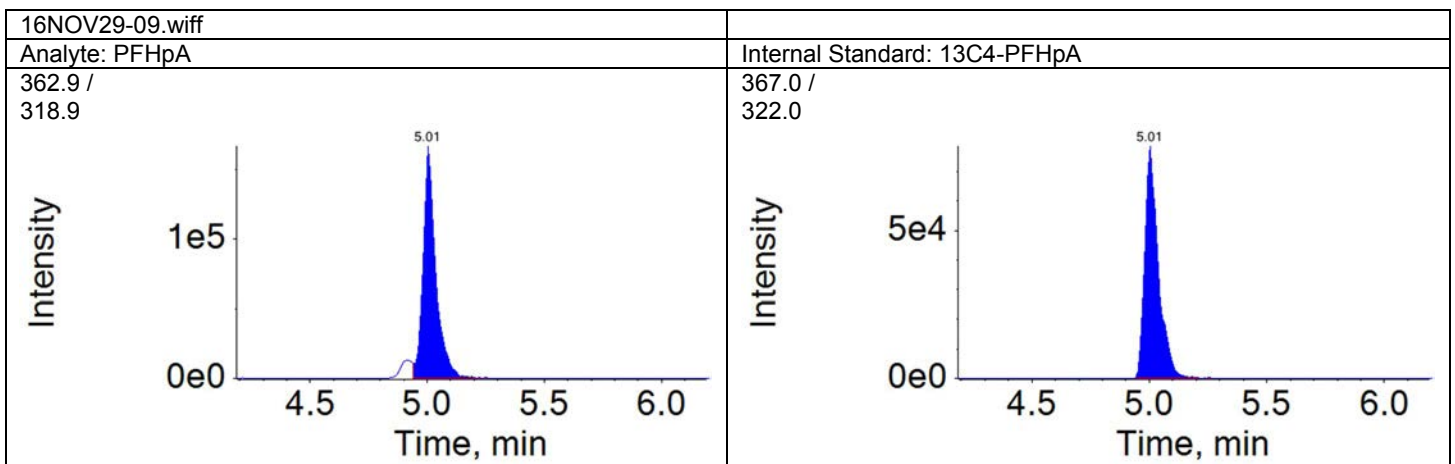
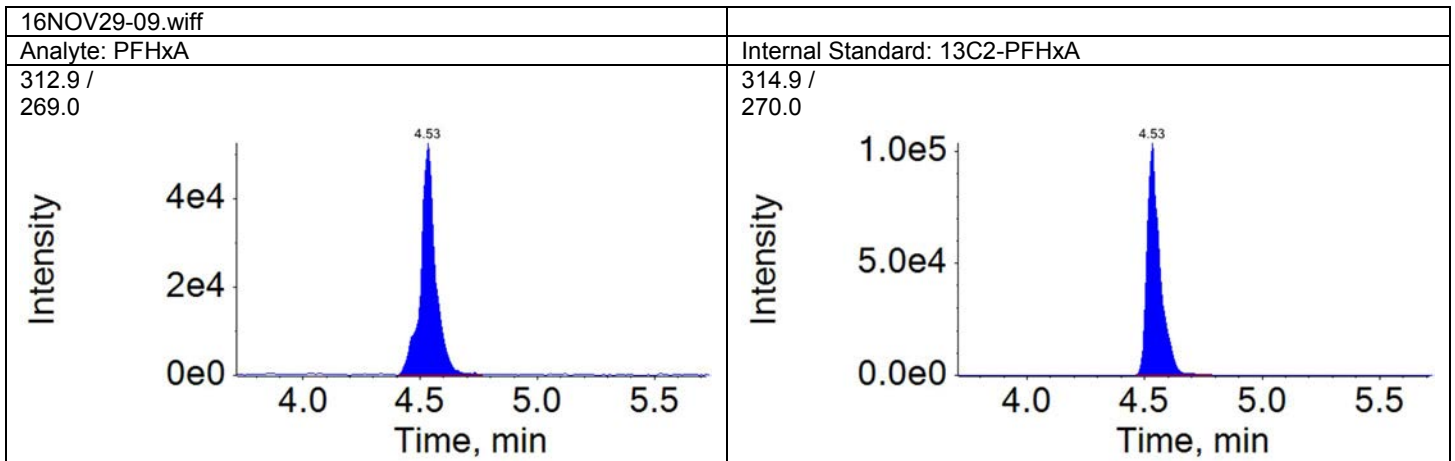
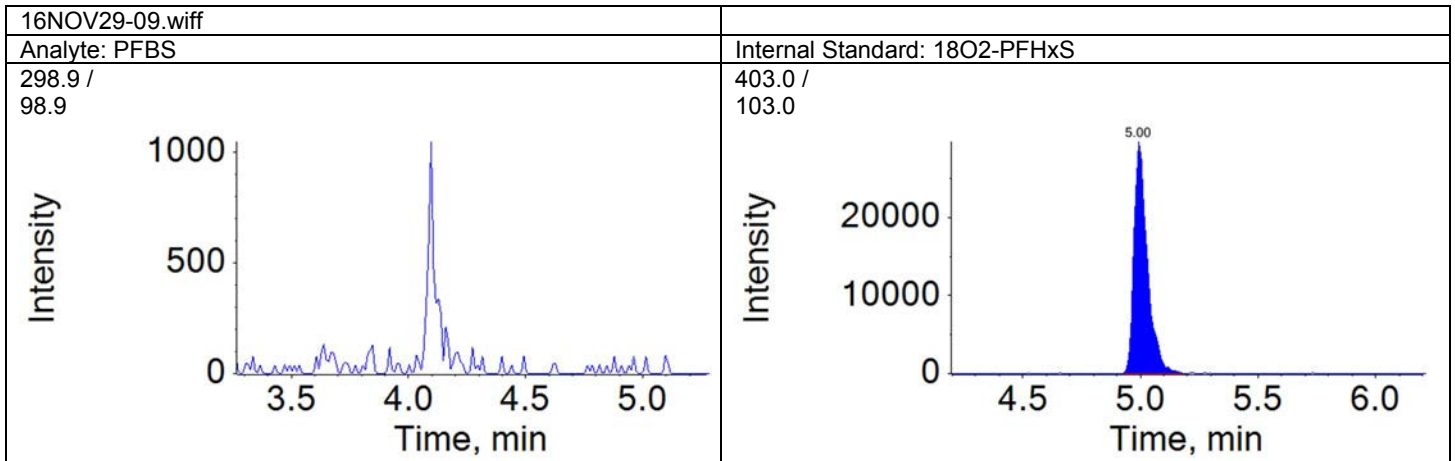
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	5.00	117613.3	N/A	N/A
PFHxA	4.53	1.000	231279.6	M	13C2-PFHxA	4.53	394948.4	0.586	43.578
PFHpA	5.01	1.000	618419.3	A	13C4-PFHpA	5.01	315438.1	1.961	80.777
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	5.00	117613.3	N/A	N/A
PFOA	5.45	1.000	14475045.6	M	13C4-PFOA	5.45	191973.9	75.401	2941.347
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.86	694739.5	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.83	136217.8	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.23	579031.1	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.58	714529.1	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.91	858664.0	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.91	858664.0	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.91	858664.0	N/A	N/A

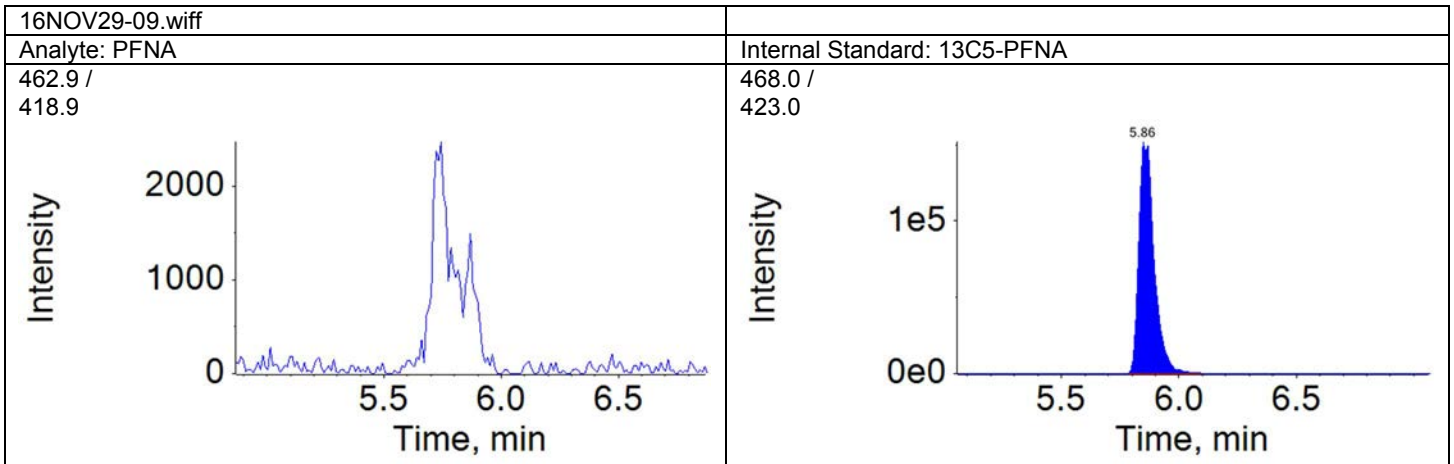
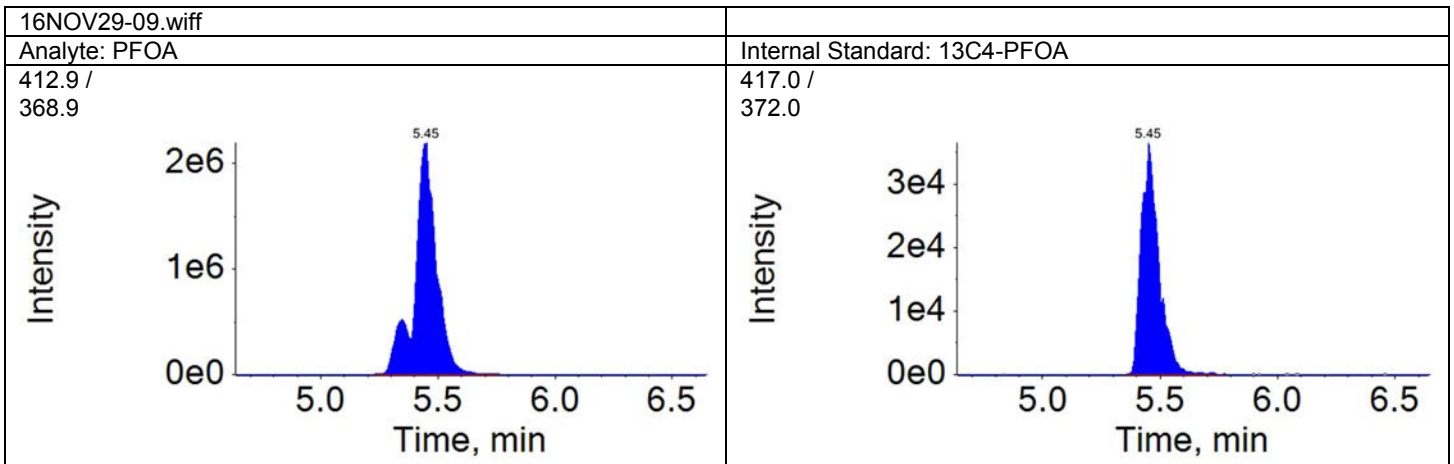
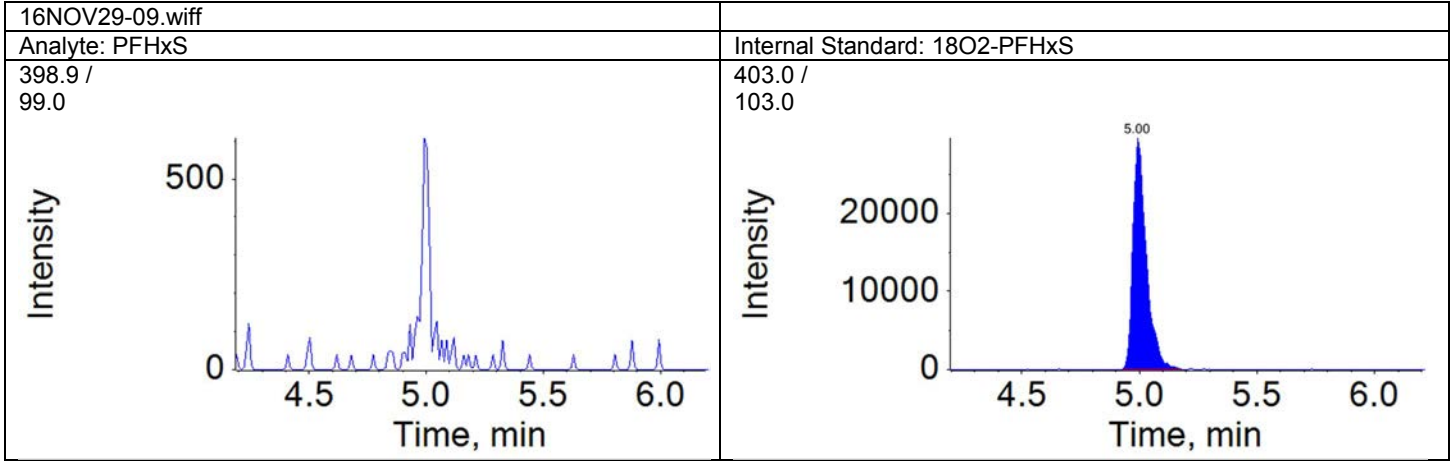
Total Ion Chromatogram

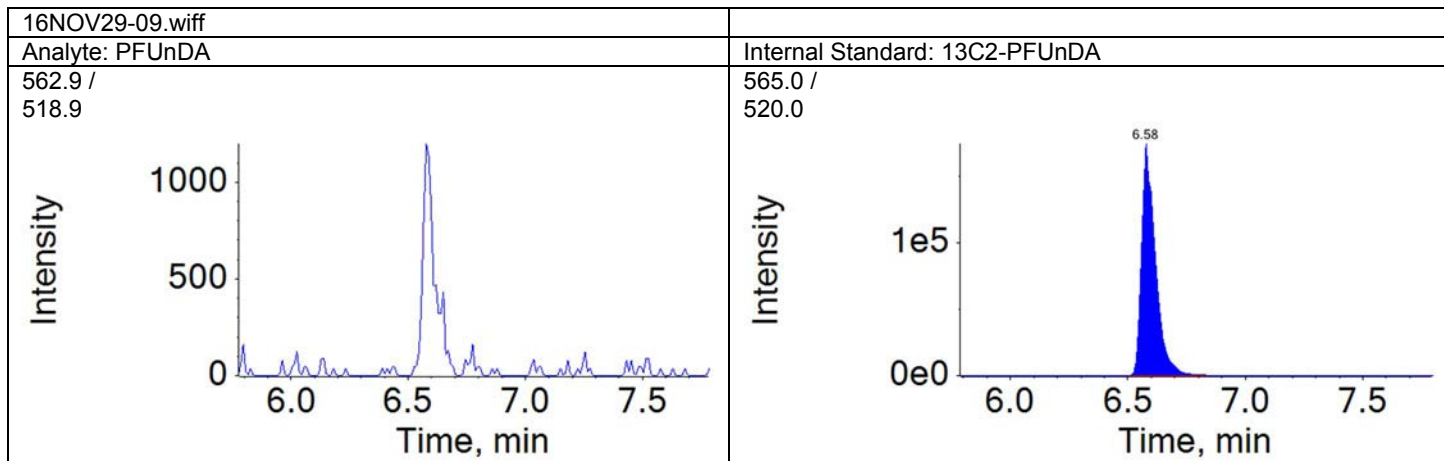
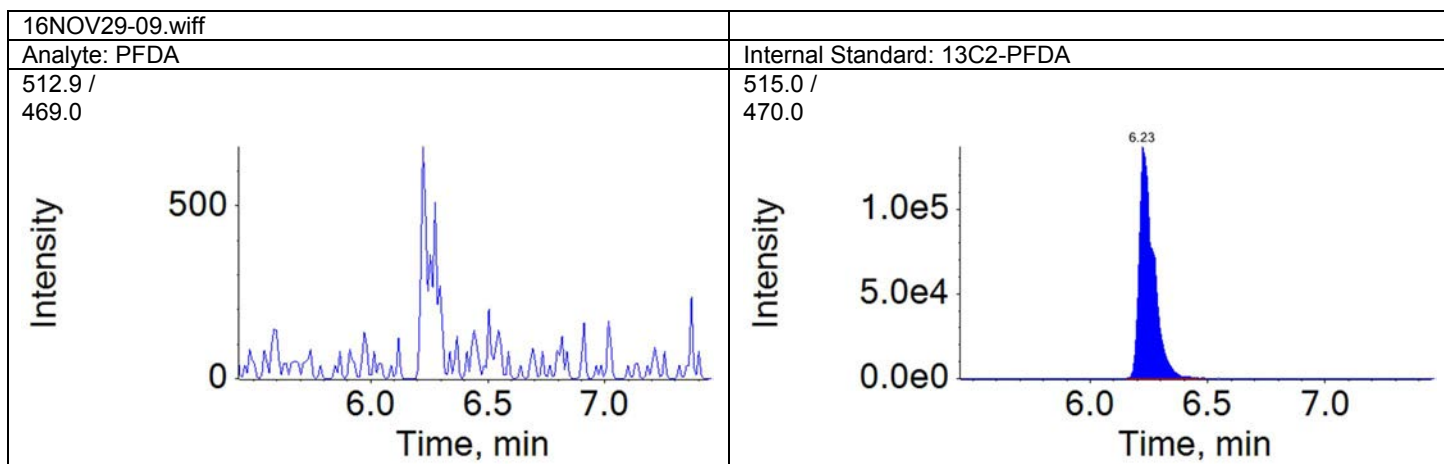
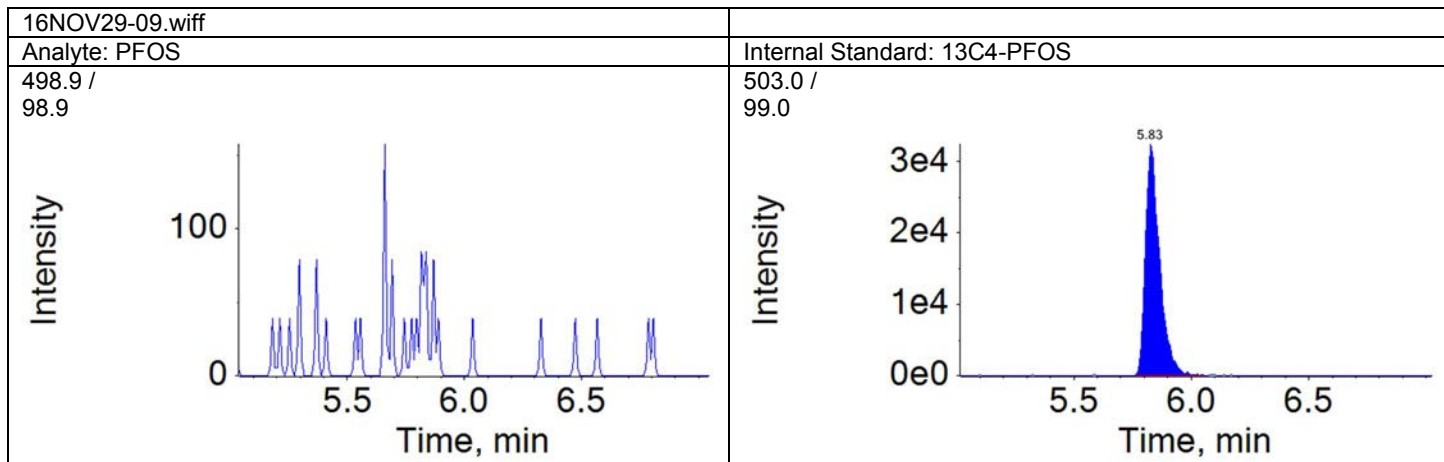
EPA 537 Rev. 1.1 modified 16330002 MS-MW-8(11182016) Grab

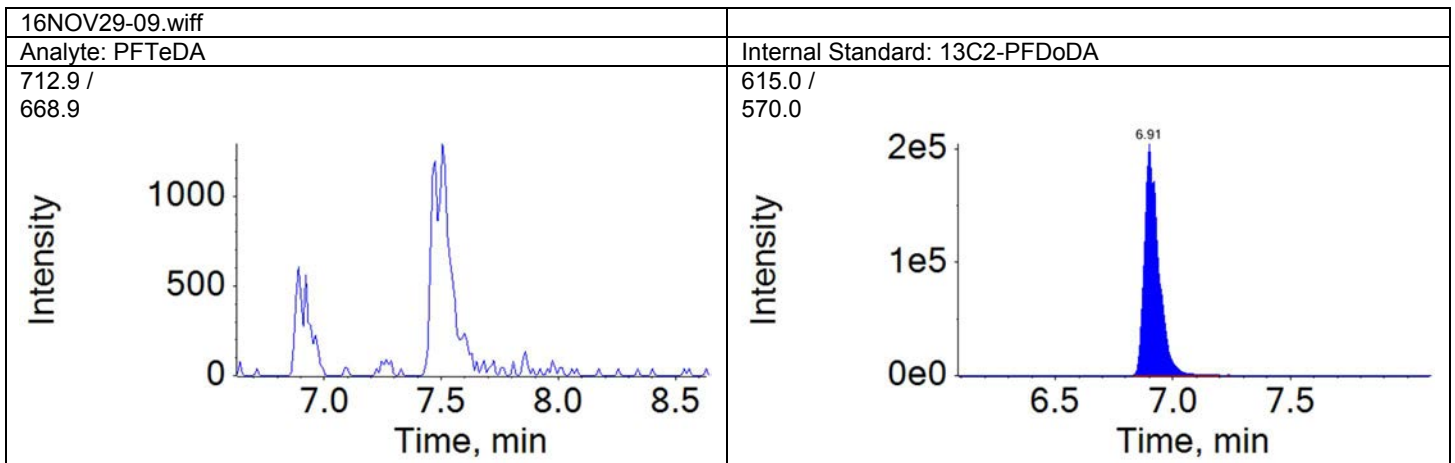
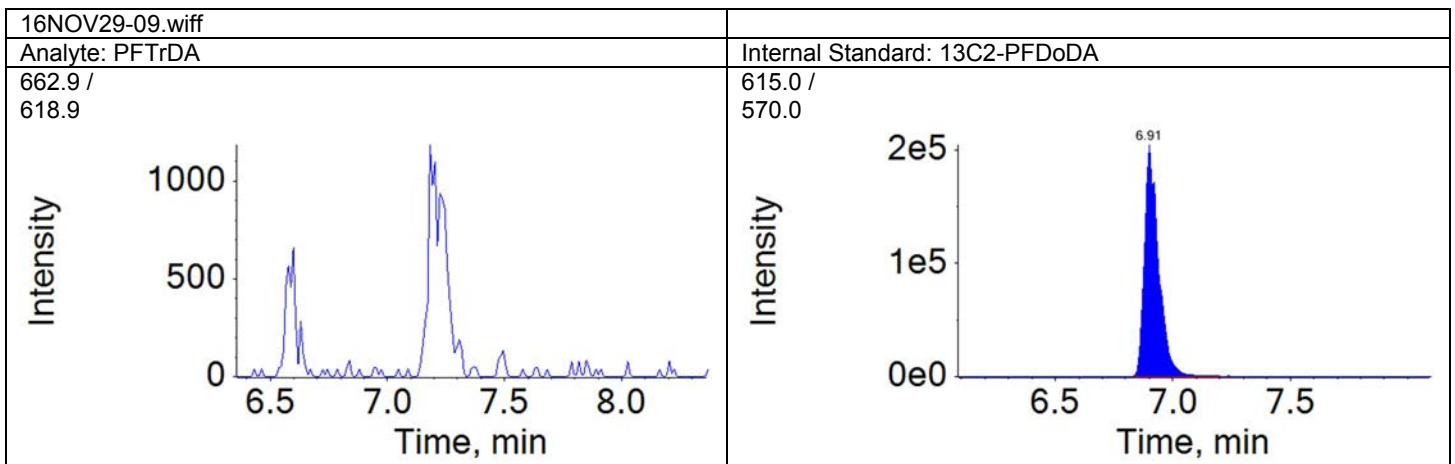
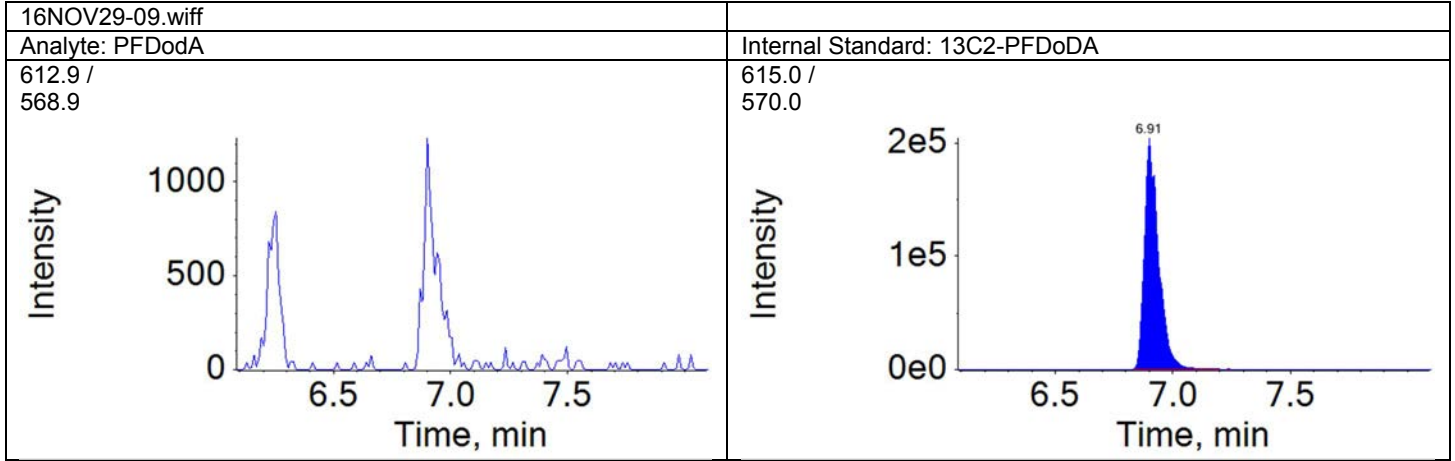
TIC from 16NOV29-09.wiff (sample 1) - 8707403









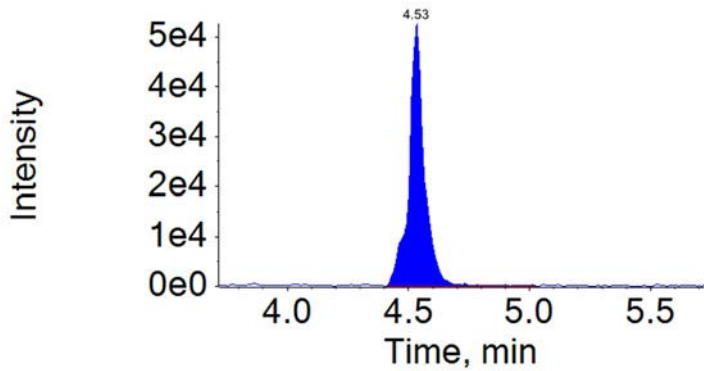




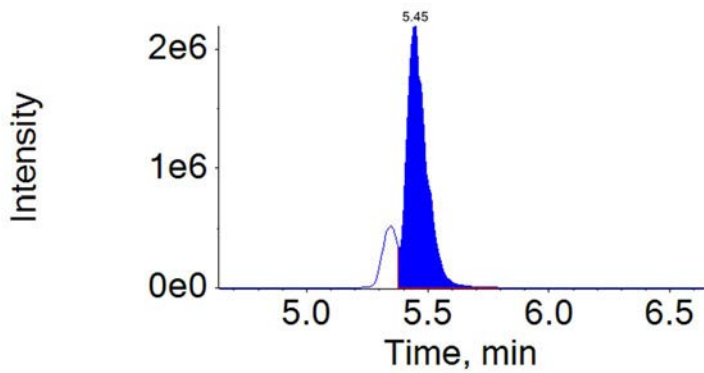
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-09.wiff	2016-11-29T15:29:30	8707403	PFHxA	4.53	233910.8
16NOV29-09.wiff	2016-11-29T15:29:30	8707403	PFOA	5.45	12370083.6

Component: PFHxA  
Mass: 312.9 / 269.0



Component: PFOA  
Mass: 412.9 / 368.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707403DL
Sample (vol): 0.1001 (L)		Lab File ID: 19:35
Sample Prep: SPE		Date Collected: 11/18/2016 09:45
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 19:35
% Moisture: N/A		Dilution Factor: 10.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	40	U
307-24-4	PFHxA	45	
375-85-9	PFHpA	76	
355-46-4	PFHxS	40	U
335-67-1	PFOA	2300	
375-95-1	PFNA	10	U
1763-23-1	PFOS	50	U
335-76-2	PFDA	10	U
2058-94-8	PFUnDA	20	U
307-55-1	PFDoDA	30	U
72629-94-8	PFTrDA	20	U
376-06-7	PFTeDA	30	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

<b>Sample Name:</b>	8707403DL	<b>Data File:</b>	16NOV29-24.wiff
<b>Sample ID:</b>	EPA 537 Rev. 1.1 modified 16330002 MS-MW-8(11182016) Grab	<b>Acquis Date:</b>	2016-11-29T19:35:15
<b>Sample Type:</b>	Unknown	<b>Instrument:</b>	Triple Quad 4500, 0, LM24743
<b>Vial Position:</b>	95	<b>Acquis Method:</b>	PFC-14cmpd-16OCT07.dam
<b>Injection Vol:</b>	10.00	<b>Result Table:</b>	MQ 16330002
		<b>ICAL Name:</b>	16NOV22ICAL
<b>Batch Number:</b>	16330002	<b>Operator:</b>	US19INS00015\4500TRIPLE
<b>Sample Wt.:</b>	0.10013	<b>Dilution Factor:</b>	10.00
<b>Sample Vol.:</b>	1.000	<b>Prep Factor:</b>	1.000

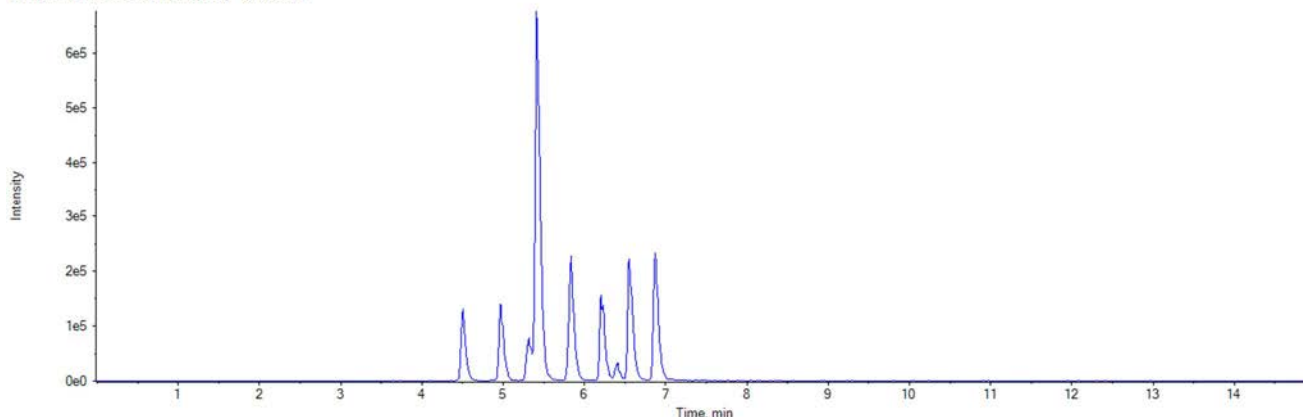
Quantitation Peak Table

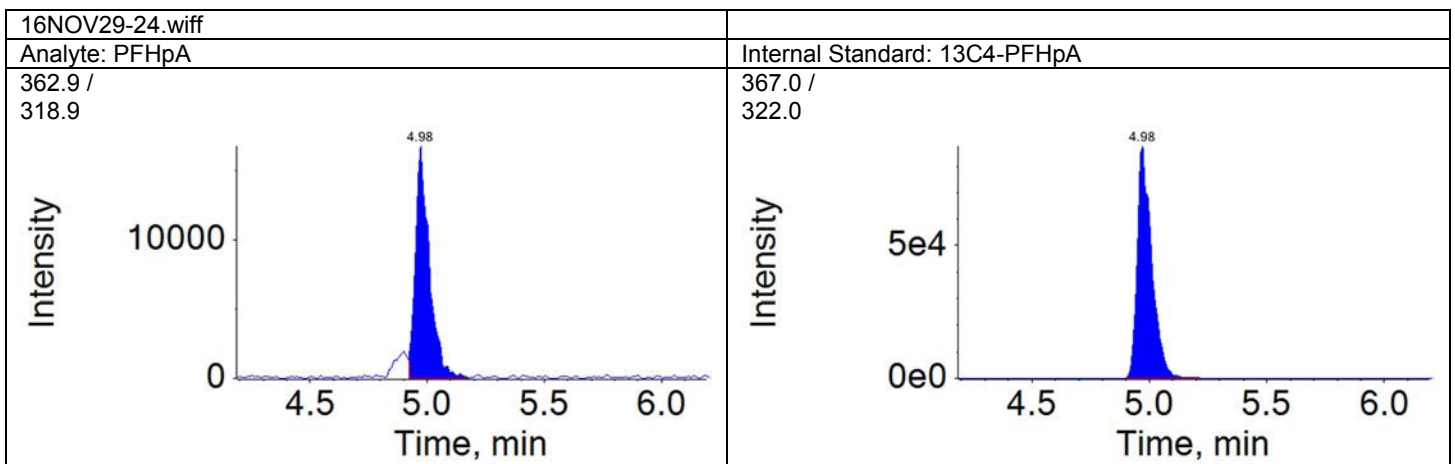
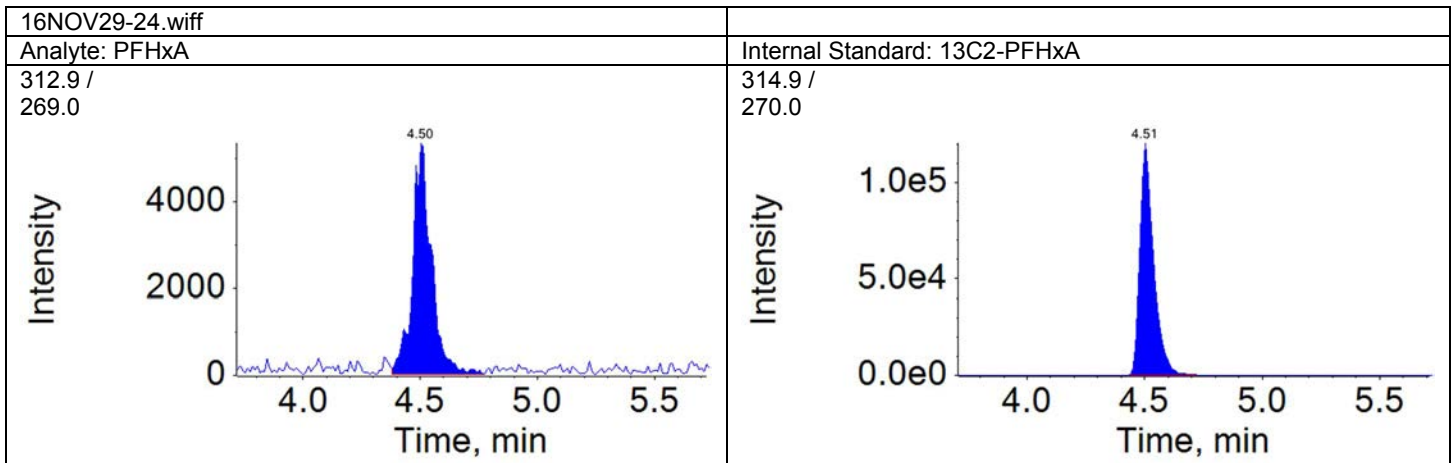
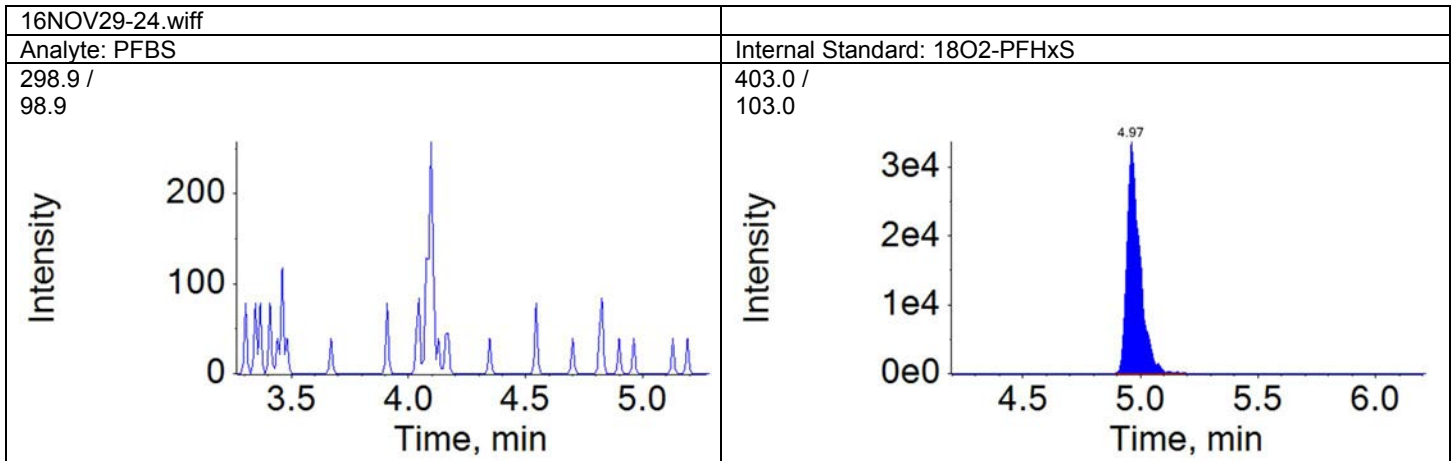
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.97	129023.8	N/A	N/A
PFHxA	4.50	1.000	29719.8	A	13C2-PFHxA	4.51	487495.0	0.061	45.367
PFHpA	4.98	1.000	69594.7	M	13C4-PFHpA	4.98	376665.1	0.185	76.127
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.97	129023.8	N/A	N/A
PFOA	5.42	1.000	2774405.9	M	13C4-PFOA	5.42	467149.2	5.939	2316.771
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.84	821838.6	N/A	N/A
PFOS	5.81	1.000	594.2	A	13C4-PFOS	5.81	152915.0	0.004	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.22	685228.6	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.56	837824.4	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.87	1019093.8	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.87	1019093.8	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.87	1019093.8	N/A	N/A

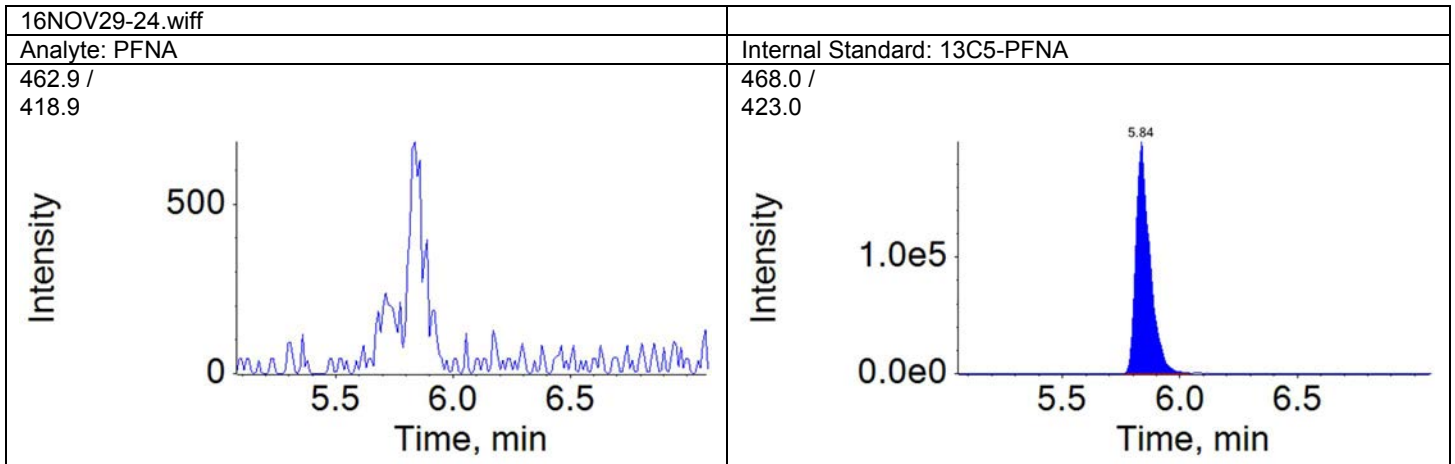
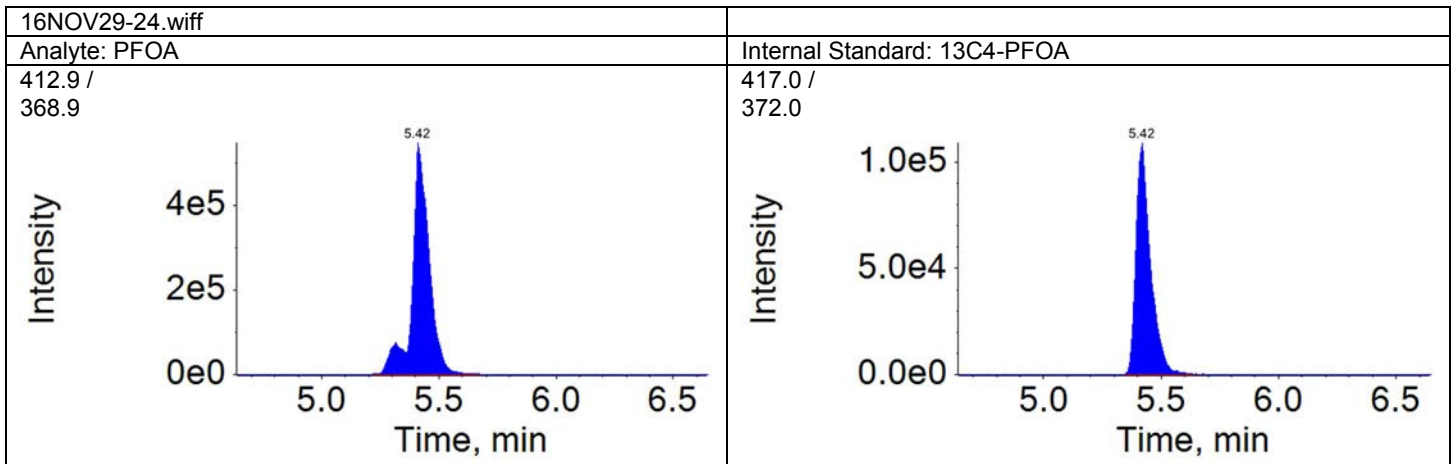
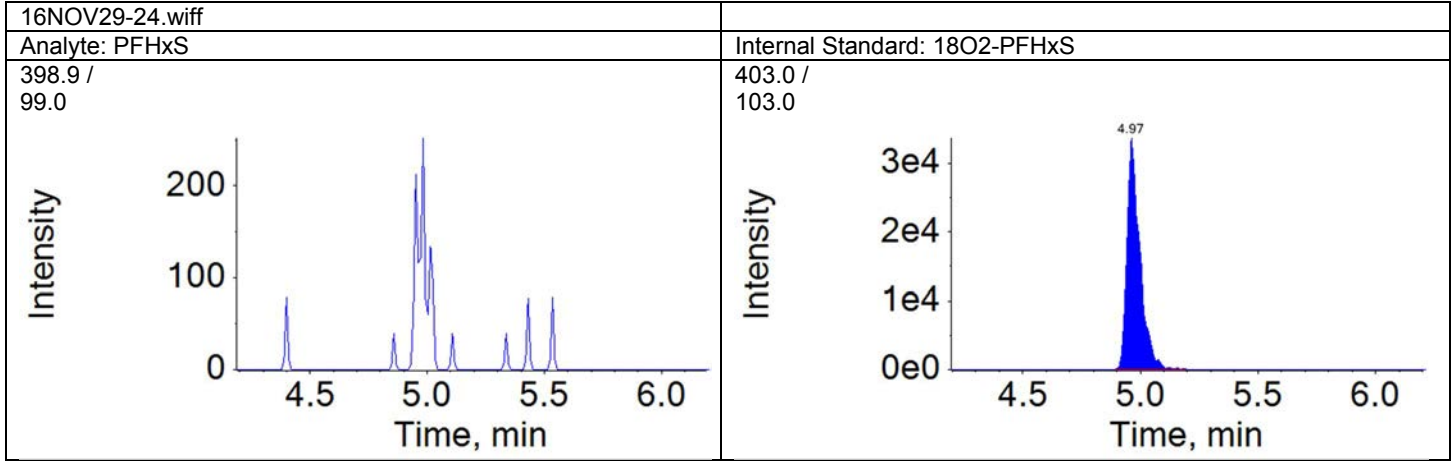
Total Ion Chromatogram

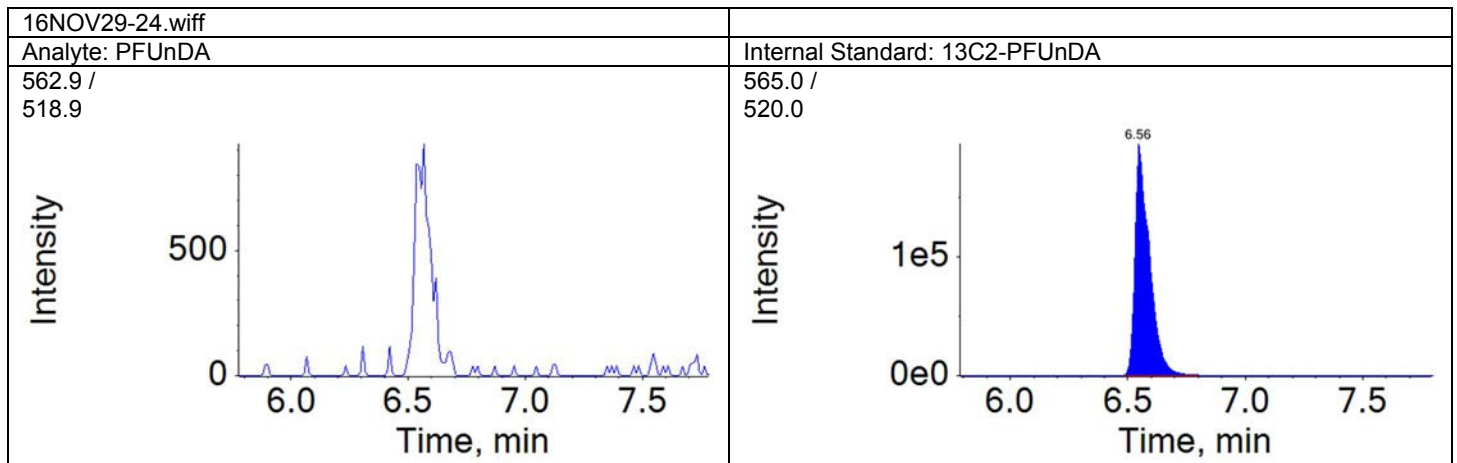
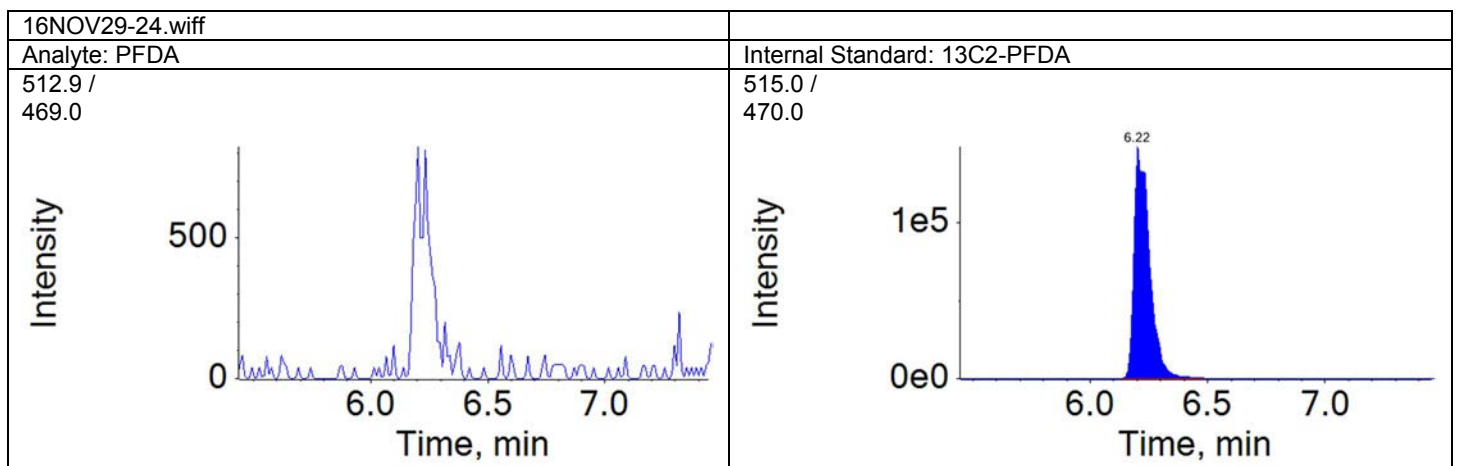
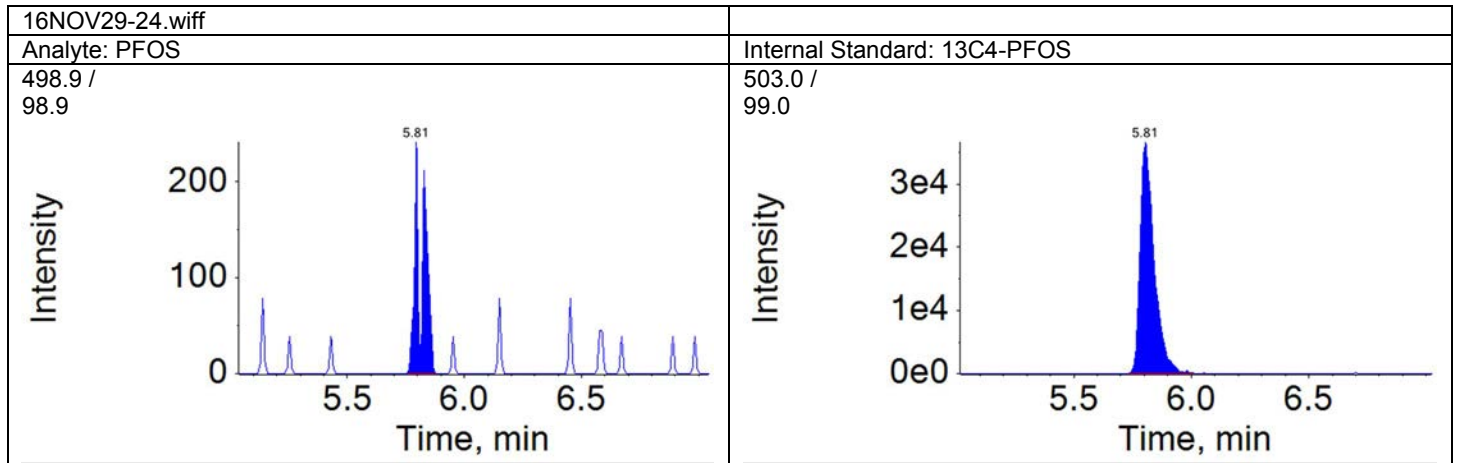
EPA 537 Rev. 1.1 modified 16330002 MS-MW-8(11182016) Grab

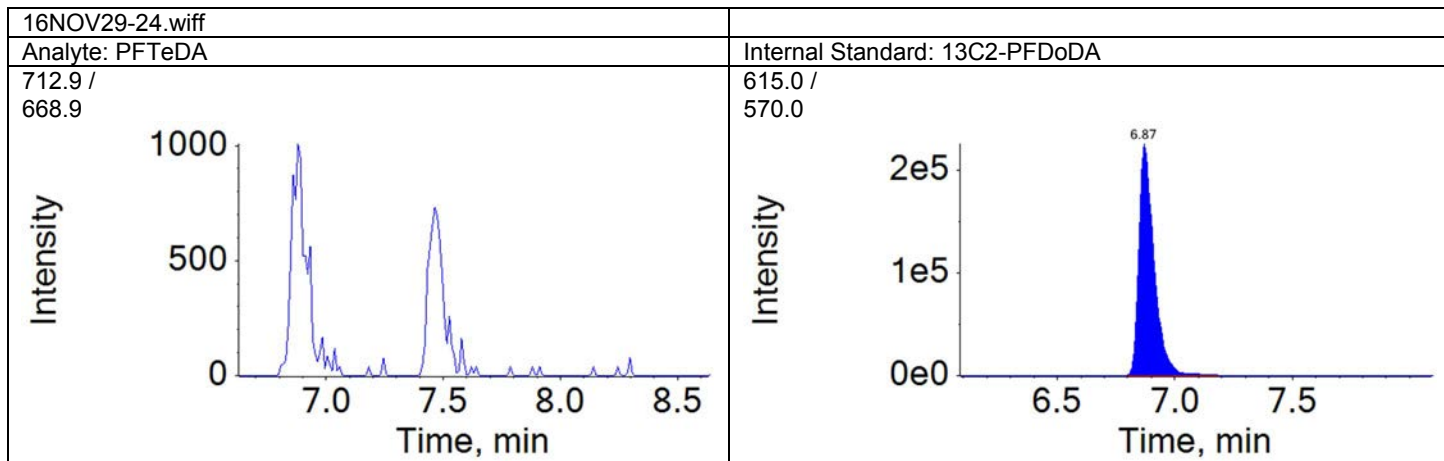
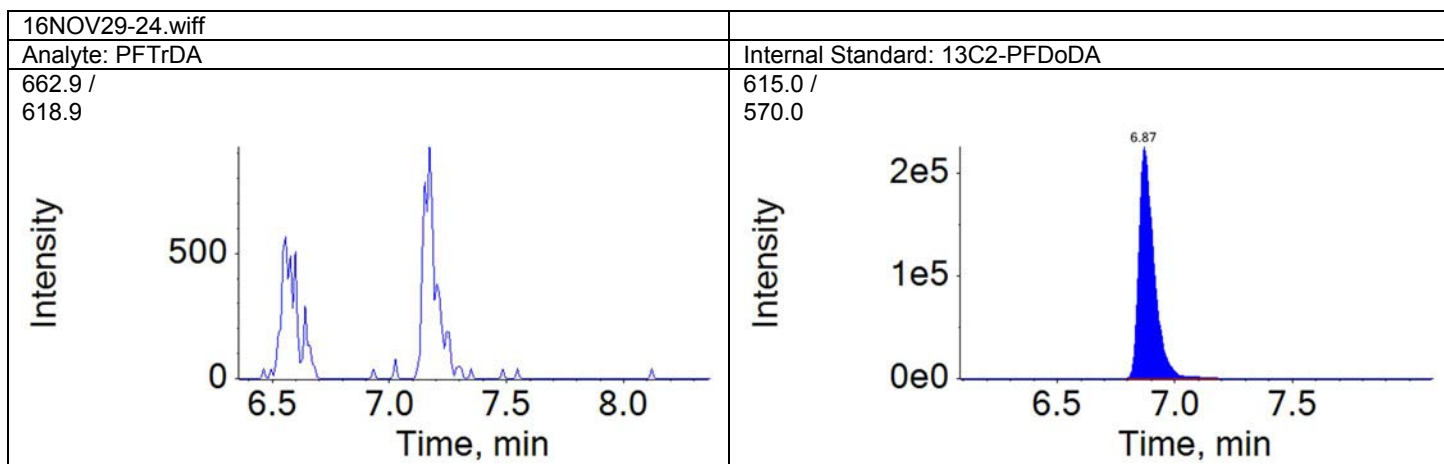
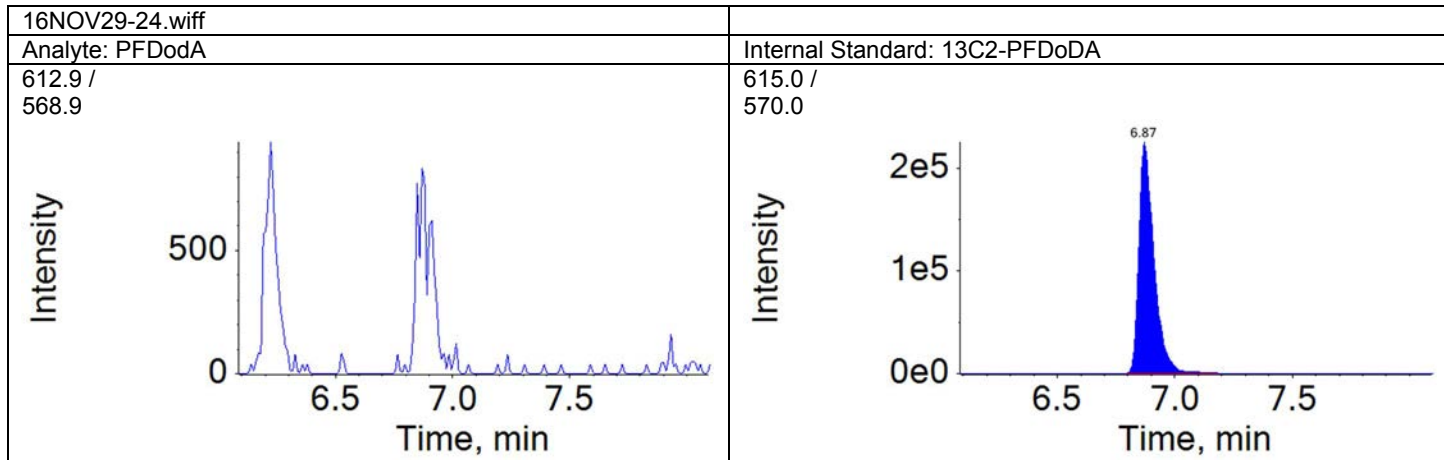
TIC from 16NOV29-24.wiff (sample 1) - 8707403DL









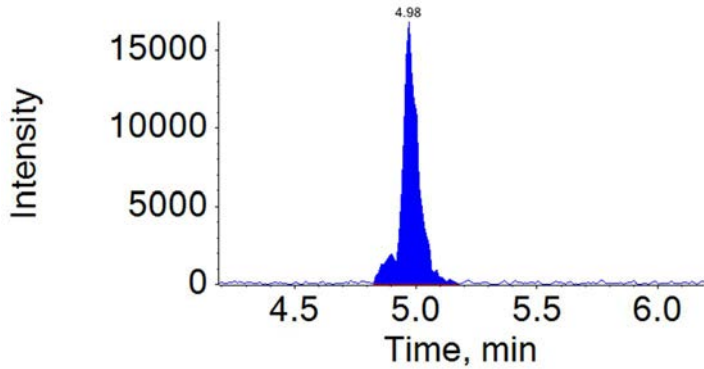




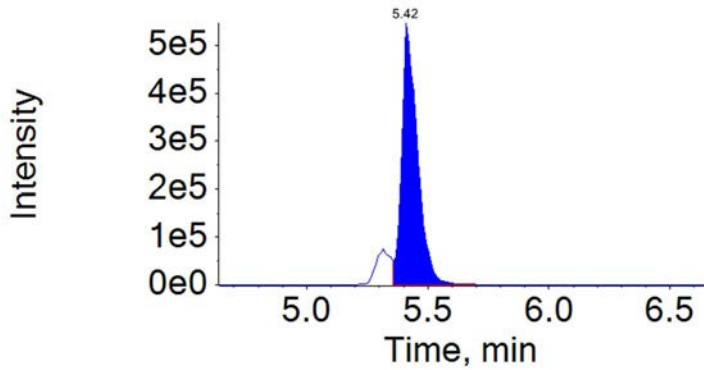
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-24.wiff	2016-11-29T19:35:15	8707403DL	PFHpA	4.98	76651.8
16NOV29-24.wiff	2016-11-29T19:35:15	8707403DL	PFOA	5.42	2454944.8

Component: PFHpA  
Mass: 362.9 / 318.9



Component: PFOA  
Mass: 412.9 / 368.9





SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707404
Sample (vol): 0.0996 (L)		Lab File ID: 14:40
Sample Prep: SPE		Date Collected: 11/18/2016 12:30
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 14:40
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	32	
375-85-9	PFHpA	34	
355-46-4	PFHxS	4	U
335-67-1	PFOA	1000	E
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

Sample Name:	8707404BKG	Data File:	16NOV29-06.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016) Grab	Acquis Date:	2016-11-29T14:40:15
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	14	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.09957	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

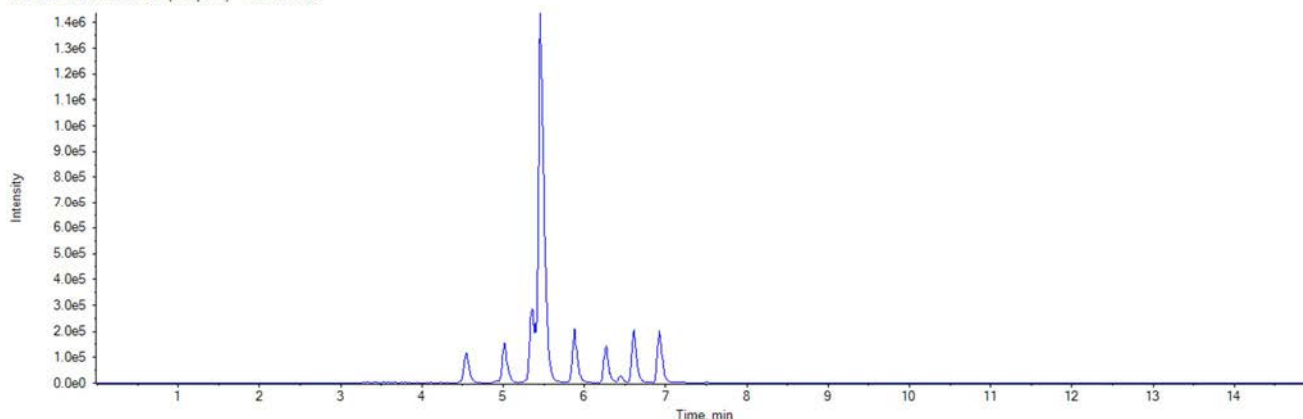
Quantitation Peak Table

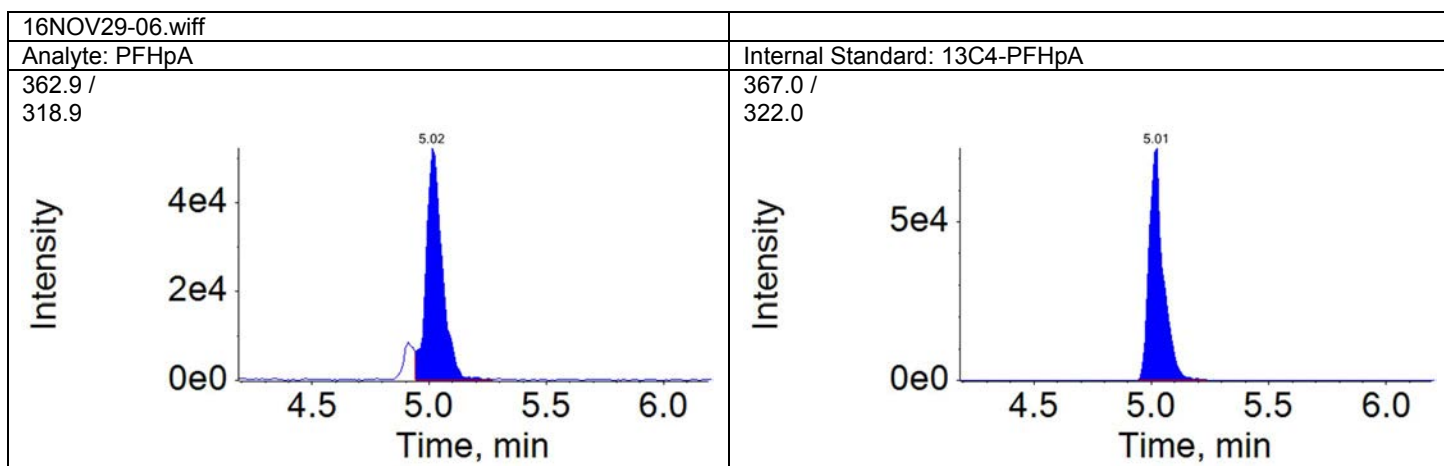
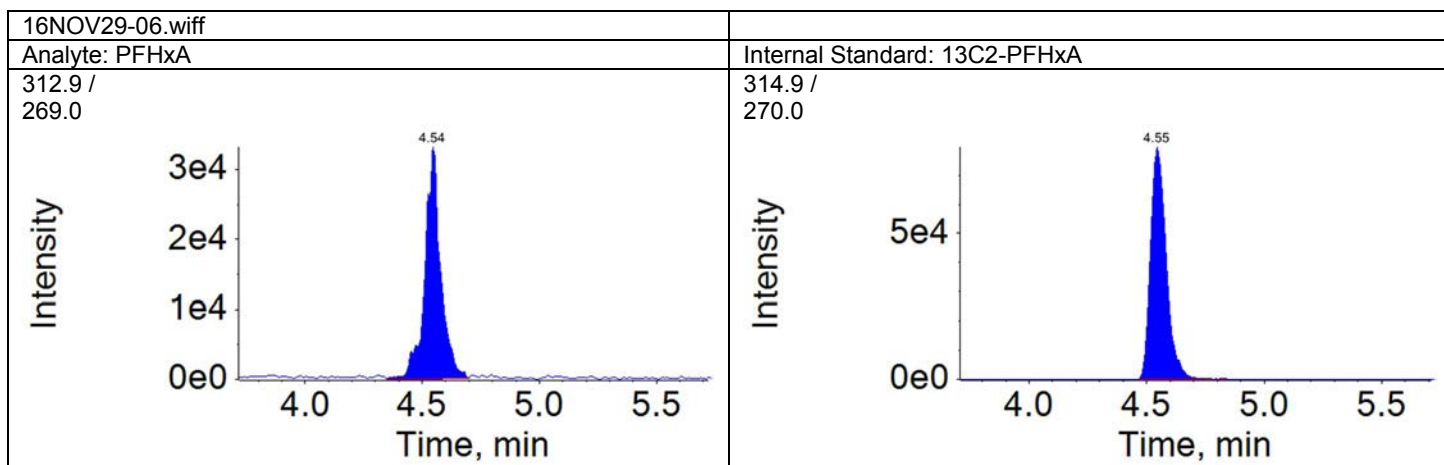
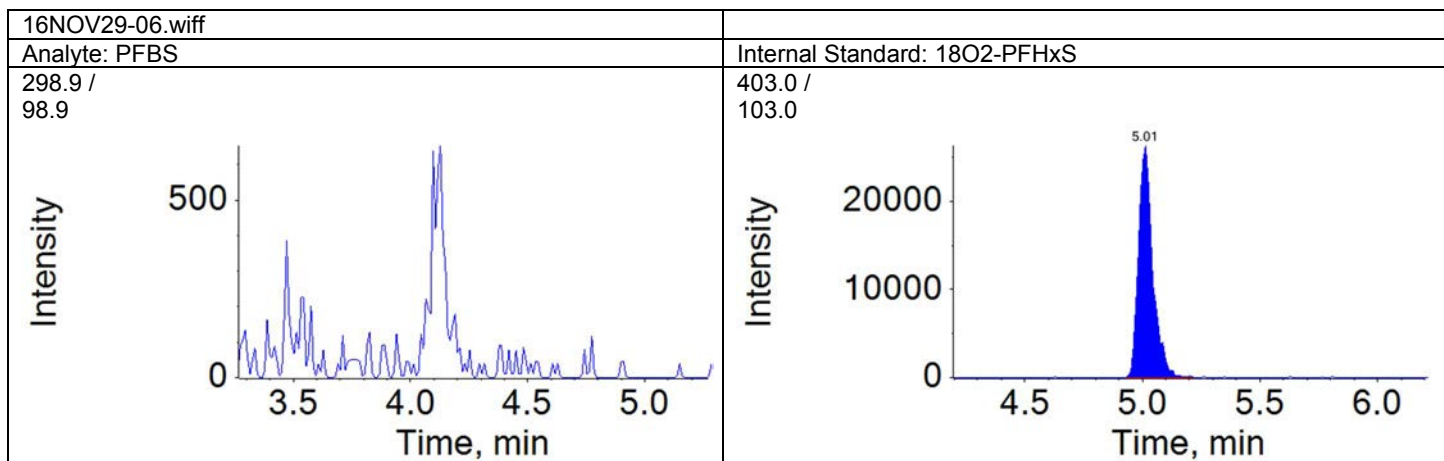
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	5.01	111044.2	N/A	N/A
PFHxA	4.54	1.000	157065.9	M	13C2-PFHxA	4.55	370744.3	0.424	31.704
PFHpA	5.02	1.000	250633.7	M	13C4-PFHpA	5.01	308141.8	0.813	33.701
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	5.01	111044.2	N/A	N/A
PFOA	5.46	1.000	7780184.1	A	13C4-PFOA	5.47	292107.3	26.635	1044.845
PFNA	5.88	1.000	10224.5	M	13C5-PFNA	5.88	707395.5	0.014	0.578
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.86	131029.2	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.26	583531.5	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.61	730791.3	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	839866.0	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	839866.0	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	839866.0	N/A	N/A

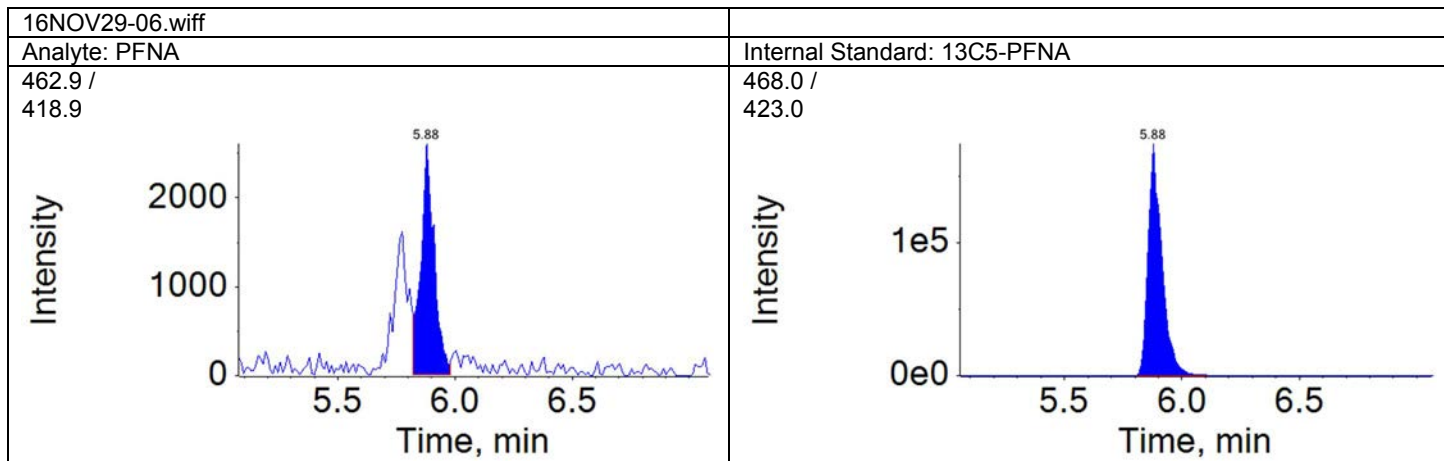
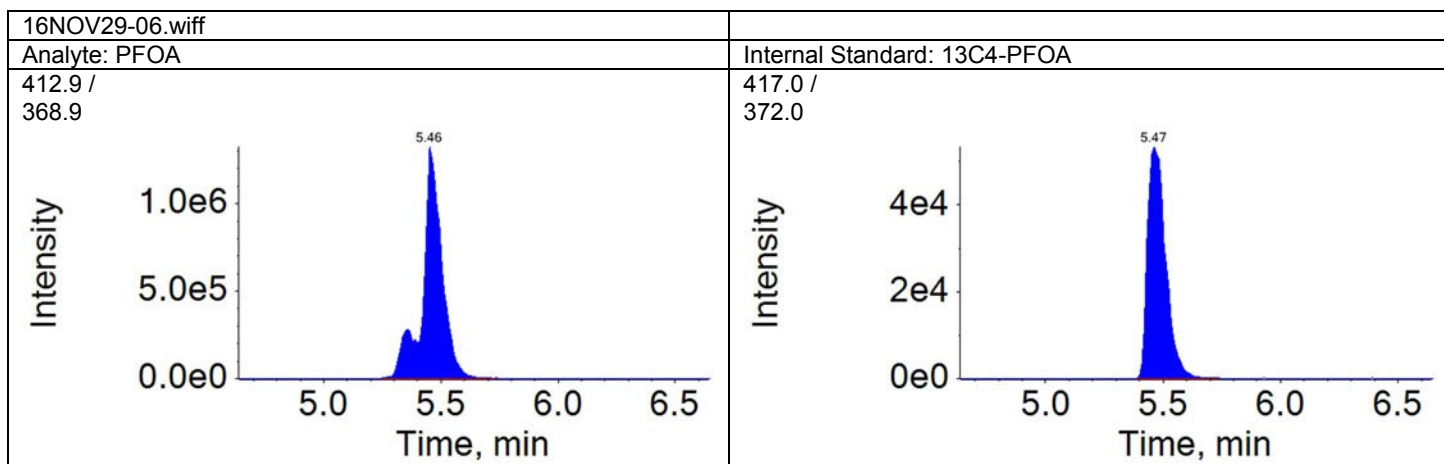
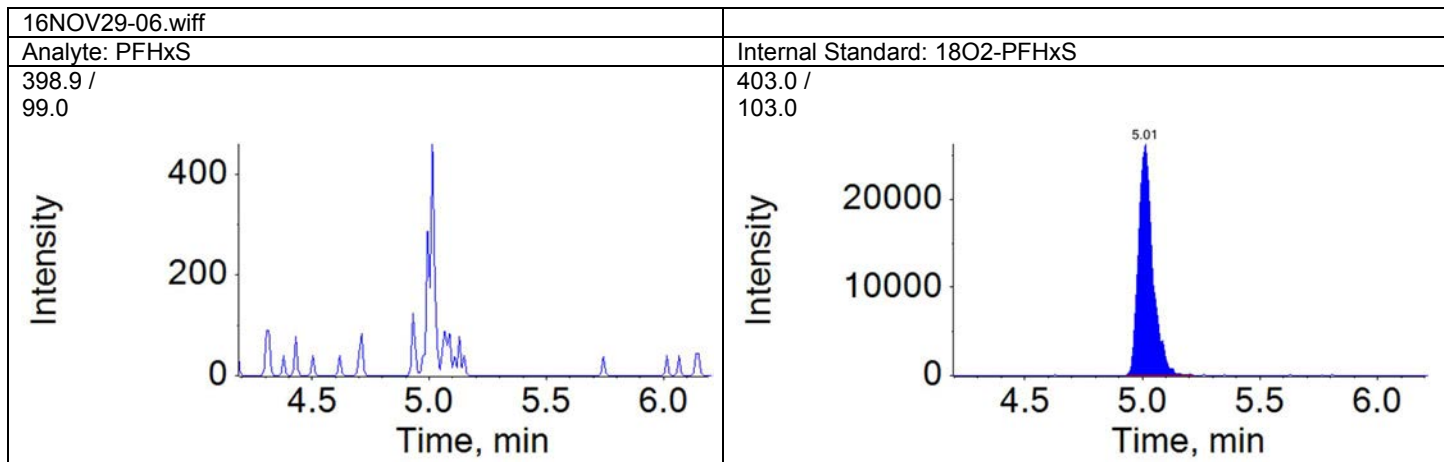
Total Ion Chromatogram

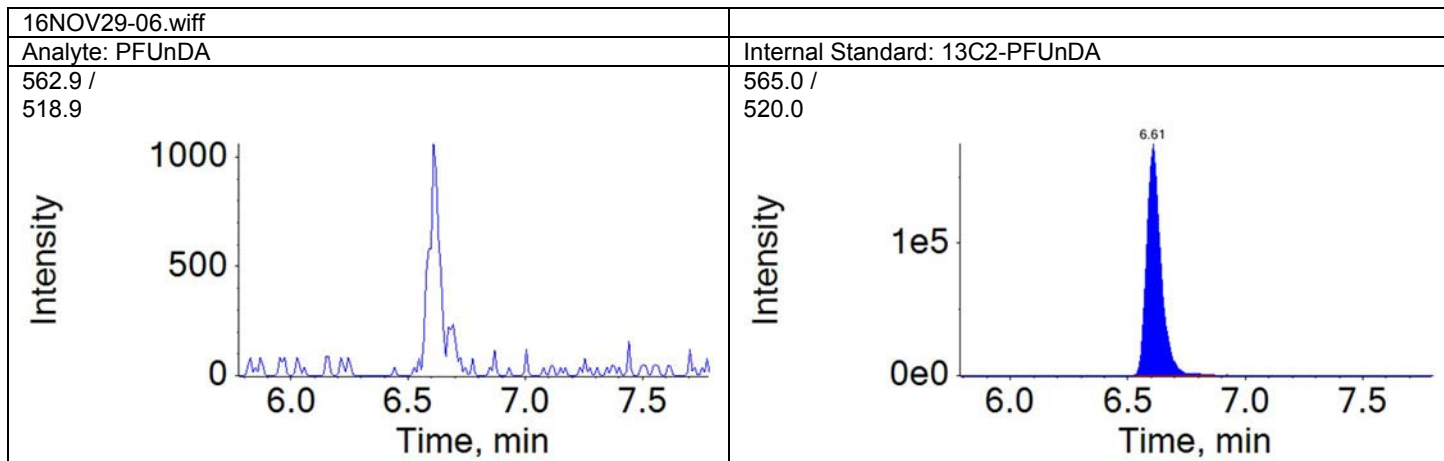
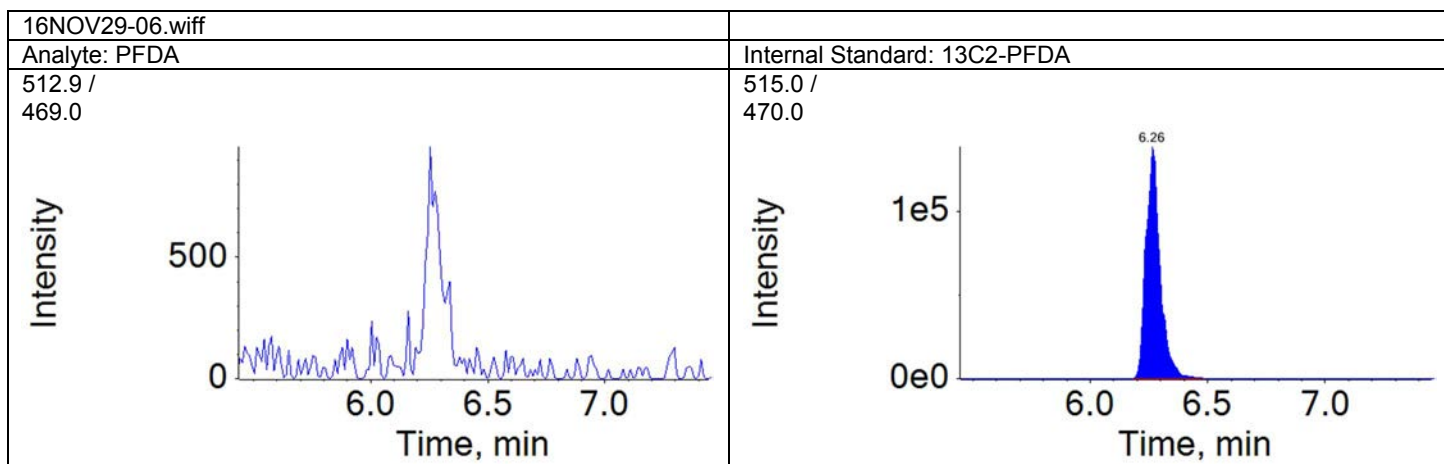
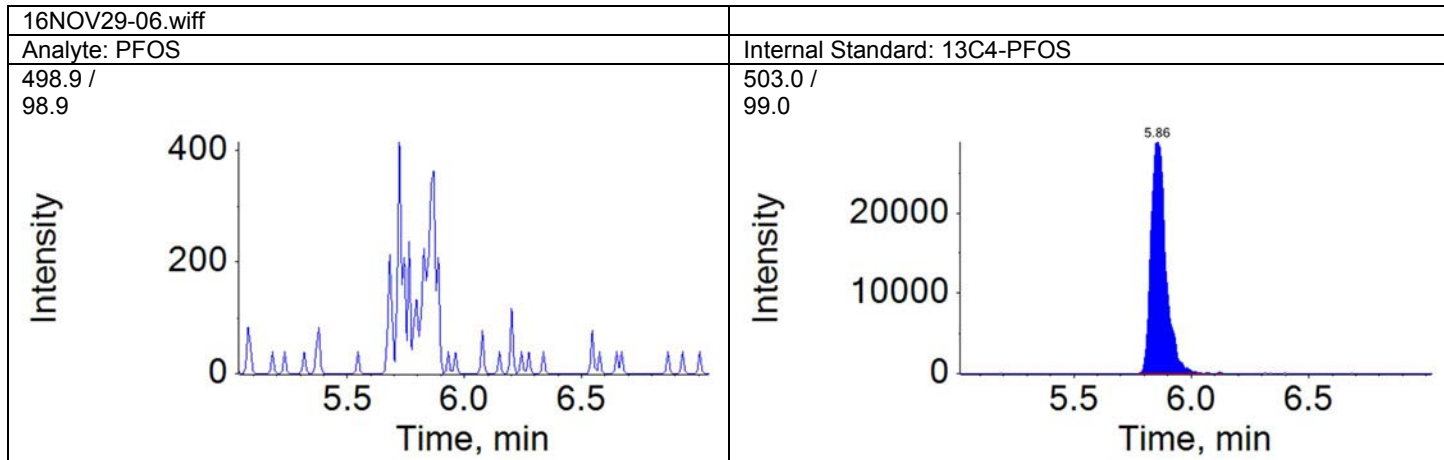
EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016) Grab

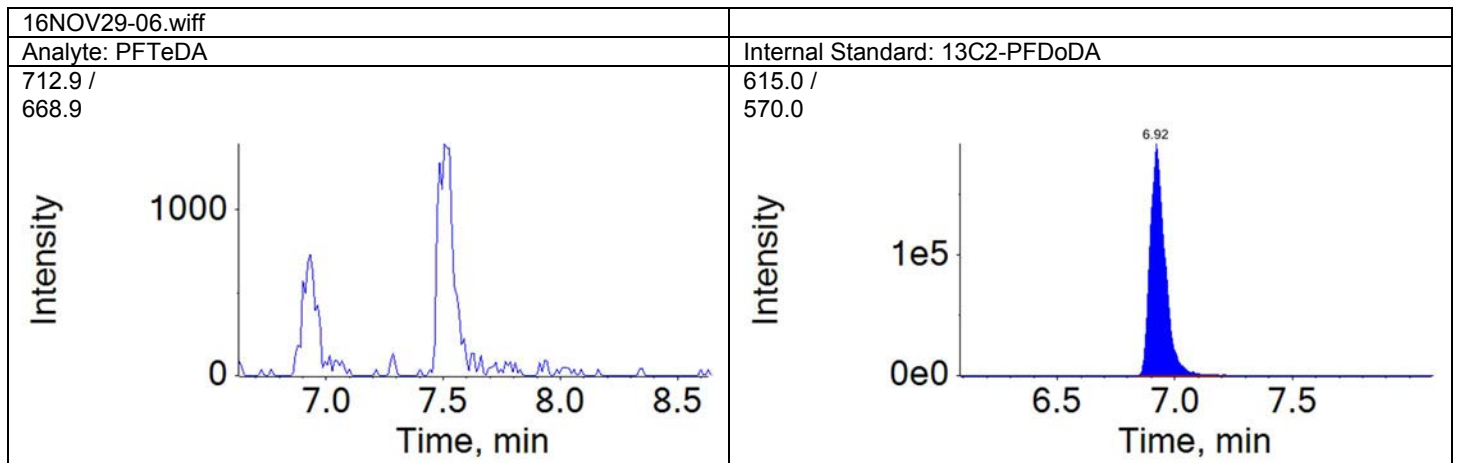
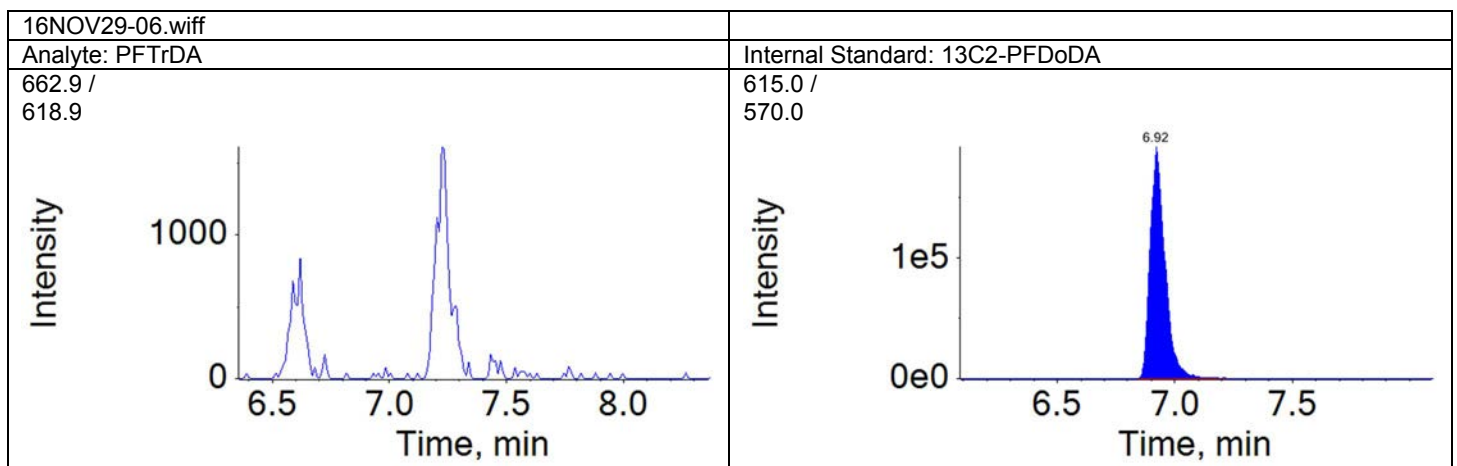
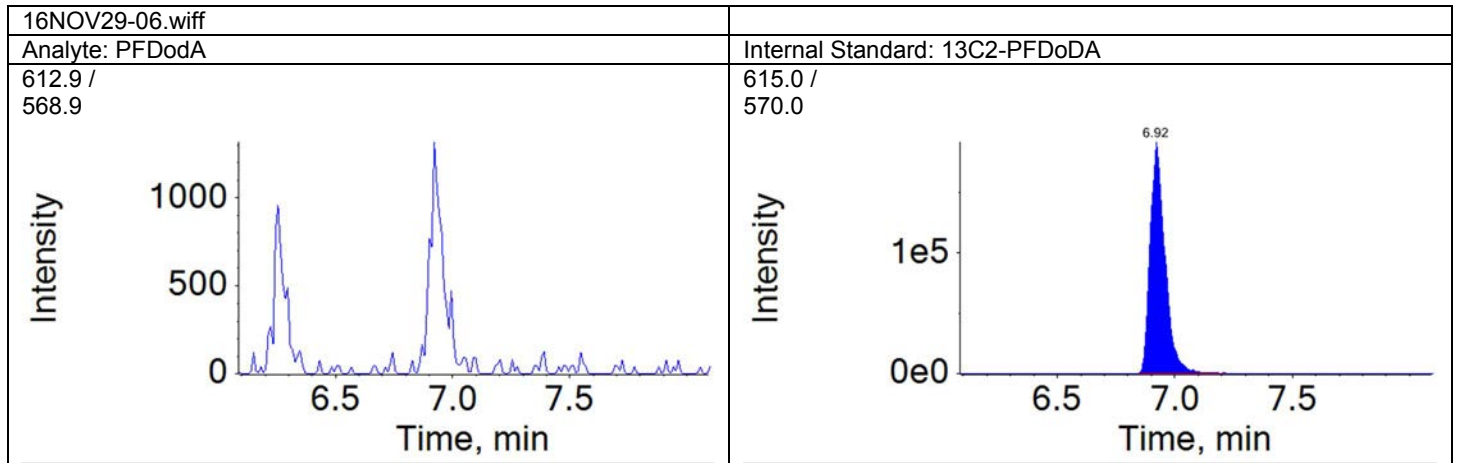
TIC from 16NOV29-06.wiff (sample 1) - 8707404BKG







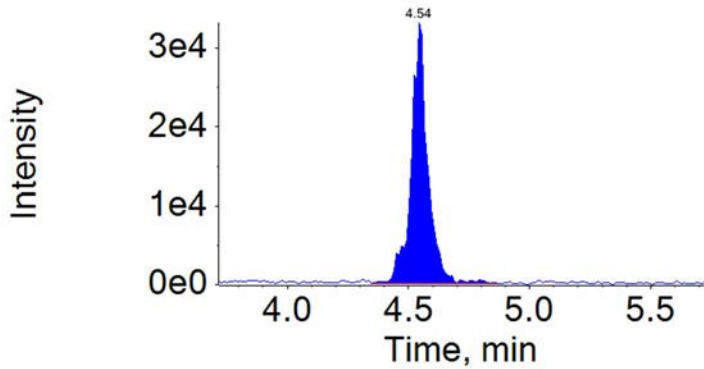




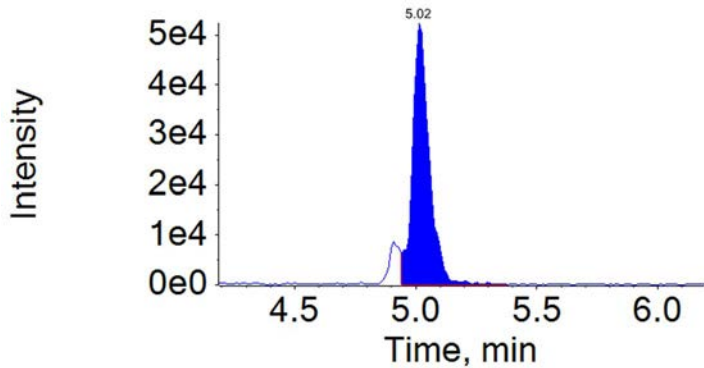
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16NOV29-06.wiff	2016-11-29T14:40:15	8707404BKG	PFHxA	4.54	160073.7
16NOV29-06.wiff	2016-11-29T14:40:15	8707404BKG	PFHpA	5.02	251085.1
16NOV29-06.wiff	2016-11-29T14:40:15	8707404BKG	PFNA	5.87	17106.5

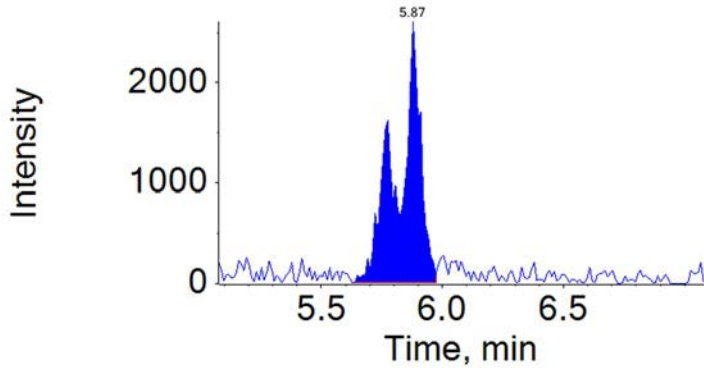
Component: PFHxA  
Mass: 312.9 / 269.0



Component: PFHpA  
Mass: 362.9 / 318.9



Component: PFNA  
Mass: 462.9 / 418.9





SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707404
Sample (vol): 0.0996 (L)		Lab File ID: 19:18
Sample Prep: SPE		Date Collected: 11/18/2016 12:30
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 19:18
% Moisture: N/A		Dilution Factor: 10.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	40	U
307-24-4	PFHxA	36	
375-85-9	PFHpA	32	
355-46-4	PFHxS	40	U
335-67-1	PFOA	890	
375-95-1	PFNA	10	U
1763-23-1	PFOS	50	U
335-76-2	PFDA	10	U
2058-94-8	PFUnDA	20	U
307-55-1	PFDoDA	30	U
72629-94-8	PFTrDA	20	U
376-06-7	PFTeDA	30	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits



<b>Sample Name:</b>	8707404BKGDL	<b>Data File:</b>	16NOV29-23.wiff
<b>Sample ID:</b>	EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016) Grab	<b>Acquis Date:</b>	2016-11-29T19:18:54
<b>Sample Type:</b>	Unknown	<b>Instrument:</b>	Triple Quad 4500, 0, LM24743
<b>Vial Position:</b>	94	<b>Acquis Method:</b>	PFC-14cmpd-16OCT07.dam
<b>Injection Vol:</b>	10.00	<b>Result Table:</b>	MQ 16330002
		<b>ICAL Name:</b>	16NOV22ICAL
<b>Batch Number:</b>	16330002	<b>Operator:</b>	US19INS00015\4500TRIPLE
<b>Sample Wt.:</b>	0.09957	<b>Dilution Factor:</b>	10.00
<b>Sample Vol.:</b>	1.000	<b>Prep Factor:</b>	1.000

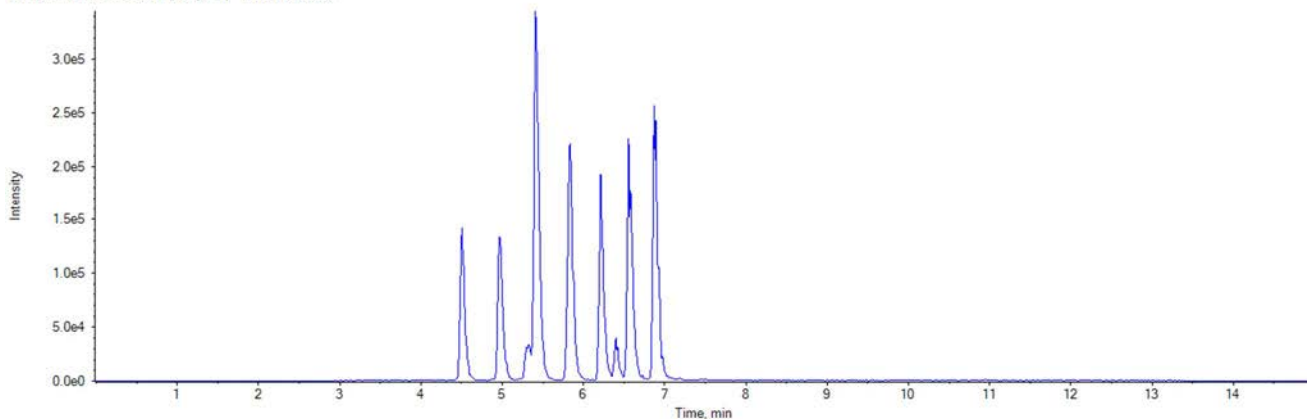
Quantitation Peak Table

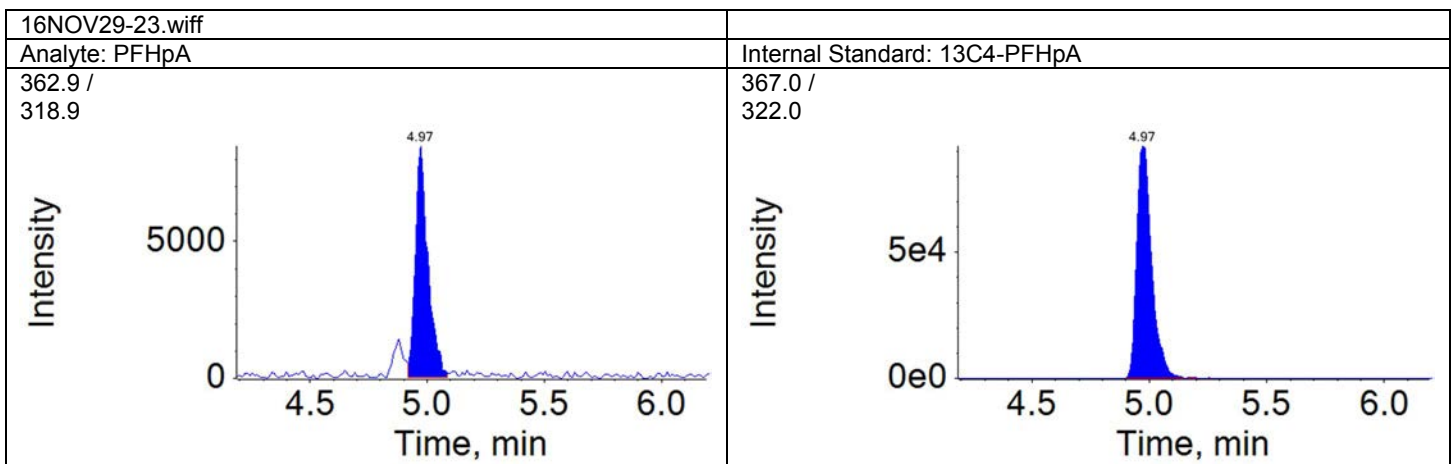
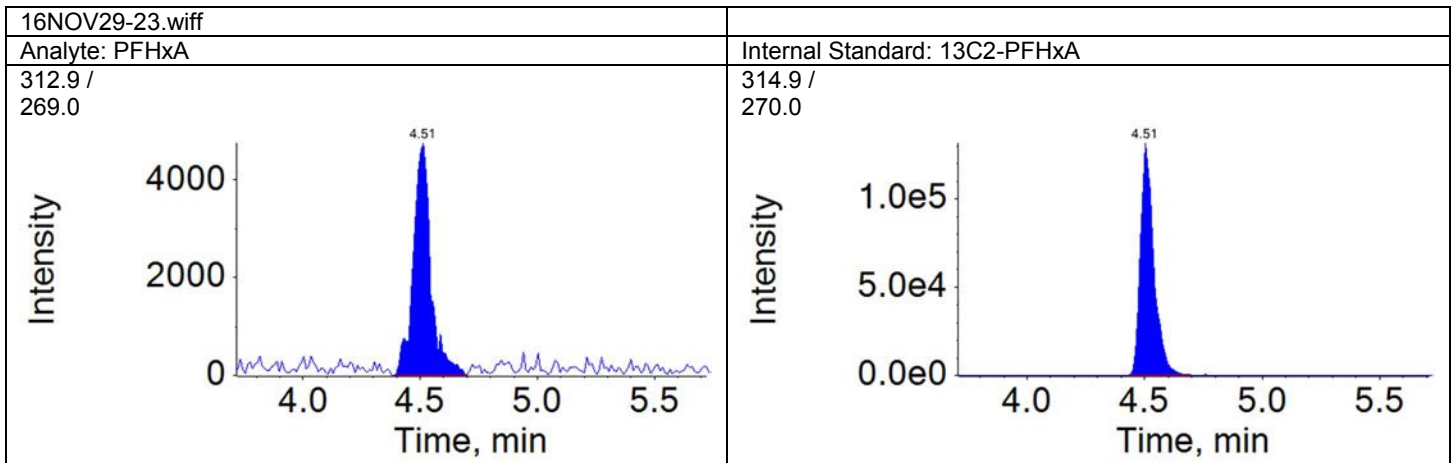
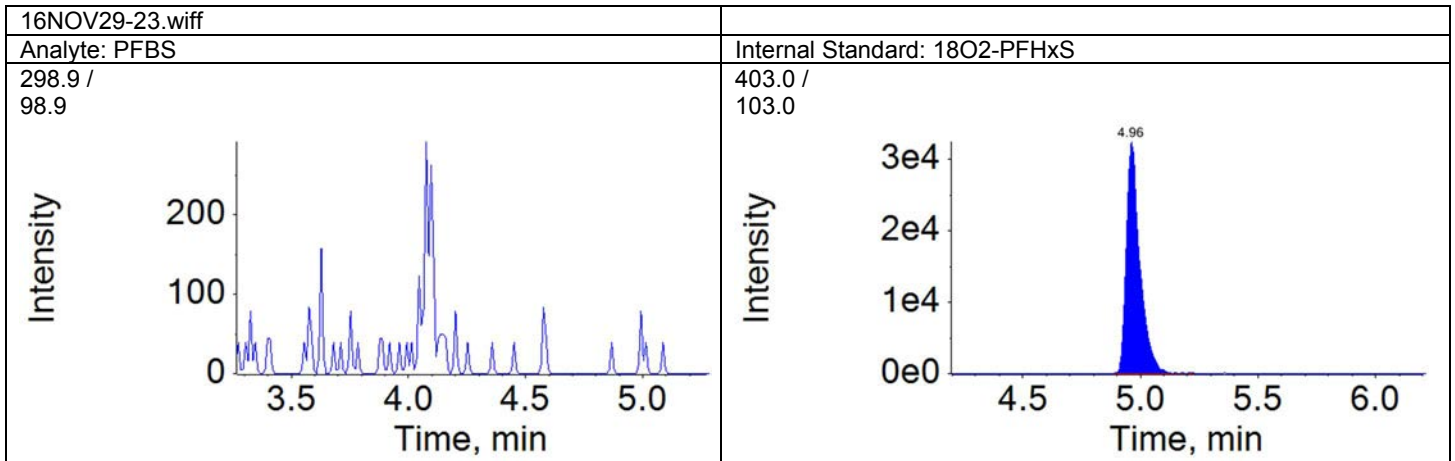
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.96	129898.2	N/A	N/A
PFHxA	4.51	1.000	24772.7	A	13C2-PFHxA	4.51	521456.3	0.048	35.552
PFHpA	4.97	1.000	31733.2	A	13C4-PFHpA	4.97	414033.3	0.077	31.756
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.96	129898.2	N/A	N/A
PFOA	5.42	1.000	1133145.0	M	13C4-PFOA	5.42	501426.7	2.260	886.507
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.84	837392.3	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.81	159043.9	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.22	685879.3	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.57	807348.4	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.88	1070024.5	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.88	1070024.5	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.88	1070024.5	N/A	N/A

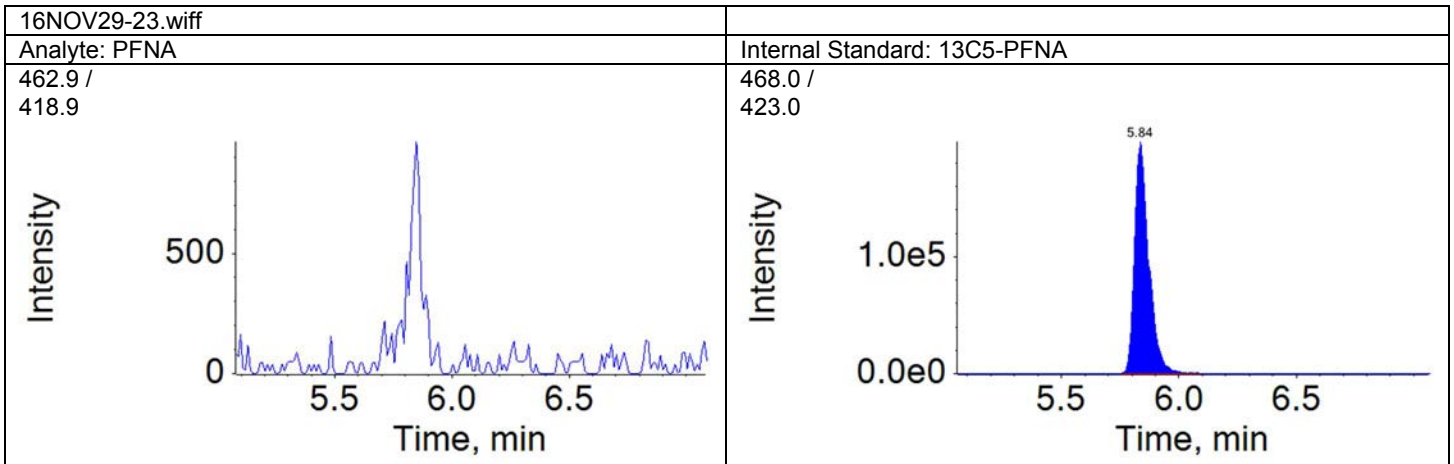
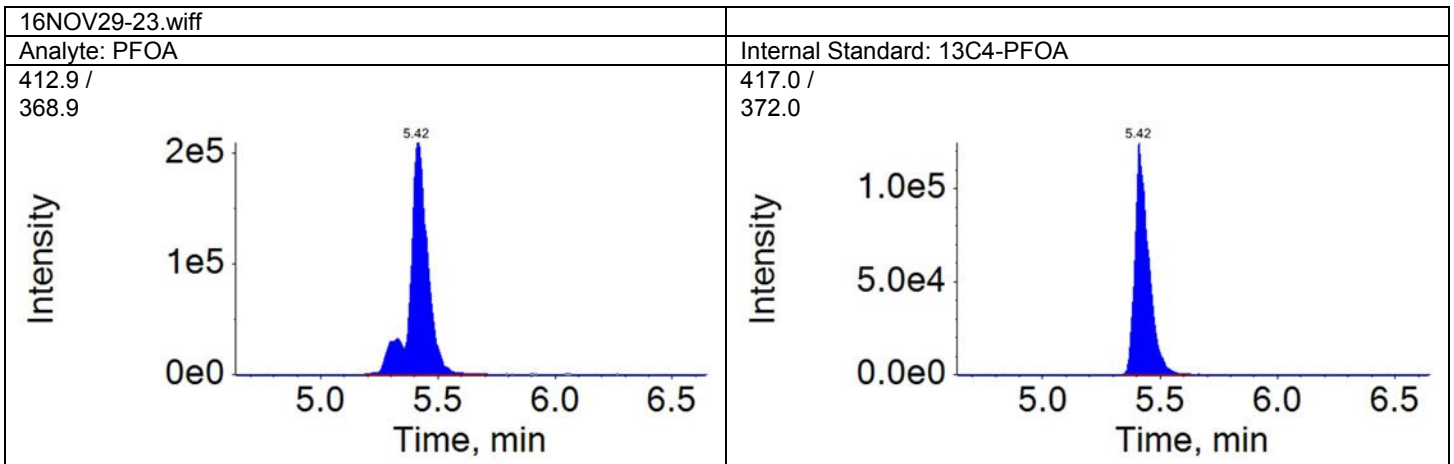
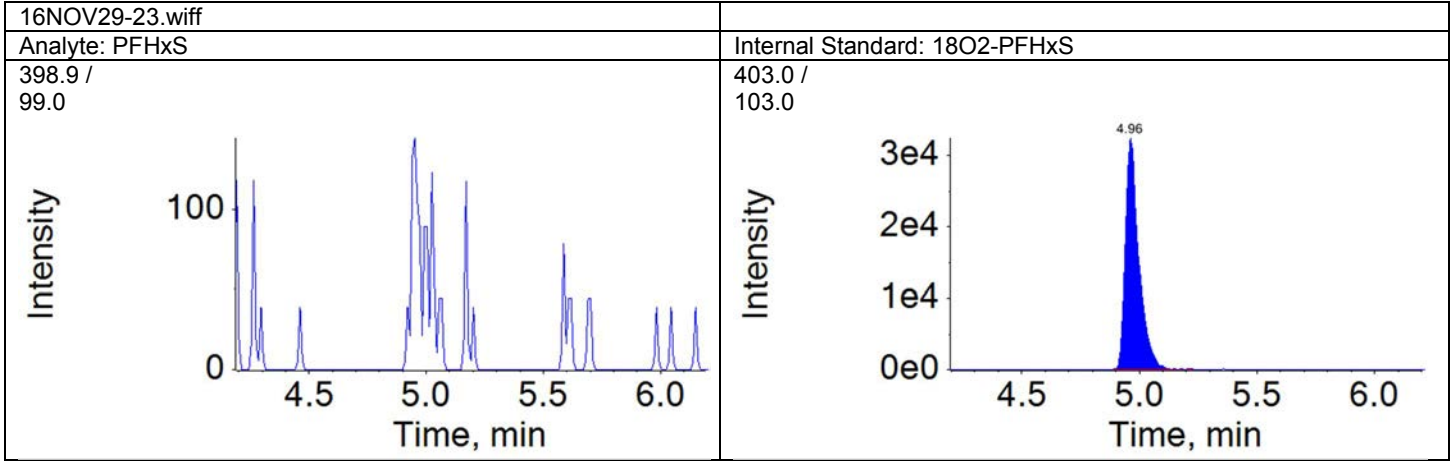
Total Ion Chromatogram

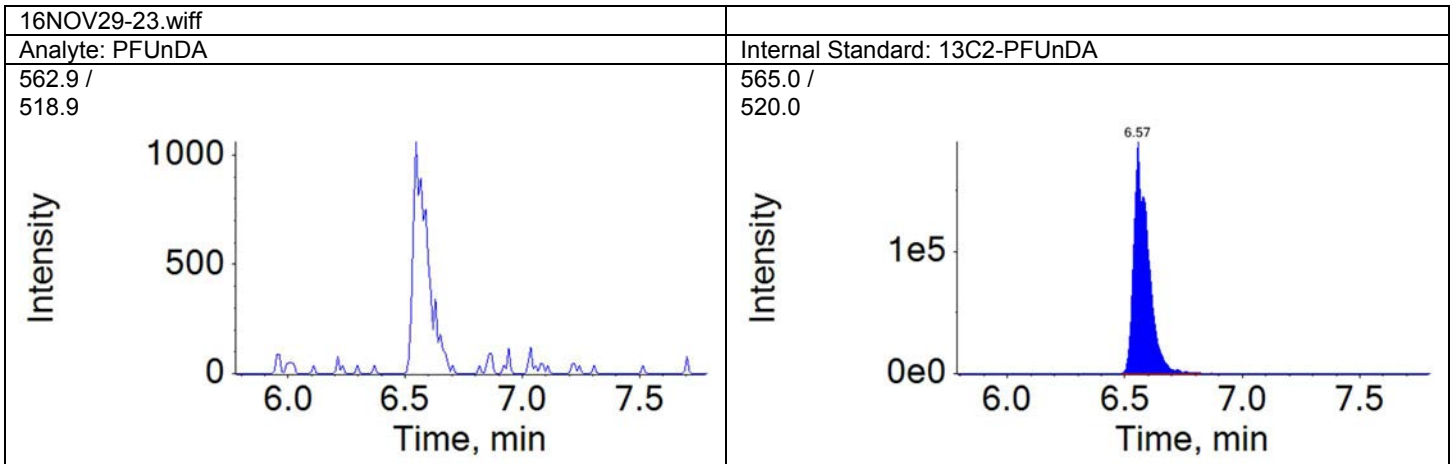
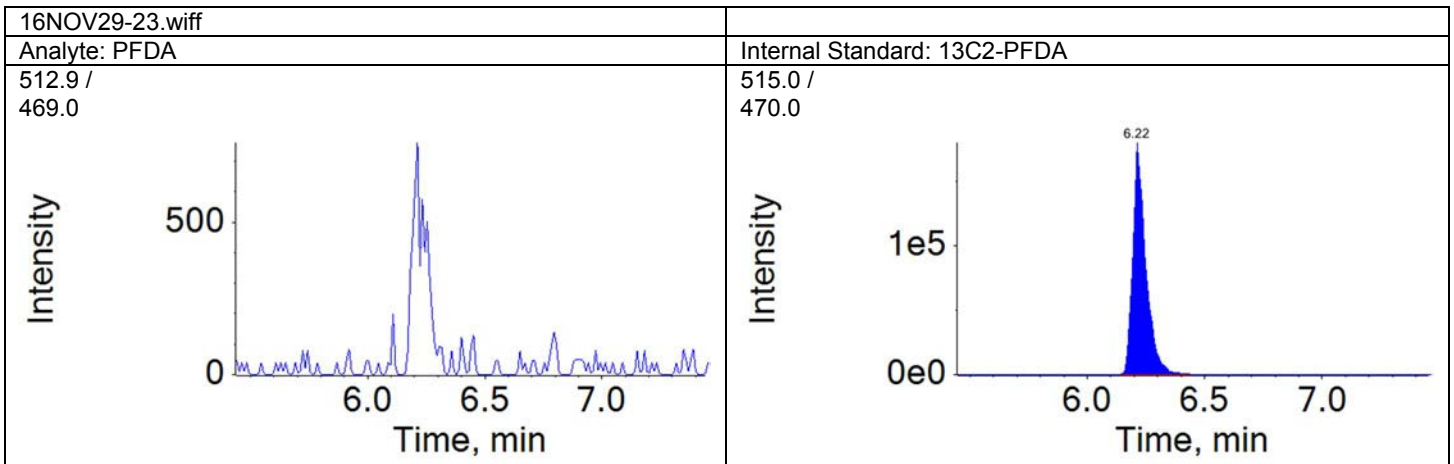
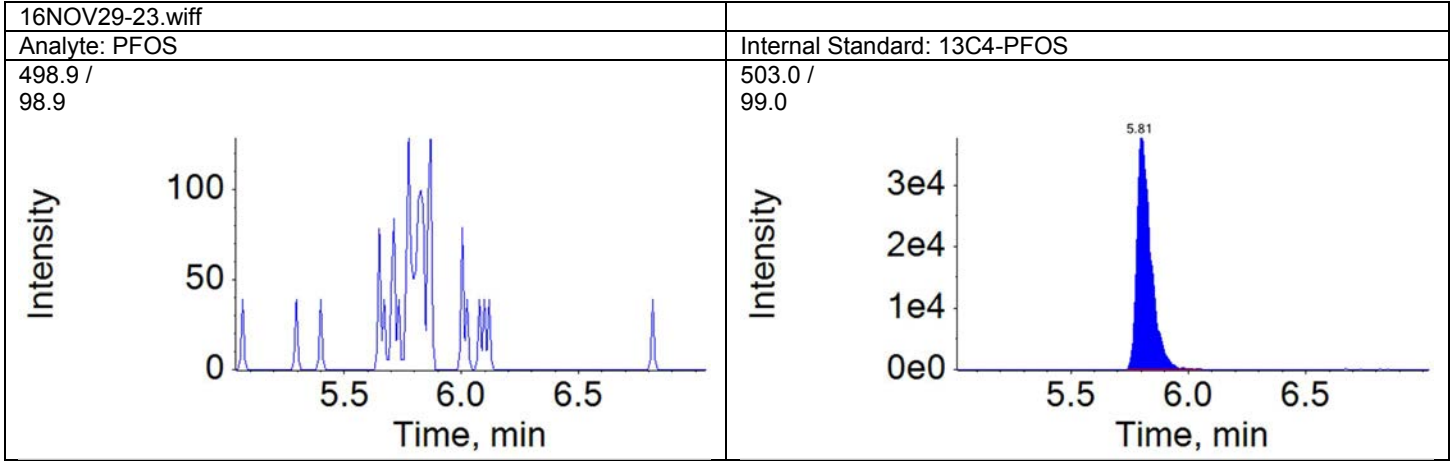
EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016) Grab

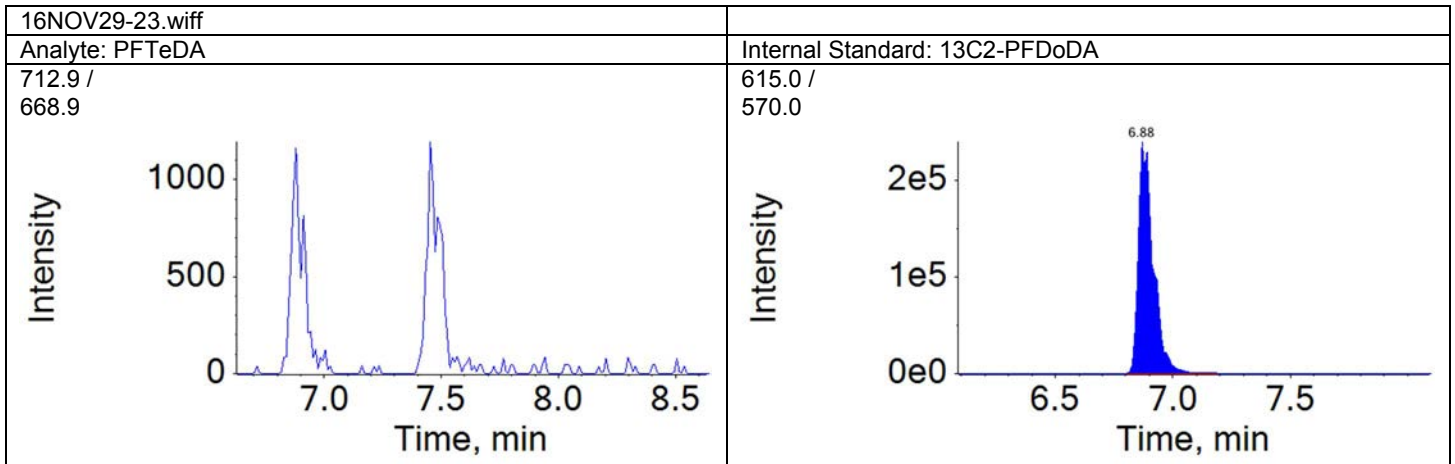
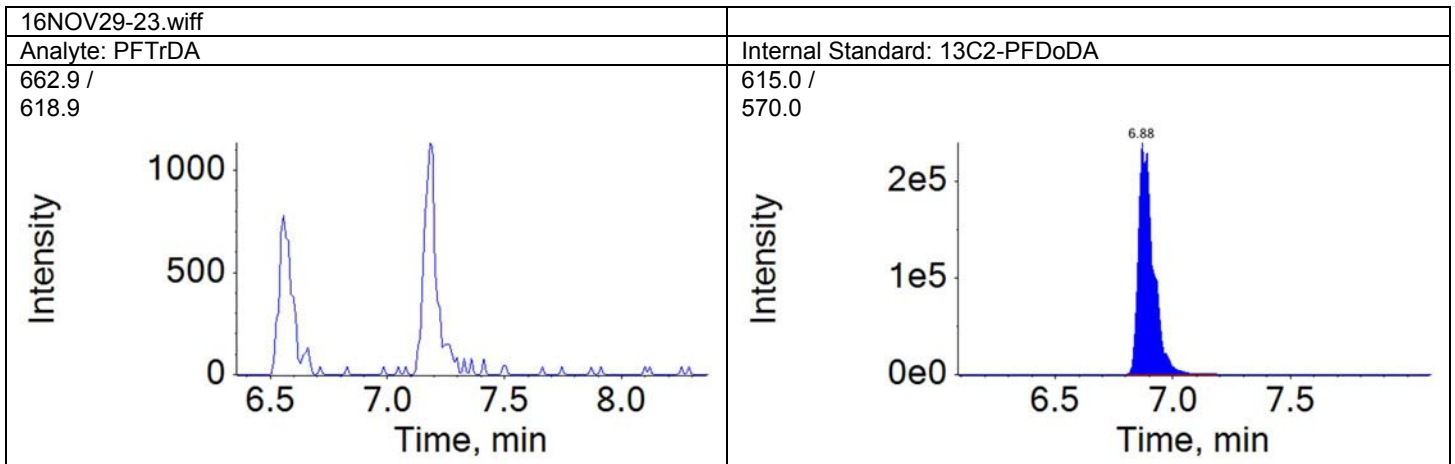
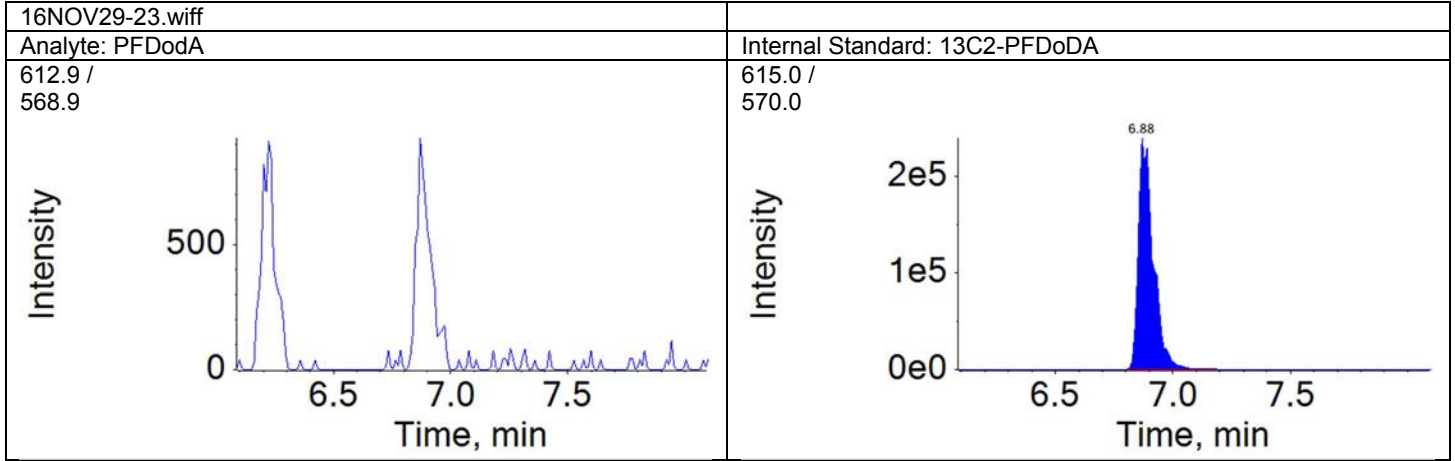
TIC from 16NOV29-23.wiff (sample 1) - 8707404BKGDL







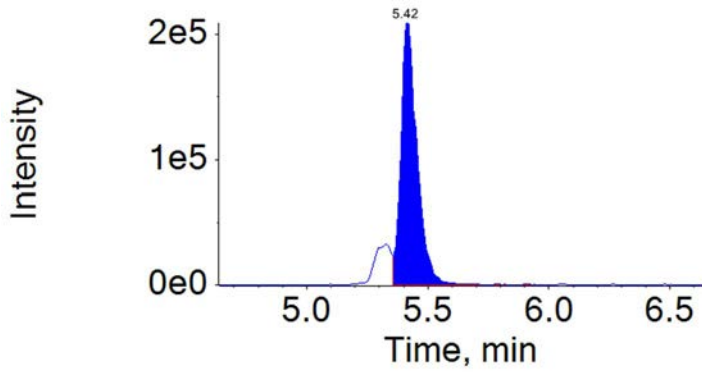




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-23.wiff	2016-11-29T19:18:54	8707404BKGDL	PFOA	5.42	980595.2

Component: PFOA  
Mass: 412.9 / 368.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707407
Sample (vol): 0.1000 (L)		Lab File ID: 15:45
Sample Prep: SPE		Date Collected: 11/18/2016 12:00
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 15:45
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	36	
375-85-9	PFHpA	65	
355-46-4	PFHxS	4	U
335-67-1	PFOA	2200	E
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits



<b>Sample Name:</b>	8707407	<b>Data File:</b>	16NOV29-10.wiff
<b>Sample ID:</b>	EPA 537 Rev. 1.1 modified 16330002 MS-DUP-001(11182016) Grab	<b>Acquis Date:</b>	2016-11-29T15:45:51
<b>Sample Type:</b>	Unknown	<b>Instrument:</b>	Triple Quad 4500, 0, LM24743
<b>Vial Position:</b>	18	<b>Acquis Method:</b>	PFC-14cmpd-16OCT07.dam
<b>Injection Vol:</b>	10.00	<b>Result Table:</b>	MQ 16330002
		<b>ICAL Name:</b>	16NOV22ICAL
<b>Batch Number:</b>	16330002	<b>Operator:</b>	US19INS00015\4500TRIPLE
<b>Sample Wt.:</b>	0.09995	<b>Dilution Factor:</b>	1.00
<b>Sample Vol.:</b>	1.000	<b>Prep Factor:</b>	1.000

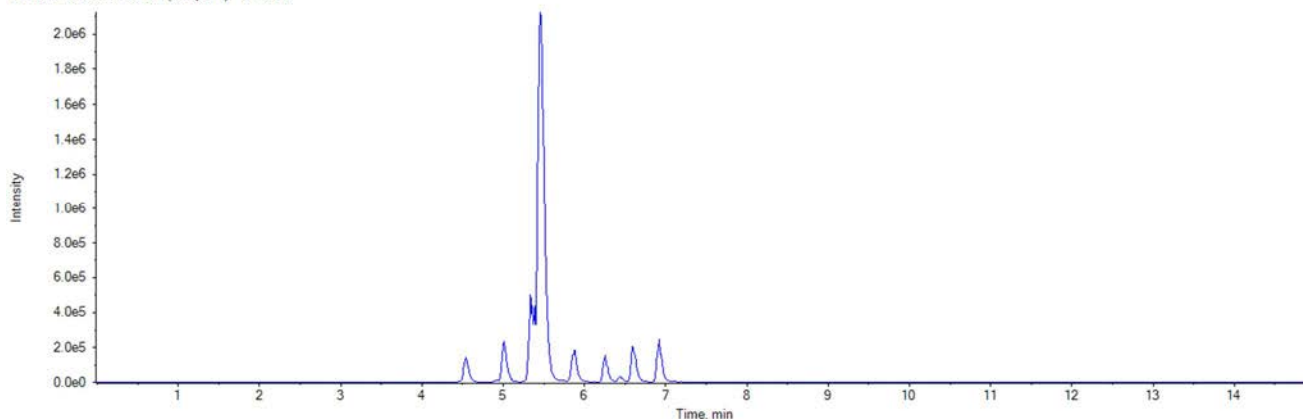
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	5.00	115643.3	N/A	N/A
PFHxA	4.54	1.000	203017.8	M	13C2-PFHxA	4.54	422427.2	0.481	35.829
PFHpA	5.01	1.000	540322.0	M	13C4-PFHpA	5.01	342207.1	1.579	65.172
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	5.00	115643.3	N/A	N/A
PFOA	5.46	1.000	14041896.4	A	13C4-PFOA	5.46	249713.7	56.232	2197.523
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.88	697254.5	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.85	152294.7	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.25	616921.5	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.60	808167.3	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	998714.3	N/A	N/A
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	998714.3	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	998714.3	N/A	N/A

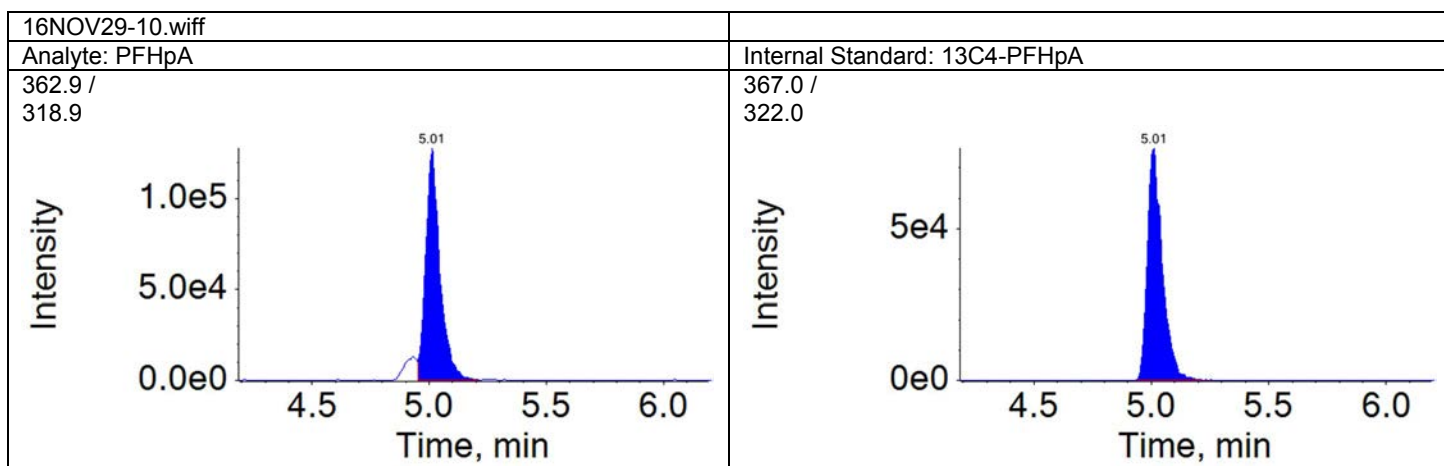
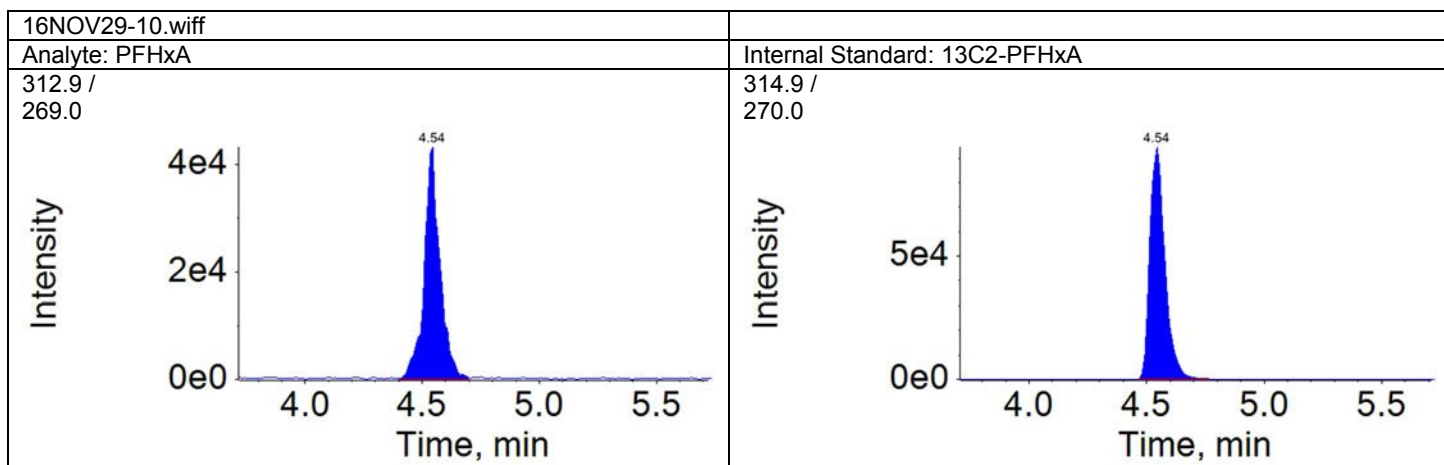
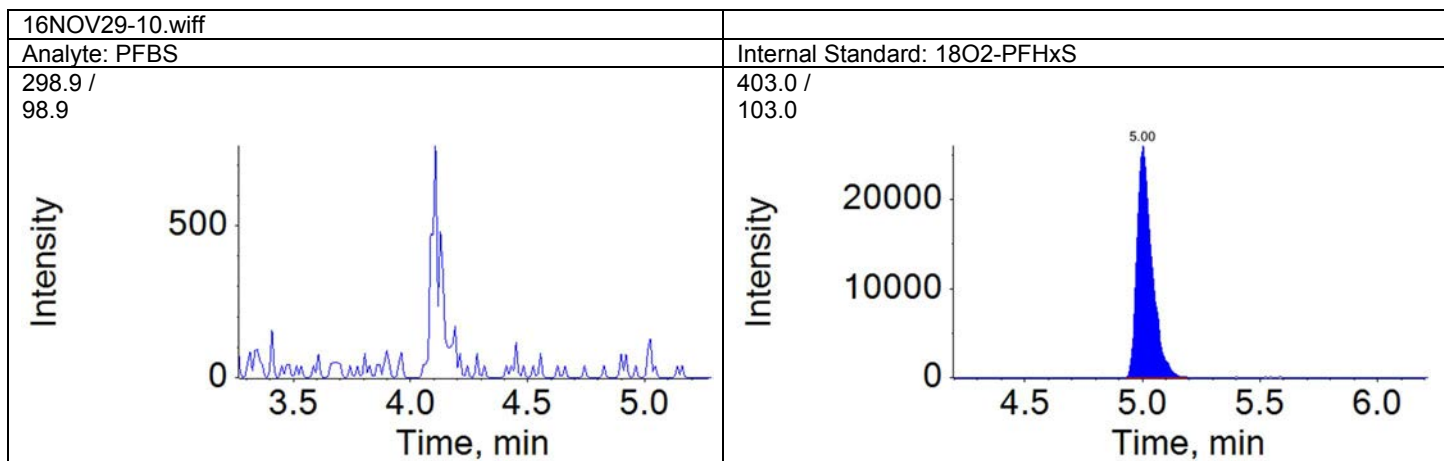
Total Ion Chromatogram

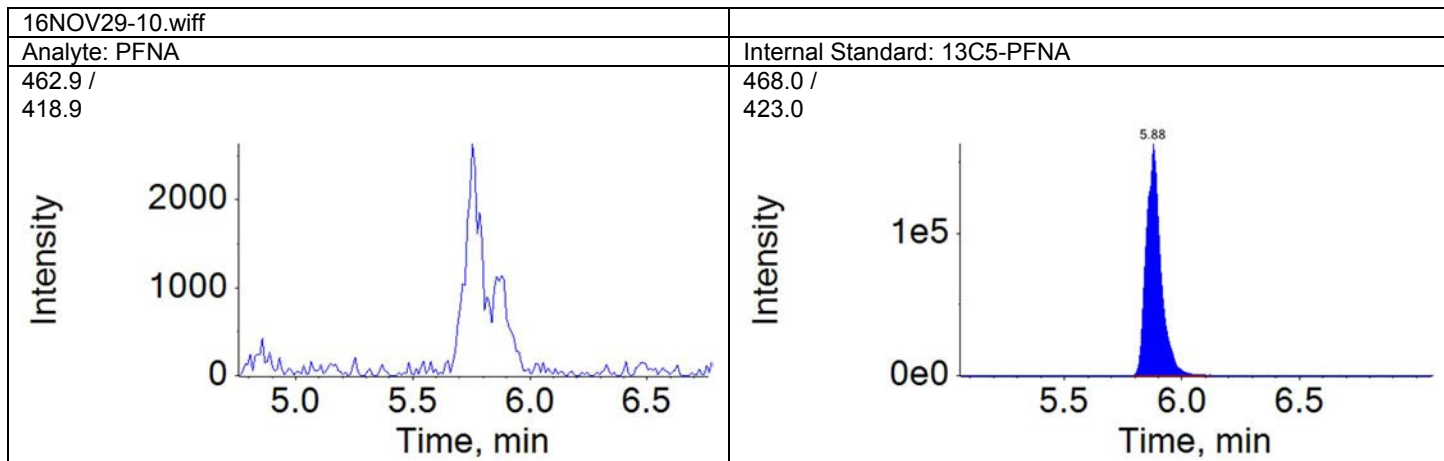
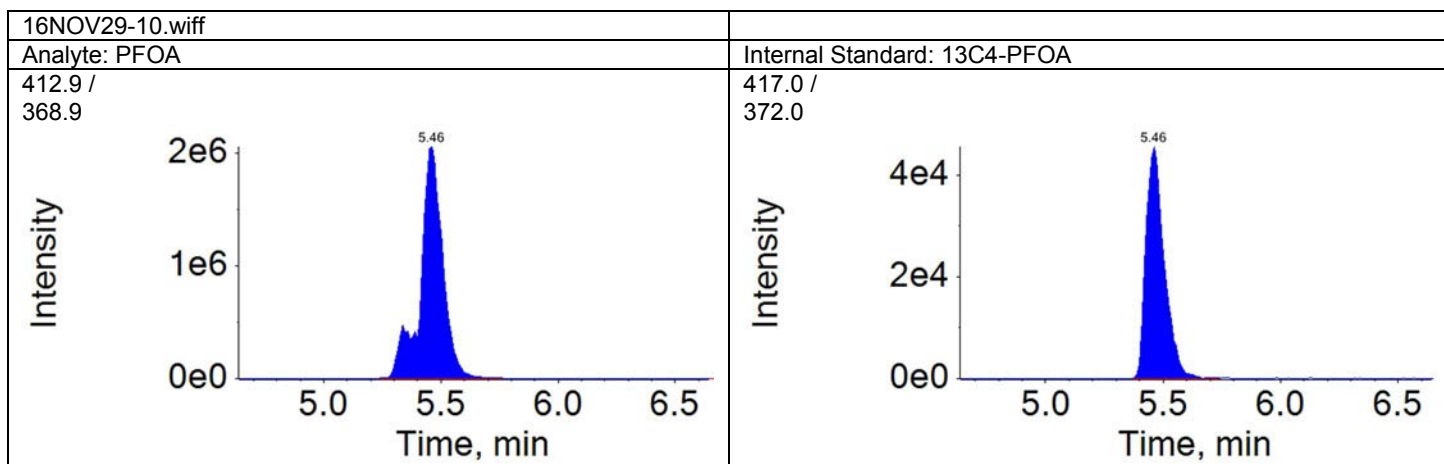
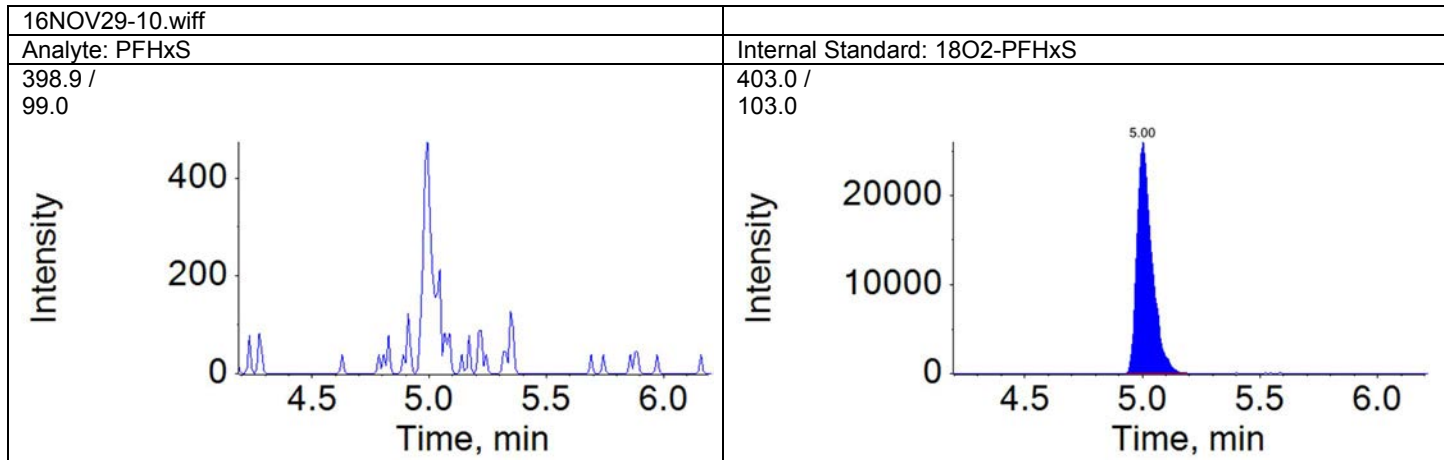
EPA 537 Rev. 1.1 modified 16330002 MS-DUP-001(11182016) Grab

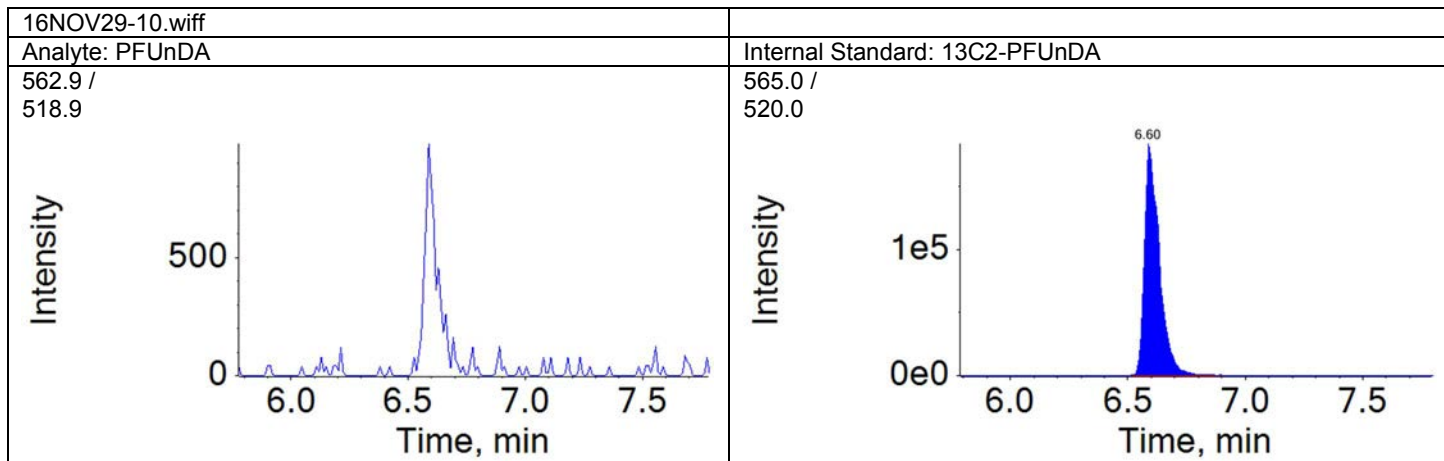
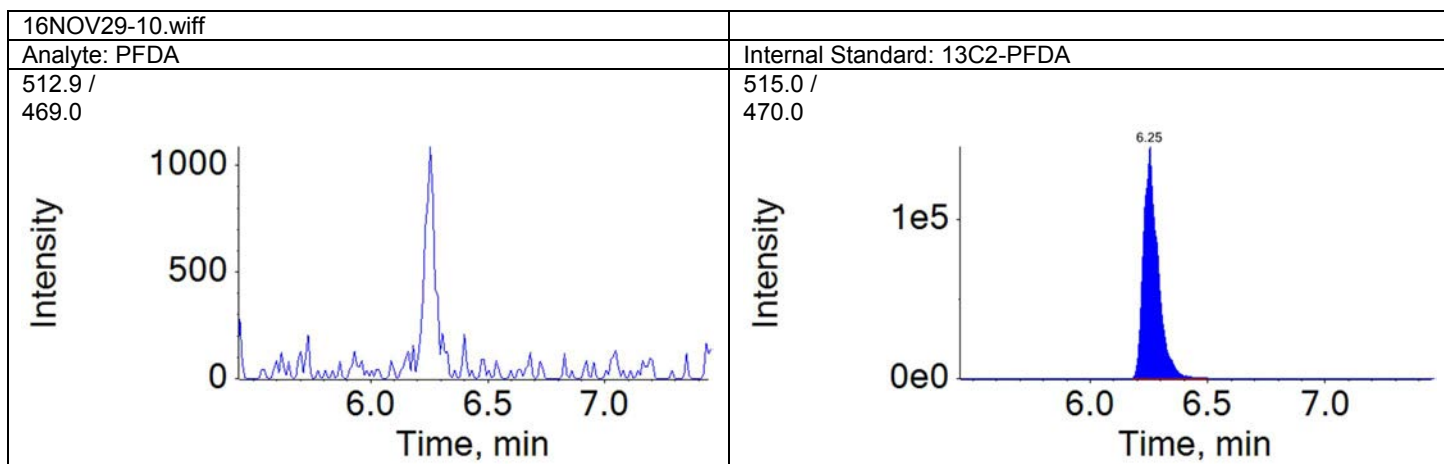
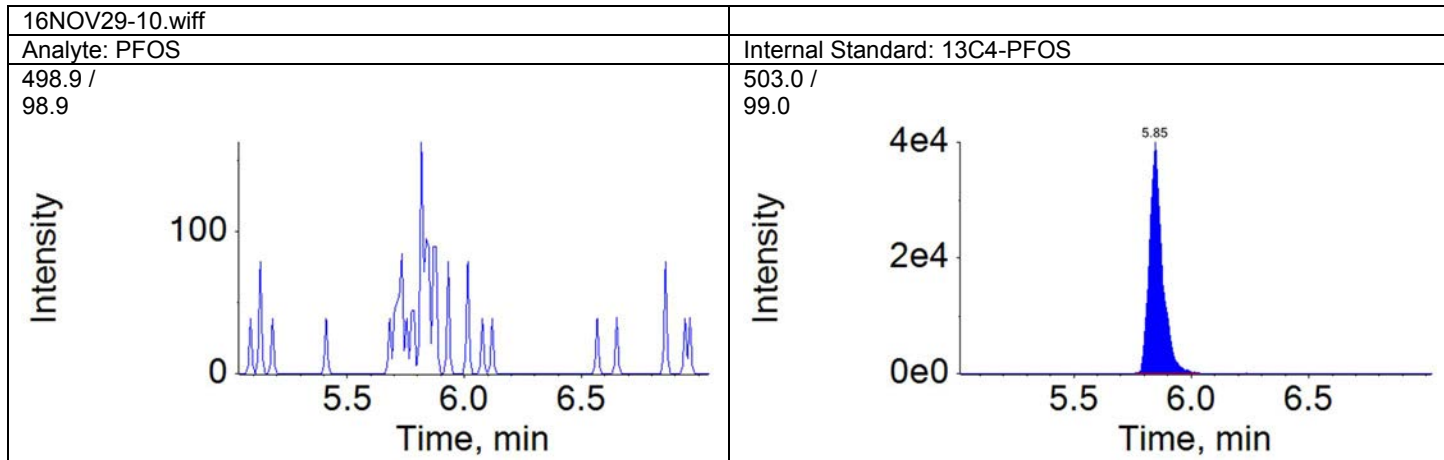
TIC from 16NOV29-10.wiff (sample 1) - 8707407

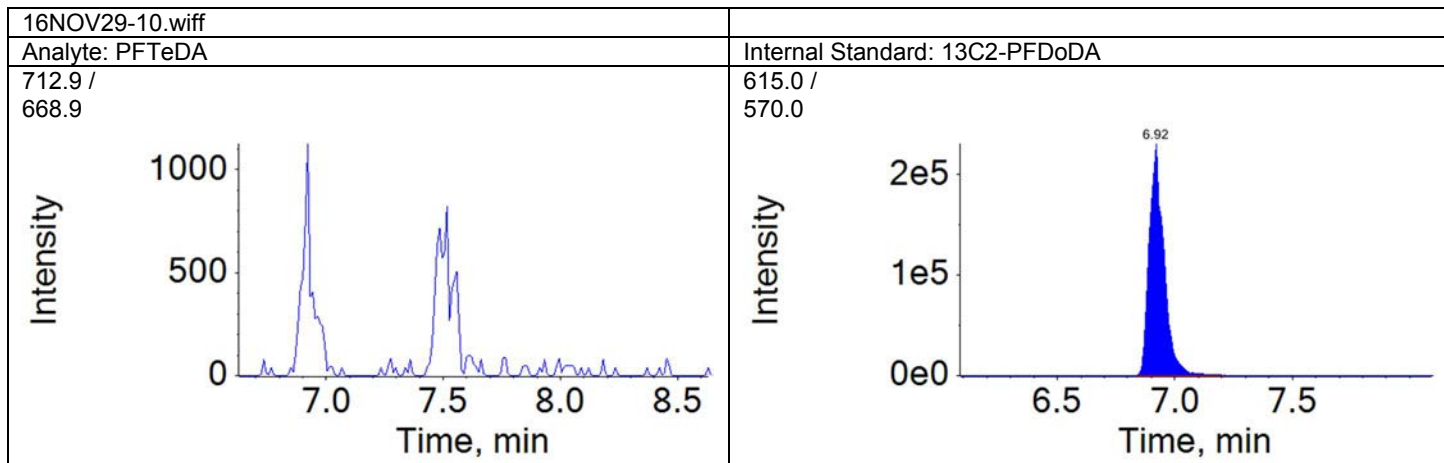
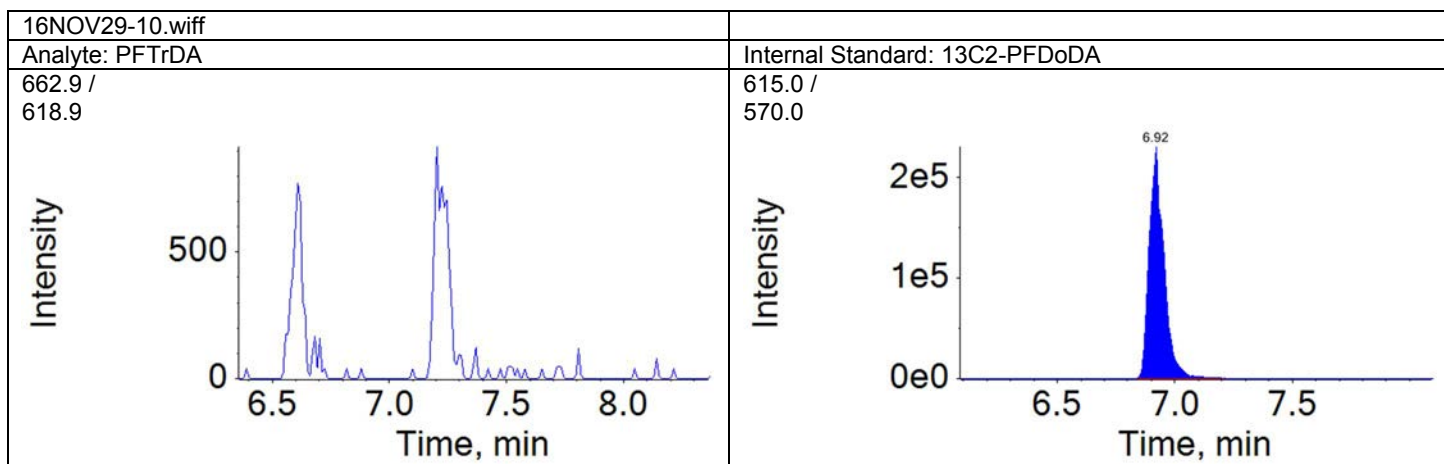
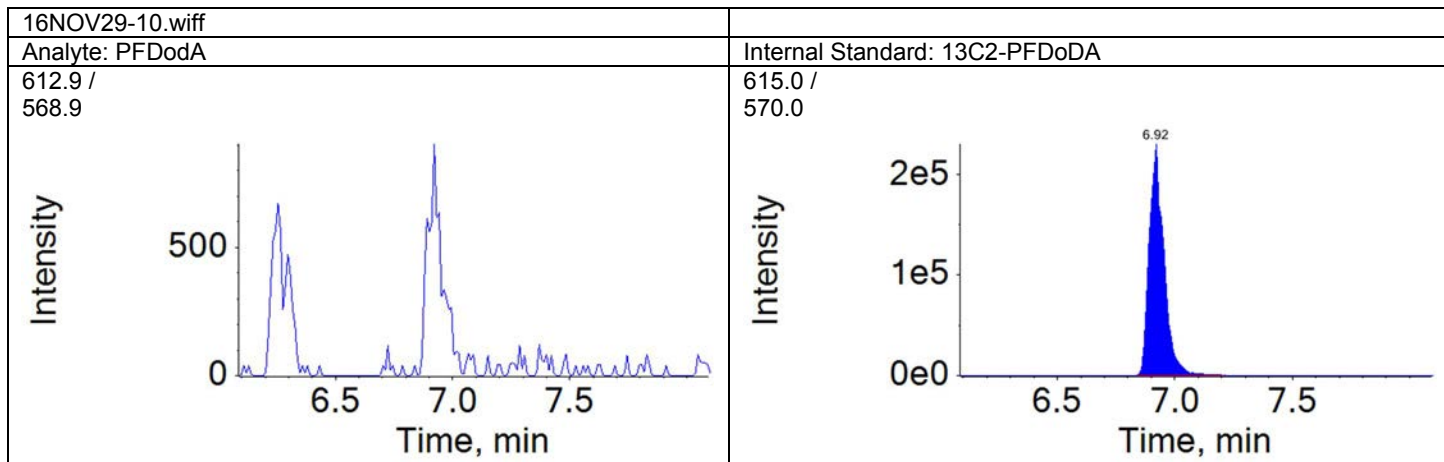








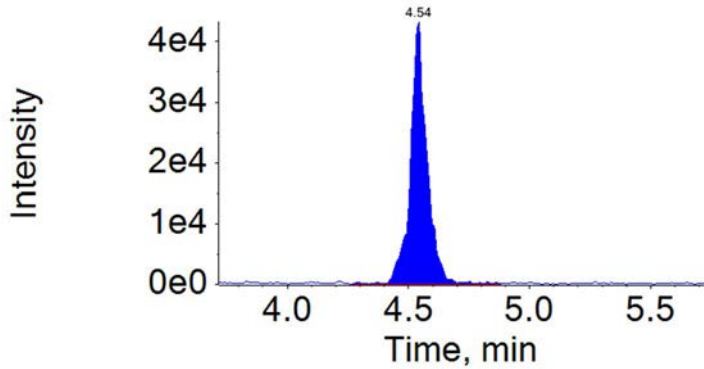




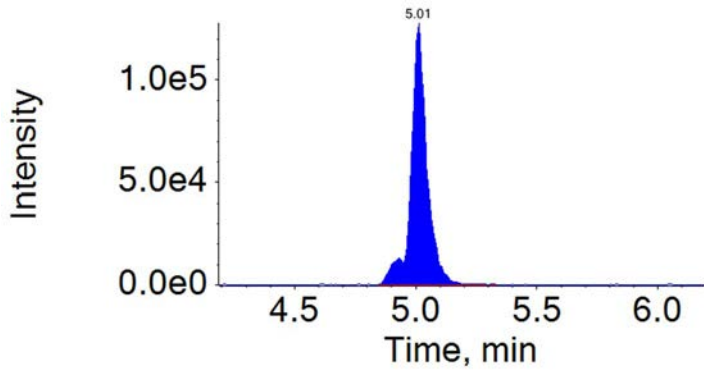
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-10.wiff	2016-11-29T15:45:51	8707407	PFHxA	4.54	206421.4
16NOV29-10.wiff	2016-11-29T15:45:51	8707407	PFHpA	5.01	589720.0

Component: PFHxA  
Mass: 312.9 / 269.0



Component: PFHpA  
Mass: 362.9 / 318.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707407DL
Sample (vol): 0.1000 (L)		Lab File ID: 19:51
Sample Prep: SPE		Date Collected: 11/18/2016 12:00
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 19:51
% Moisture: N/A		Dilution Factor: 10.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	40	U
307-24-4	PFHxA	39	
375-85-9	PFHpA	65	
355-46-4	PFHxS	40	U
335-67-1	PFOA	2000	
375-95-1	PFNA	10	U
1763-23-1	PFOS	50	U
335-76-2	PFDA	10	U
2058-94-8	PFUnDA	20	U
307-55-1	PFDoDA	30	U
72629-94-8	PFTrDA	20	U
376-06-7	PFTeDA	30	U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

<b>Sample Name:</b>	8707407DL	<b>Data File:</b>	16NOV29-25.wiff
<b>Sample ID:</b>	EPA 537 Rev. 1.1 modified 16330002 MS-DUP-001(11182016) Grab	<b>Acquis Date:</b>	2016-11-29T19:51:39
<b>Sample Type:</b>	Unknown	<b>Instrument:</b>	Triple Quad 4500, 0, LM24743
<b>Vial Position:</b>	96	<b>Acquis Method:</b>	PFC-14cmpd-16OCT07.dam
<b>Injection Vol:</b>	10.00	<b>Result Table:</b>	MQ 16330002
		<b>ICAL Name:</b>	16NOV22ICAL
<b>Batch Number:</b>	16330002	<b>Operator:</b>	US19INS00015\4500TRIPLE
<b>Sample Wt.:</b>	0.09995	<b>Dilution Factor:</b>	10.00
<b>Sample Vol.:</b>	1.000	<b>Prep Factor:</b>	1.000

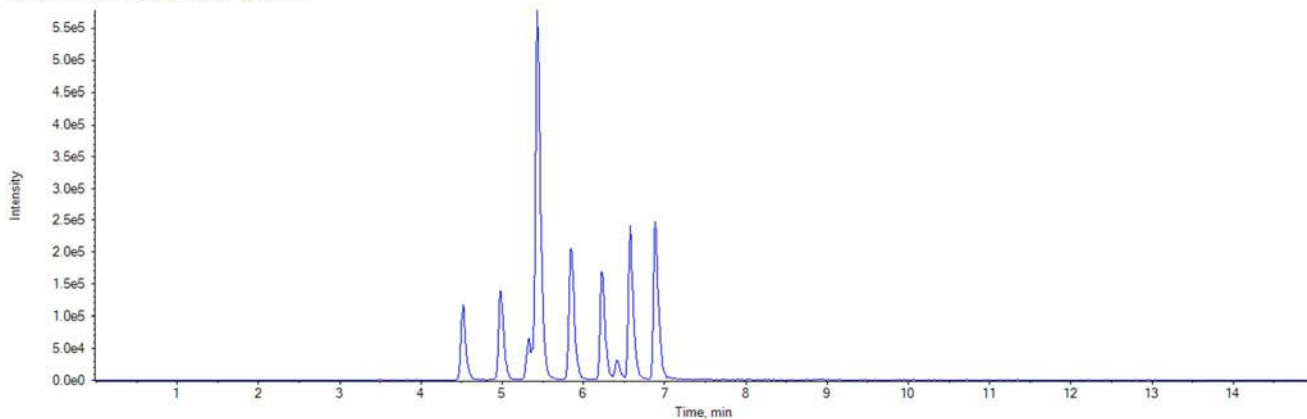
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	137813.3	N/A	N/A
PFHxA	4.52	1.000	24428.8	A	13C2-PFHxA	4.52	462171.2	0.053	39.405
PFHpA	4.98	1.000	65301.9	M	13C4-PFHpA	4.99	415697.8	0.157	64.841
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	137813.3	N/A	N/A
PFOA	5.44	1.000	2374335.7	A	13C4-PFOA	5.44	475320.0	4.995	1952.118
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.85	811913.7	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.83	153099.7	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.23	726486.9	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.58	860330.5	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.89	1061337.9	N/A	N/A
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.89	1061337.9	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.89	1061337.9	N/A	N/A

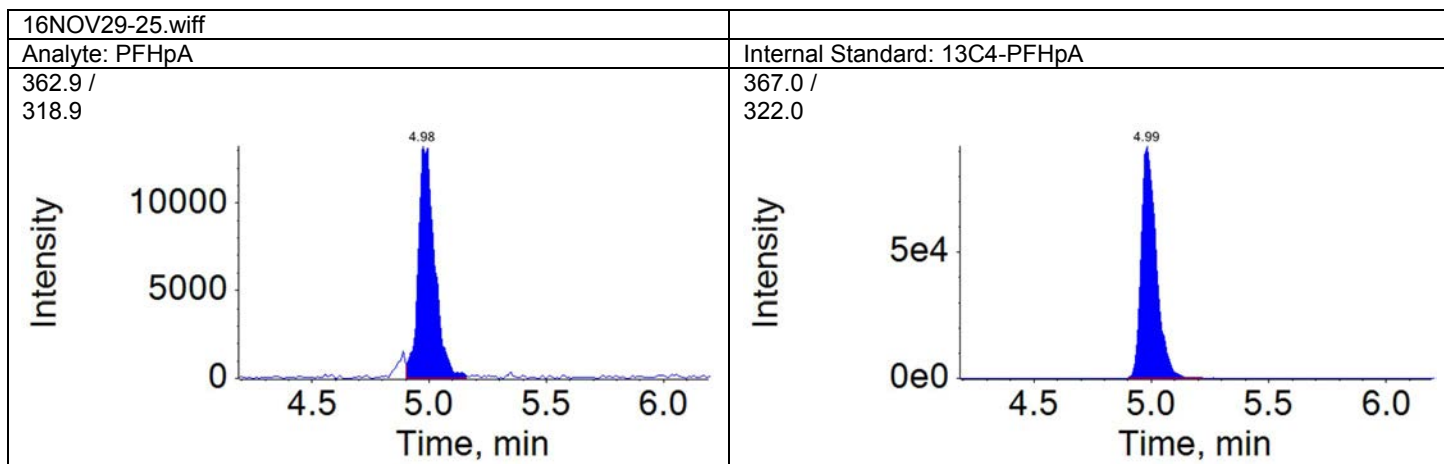
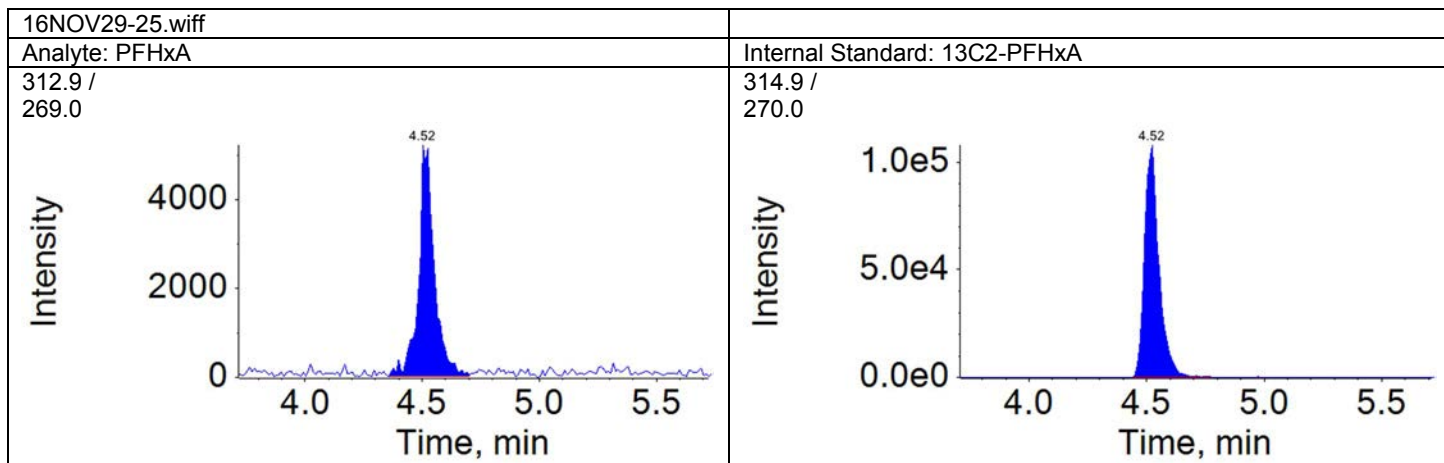
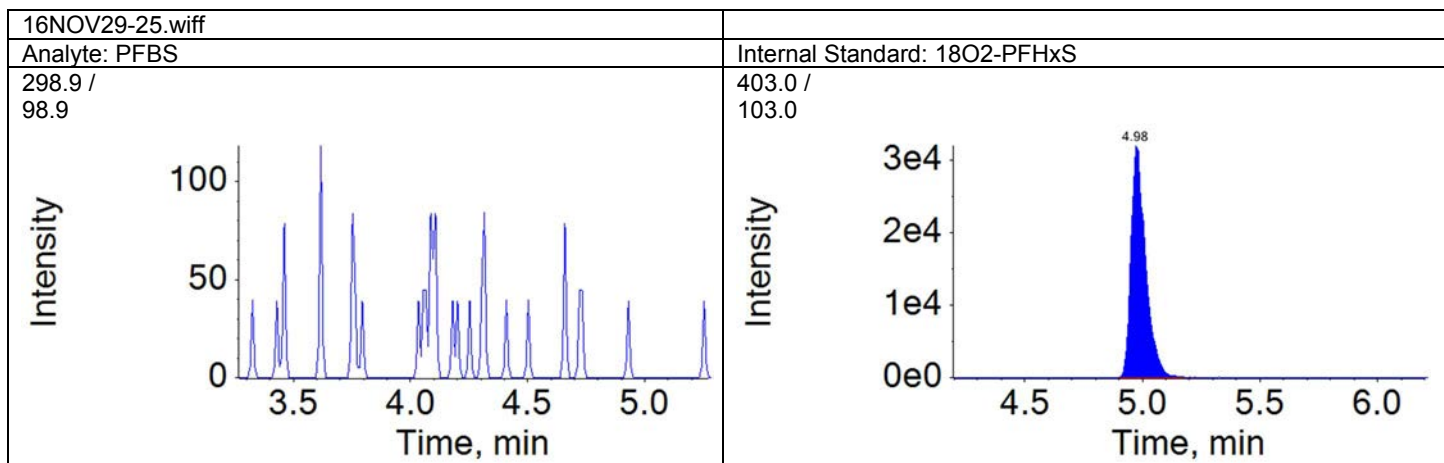
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16330002 MS-DUP-001(11182016) Grab

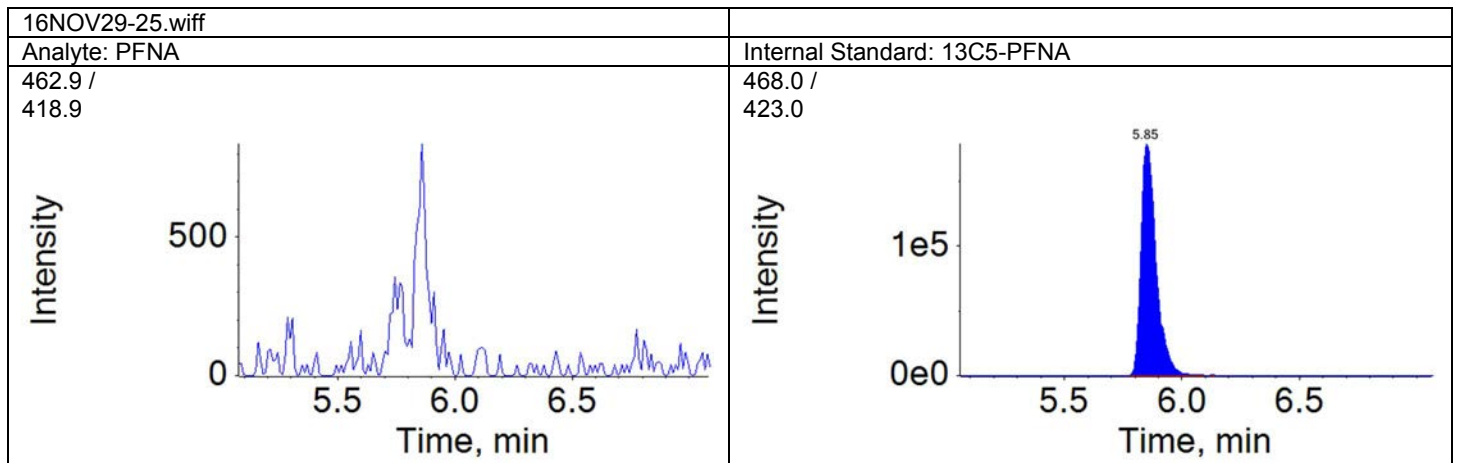
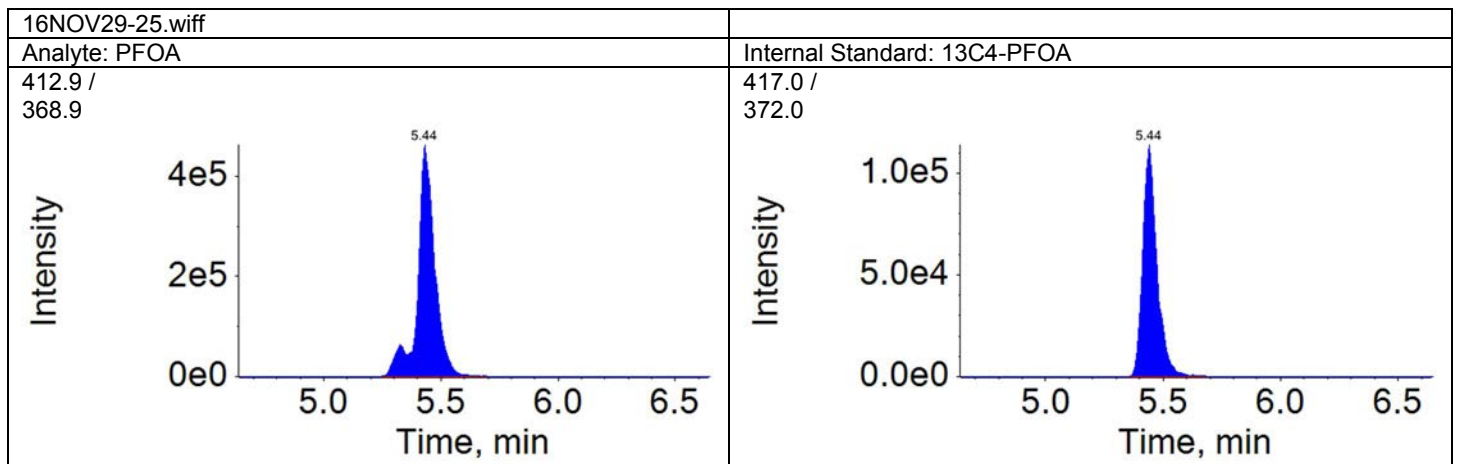
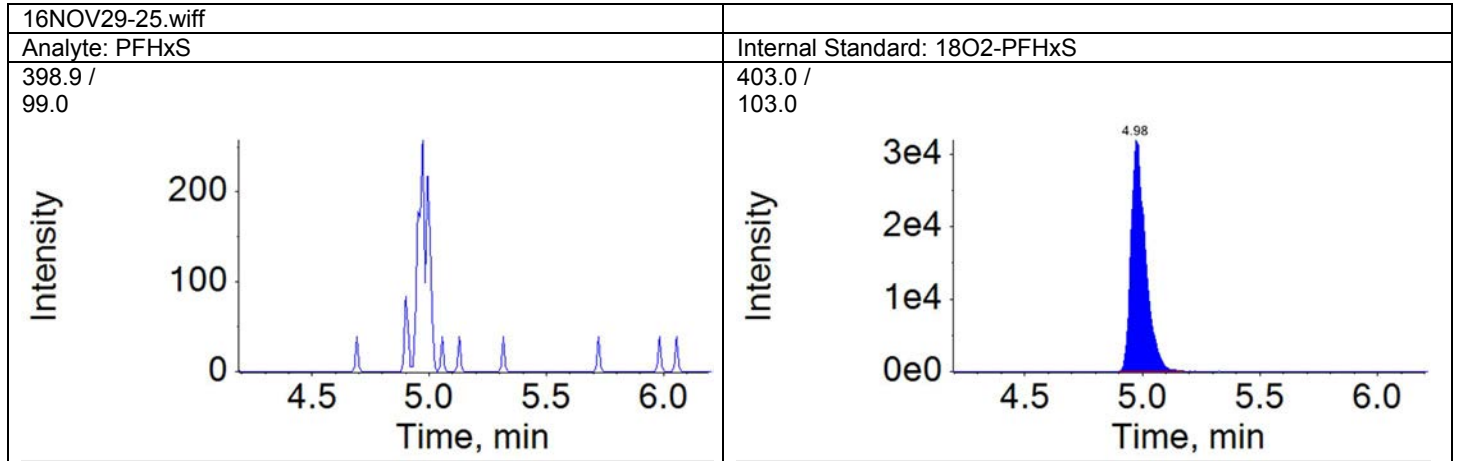
TIC from 16NOV29-25.wiff (sample 1) - 8707407DL

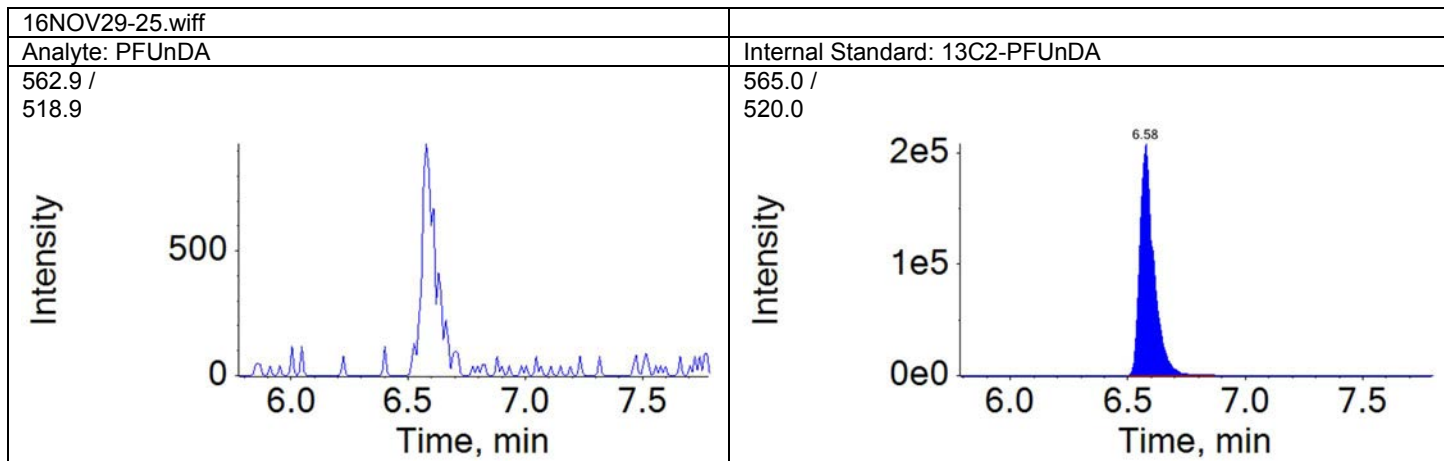
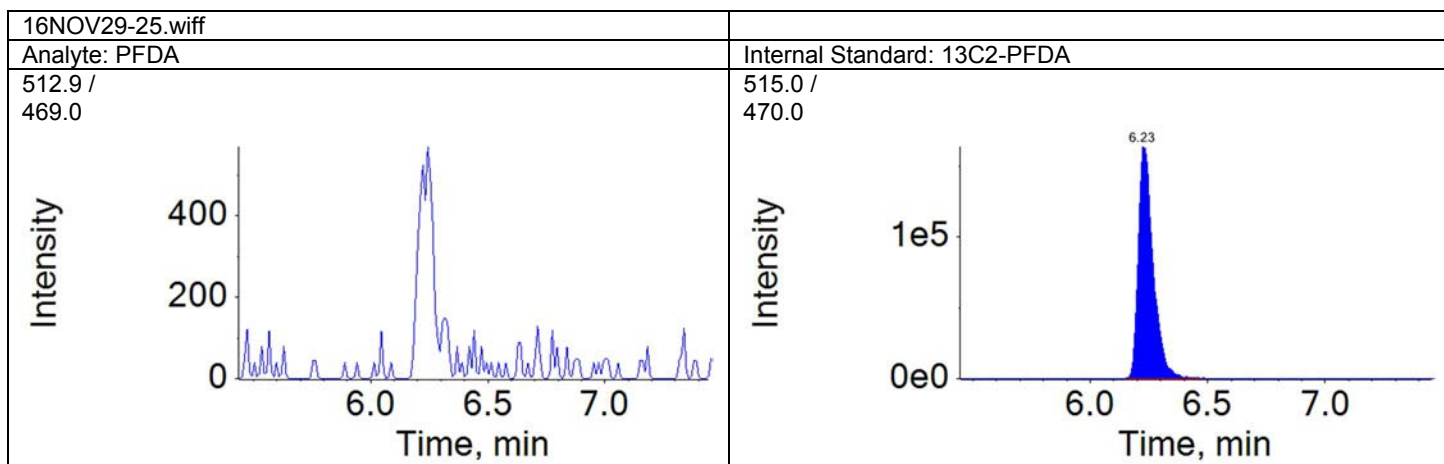
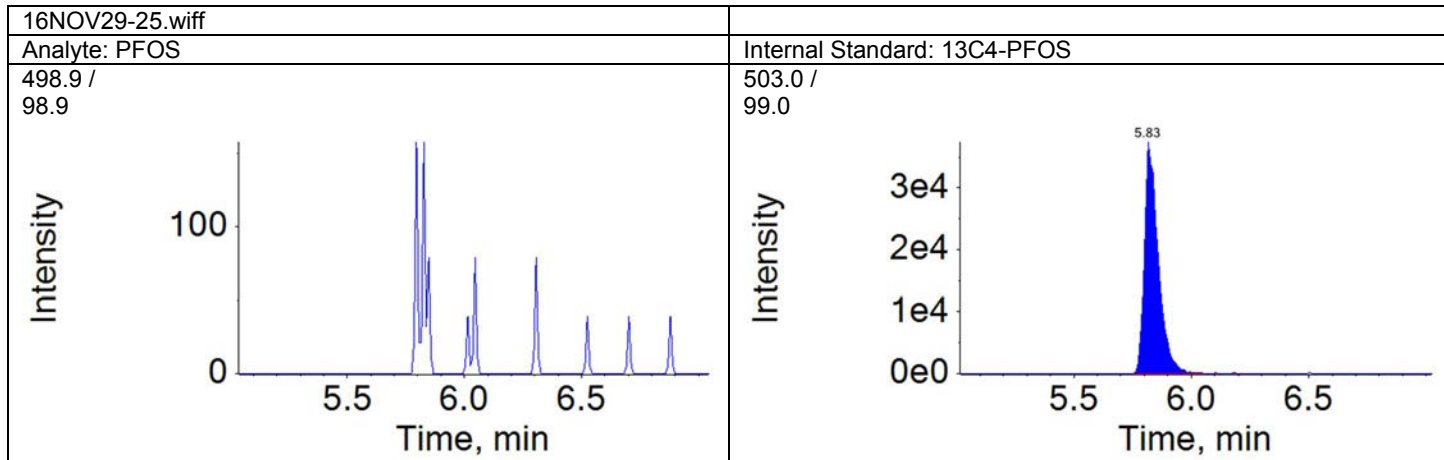


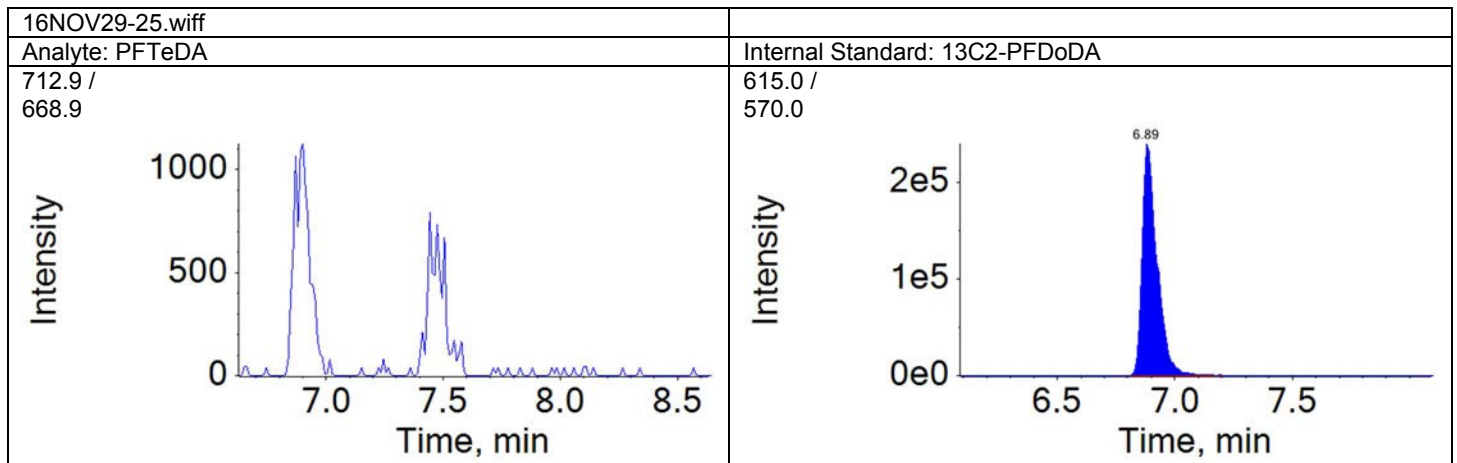
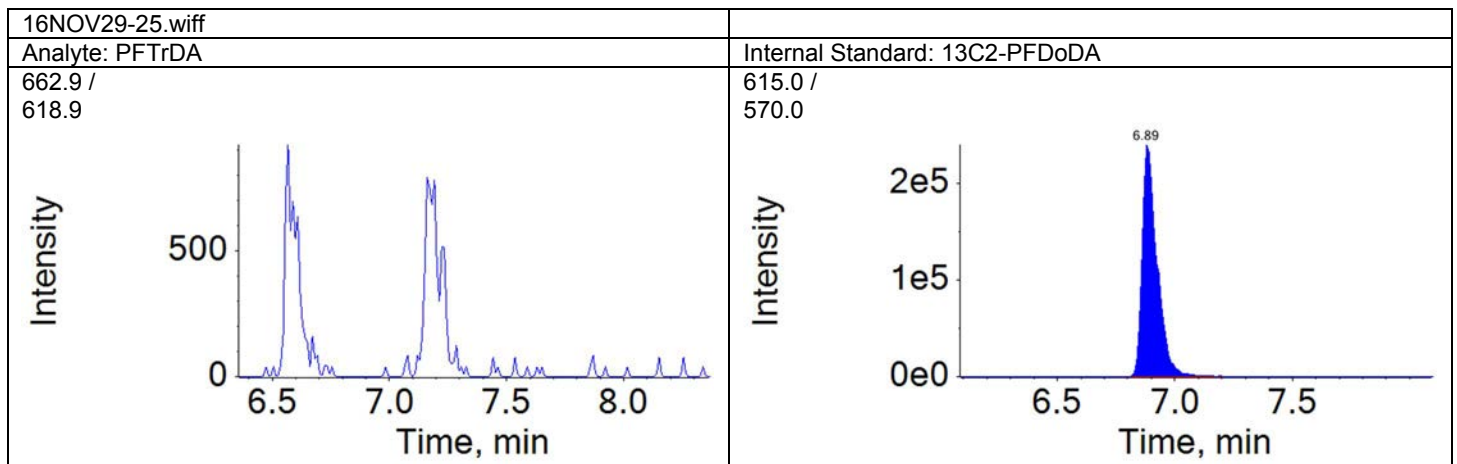
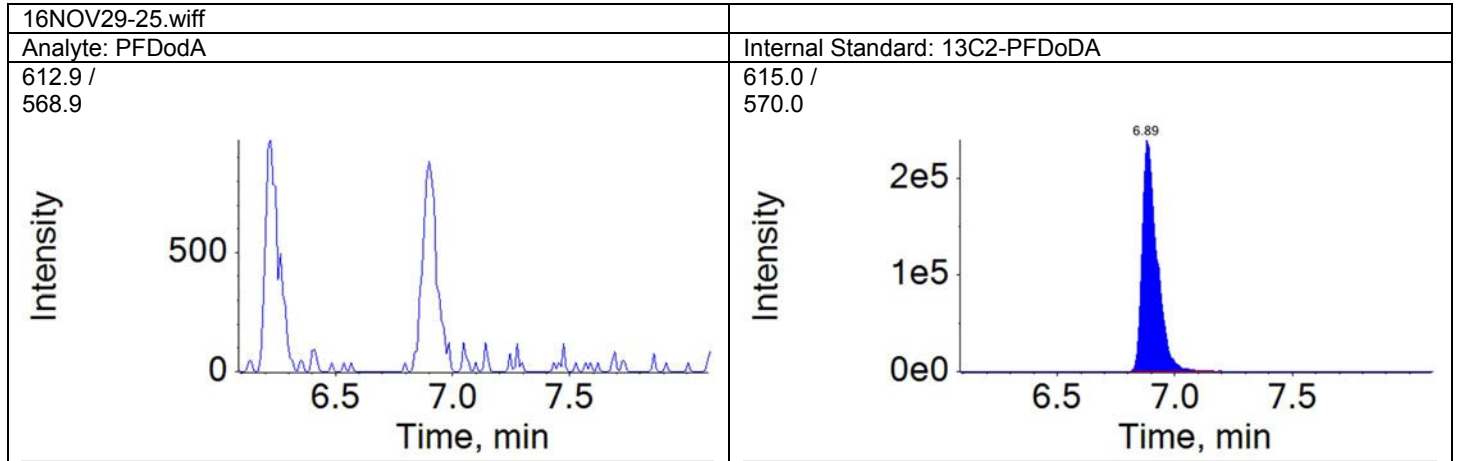








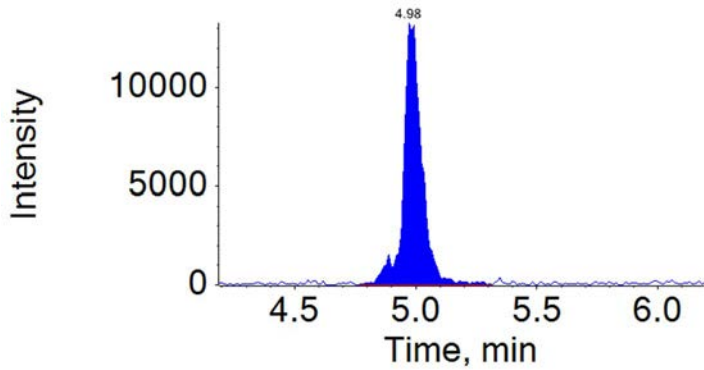




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-25.wiff	2016-11-29T19:51:39	8707407DL	PFHpA	4.98	69518.9

Component: PFHpA  
Mass: 362.9 / 318.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707408
Sample (vol): 0.1000 (L)		Lab File ID: 16:02
Sample Prep: SPE		Date Collected: 11/18/2016 09:30
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 16:02
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS		4 U
307-24-4	PFHxA		1 U
375-85-9	PFHpA		1 U
355-46-4	PFHxS		4 U
335-67-1	PFOA		1 U
375-95-1	PFNA		1 U
1763-23-1	PFOS		5 U
335-76-2	PFDA		1 U
2058-94-8	PFUnDA		2 U
307-55-1	PFDoDA		3 U
72629-94-8	PFTrDA		2 U
376-06-7	PFTeDA		3 U

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

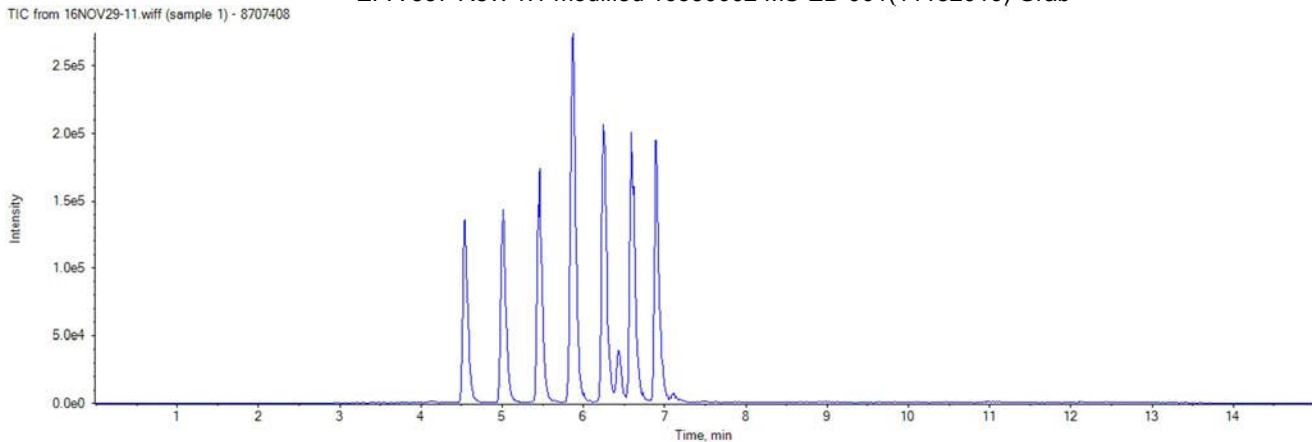
Sample Name:	8707408	Data File:	16NOV29-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16330002 MS-EB-001(11182016) Grab	Acquis Date:	2016-11-29T16:02:15
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	19	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.09999	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

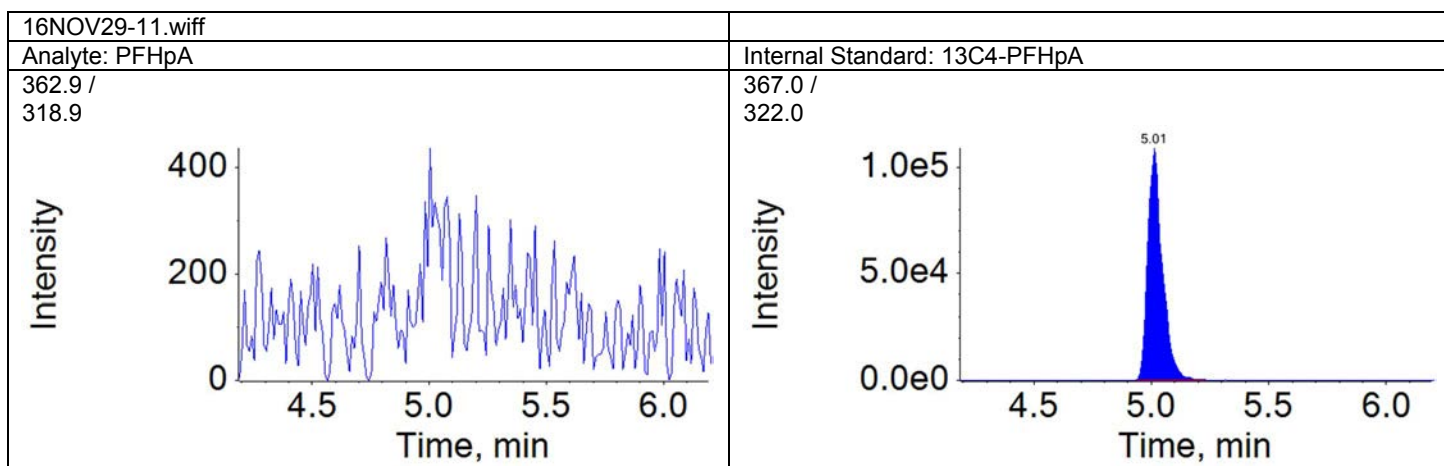
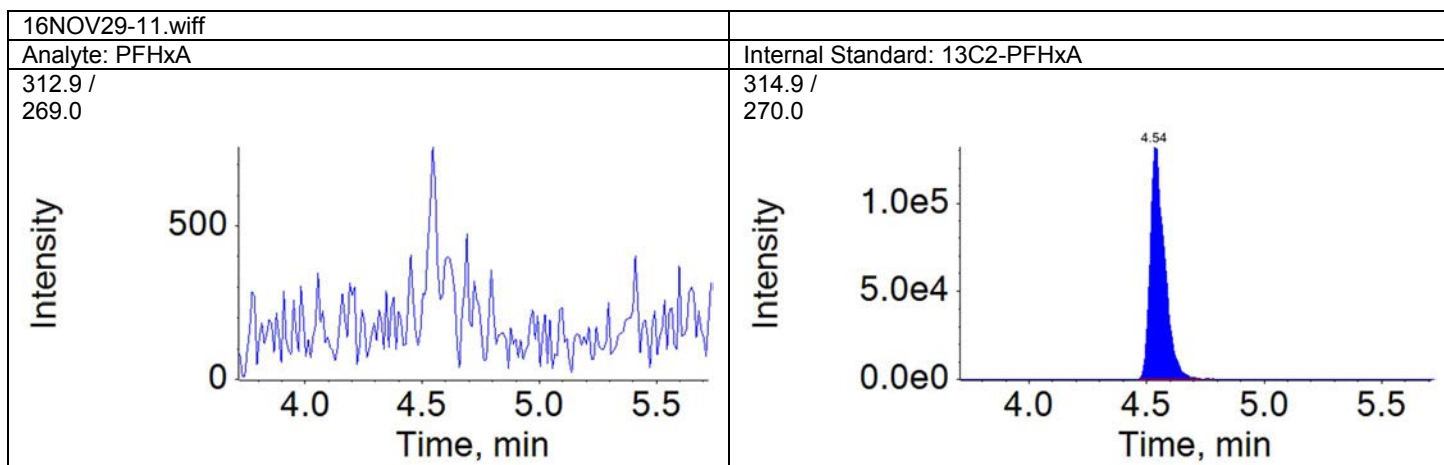
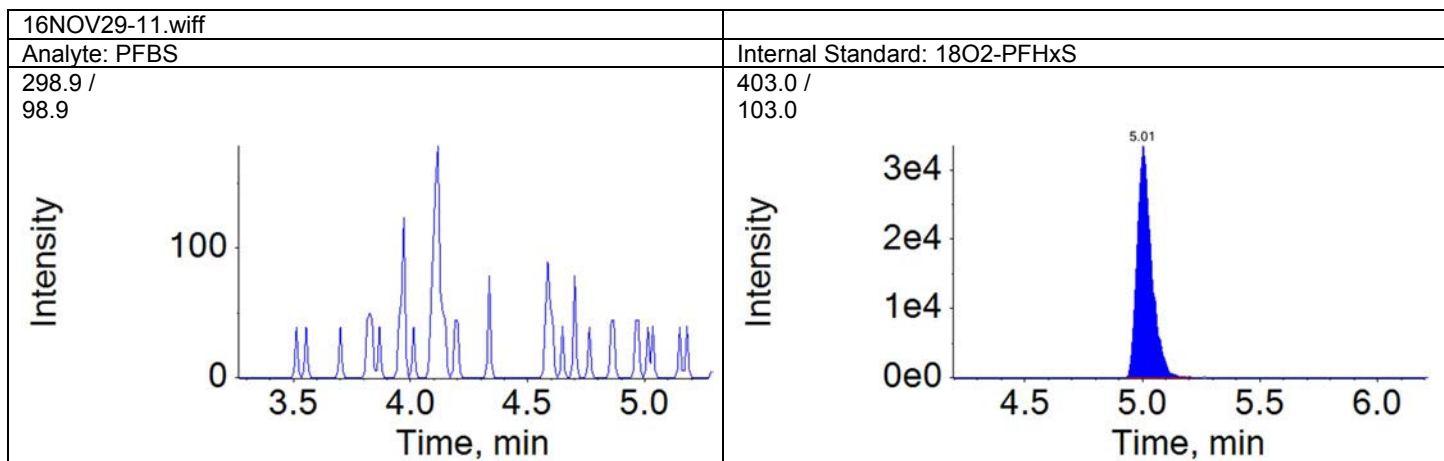
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	5.01	142786.3	N/A	N/A
PFHxA	N/A	N/A	N/A	A	13C2-PFHxA	4.54	568287.5	N/A	N/A
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.01	468538.3	N/A	N/A
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	5.01	142786.3	N/A	N/A
PFOA	N/A	N/A	N/A	A	13C4-PFOA	5.46	708461.6	N/A	N/A
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.87	1055162.8	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.84	183750.3	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.25	909292.0	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.60	781145.7	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.90	762418.6	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.90	762418.6	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.90	762418.6	N/A	N/A

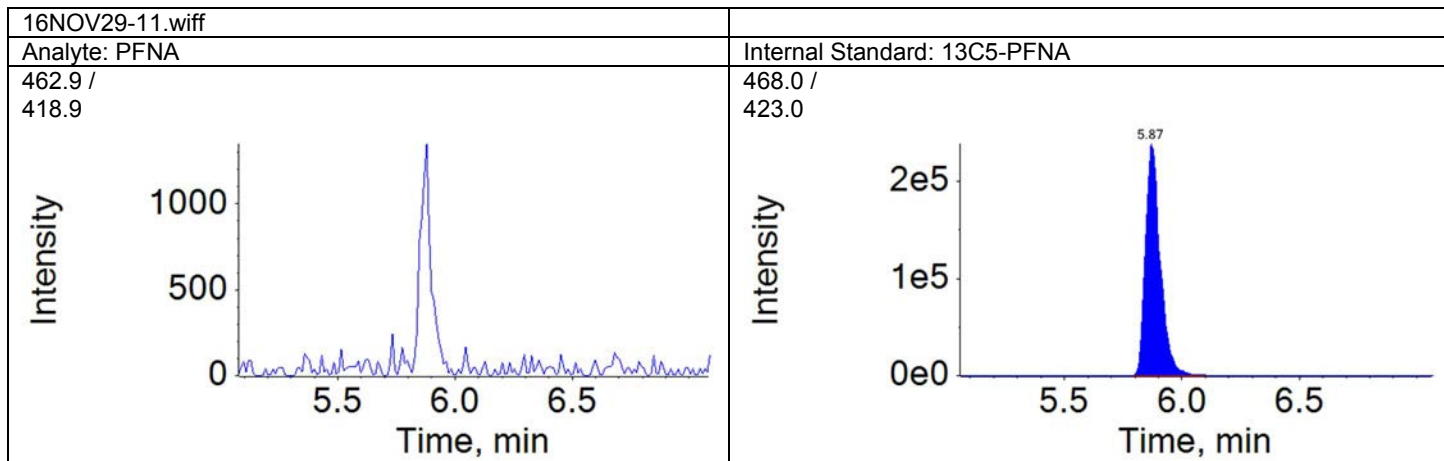
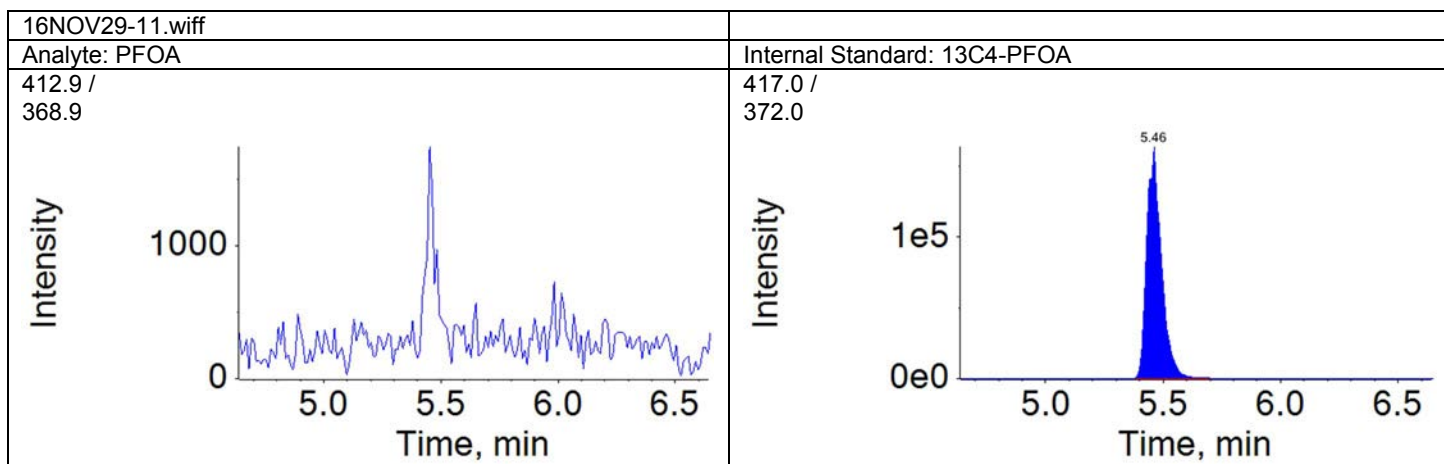
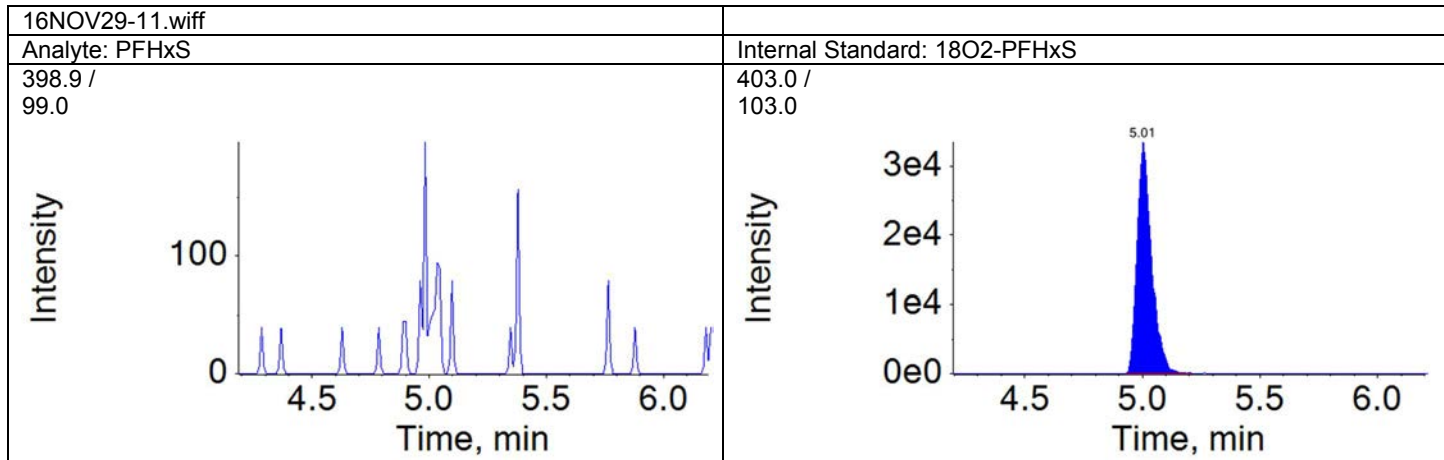
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16330002 MS-EB-001(11182016) Grab

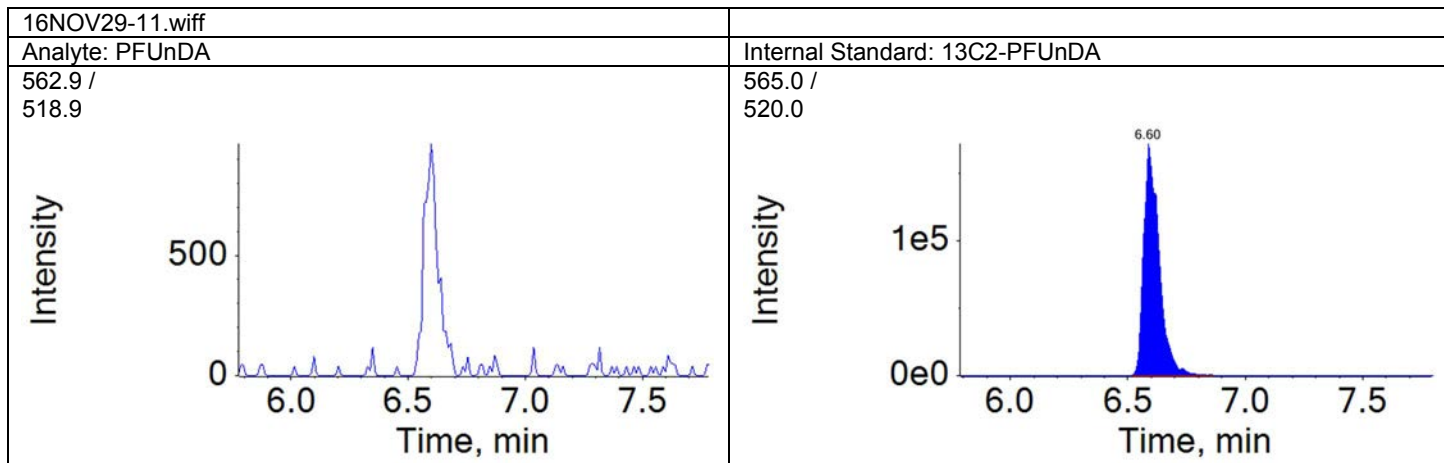
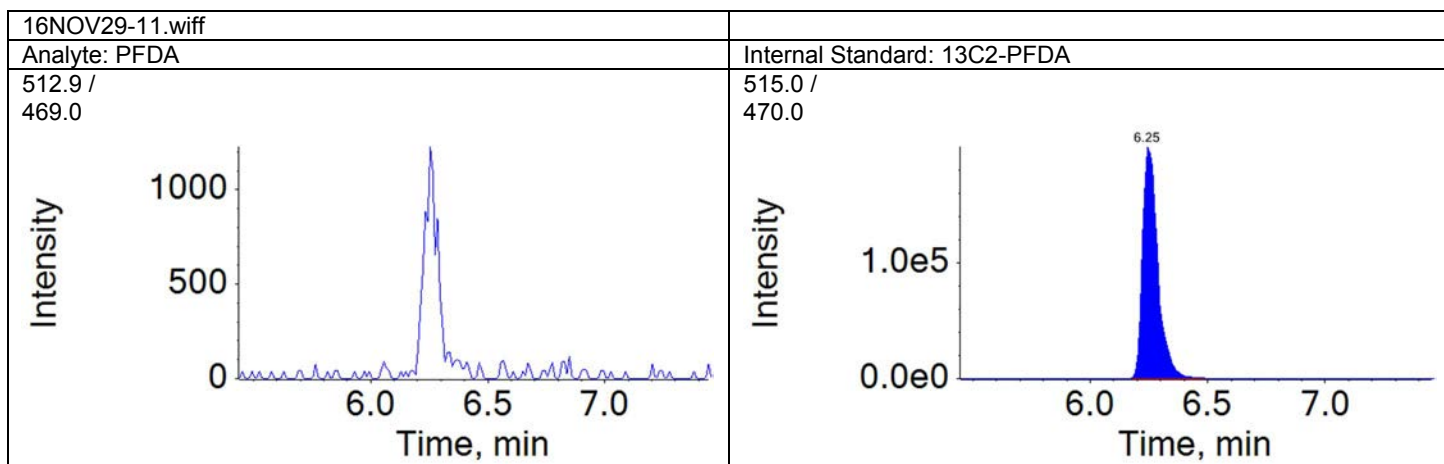
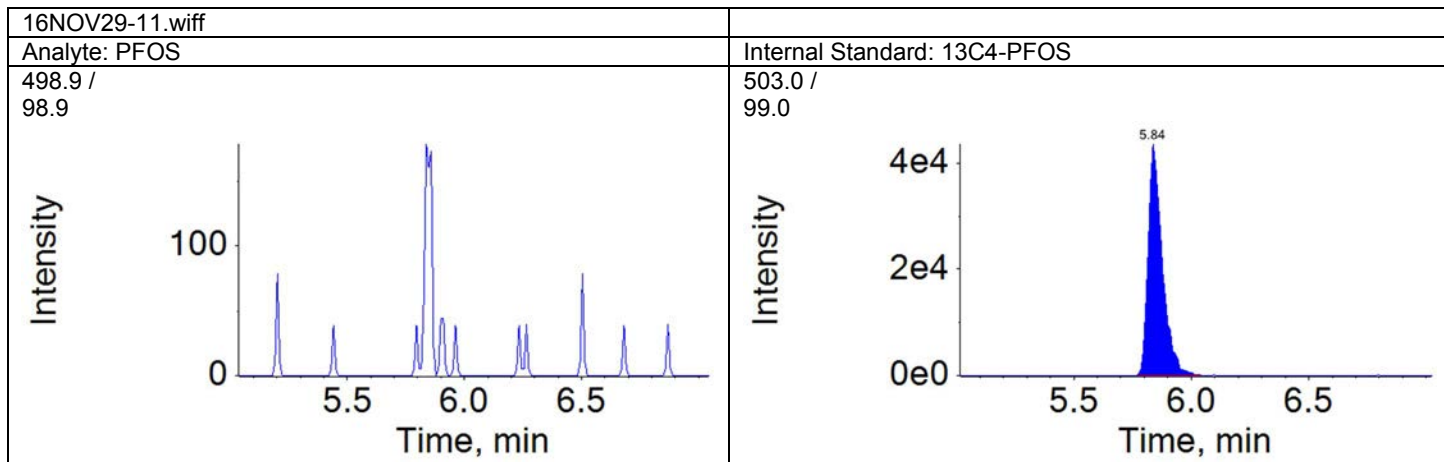


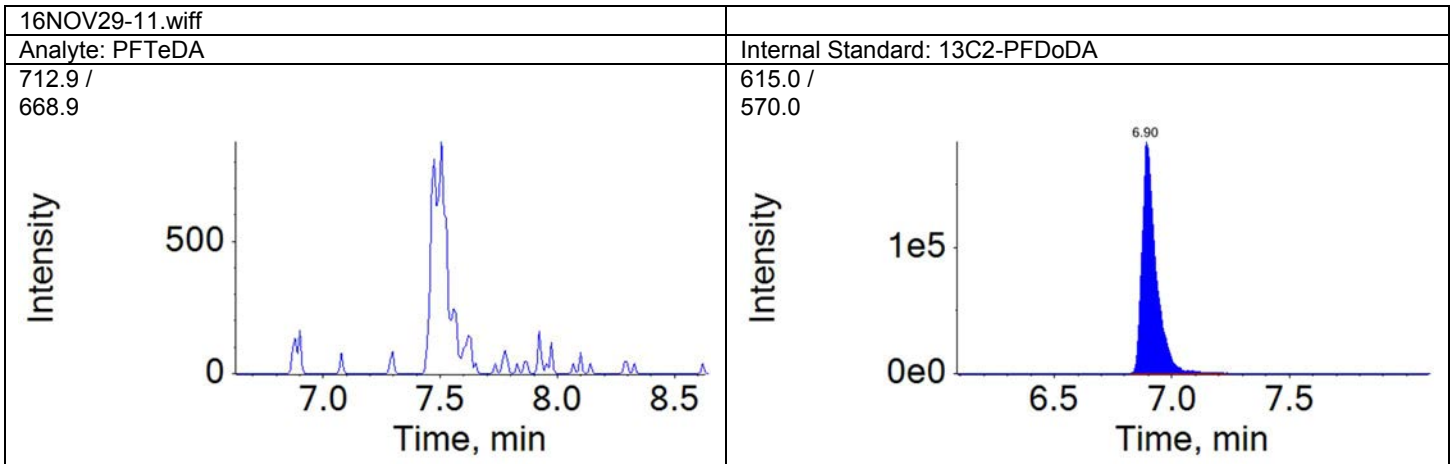
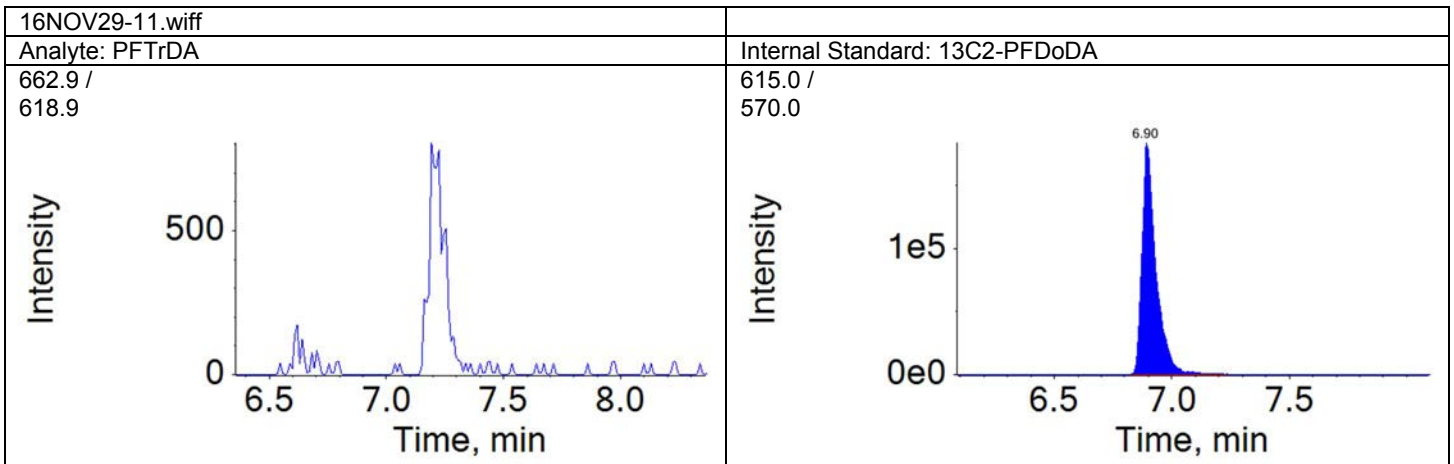
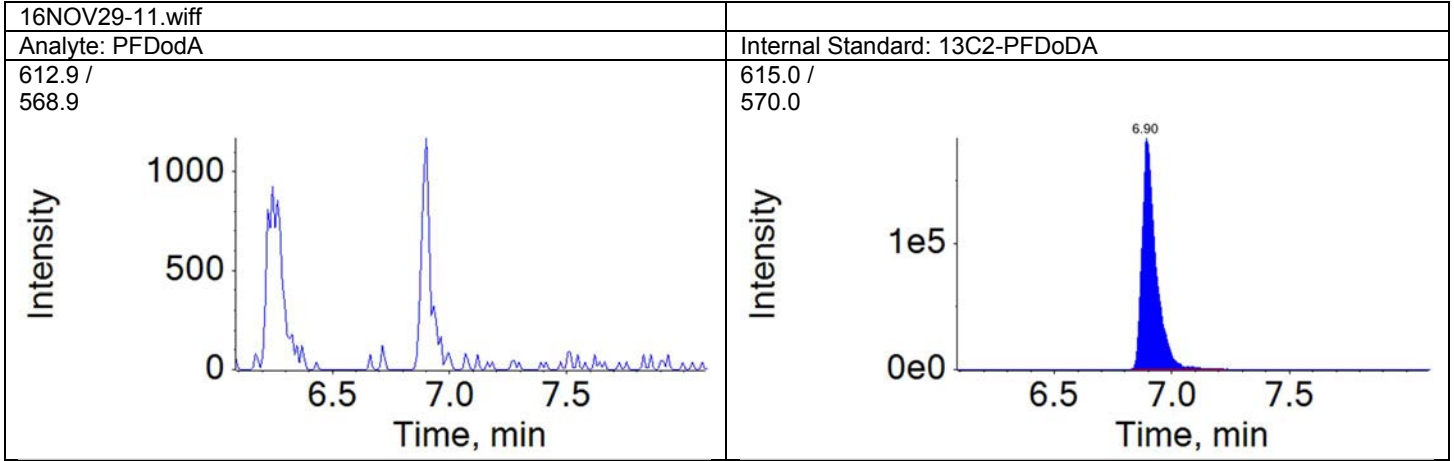












**Standards Data**

**PFAAs by LC/MS/MS**

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500, 0, LM24743	11/22/2016 12:19:06 PM	16NOV22ICAL-06.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 12:35:36 PM	16NOV22ICAL-07.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 12:52:00 PM	16NOV22ICAL-08.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 1:08:30 PM	16NOV22ICAL-09.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 1:24:54 PM	16NOV22ICAL-10.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 1:41:27 PM	16NOV22ICAL-11.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 1:57:48 PM	16NOV22ICAL-12.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 2:30:42 PM	16NOV22ICAL-14.wiff	LB CAL3	10	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 2:47:15 PM	16NOV22ICAL-15.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/22/2016 3:03:39 PM	16NOV22ICAL-16.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 1:51:03 PM	16NOV29-03.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 2:07:26 PM	16NOV29-04.wiff	BLK330002	12	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 2:23:50 PM	16NOV29-05.wiff	LCS330002	13	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 2:40:15 PM	16NOV29-06.wiff	8707404BKG	14	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 2:56:39 PM	16NOV29-07.wiff	8707405MS	15	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 3:13:06 PM	16NOV29-08.wiff	8707406MSD	16	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 3:29:30 PM	16NOV29-09.wiff	8707403	17	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 3:45:51 PM	16NOV29-10.wiff	8707407	18	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 4:02:15 PM	16NOV29-11.wiff	8707408	19	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 6:13:21 PM	16NOV29-19.wiff	CCV3	7	1.00	1.00	1.00

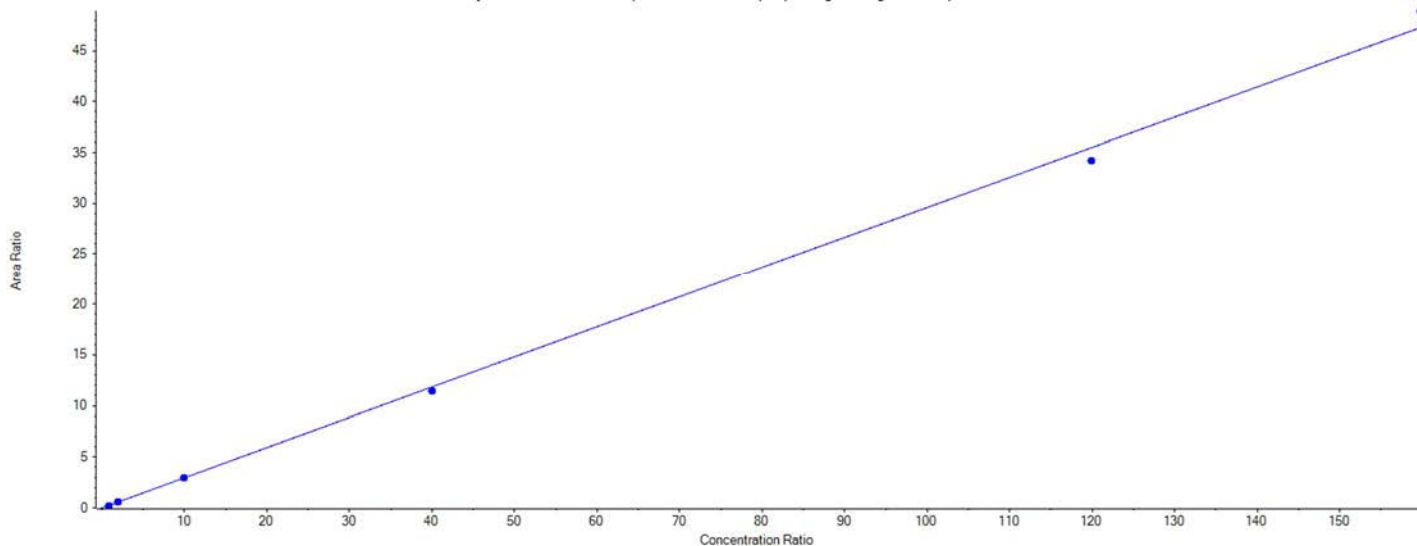
LM24743							
Triple Quad 4500, 0, LM24743	11/29/2016 6:29:45 PM	16NOV29-20.wiff	8707404BKGRE	91	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 6:46:09 PM	16NOV29-21.wiff	8707403RE	92	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 7:02:30 PM	16NOV29-22.wiff	8707407RE	93	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	11/29/2016 7:18:54 PM	16NOV29-23.wiff	8707404BKGDL	94	0.10	1.00	10.0 0
Triple Quad 4500, 0, LM24743	11/29/2016 7:35:15 PM	16NOV29-24.wiff	8707403DL	95	0.10	1.00	10.0 0
Triple Quad 4500, 0, LM24743	11/29/2016 7:51:39 PM	16NOV29-25.wiff	8707407DL	96	0.10	1.00	10.0 0
Triple Quad 4500, 0, LM24743	11/29/2016 8:57:12 PM	16NOV29-29.wiff	CCV4	5	1.00	1.00	1.00

Results Table Name: MQ 16330002 11/29/2016 4:23:01 PM

**Initial Calibration**

Results Table Name: MQ 16NOV22ICAL 11/23/2016 7:44:48 AM  
ICAL Name: 16NOV22ICAL

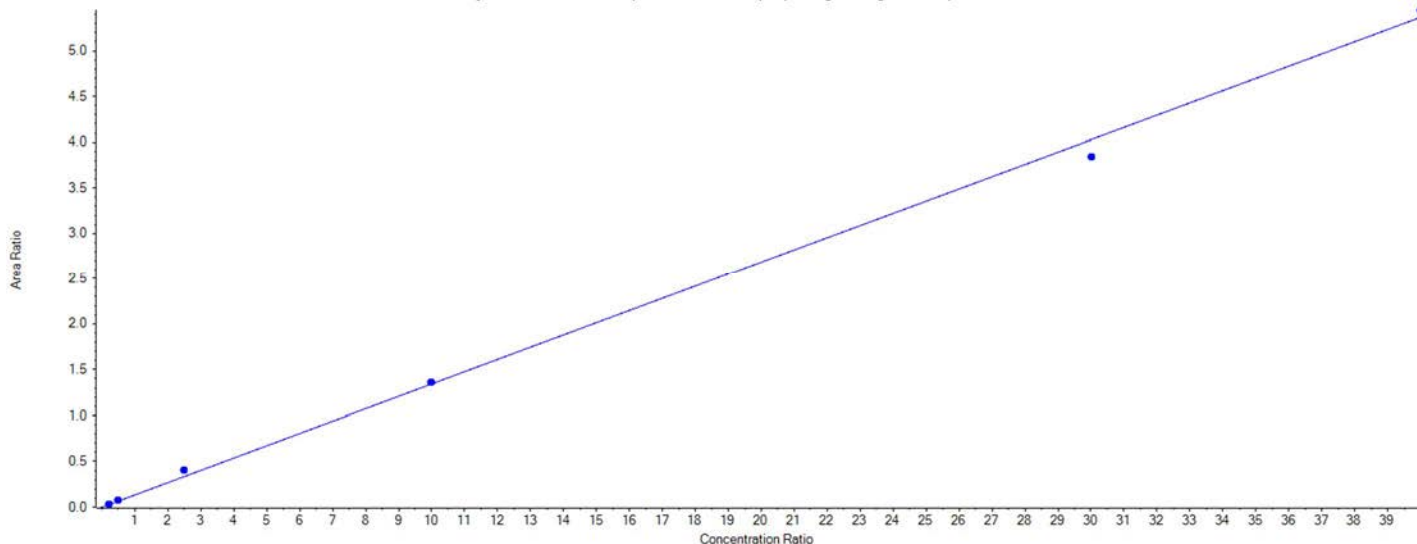
PFBS  
 $y = 0.29593 x$  (r = 0.99941) (weighting: 1 / x)



**Calibration Verification**

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	40213.6	174090.4	1.00	0.231	4.15	0.820	0.800	0.780	-2.3
16NOV22ICAL-08.wiff	CAL2	102598.1	182777.0	1.00	0.561	4.11	0.820	2.000	1.900	-5.2
16NOV22ICAL-09.wiff	CAL3	492595.9	165199.9	1.00	2.982	4.12	0.820	9.990	10.080	0.9
16NOV22ICAL-10.wiff	CAL4	1687872.8	147068.5	1.00	11.477	4.11	0.820	39.960	38.780	-2.9
16NOV22ICAL-11.wiff	CAL5	4128322.1	120582.7	1.00	34.236	4.12	0.820	119.900	115.690	-3.5
16NOV22ICAL-12.wiff	CAL6	4579376.2	93657.0	1.00	48.895	4.13	0.820	159.800	165.220	3.4

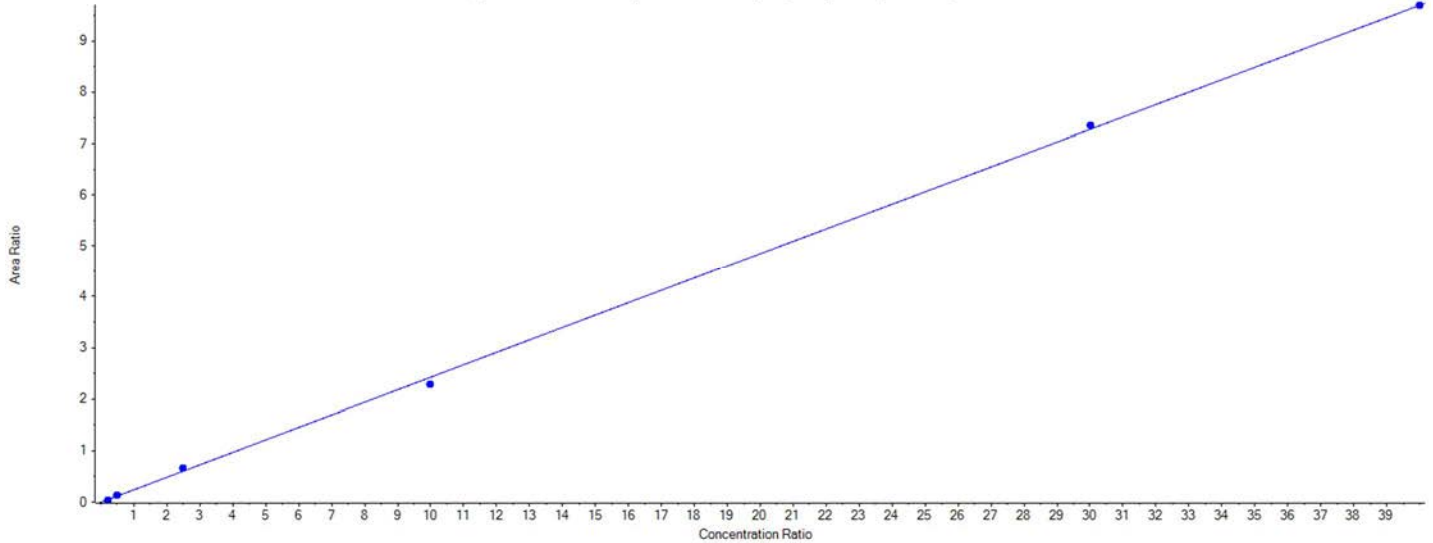
PFHxA  
 $y = 0.13420 x$  (r = 0.99884) (weighting: 1 / x)



**Calibration Verification**

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	16649.0	597404.4	1.00	0.028	4.59	1.000	0.200	0.210	3.8
16NOV22ICAL-08.wiff	CAL2	46059.3	616901.1	1.00	0.075	4.57	1.000	0.500	0.560	11.3
16NOV22ICAL-09.wiff	CAL3	217870.9	532868.2	1.00	0.409	4.56	1.000	2.500	3.050	21.9
16NOV22ICAL-10.wiff	CAL4	807452.4	591079.2	1.00	1.366	4.56	1.000	10.000	10.180	1.8
16NOV22ICAL-11.wiff	CAL5	2235260.8	581604.1	1.00	3.843	4.56	1.000	30.000	28.640	-4.5
16NOV22ICAL-12.wiff	CAL6	2564848.4	471035.9	1.00	5.445	4.57	1.000	40.000	40.570	1.4

PFHpA  
 $y = 0.24239 x$  (r = 0.99954) (weighting: 1 / x)

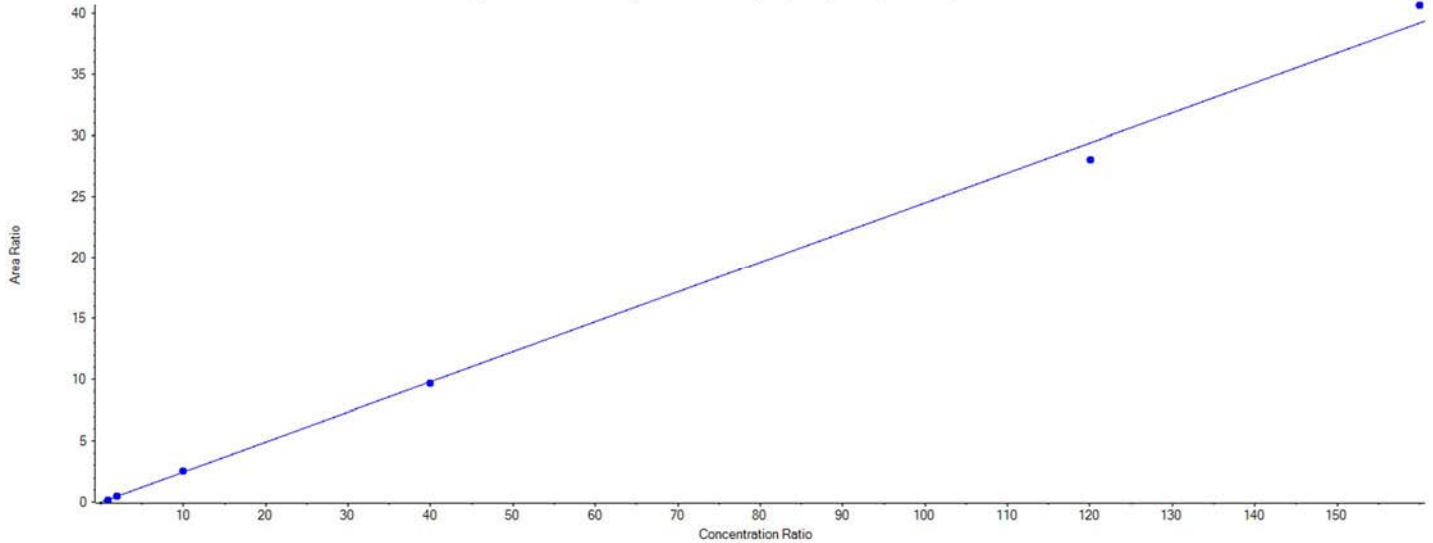


**Calibration Verification**

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	20399.5	479681.5	1.00	0.043	5.07	1.000	0.200	0.180	-12.3
16NOV22ICAL-08.wiff	CAL2	62638.6	477945.2	1.00	0.131	5.04	1.000	0.500	0.540	8.1
16NOV22ICAL-09.wiff	CAL3	260947.6	388380.0	1.00	0.672	5.04	1.000	2.500	2.770	10.9
16NOV22ICAL-10.wiff	CAL4	827052.9	362353.6	1.00	2.282	5.04	1.000	10.000	9.420	-5.8
16NOV22ICAL-11.wiff	CAL5	1758637.5	239507.5	1.00	7.343	5.04	1.000	30.000	30.290	1.0
16NOV22ICAL-12.wiff	CAL6	1998547.3	206112.5	1.00	9.696	5.06	1.000	40.000	40.000	0.0



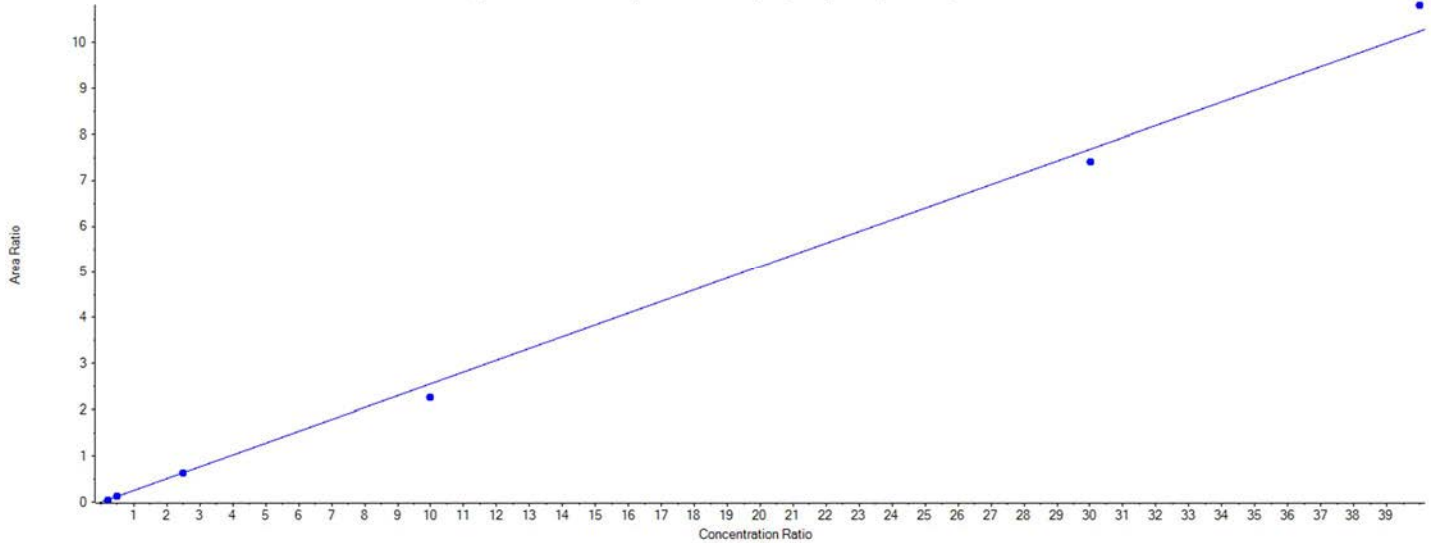
PFHxS  
 $y = 0.24520 x$  ( $r = 0.99922$ ) (weighting:  $1 / x$ )



**Calibration Verification**

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	32450.0	174090.4	1.00	0.186	5.06	1.000	0.800	0.760	-5.0
16NOV22ICAL-08.wiff	CAL2	85775.5	182777.0	1.00	0.469	5.04	1.000	2.000	1.910	-4.3
16NOV22ICAL-09.wiff	CAL3	417182.9	165199.9	1.00	2.525	5.03	1.000	10.000	10.300	3.0
16NOV22ICAL-10.wiff	CAL4	1421354.1	147068.5	1.00	9.665	5.02	1.000	40.000	39.420	-1.5
16NOV22ICAL-11.wiff	CAL5	3384859.5	120582.7	1.00	28.071	5.03	1.000	120.000	114.480	-4.6
16NOV22ICAL-12.wiff	CAL6	3810524.1	93657.0	1.00	40.686	5.04	1.000	160.000	165.930	3.7

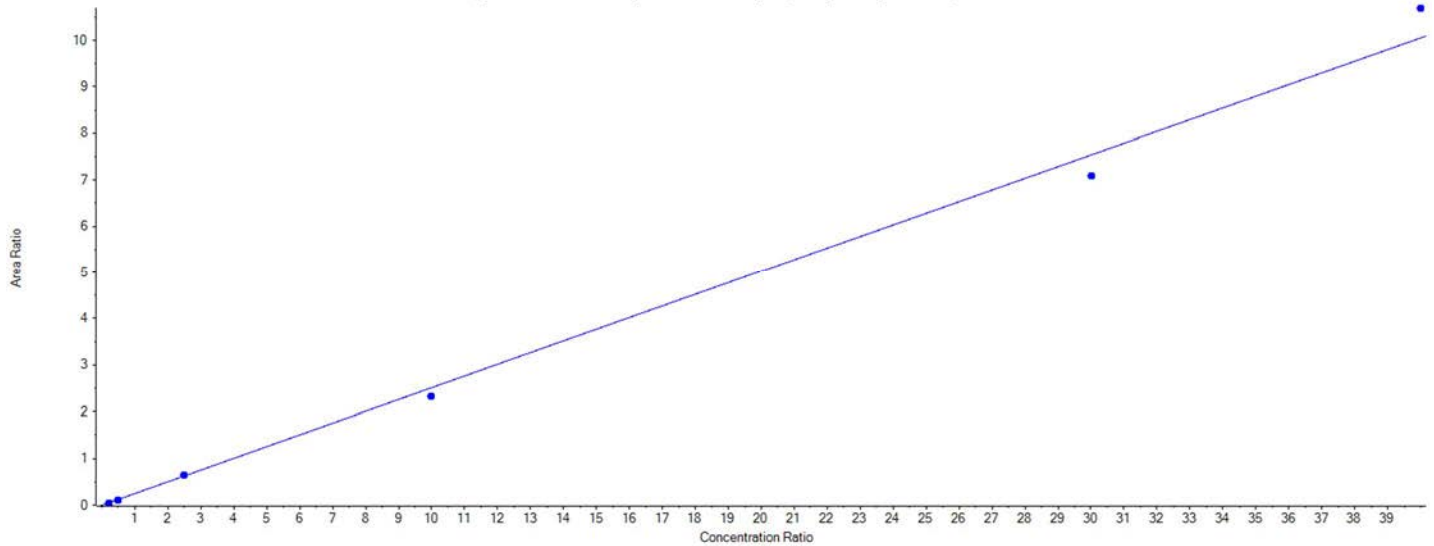
PFOA  
 $y = 0.25602 x$  ( $r = 0.99816$ ) (weighting:  $1 / x$ )



**Calibration Verification**

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	29929.5	630784.5	1.00	0.047	5.53	1.000	0.200	0.190	-7.3
16NOV22ICAL-08.wiff	CAL2	85539.4	630488.4	1.00	0.136	5.50	1.000	0.500	0.530	6.0
16NOV22ICAL-09.wiff	CAL3	404191.9	640650.6	1.00	0.631	5.49	1.000	2.500	2.460	-1.4
16NOV22ICAL-10.wiff	CAL4	1444870.0	635408.4	1.00	2.274	5.49	1.000	10.000	8.880	-11.2
16NOV22ICAL-11.wiff	CAL5	4116812.5	556149.0	1.00	7.402	5.49	1.000	30.000	28.910	-3.6
16NOV22ICAL-12.wiff	CAL6	5038528.9	466089.1	1.00	10.810	5.51	1.000	40.000	42.220	5.6

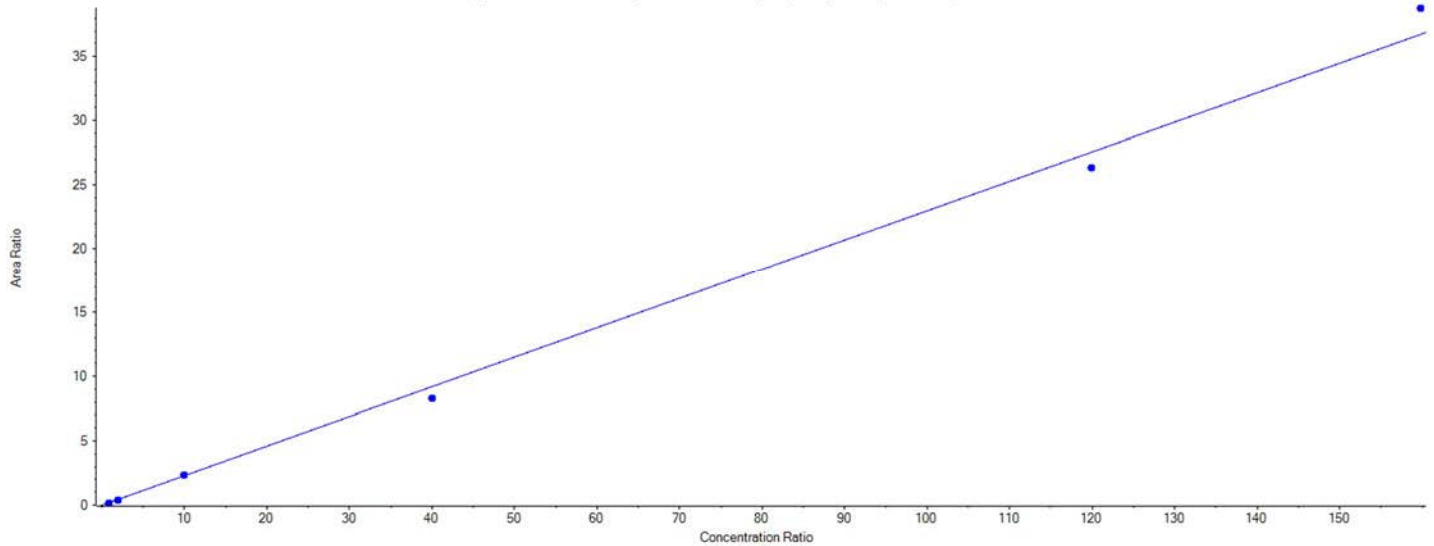
PFNA  
 $y = 0.25130 x$  (r = 0.99793) (weighting: 1 / x)



**Calibration Verification**

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	46367.7	990244.4	1.00	0.047	5.96	1.000	0.200	0.190	-6.8
16NOV22ICAL-08.wiff	CAL2	128395.5	1090176.4	1.00	0.118	5.93	1.000	0.500	0.470	-6.3
16NOV22ICAL-09.wiff	CAL3	583288.3	907094.7	1.00	0.643	5.92	1.000	2.500	2.560	2.4
16NOV22ICAL-10.wiff	CAL4	1888362.6	814227.2	1.00	2.319	5.92	1.000	10.000	9.230	-7.7
16NOV22ICAL-11.wiff	CAL5	3969963.1	559975.5	1.00	7.090	5.92	1.000	30.000	28.210	-6.0
16NOV22ICAL-12.wiff	CAL6	4710902.8	440621.5	1.00	10.691	5.94	1.000	40.000	42.550	6.4

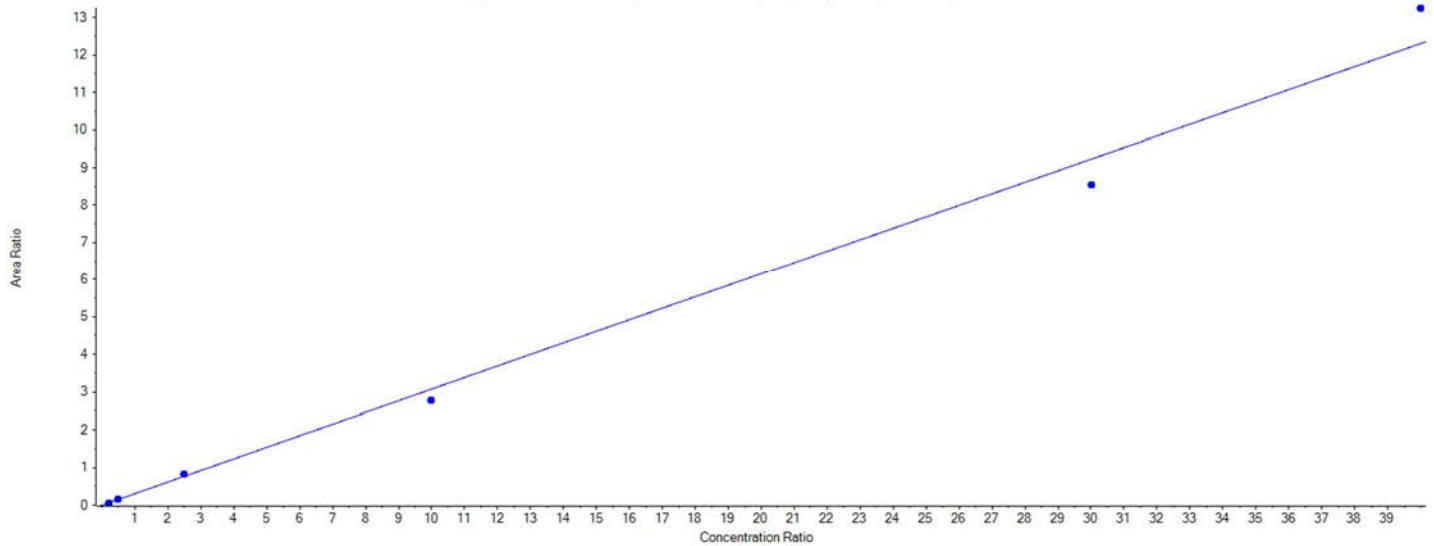
PFOS  
 $y = 0.22983 x$  (r = 0.99827) (weighting: 1 / x)



**Calibration Verification**

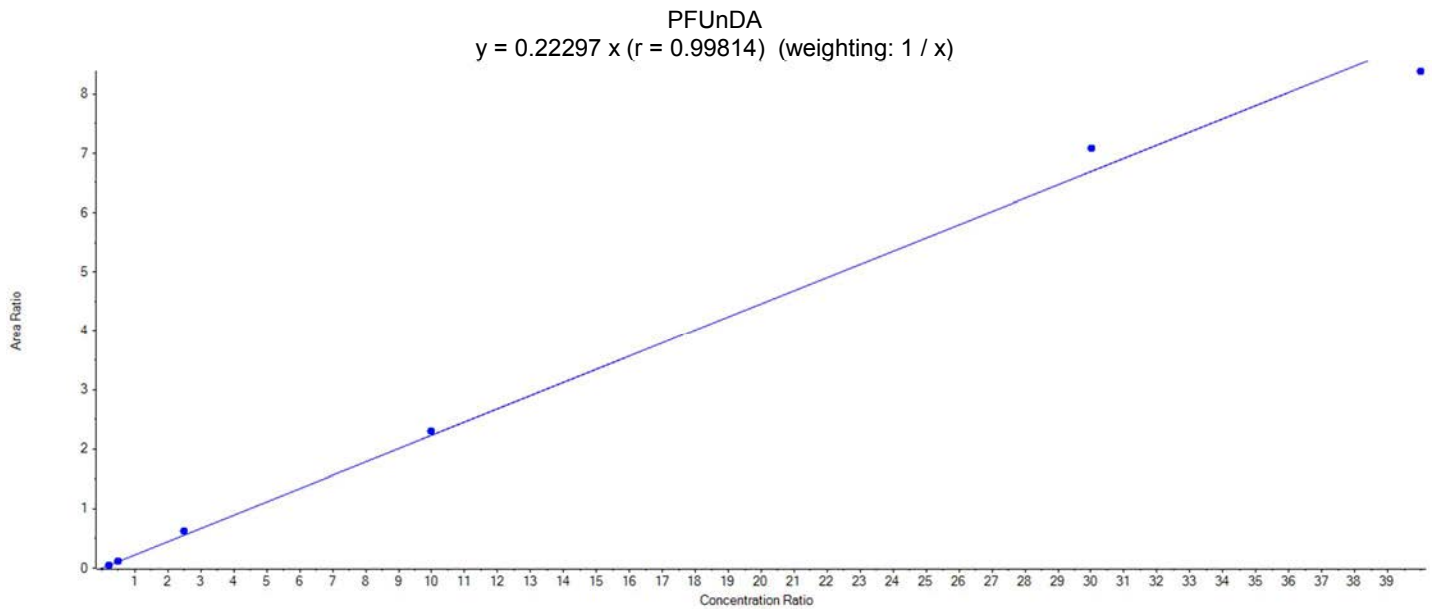
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	37558.1	193042.3	1.00	0.195	5.93	1.000	0.800	0.850	5.9
16NOV22ICAL-08.wiff	CAL2	90183.7	215638.1	1.00	0.418	5.90	1.000	2.000	1.820	-9.0
16NOV22ICAL-09.wiff	CAL3	444944.9	190248.9	1.00	2.339	5.89	1.000	9.990	10.180	1.9
16NOV22ICAL-10.wiff	CAL4	1446650.8	173928.3	1.00	8.318	5.89	1.000	39.960	36.190	-9.4
16NOV22ICAL-11.wiff	CAL5	3441546.9	130525.8	1.00	26.367	5.88	1.000	119.900	114.720	-4.3
16NOV22ICAL-12.wiff	CAL6	3850521.8	99316.0	1.00	38.770	5.90	1.000	159.800	168.690	5.6

PFDA  
 $y = 0.30757 x$  ( $r = 0.99681$ ) (weighting:  $1 / x$ )



**Calibration Verification**

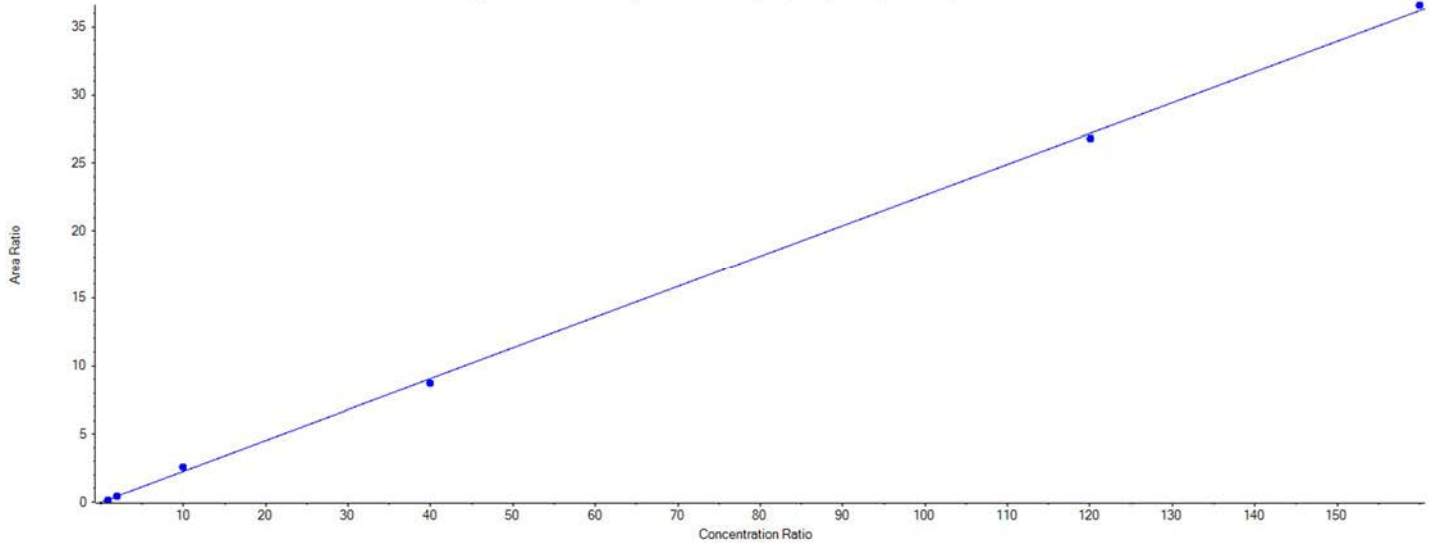
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	46337.4	829235.5	1.00	0.056	6.35	1.000	0.200	0.180	-9.2
16NOV22ICAL-08.wiff	CAL2	122613.1	816591.5	1.00	0.150	6.32	1.000	0.500	0.490	-2.4
16NOV22ICAL-09.wiff	CAL3	591290.3	720056.9	1.00	0.821	6.31	1.000	2.500	2.670	6.8
16NOV22ICAL-10.wiff	CAL4	2079267.2	746886.8	1.00	2.784	6.31	1.000	10.000	9.050	-9.5
16NOV22ICAL-11.wiff	CAL5	5293620.5	620311.8	1.00	8.534	6.30	1.000	30.000	27.750	-7.5
16NOV22ICAL-12.wiff	CAL6	6222969.1	469833.5	1.00	13.245	6.31	1.000	40.000	43.060	7.7



### Calibration Verification

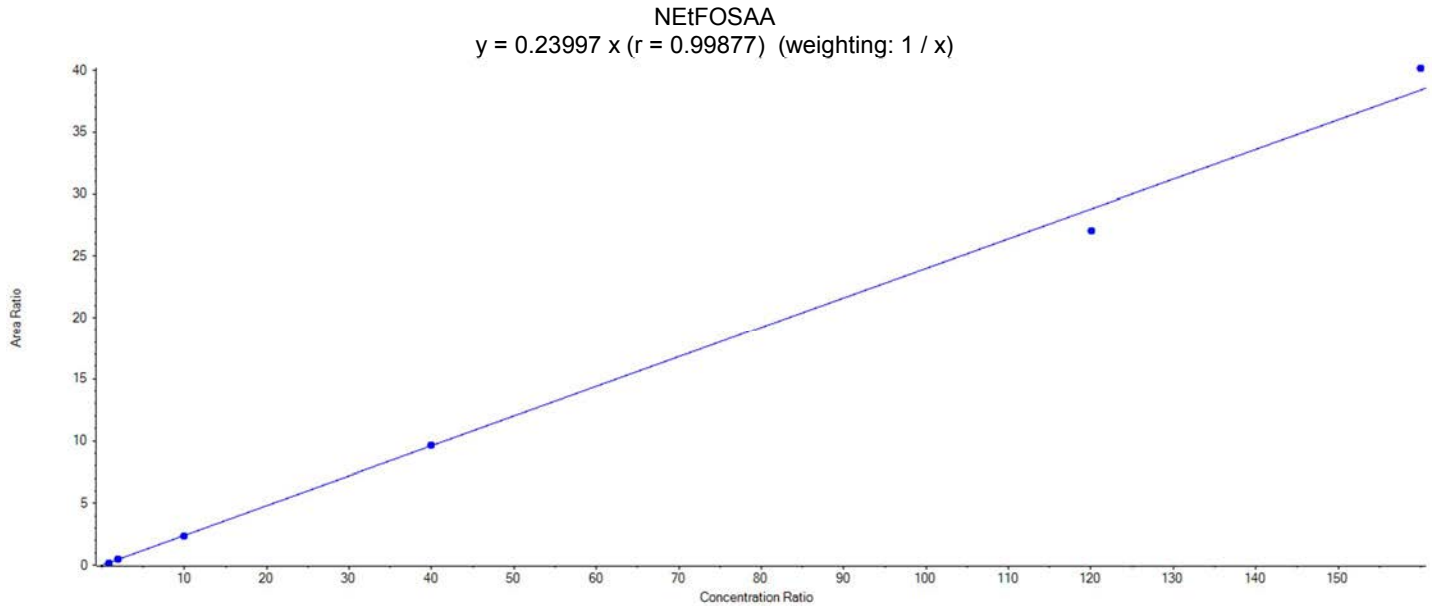
File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	44532.0	972010.1	1.00	0.046	6.70	1.000	0.200	0.210	2.7
16NOV22ICAL-08.wiff	CAL2	120506.3	1014624.1	1.00	0.119	6.68	1.000	0.500	0.530	6.5
16NOV22ICAL-09.wiff	CAL3	562326.8	888768.9	1.00	0.633	6.68	1.000	2.500	2.840	13.5
16NOV22ICAL-10.wiff	CAL4	2024471.7	882582.7	1.00	2.294	6.66	1.000	10.000	10.290	2.9
16NOV22ICAL-11.wiff	CAL5	5296568.7	748575.7	1.00	7.076	6.64	1.000	30.000	31.730	5.8
16NOV22ICAL-12.wiff	CAL6	5251018.2	626263.8	1.00	8.385	6.66	1.000	40.000	37.600	-6.0

NMeFOSAA  
 $y = 0.22637 x$  ( $r = 0.99956$ ) (weighting:  $1 / x$ )



**Calibration Verification**

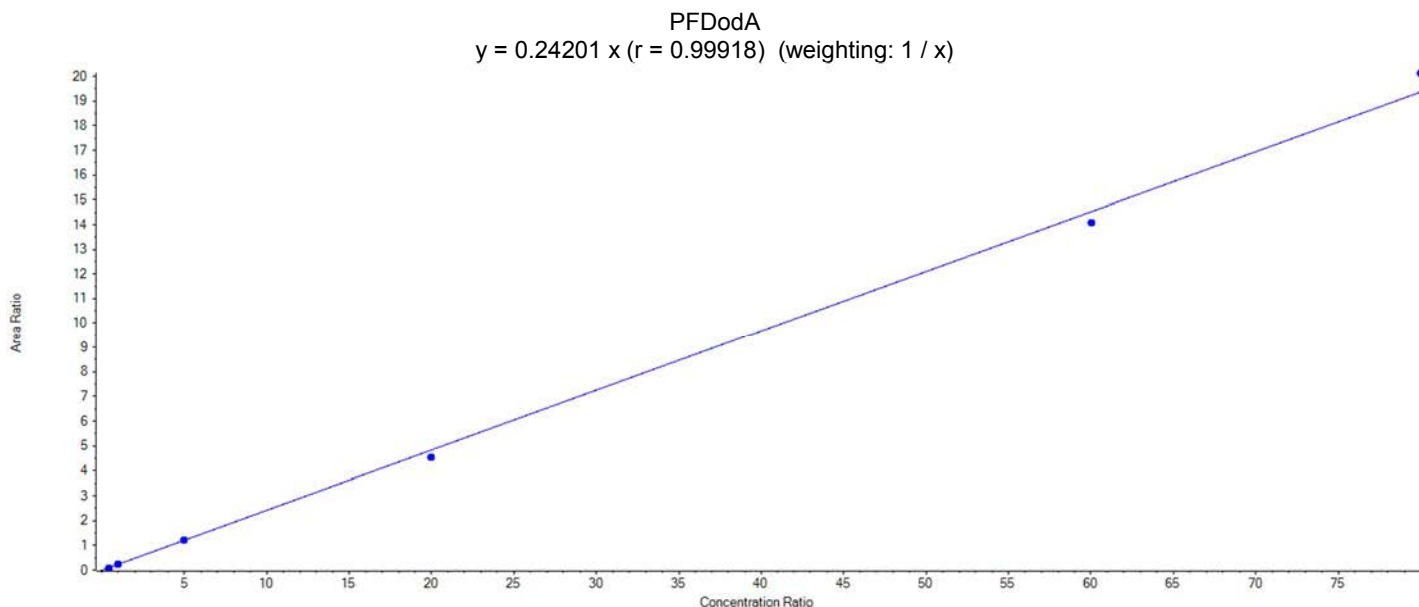
File Name	Sample Name	NMeFOSAA Area	d3-NMeFOSAA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	31332.2	170674.6	1.00	0.184	6.55	1.000	0.800	0.810	1.4
16NOV22ICAL-08.wiff	CAL2	91517.4	195302.2	1.00	0.469	6.51	1.000	2.000	2.070	3.5
16NOV22ICAL-09.wiff	CAL3	421436.9	164485.5	1.00	2.562	6.52	1.000	10.000	11.320	13.2
16NOV22ICAL-10.wiff	CAL4	1427683.1	164553.0	1.00	8.676	6.50	1.000	40.000	38.330	-4.2
16NOV22ICAL-11.wiff	CAL5	3796797.8	141501.8	1.00	26.832	6.49	1.000	120.000	118.530	-1.2
16NOV22ICAL-12.wiff	CAL6	4358045.5	119027.6	1.00	36.614	6.51	1.000	160.000	161.740	1.1



**Calibration Verification**

File Name	Sample Name	NEtFOSAA Area	d5-NEtFOSA A Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	26831.3	156620.5	1.00	0.171	6.73	1.000	0.800	0.710	-10.8
16NOV22ICAL-08.wiff	CAL2	75800.8	166173.9	1.00	0.456	6.70	1.000	2.000	1.900	-5.0
16NOV22ICAL-09.wiff	CAL3	340024.2	144585.3	1.00	2.352	6.71	1.000	10.000	9.800	-2.0
16NOV22ICAL-10.wiff	CAL4	1207621.9	124989.0	1.00	9.662	6.69	1.000	40.000	40.260	0.7
16NOV22ICAL-11.wiff	CAL5	2988538.0	110450.0	1.00	27.058	6.68	1.000	120.000	112.760	-6.0
16NOV22ICAL-12.wiff	CAL6	3679833.3	91622.1	1.00	40.163	6.69	1.000	160.000	167.370	4.6

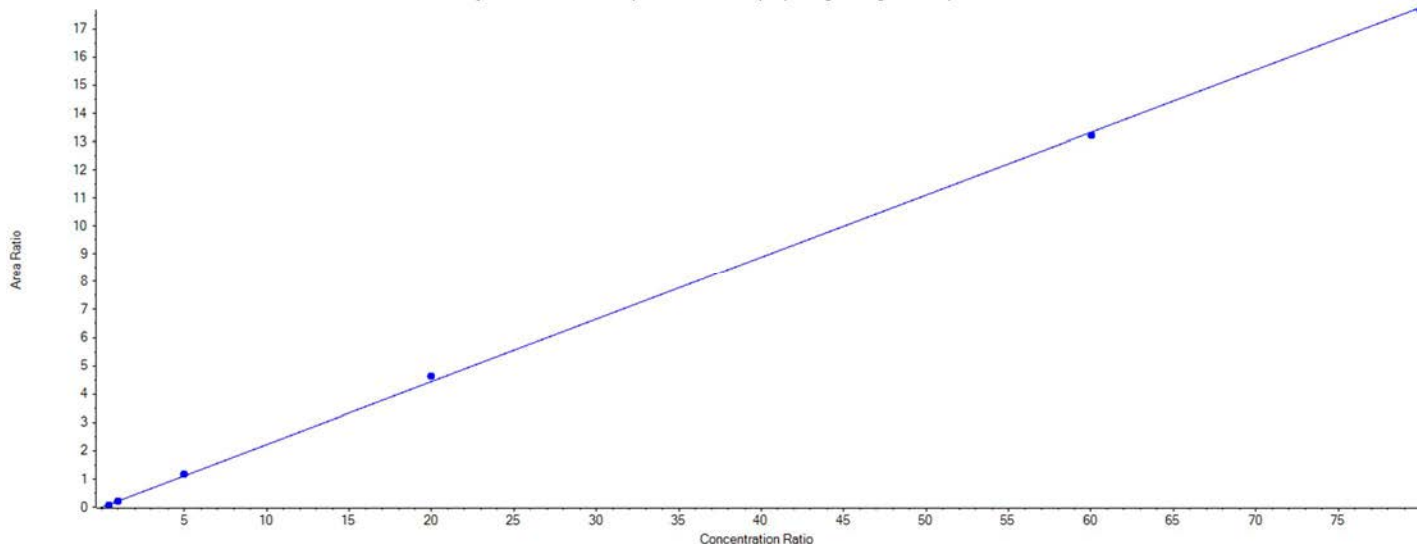




### Calibration Verification

File Name	Sample Name	PFDodA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	110139.2	1174357.8	1.00	0.094	7.04	1.000	0.400	0.390	-3.1
16NOV22ICAL-08.wiff	CAL2	299604.9	1241603.6	1.00	0.241	7.01	1.000	1.000	1.000	-0.3
16NOV22ICAL-09.wiff	CAL3	1395880.0	1159530.6	1.00	1.204	7.01	1.000	5.000	4.970	-0.5
16NOV22ICAL-10.wiff	CAL4	4821537.3	1063582.4	1.00	4.533	7.00	1.000	20.000	18.730	-6.3
16NOV22ICAL-11.wiff	CAL5	12152076.2	863287.4	1.00	14.077	6.98	1.000	60.000	58.160	-3.1
16NOV22ICAL-12.wiff	CAL6	15210860.6	755937.5	1.00	20.122	6.99	1.000	80.000	83.140	3.9

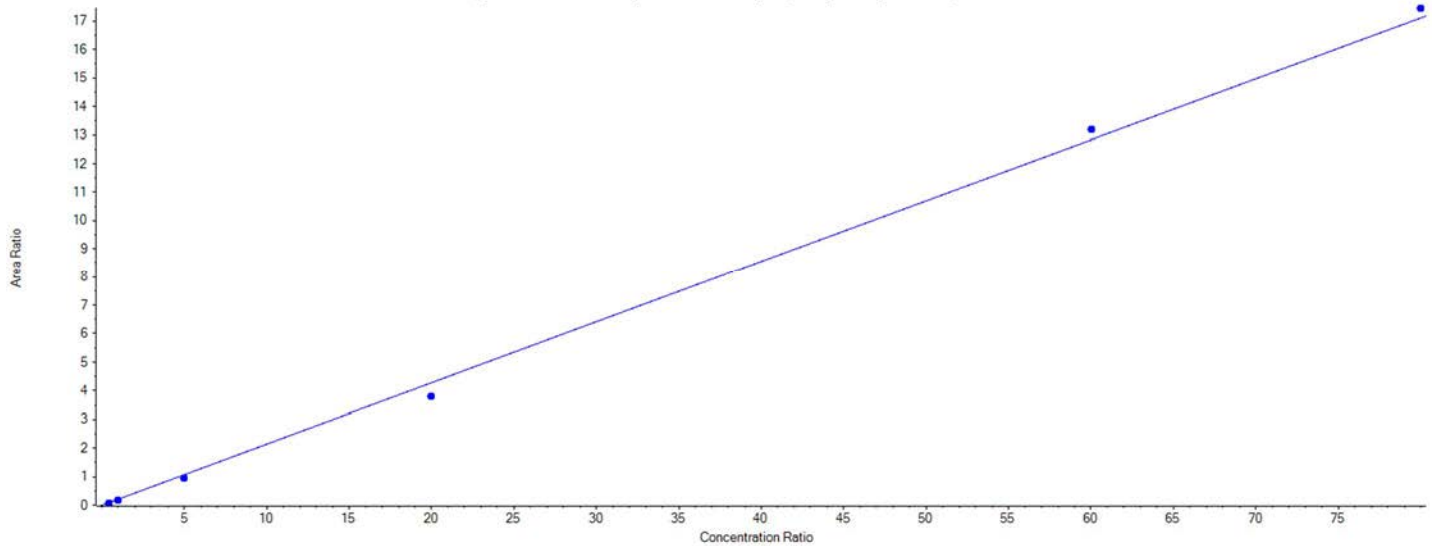
PFTrDA  
 $y = 0.22205 x$  ( $r = 0.99978$ ) (weighting:  $1 / x$ )



### Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	83443.0	1174357.8	1.00	0.071	7.37	1.050	0.400	0.320	-20.0
16NOV22ICAL-08.wiff	CAL2	243629.4	1241603.6	1.00	0.196	7.33	1.050	1.000	0.880	-11.6
16NOV22ICAL-09.wiff	CAL3	1363253.2	1159530.6	1.00	1.176	7.33	1.050	5.000	5.290	5.9
16NOV22ICAL-10.wiff	CAL4	4909620.2	1063582.4	1.00	4.616	7.31	1.050	20.000	20.790	3.9
16NOV22ICAL-11.wiff	CAL5	11416688.6	863287.4	1.00	13.225	7.30	1.050	60.000	59.560	-0.7
16NOV22ICAL-12.wiff	CAL6	13353720.2	755937.5	1.00	17.665	7.30	1.040	80.000	79.560	-0.6

PFTeDA  
 $y = 0.21388 x$  ( $r = 0.99883$ ) (weighting:  $1 / x$ )



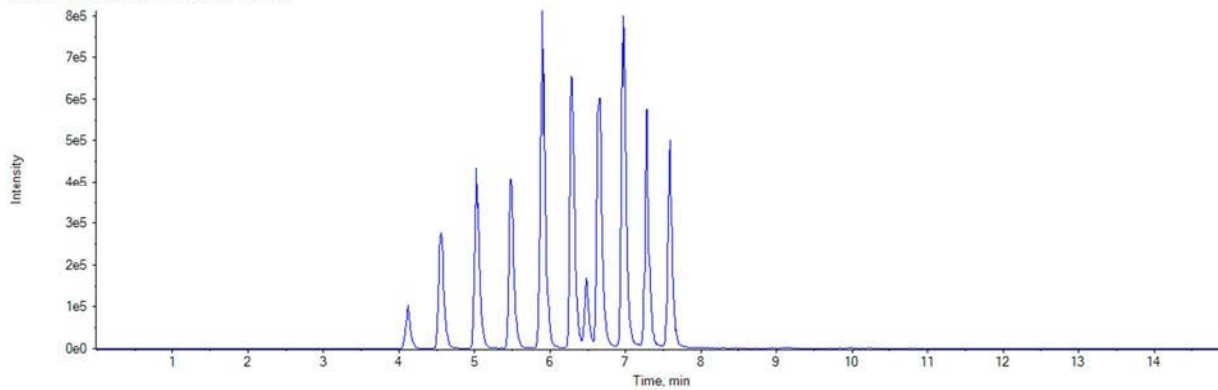
### Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	RRT	Specified Amount	Calculated Amount	% Diff
16NOV22ICAL-07.wiff	CAL1	79271.4	1174357.8	1.00	0.068	7.69	1.090	0.400	0.320	-21.1
16NOV22ICAL-08.wiff	CAL2	197335.7	1241603.6	1.00	0.159	7.65	1.090	1.000	0.740	-25.7
16NOV22ICAL-09.wiff	CAL3	1101032.4	1159530.6	1.00	0.950	7.65	1.090	5.000	4.440	-11.2
16NOV22ICAL-10.wiff	CAL4	4023047.6	1063582.4	1.00	3.783	7.62	1.090	20.000	17.690	-11.6
16NOV22ICAL-11.wiff	CAL5	11377039.5	863287.4	1.00	13.179	7.61	1.090	60.000	61.620	2.7
16NOV22ICAL-12.wiff	CAL6	13192658.7	755937.5	1.00	17.452	7.60	1.090	80.000	81.600	2.0

### Initial Calibration Verification

Sample ID: ICV  
Sample File: 16NOV22ICAL-15.wiff

TIC from 16NOV22ICAL-15.wiff (sample 1) - ICV



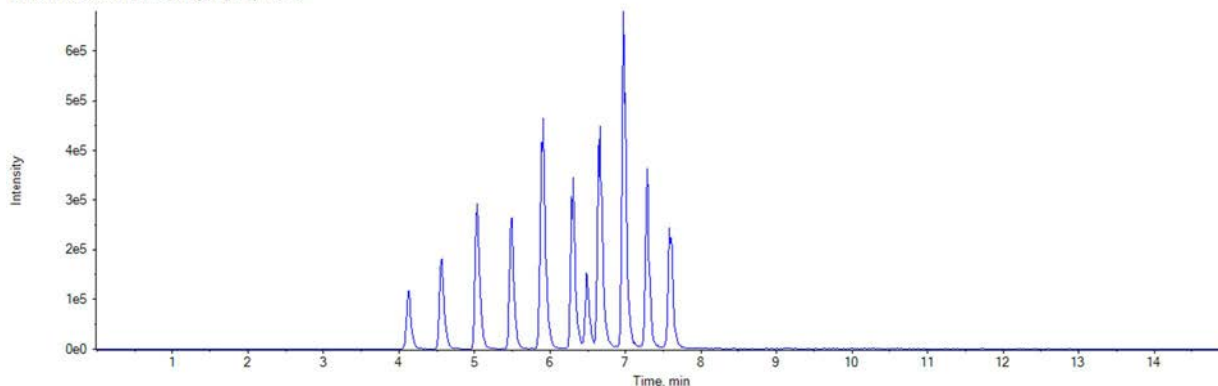
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	% Diff
PFBS	422217.9	18O2-PFHxS	169830.8	1.00	2.486	4.12	0.820	8.85	8.40	-5.1
PFHxA	762024.2	13C2-PFHxA	614028.2	1.00	1.241	4.56	1.000	10.00	9.25	-7.5
PFHpA	841463.2	13C4-PFHpA	454489.0	1.00	1.851	5.03	1.000	10.00	7.64	-23.6
PFHxS	379692.0	18O2-PFHxS	169830.8	1.00	2.236	5.02	1.000	9.45	9.12	-3.5
PFOA	1240729.3	13C4-PFOA	600285.6	1.00	2.067	5.48	1.000	10.00	8.07	-19.3
PFNA	1813846.1	13C5-PFNA	983217.3	1.00	1.845	5.90	1.000	10.00	7.34	-26.6
PFOS	390143.8	13C4-PFOS	217308.6	1.00	1.795	5.87	1.000	9.55	7.81	-18.2
PFDA	2165000.8	13C2-PFDA	768856.6	1.00	2.816	6.29	1.000	10.00	9.16	-8.4
PFUnDA	1643236.9	13C2-PFUnDA	866523.0	1.00	1.896	6.65	1.000	10.00	8.50	-15.0
NMeFOSAA	473899.3	d3-NMeFOSAA	181564.8	1.00	2.610	6.49	1.000	10.00	11.53	15.3
NEtFOSAA	330265.4	d5-NEtFOSAA	152726.6	1.00	2.162	6.67	1.000	10.00	9.01	-9.9
PFDodA	2343351.3	13C2-PFDodA	1192354.3	1.00	1.965	6.97	1.000	10.00	8.12	-18.8
PFTTrDA	2031358.1	13C2-PFDodA	1192354.3	1.00	1.704	7.28	1.040	10.00	7.67	-23.3
PFTeDA	1934416.6	13C2-PFDodA	1192354.3	1.00	1.622	7.59	1.090	10.00	7.59	-24.1

Continuing Calibration Verification

ICAL Name: 16NOV22ICAL

Sample ID: CAL3  
 Sample Name: CCV1  
 Sample File: 16NOV22ICAL-16.wiff  
 Acquisition Date: 11/22/2016 3:03:39 PM

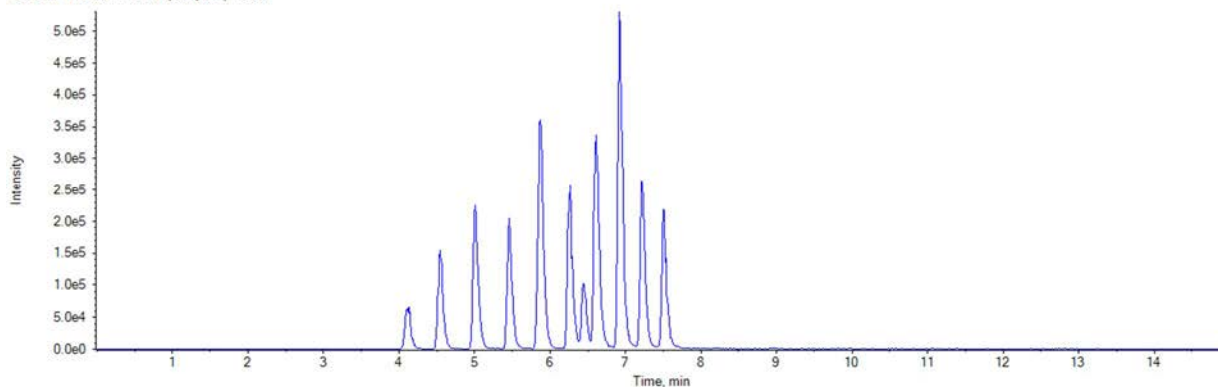
TIC from 16NOV22ICAL-16.wiff (sample 1) - CCV1



Analyte Name	Analyte Area	IS Name	IS Area	IS Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	OOS
PFBS	488794.0	18O2-PFHxS	158393.9	1.00	3.086	4.13	0.820	9.99	10.430	4.4	
PFHxA	213861.3	13C2-PFHxA	580825.8	1.00	0.368	4.56	1.000	2.50	2.740	9.7	
PFHpA	279595.1	13C4-PFHpA	425384.4	1.00	0.657	5.04	1.000	2.50	2.710	8.5	
PFHxS	402329.1	18O2-PFHxS	158393.9	1.00	2.540	5.03	1.000	10.00	10.360	3.6	
PFOA	414832.0	13C4-PFOA	678889.0	1.00	0.611	5.49	1.000	2.50	2.390	-4.5	
PFNA	626924.9	13C5-PFNA	855944.7	1.00	0.732	5.91	1.000	2.50	2.910	16.6	
PFOS	465091.3	13C4-PFOS	188529.9	1.00	2.467	5.88	1.000	9.99	10.730	7.4	
PFDA	641676.4	13C2-PFDA	755877.4	1.00	0.849	6.30	1.000	2.50	2.760	10.4	
PFUnDA	569625.9	13C2-PFUnDA	922417.4	1.00	0.618	6.65	1.000	2.50	2.770	10.8	
PFDoDA	1444714.0	13C2-PFDoDA	1148713.3	1.00	1.258	6.98	1.000	5.00	5.200	3.9	
PFTTrDA	1299719.1	13C2-PFDoDA	1148713.3	1.00	1.131	7.29	1.040	5.00	5.100	1.9	
PFTeDA	1110469.1	13C2-PFDoDA	1148713.3	1.00	0.967	7.59	1.090	5.00	4.520	-9.6	

Sample ID: CAL3  
 Sample Name: CCV1  
 Sample File: 16NOV29-03.wiff  
 Acquisition Date: 11/29/2016 1:51:03 PM

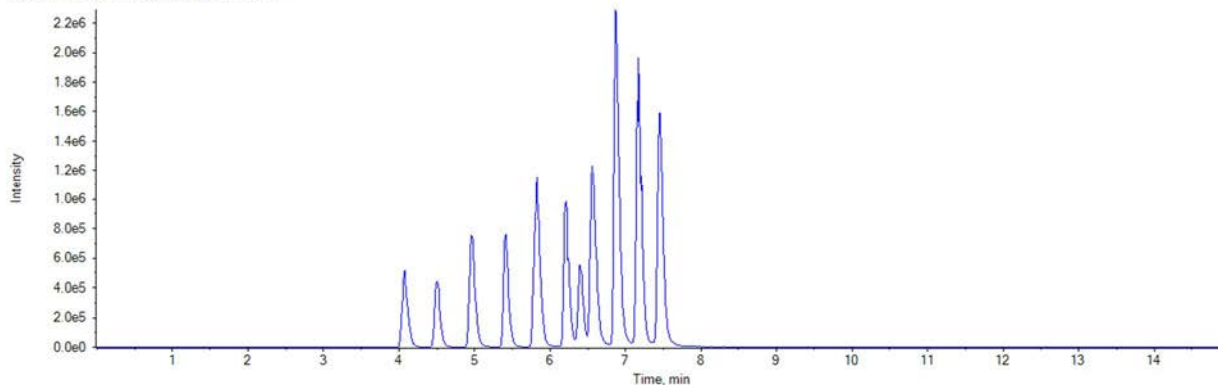
TIC from 16NOV29-03.wiff (sample 1) - CCV1



Analyte Name	Analyte Area	IS Name	IS Area	IS Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	OOS
PFBS	350701.3	18O2-PFHxS	126025.6	1.00	2.783	4.11	0.820	9.99	9.400	-5.9	
PFHxA	205656.5	13C2-PFHxA	520561.4	1.00	0.395	4.54	1.000	2.50	2.940	17.8	
PFHpA	245067.4	13C4-PFHpA	384515.9	1.00	0.637	5.01	1.000	2.50	2.630	5.2	
PFHxS	314496.3	18O2-PFHxS	126025.6	1.00	2.495	5.01	1.000	10.00	10.18 0	1.8	
PFOA	350660.0	13C4-PFOA	552948.7	1.00	0.634	5.46	1.000	2.50	2.480	-0.9	
PFNA	507657.8	13C5-PFNA	831756.4	1.00	0.610	5.88	1.000	2.50	2.430	-2.8	
PFOS	337985.1	13C4-PFOS	149384.8	1.00	2.263	5.85	1.000	9.99	9.840	-1.5	
PFDA	523495.3	13C2-PFDA	678227.9	1.00	0.772	6.26	1.000	2.50	2.510	0.4	
PFUnDA	491674.1	13C2-PFUnDA	806512.4	1.00	0.610	6.61	1.000	2.50	2.730	9.4	
PFDodA	1312551.9	13C2-PFDodA	1042298.5	1.00	1.259	6.93	1.000	5.00	5.200	4.1	
PFTTrDA	1207808.7	13C2-PFDodA	1042298.5	1.00	1.159	7.22	1.040	5.00	5.220	4.4	
PFTeDA	962406.6	13C2-PFDodA	1042298.5	1.00	0.923	7.51	1.080	5.00	4.320	-13.7	

Sample ID: CAL5  
 Sample Name: CCV3  
 Sample File: 16NOV29-19.wiff  
 Acquisition Date: 11/29/2016 6:13:21 PM

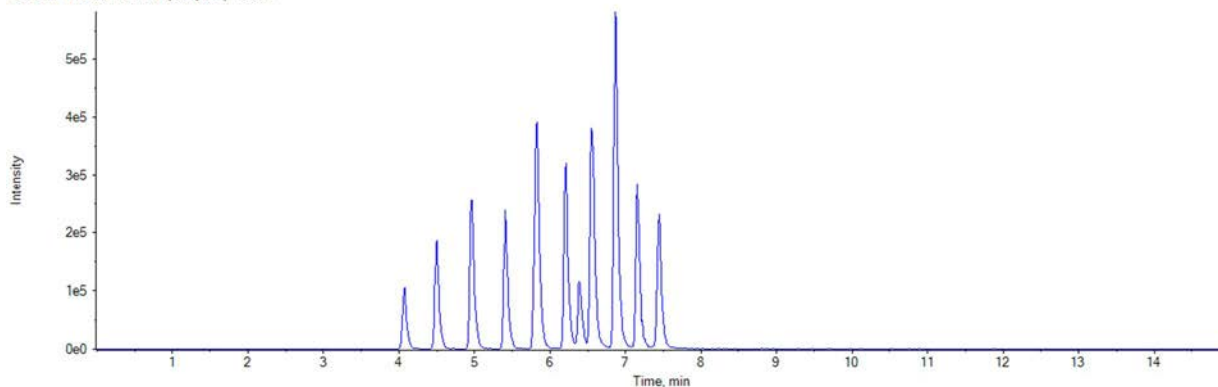
TIC from 16NOV29-19.wiff (sample 1) - CCV3



Analyte Name	Analyte Area	IS Name	IS Area	IS Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	OOS
PFBS	2635083.4	18O2-PFHxS	74300.3	1.00	35.465	4.07	0.820	119.90	119.840	0.0	
PFHxA	1879500.5	13C2-PFHxA	374179.0	1.00	5.023	4.50	1.000	30.00	37.430	24.8	
PFHpA	1417143.8	13C4-PFHpA	188656.7	1.00	7.512	4.97	1.000	30.00	30.990	3.3	
PFHxS	2320864.6	18O2-PFHxS	74300.3	1.00	31.236	4.96	1.000	120.00	127.390	6.2	
PFOA	3202102.0	13C4-PFOA	393947.5	1.00	8.128	5.41	1.000	30.00	31.750	5.8	
PFNA	3188927.1	13C5-PFNA	426878.8	1.00	7.470	5.84	1.000	30.00	29.730	-0.9	
PFOS	2471573.5	13C4-PFOS	77676.4	1.00	31.819	5.80	1.000	119.90	138.450	15.5	
PFDA	4362747.3	13C2-PFDA	450484.5	1.00	9.685	6.21	1.000	30.00	31.490	5.0	
PFUnDA	3914248.6	13C2-PFUnDA	526884.5	1.00	7.429	6.56	1.000	30.00	33.320	11.1	
PFDodA	10344309.0	13C2-PFDoDA	687430.9	1.00	15.048	6.88	1.000	60.00	62.180	3.6	
PFTrDA	9244532.2	13C2-PFDoDA	687430.9	1.00	13.448	7.17	1.040	60.00	60.560	0.9	
PFTeDA	8187892.2	13C2-PFDoDA	687430.9	1.00	11.911	7.46	1.080	60.00	55.690	-7.2	

Sample ID: CAL3  
 Sample Name: CCV4  
 Sample File: 16NOV29-29.wiff  
 Acquisition Date: 11/29/2016 8:57:12 PM

TIC from 16NOV29-29.wiff (sample 1) - CCV4



Analyte Name	Analyte Area	IS Name	IS Area	IS Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	OOS
PFBS	406253.8	18O2-PFHxS	127426.9	1.00	3.188	4.07	0.820	9.99	10.770	7.8	
PFHxA	216882.1	13C2-PFHxA	506871.7	1.00	0.428	4.50	1.000	2.50	3.190	27.5	
PFHpA	237740.7	13C4-PFHpA	376406.0	1.00	0.632	4.96	1.000	2.50	2.610	4.2	
PFHxS	325711.3	18O2-PFHxS	127426.9	1.00	2.556	4.96	1.000	10.00	10.420	4.2	
PFOA	343123.5	13C4-PFOA	535321.5	1.00	0.641	5.41	1.000	2.50	2.500	0.1	
PFNA	497197.2	13C5-PFNA	801629.7	1.00	0.620	5.83	1.000	2.50	2.470	-1.3	
PFOS	353451.9	13C4-PFOS	152007.5	1.00	2.325	5.80	1.000	9.99	10.120	1.3	
PFDA	514829.7	13C2-PFDA	732666.4	1.00	0.703	6.21	1.000	2.50	2.280	-8.6	
PFUnDA	504014.9	13C2-PFUnDA	815763.9	1.00	0.618	6.55	1.000	2.50	2.770	10.8	
PFDoDA	1260199.3	13C2-PFDoDA	1043814.3	1.00	1.207	6.87	1.000	5.00	4.990	-0.2	
PFTTrDA	1079622.8	13C2-PFDoDA	1043814.3	1.00	1.034	7.16	1.040	5.00	4.660	-6.8	
PFTeDA	943922.6	13C2-PFDoDA	1043814.3	1.00	0.904	7.44	1.080	5.00	4.230	-15.4	



**APPROVED**  
By AKP at 8:41 am, 11/30/16

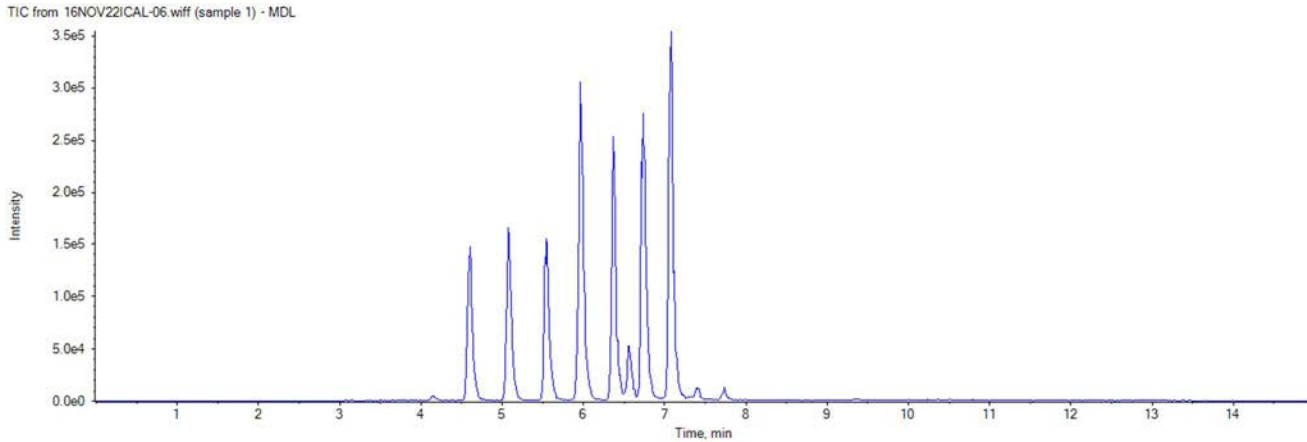
**REVIEWED**  
By uild at 9:35 am, 11/30/16

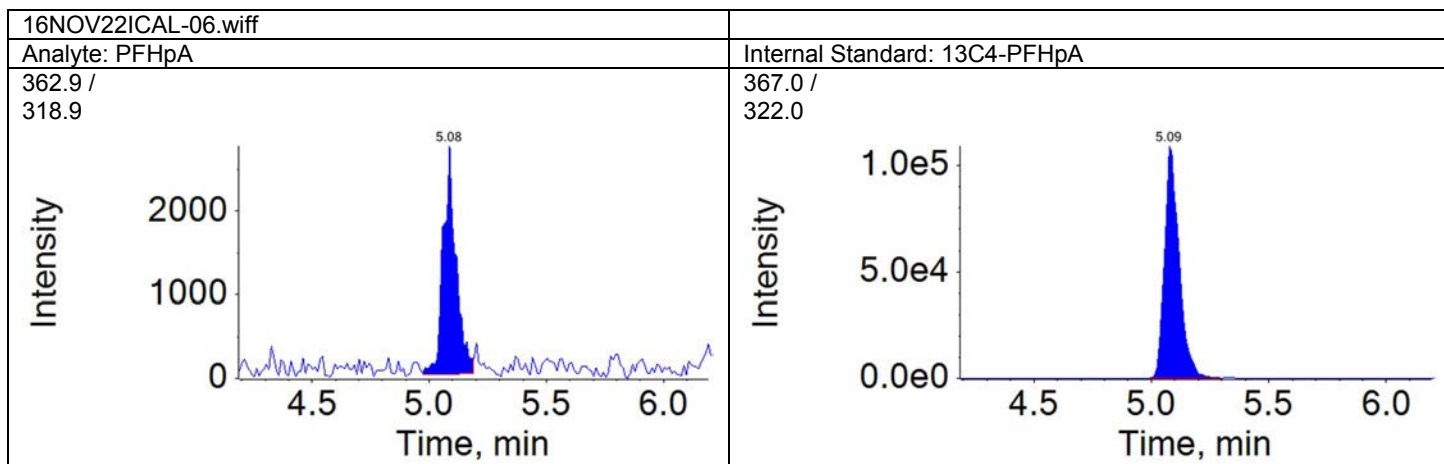
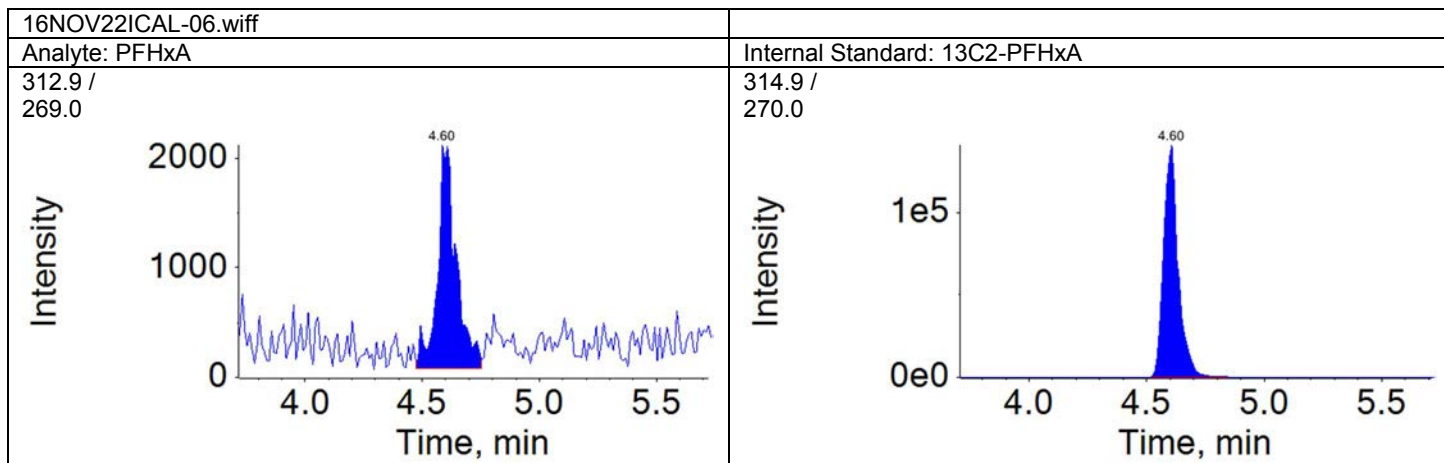
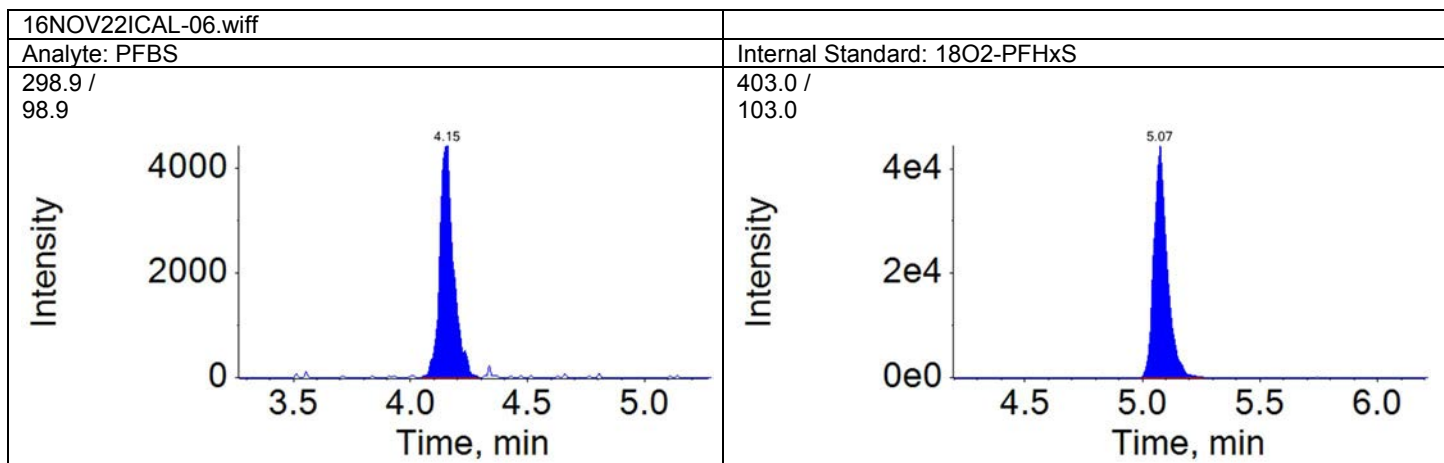
Sample Name:	MDL	Data File:	16NOV22ICAL-06.wiff
Sample ID:	MDL	Acquis Date:	2016-11-22T12:19:06
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	2	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

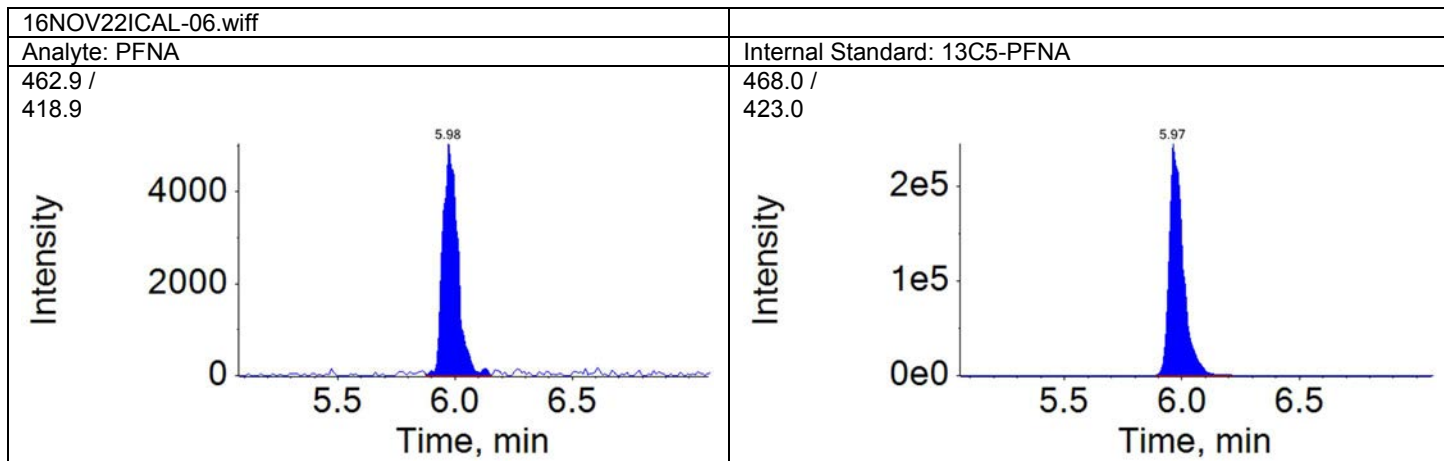
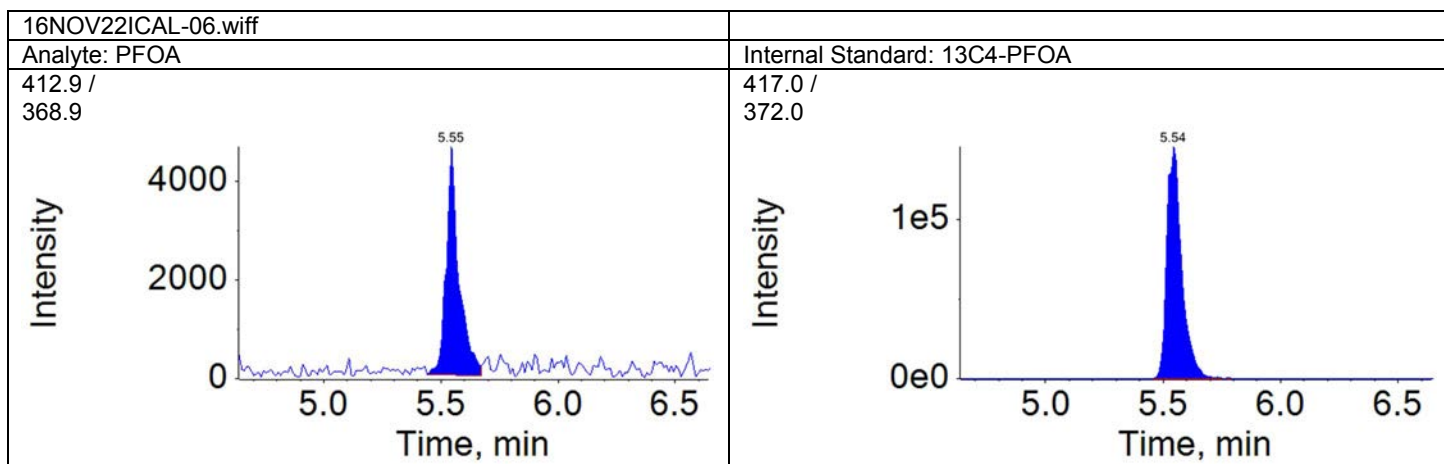
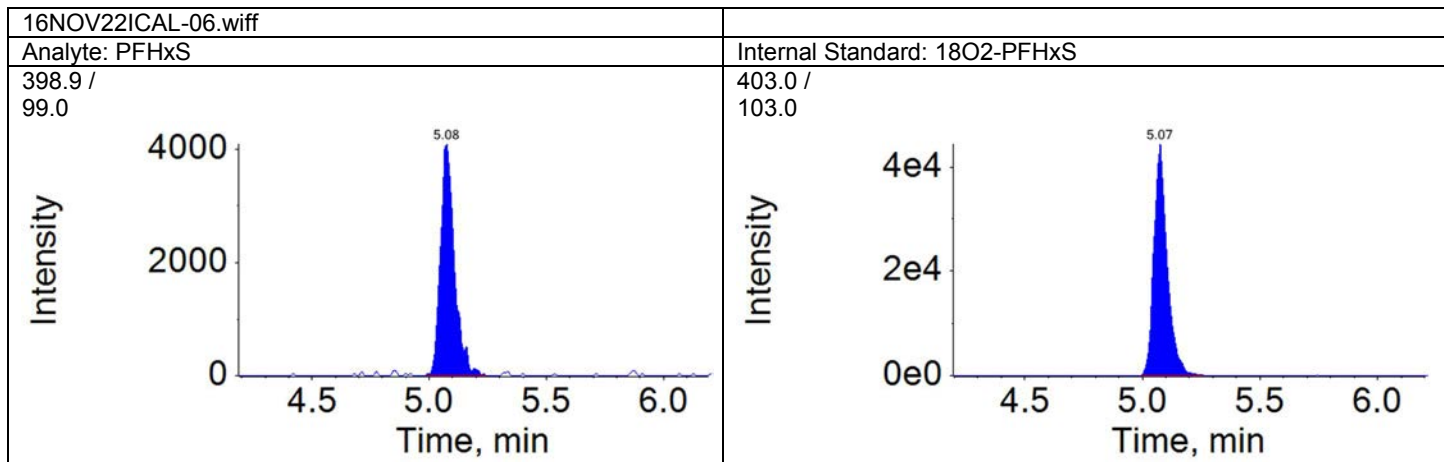
Quantitation Peak Table

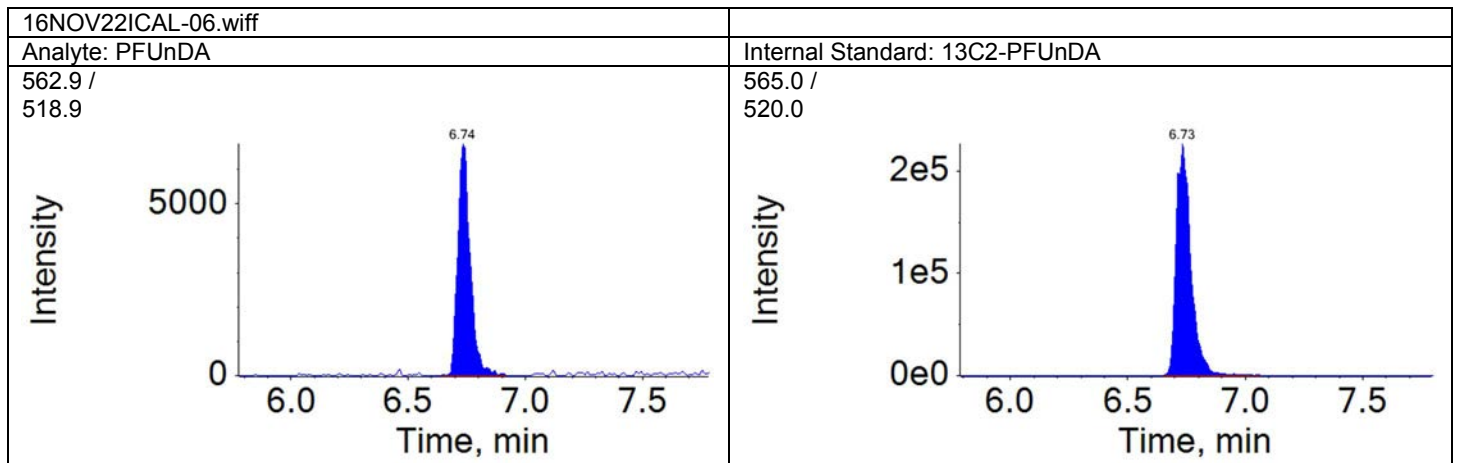
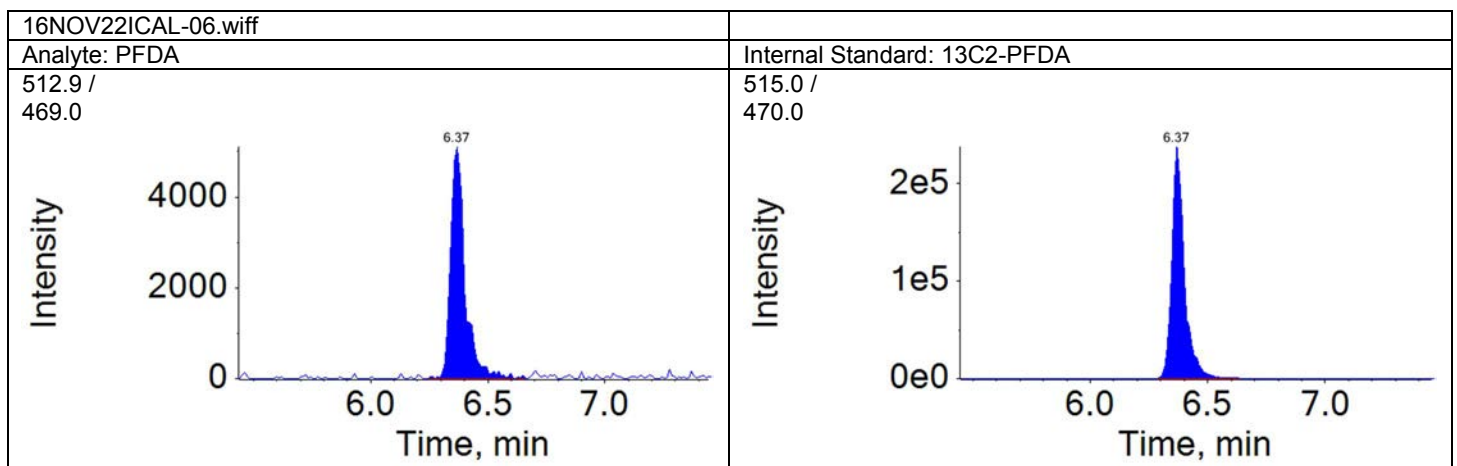
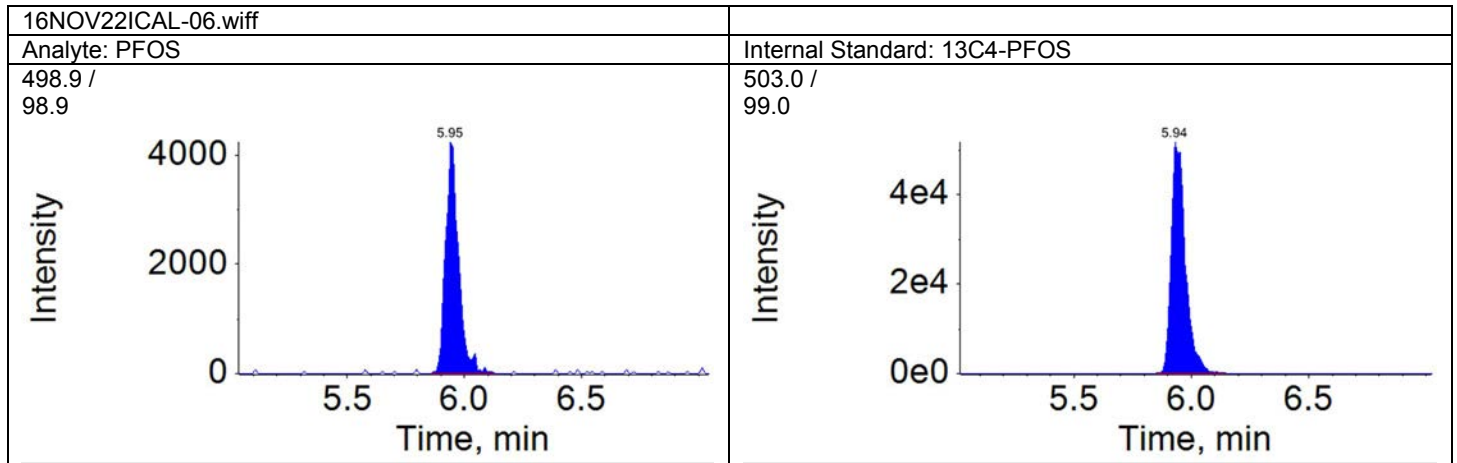
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.15	0.820	18440.6	M	18O2-PFHxS	5.07	174810.0	0.105	0.356
PFHxA	4.60	1.000	11280.9	M	13C2-PFHxA	4.60	610244.9	0.018	0.138
PFHpA	5.08	1.000	10460.3	M	13C4-PFHpA	5.09	473965.0	0.022	0.091
PFHxS	5.08	1.000	17168.3	A	18O2-PFHxS	5.07	174810.0	0.098	0.401
PFOA	5.55	1.000	17432.7	A	13C4-PFOA	5.54	649324.3	0.027	0.105
PFNA	5.98	1.000	22492.5	M	13C5-PFNA	5.97	1010068.0	0.022	0.089
PFOS	5.95	1.000	16480.2	A	13C4-PFOS	5.94	219432.3	0.075	0.327
PFDA	6.37	1.000	22109.9	A	13C2-PFDA	6.37	889964.1	0.025	0.081
PFUnDA	6.74	1.000	25142.5	A	13C2-PFUnDA	6.73	990855.0	0.025	0.114
PFDodA	7.07	1.000	55787.1	M	13C2-PFDoDA	7.07	1364712.6	0.041	0.169
PFTrDA	7.41	1.050	45874.6	A	13C2-PFDoDA	7.07	1364712.6	0.034	0.151
PFTeDA	7.73	1.090	39516.3	A	13C2-PFDoDA	7.07	1364712.6	0.029	0.135

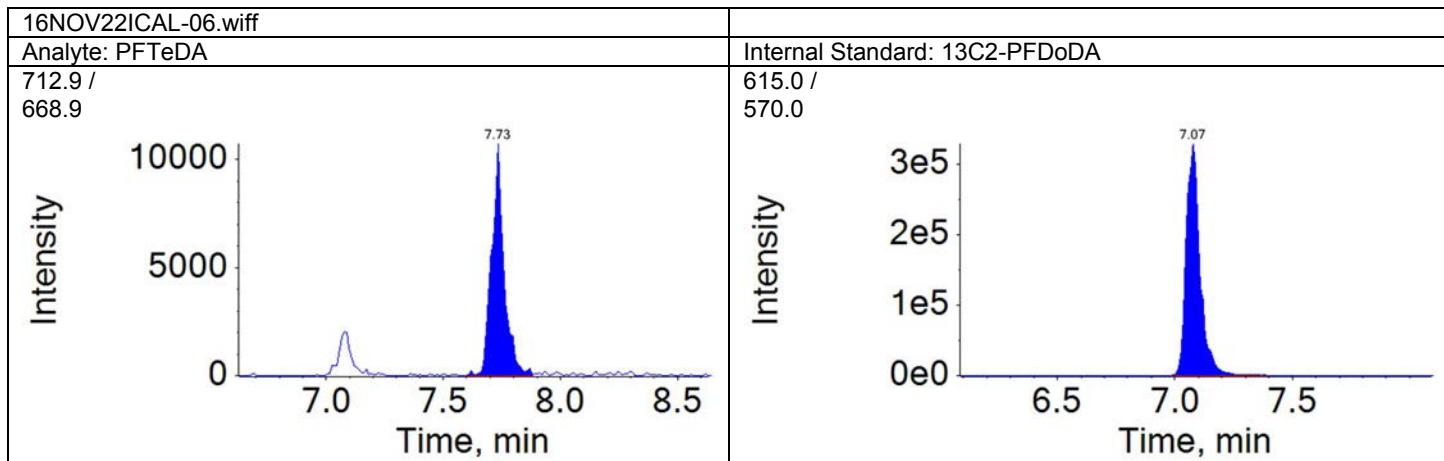
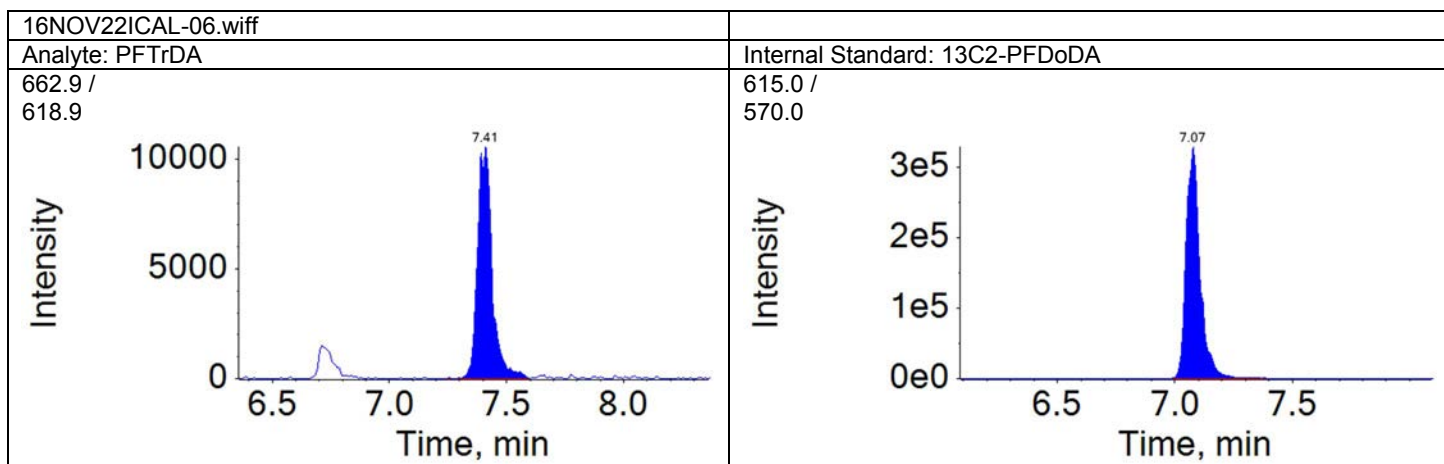
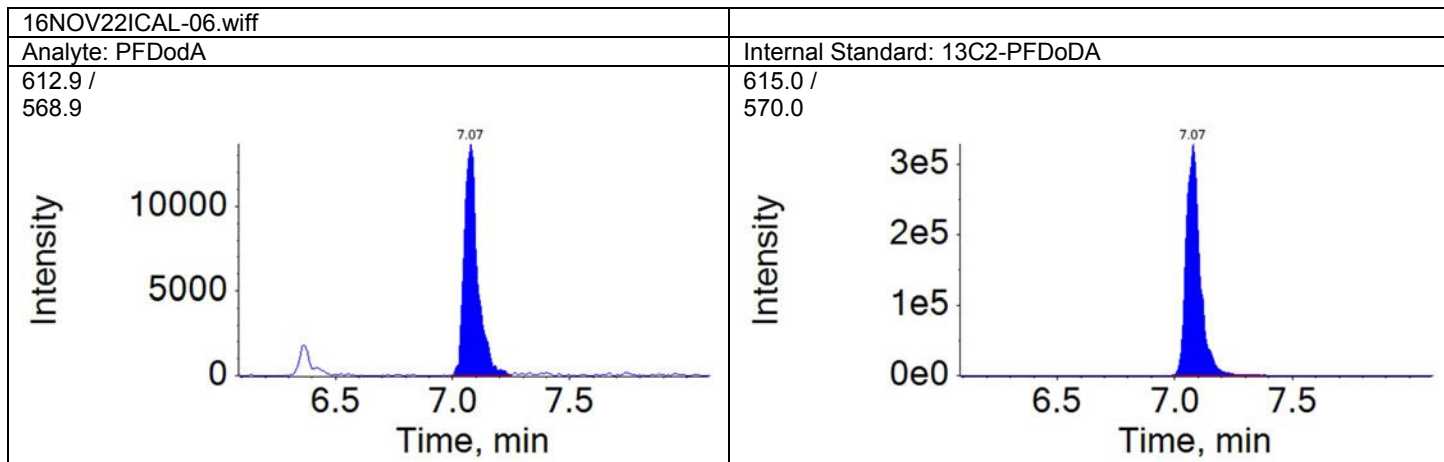
Total Ion Chromatogram  
MDL







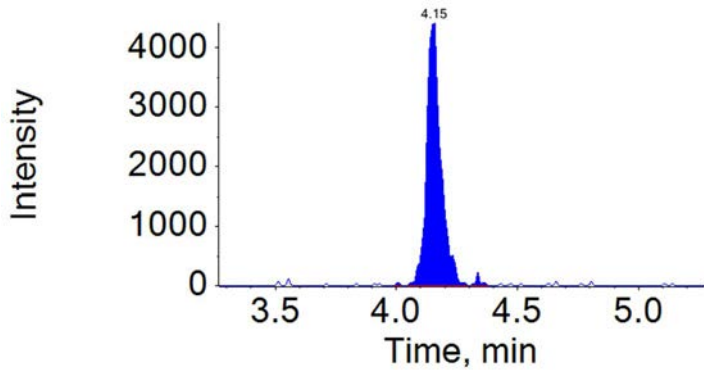




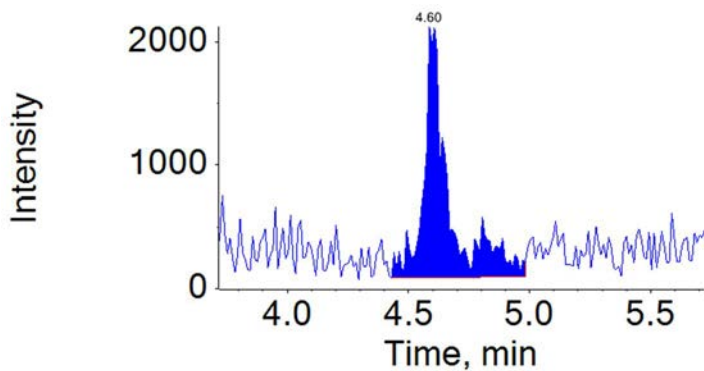
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-06.wiff	2016-11-22T12:19:06	MDL	PFBS	4.15	18793.4
16NOV22ICAL-06.wiff	2016-11-22T12:19:06	MDL	PFHxA	4.60	14379.8
16NOV22ICAL-06.wiff	2016-11-22T12:19:06	MDL	PFHpA	5.08	11339.2
16NOV22ICAL-06.wiff	2016-11-22T12:19:06	MDL	PFNA	5.98	23326.8
16NOV22ICAL-06.wiff	2016-11-22T12:19:06	MDL	PFDodA	7.07	56427.6

Component: PFBS  
Mass: 298.9 / 98.9



Component: PFHxA  
Mass: 312.9 / 269.0



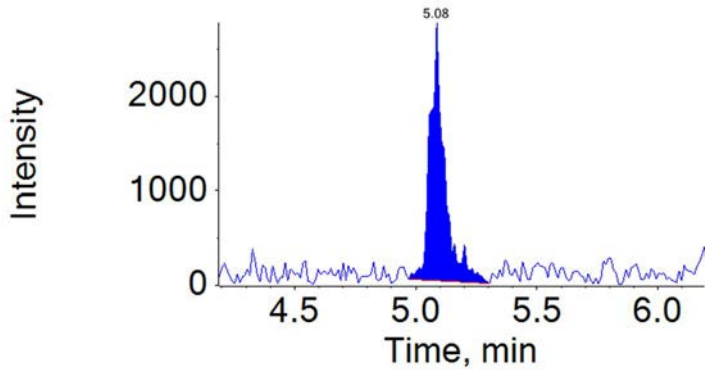


Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
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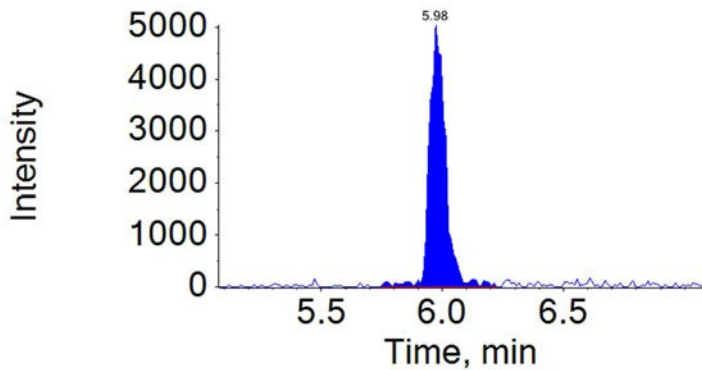
Component: PFHpA

Mass: 362.9 / 318.9



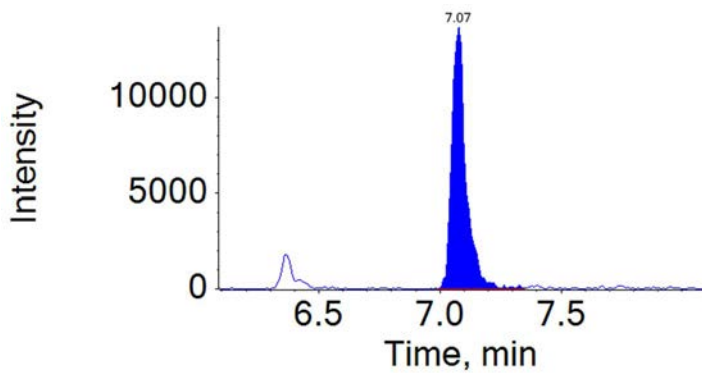
Component: PFNA

Mass: 462.9 / 418.9



Component: PFDodA

Mass: 612.9 / 568.9



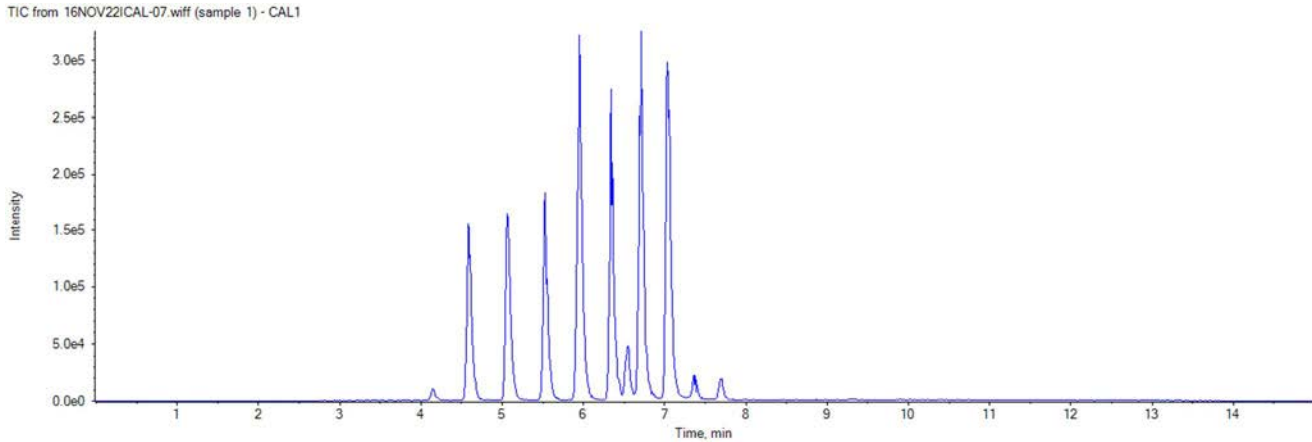


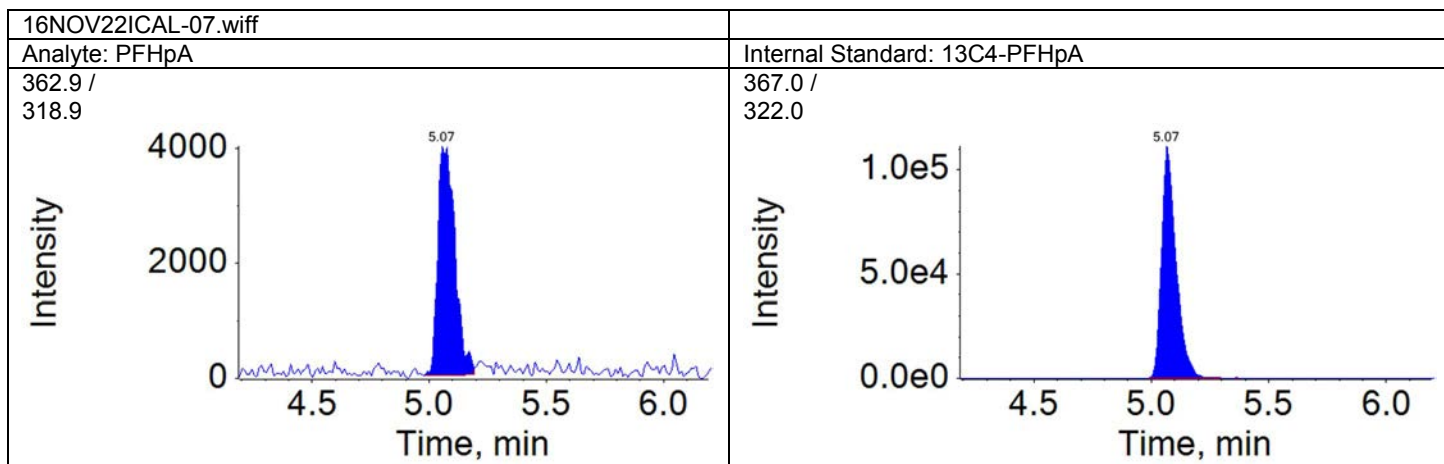
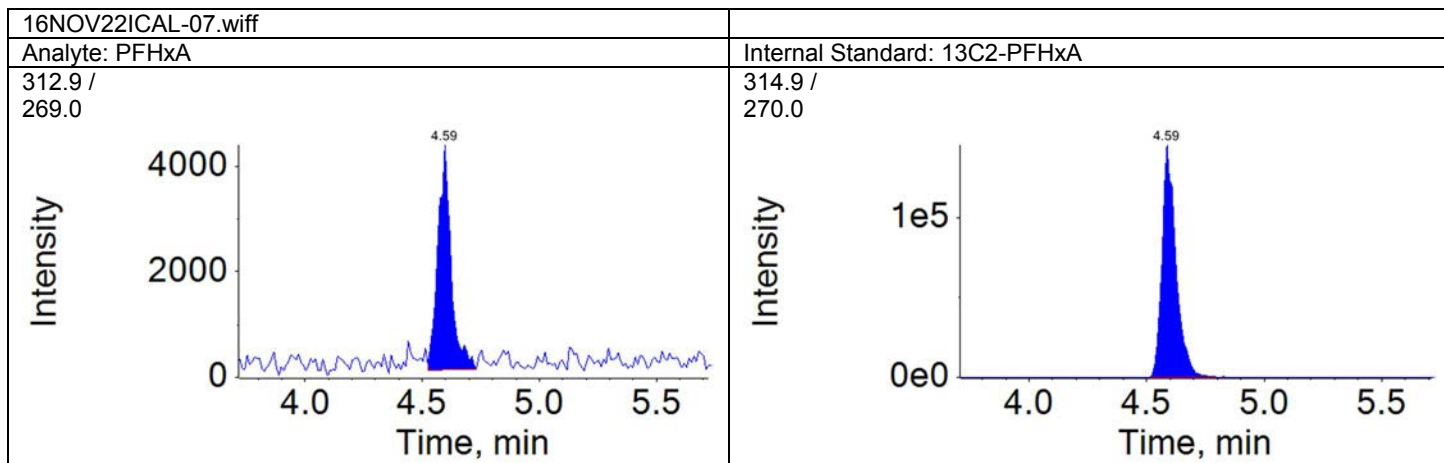
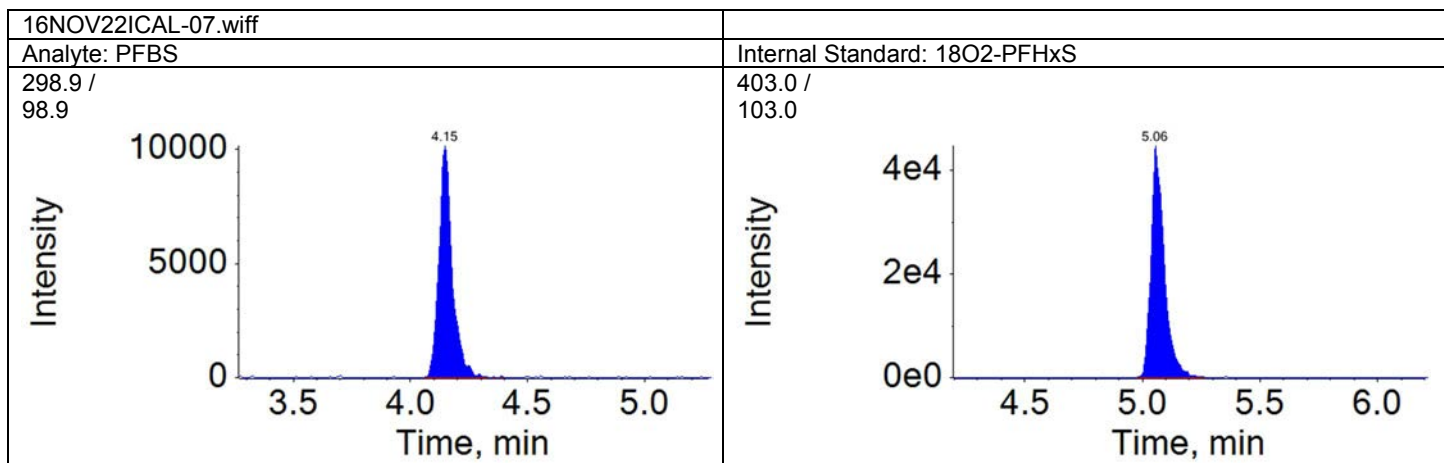
Sample Name:	CAL1		Data File:		16NOV22ICAL-07.wiff
Sample ID:	CAL1		Acquis Date:		2016-11-22T12:35:36
Sample Type:	Standard		Instrument:		Triple Quad 4500, 0, LM24743
Vial Position:	3		Acquis Method:		PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:		MQ 16330002
			ICAL Name:		16NOV22ICAL
Batch Number:	PFCICAL		Operator:		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:		1.00
Sample Vol.:	1.000		Prep Factor:		1.000

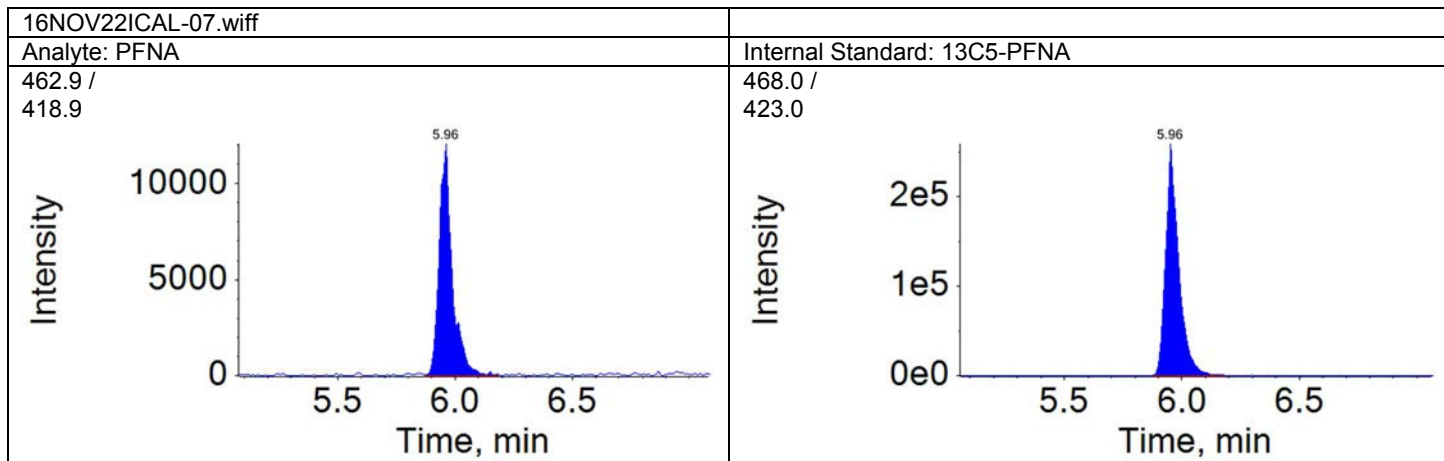
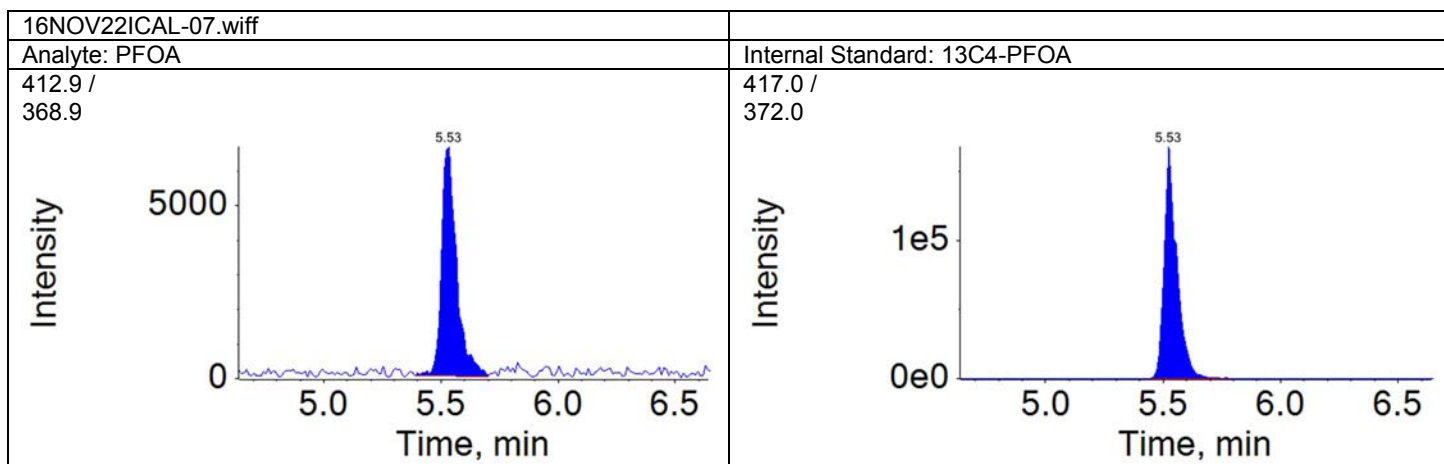
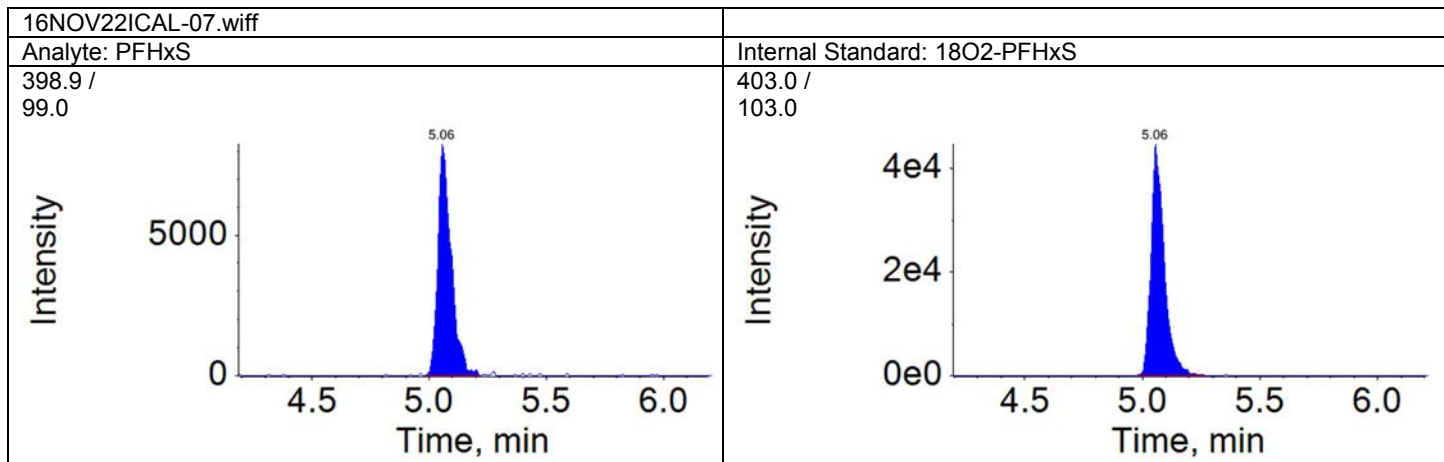
Quantitation Peak Table

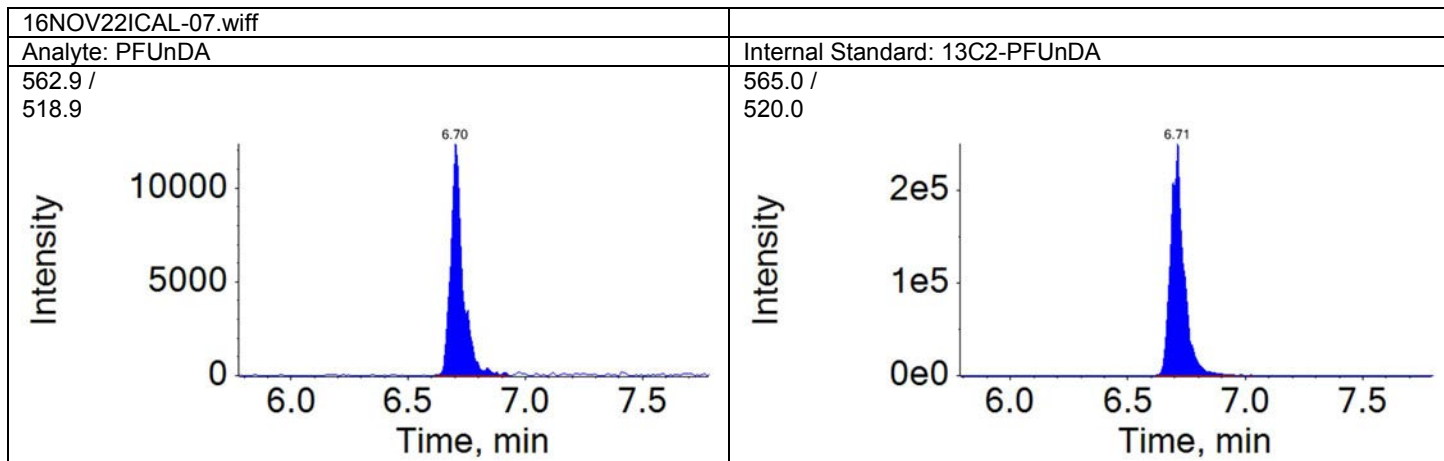
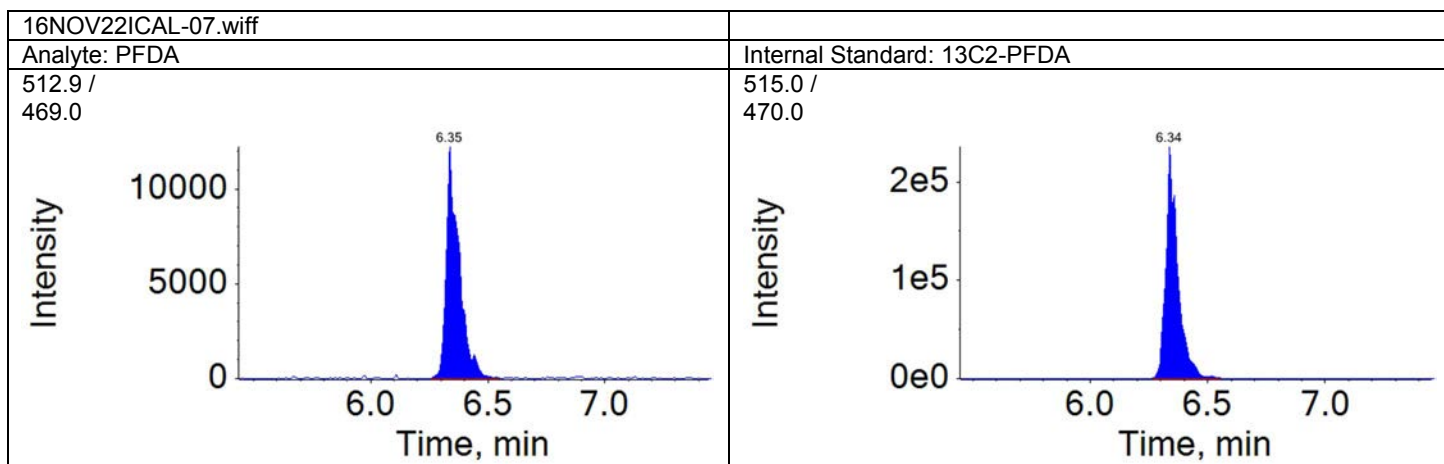
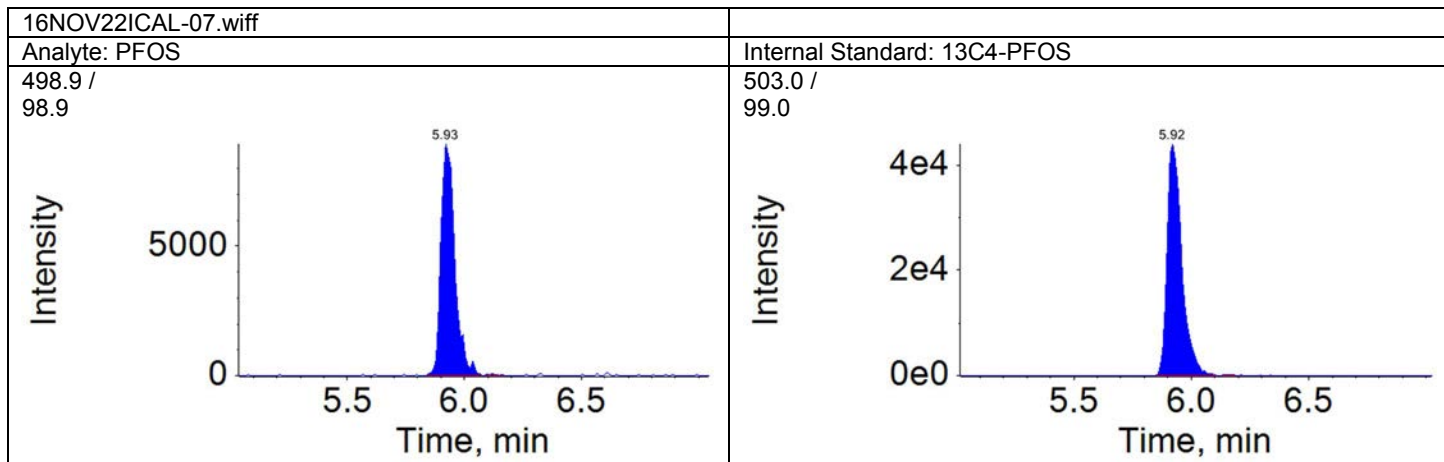
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.15	0.820	40213.6	A	18O2-PFHxS	5.06	174090.4	0.231	0.781
PFHxA	4.59	1.000	16649.0	M	13C2-PFHxA	4.59	597404.4	0.028	0.208
PFHpA	5.07	1.000	20399.5	A	13C4-PFHpA	5.07	479681.5	0.043	0.175
PFHxS	5.06	1.000	32450.0	M	18O2-PFHxS	5.06	174090.4	0.186	0.760
PFOA	5.53	1.000	29929.5	A	13C4-PFOA	5.53	630784.5	0.047	0.185
PFNA	5.96	1.000	46367.7	M	13C5-PFNA	5.96	990244.4	0.047	0.186
PFOS	5.93	1.000	37558.1	A	13C4-PFOS	5.92	193042.3	0.195	0.847
PFDA	6.35	1.000	46337.4	M	13C2-PFDA	6.34	829235.5	0.056	0.182
PFUnDA	6.70	1.000	44532.0	A	13C2-PFUnDA	6.71	972010.1	0.046	0.205
PFDodA	7.04	1.000	110139.2	A	13C2-PFDoDA	7.04	1174357.8	0.094	0.388
PFTrDA	7.37	1.050	83443.0	A	13C2-PFDoDA	7.04	1174357.8	0.071	0.320
PFTeDA	7.69	1.090	79271.4	A	13C2-PFDoDA	7.04	1174357.8	0.068	0.316

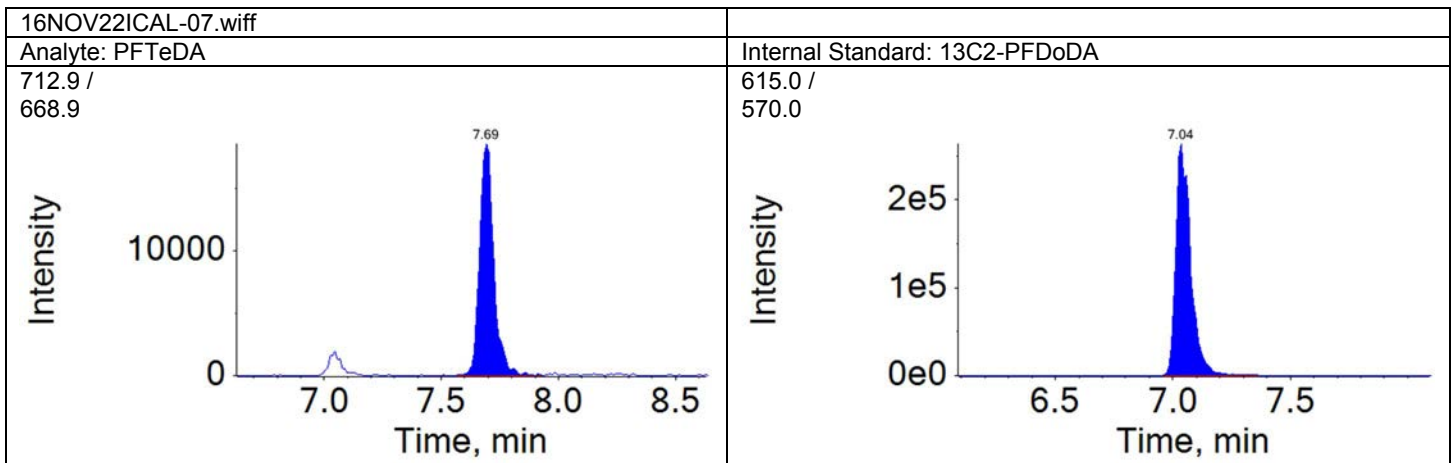
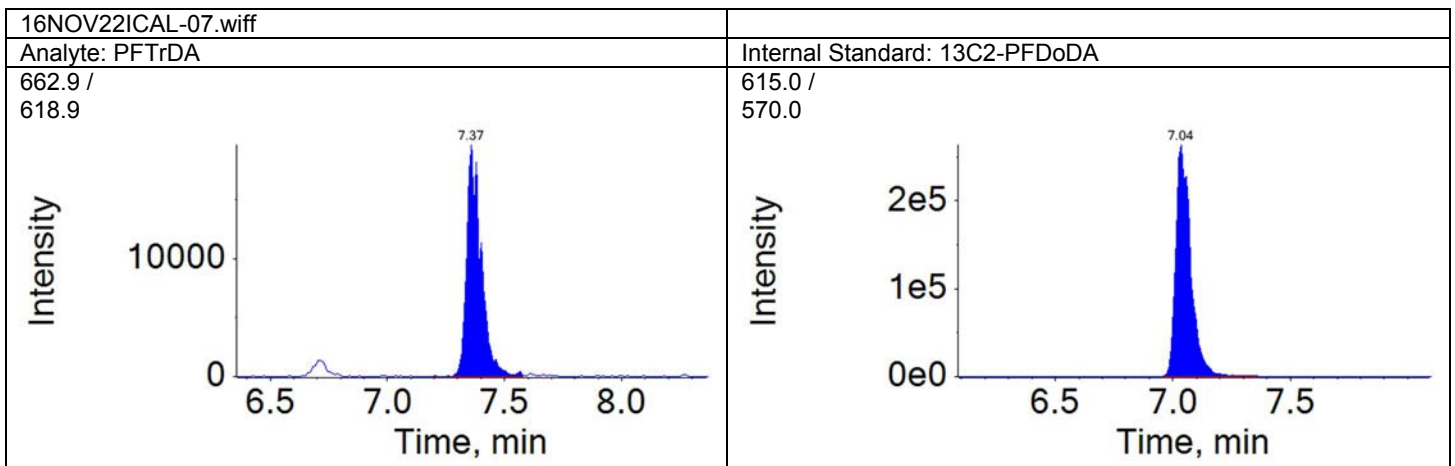
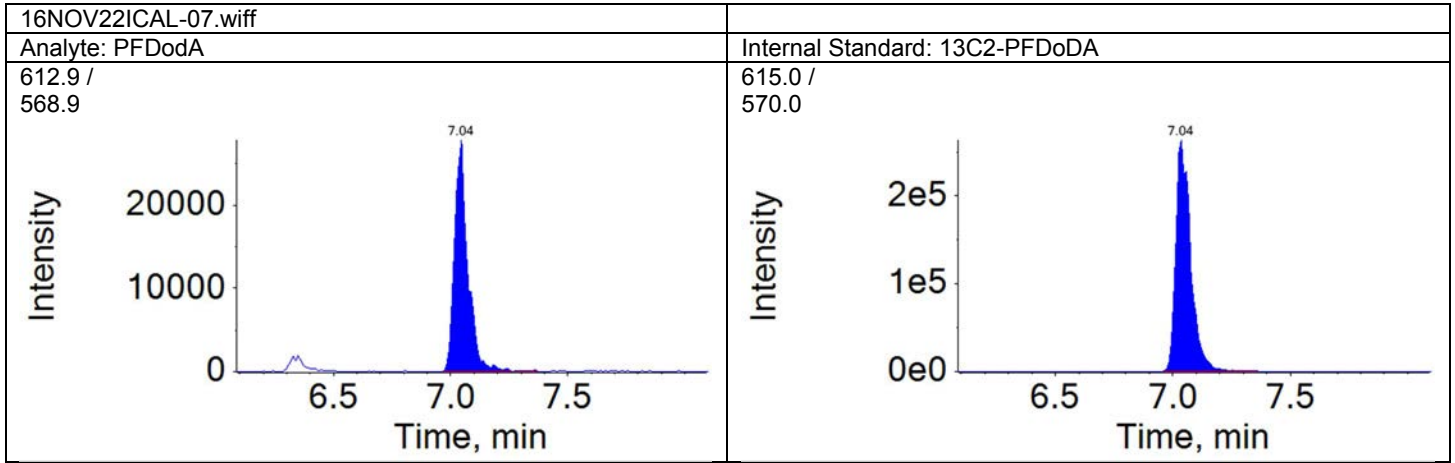
Total Ion Chromatogram  
CAL1







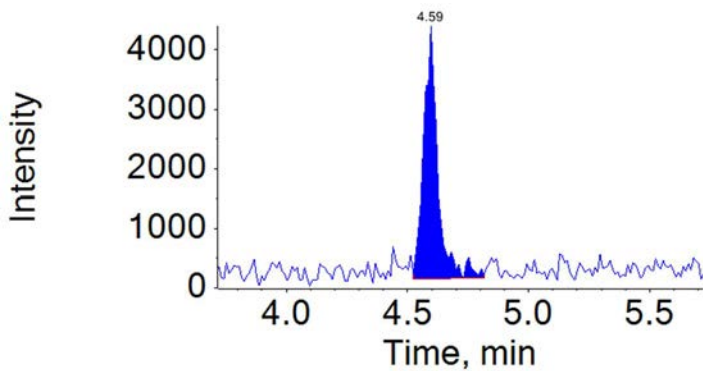




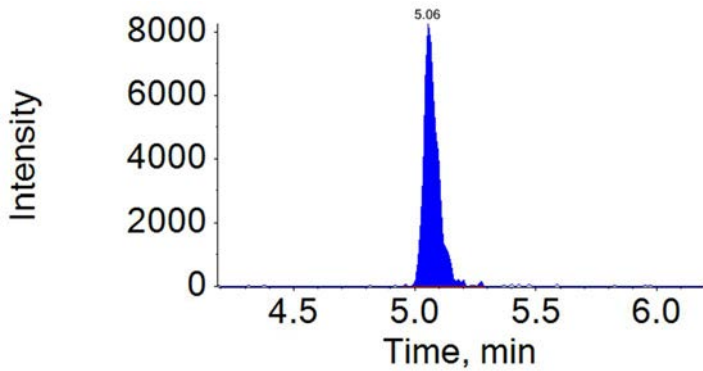
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-07.wiff	2016-11-22T12:35:36	CAL1	PFHxA	4.59	17248.5
16NOV22ICAL-07.wiff	2016-11-22T12:35:36	CAL1	PFHxS	5.06	32803.9
16NOV22ICAL-07.wiff	2016-11-22T12:35:36	CAL1	PFNA	5.96	46867.0
16NOV22ICAL-07.wiff	2016-11-22T12:35:36	CAL1	PFDA	6.35	46656.8

Component: PFHxA  
Mass: 312.9 / 269.0



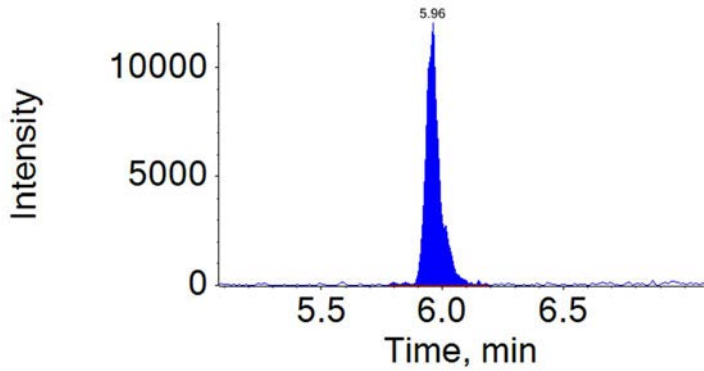
Component: PFHxS  
Mass: 398.9 / 99.0



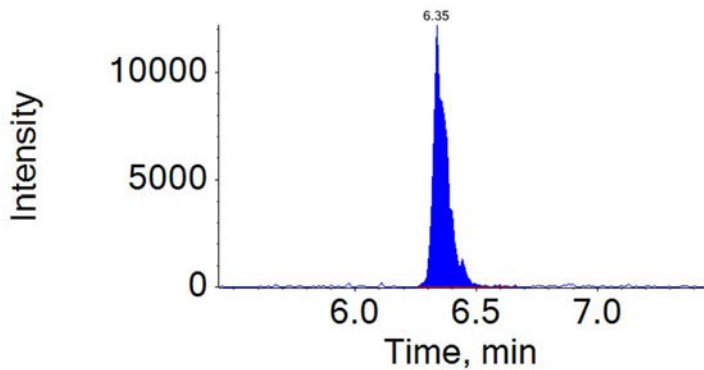
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
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Component: PFNA  
Mass: 462.9 / 418.9



Component: PFDA  
Mass: 512.9 / 469.0





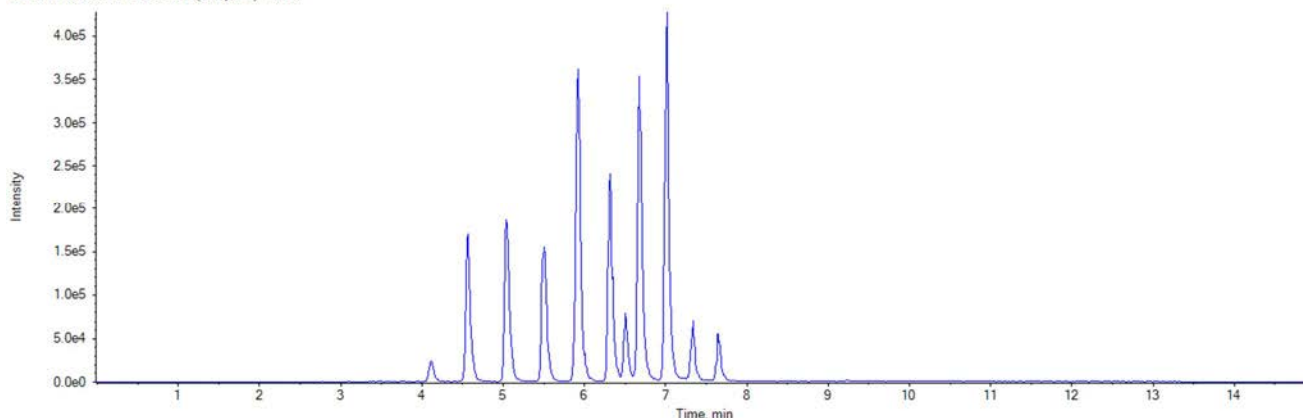
Sample Name:	CAL2		Data File:	16NOV22ICAL-08.wiff
Sample ID:	CAL2		Acquis Date:	2016-11-22T12:52:00
Sample Type:	Standard		Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	4		Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:	MQ 16330002
			ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL		Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:	1.00
Sample Vol.:	1.000		Prep Factor:	1.000

Quantitation Peak Table

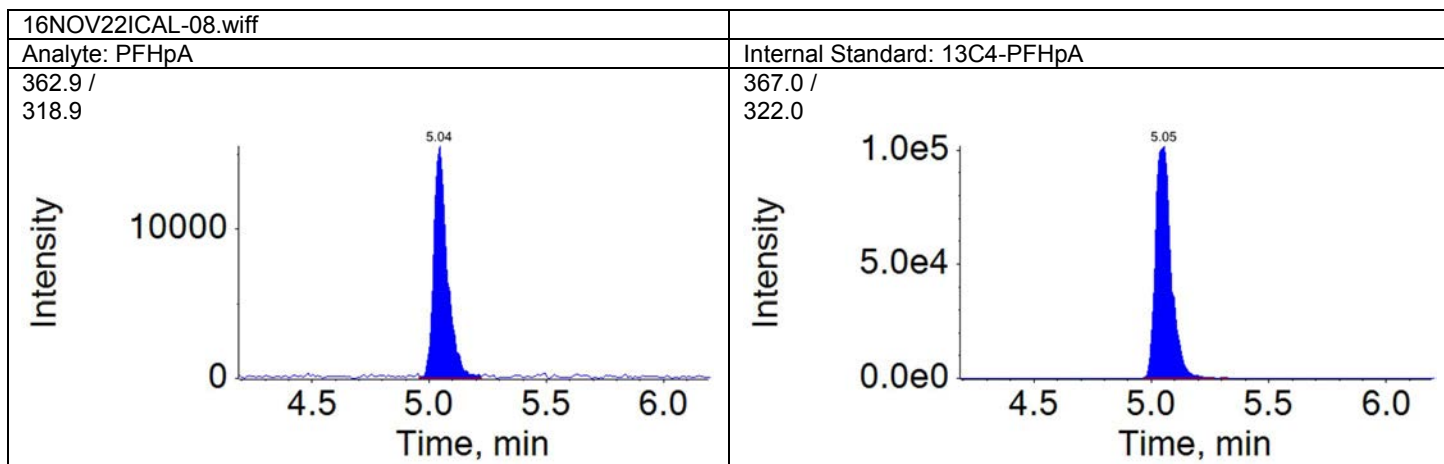
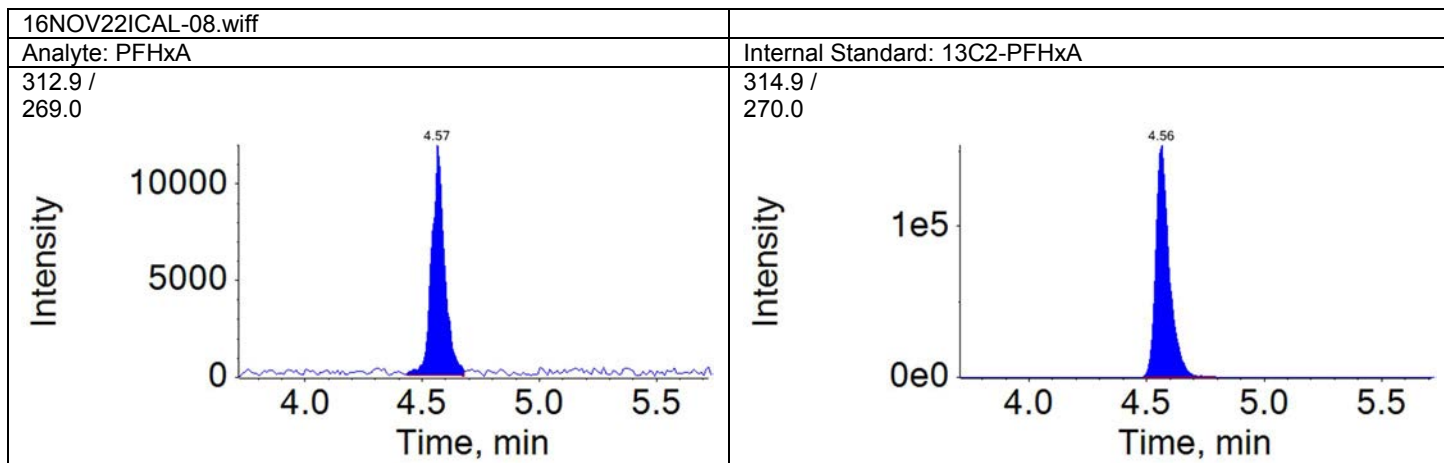
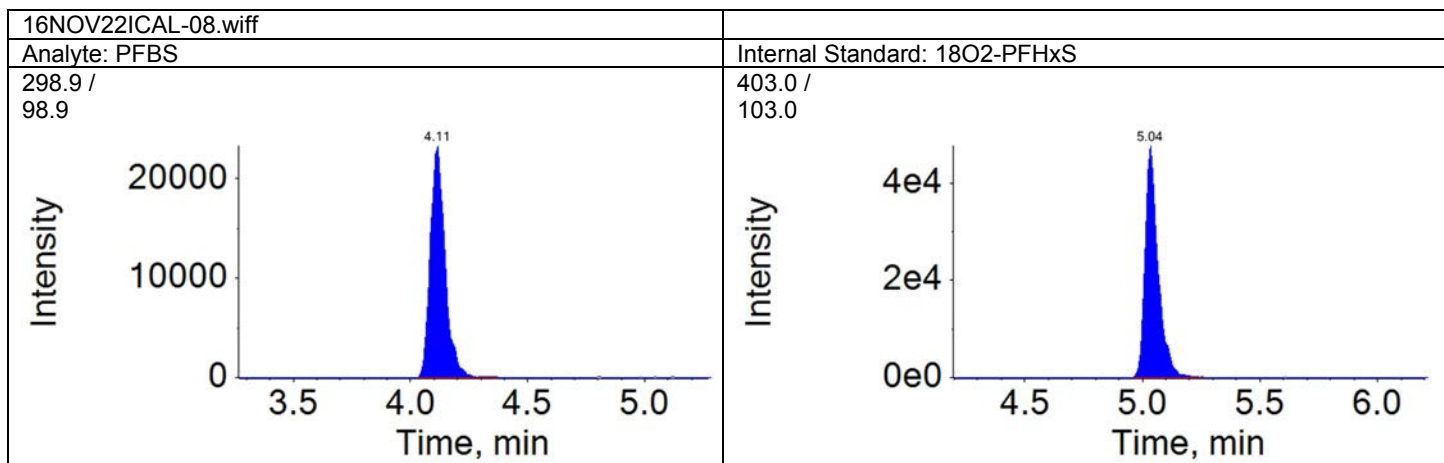
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	102598.1	A	18O2-PFHxS	5.04	182777.0	0.561	1.897
PFHxA	4.57	1.000	46059.3	A	13C2-PFHxA	4.56	616901.1	0.075	0.556
PFHpA	5.04	1.000	62638.6	M	13C4-PFHpA	5.05	477945.2	0.131	0.541
PFHxS	5.04	1.000	85775.5	A	18O2-PFHxS	5.04	182777.0	0.469	1.914
PFOA	5.50	1.000	85539.4	M	13C4-PFOA	5.50	630488.4	0.136	0.530
PFNA	5.93	1.000	128395.5	M	13C5-PFNA	5.92	1090176.4	0.118	0.469
PFOS	5.90	1.000	90183.7	A	13C4-PFOS	5.89	215638.1	0.418	1.820
PFDA	6.32	1.000	122613.1	A	13C2-PFDA	6.31	816591.5	0.150	0.488
PFUnDA	6.68	1.000	120506.3	M	13C2-PFUnDA	6.68	1014624.1	0.119	0.533
PFDodA	7.01	1.000	299604.9	A	13C2-PFDoDA	7.01	1241603.6	0.241	0.997
PFTTrDA	7.33	1.050	243629.4	A	13C2-PFDoDA	7.01	1241603.6	0.196	0.884
PFTeDA	7.65	1.090	197335.7	M	13C2-PFDoDA	7.01	1241603.6	0.159	0.743

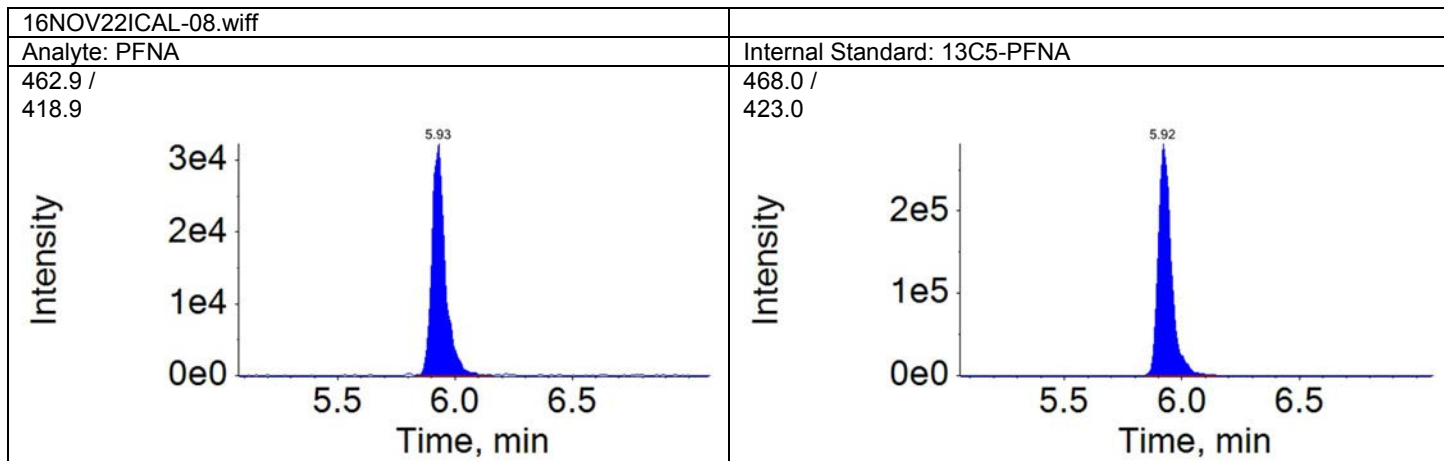
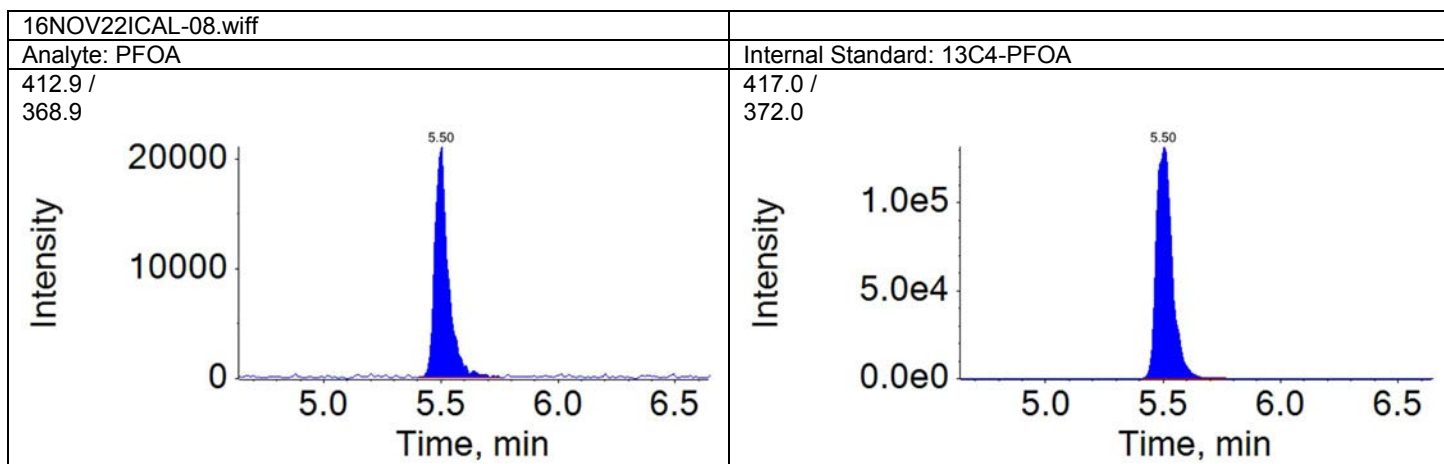
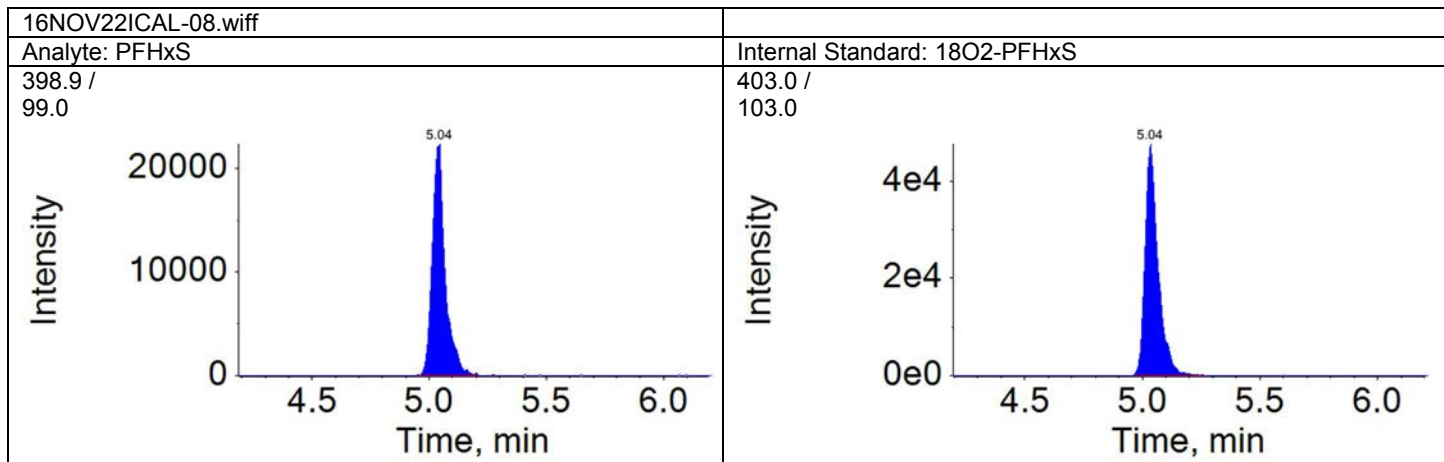
Total Ion Chromatogram  
CAL2

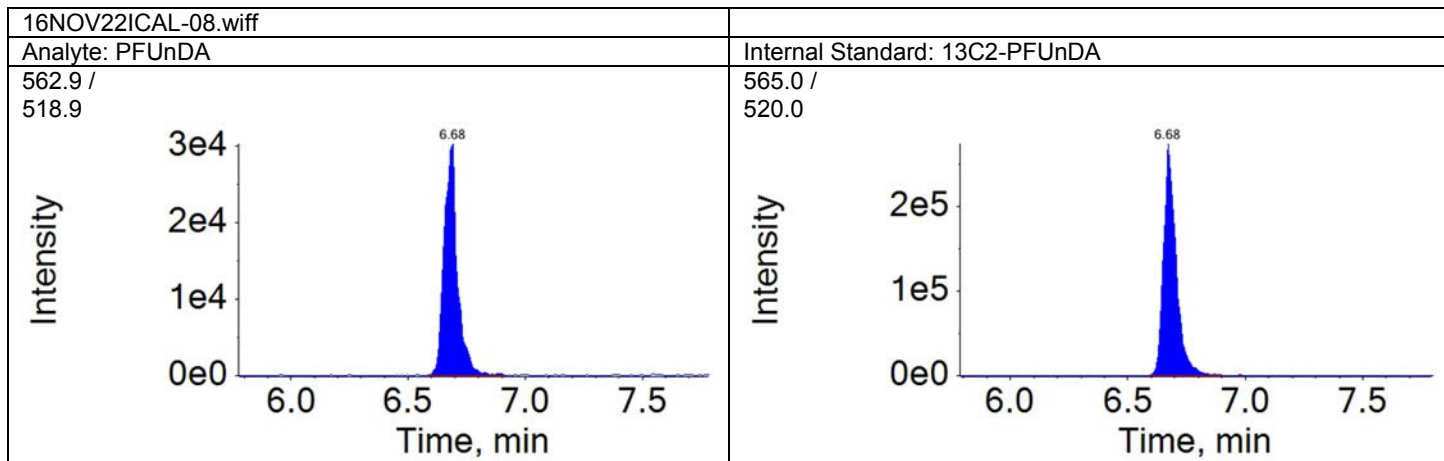
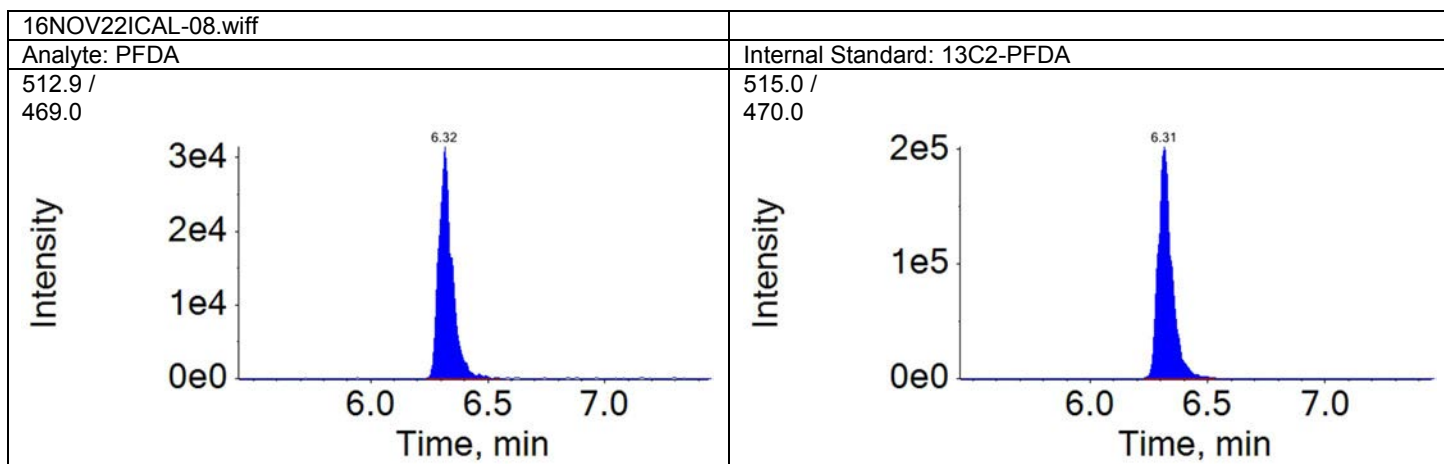
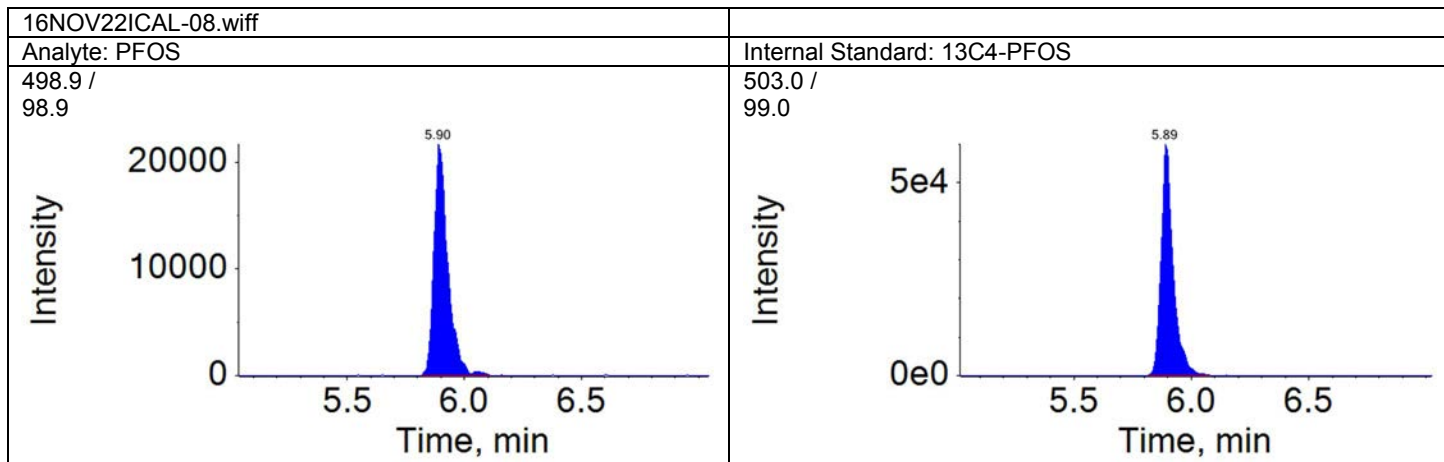
TIC from 16NOV22ICAL-08.wiff (sample 1) - CAL2

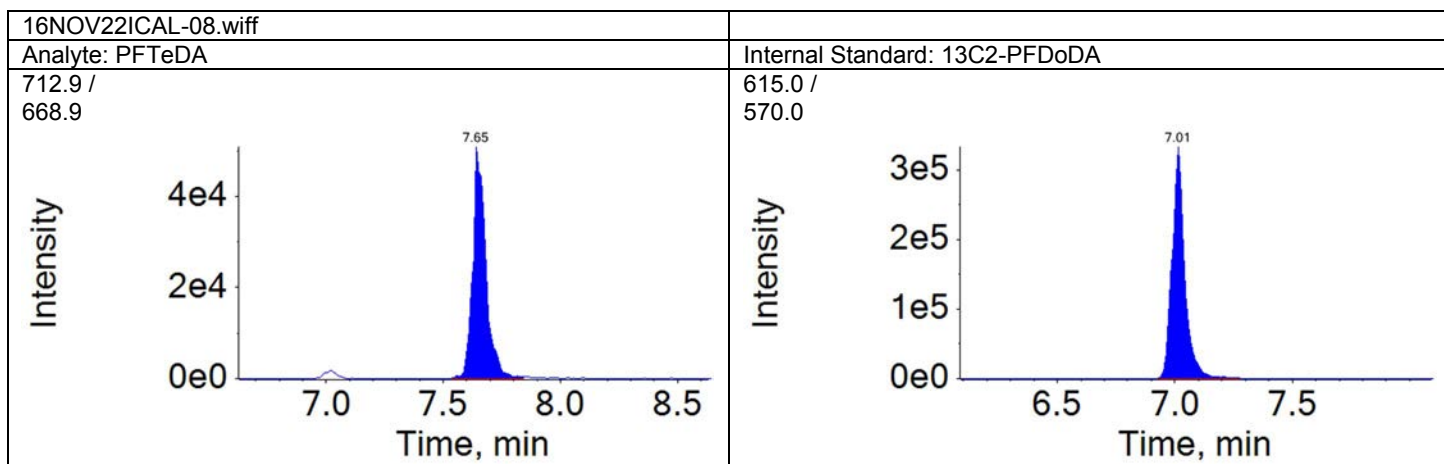
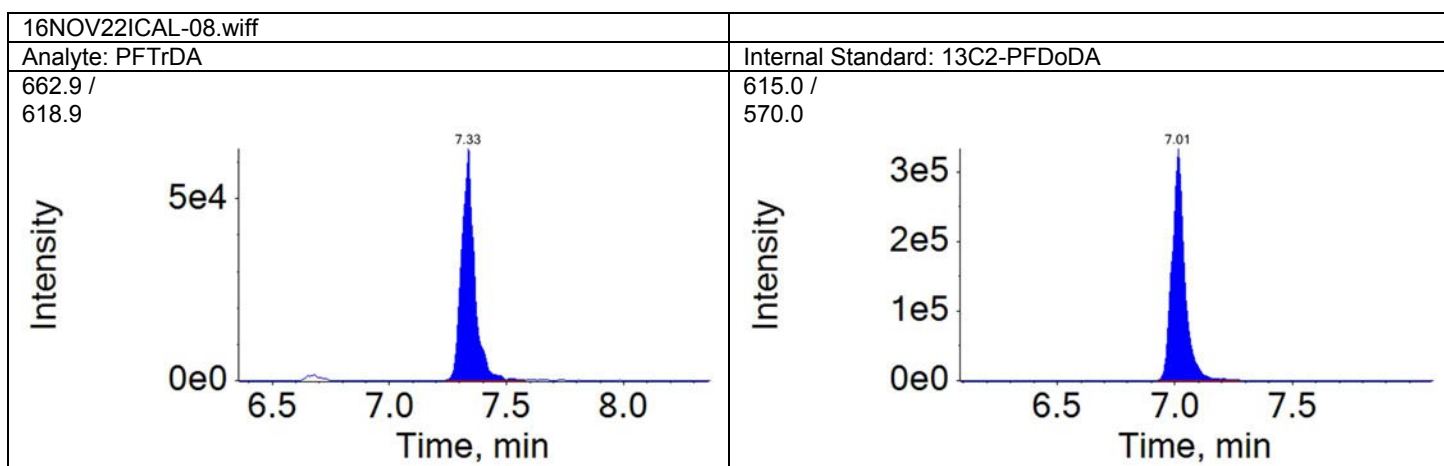
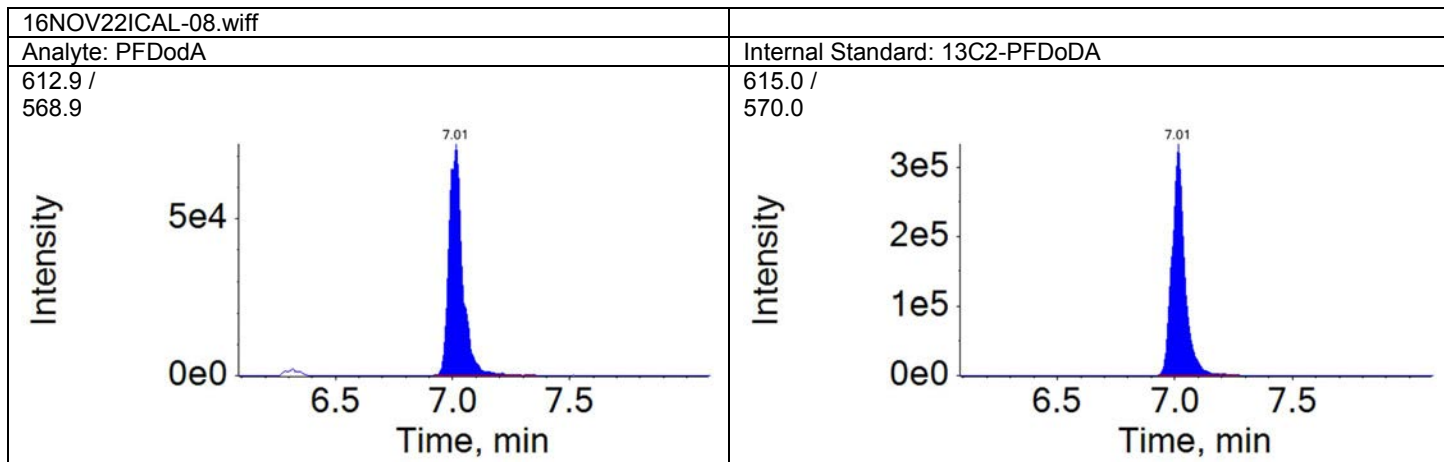








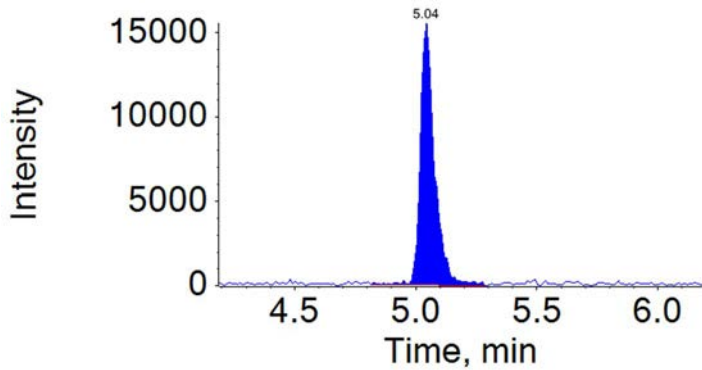




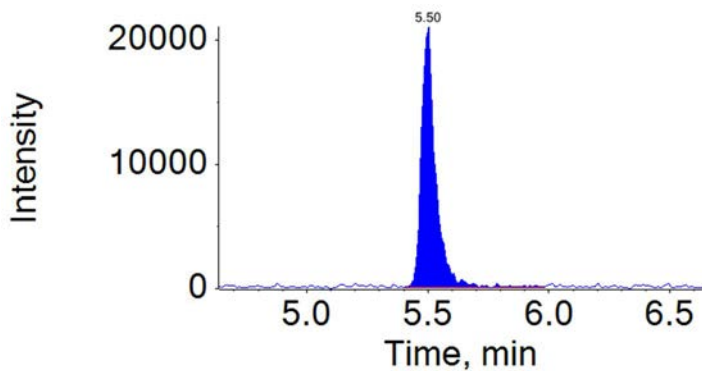
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-08.wiff	2016-11-22T12:52:00	CAL2	PFHpA	5.04	64094.5
16NOV22ICAL-08.wiff	2016-11-22T12:52:00	CAL2	PFOA	5.50	86489.8
16NOV22ICAL-08.wiff	2016-11-22T12:52:00	CAL2	PFNA	5.93	130092.7
16NOV22ICAL-08.wiff	2016-11-22T12:52:00	CAL2	PFUnDA	6.68	121138.8
16NOV22ICAL-08.wiff	2016-11-22T12:52:00	CAL2	PFTeDA	7.65	201450.8

Component: PFHpA  
Mass: 362.9 / 318.9



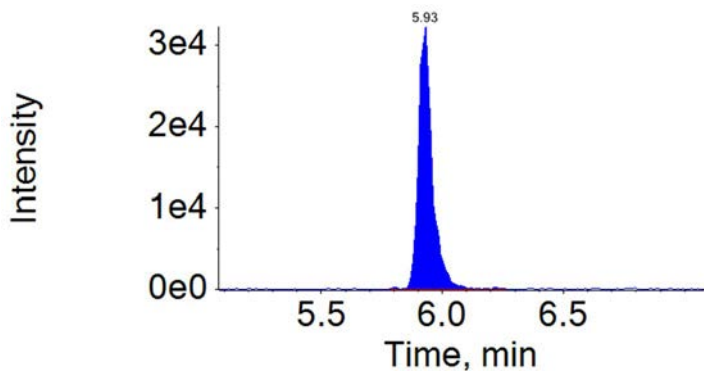
Component: PFOA  
Mass: 412.9 / 368.9



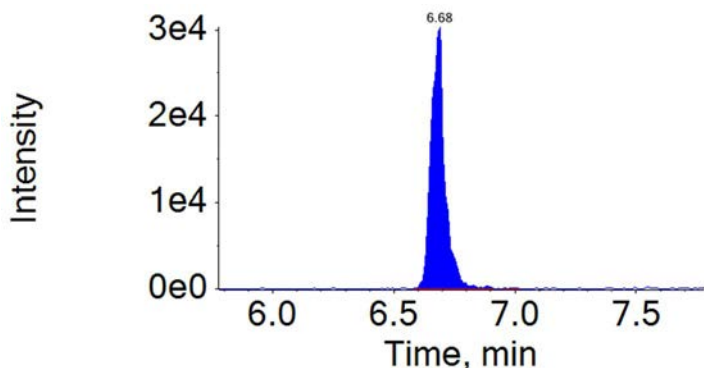
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
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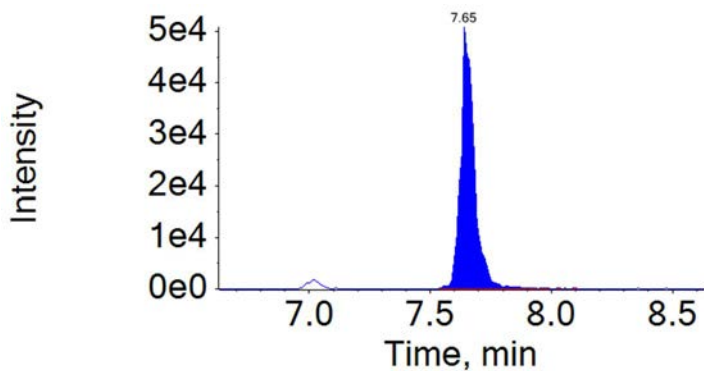
Component: PFNA  
Mass: 462.9 / 418.9



Component: PFUnDA  
Mass: 562.9 / 518.9



Component: PFTeDA  
Mass: 712.9 / 668.9

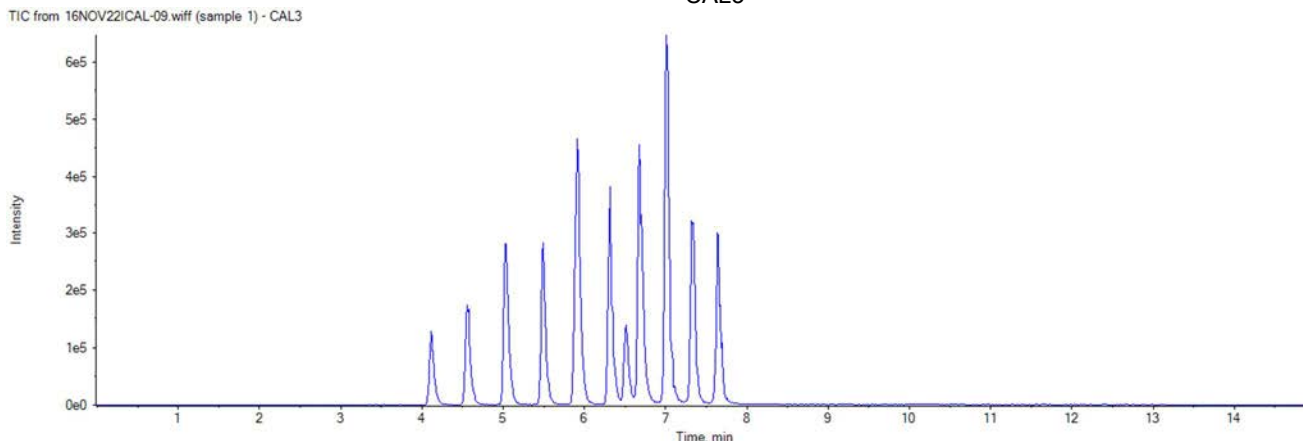


Sample Name:	CAL3		Data File:		16NOV22ICAL-09.wiff
Sample ID:	CAL3		Acquis Date:		2016-11-22T13:08:30
Sample Type:	Standard		Instrument:		Triple Quad 4500, 0, LM24743
Vial Position:	5		Acquis Method:		PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:		MQ 16330002
			ICAL Name:		16NOV22ICAL
Batch Number:	PFCICAL		Operator:		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:		1.00
Sample Vol.:	1.000		Prep Factor:		1.000

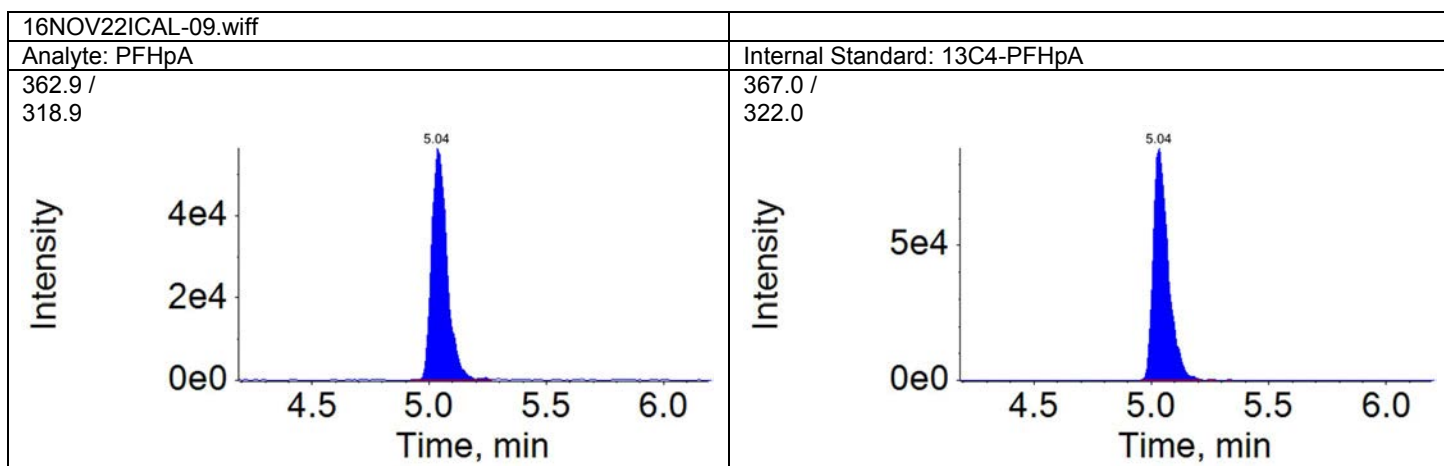
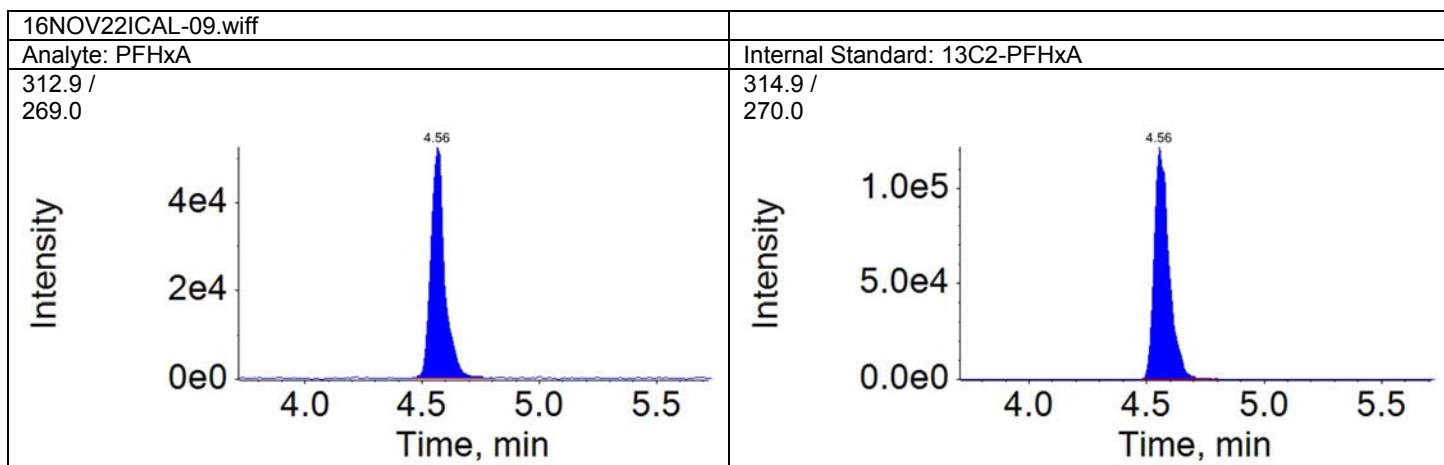
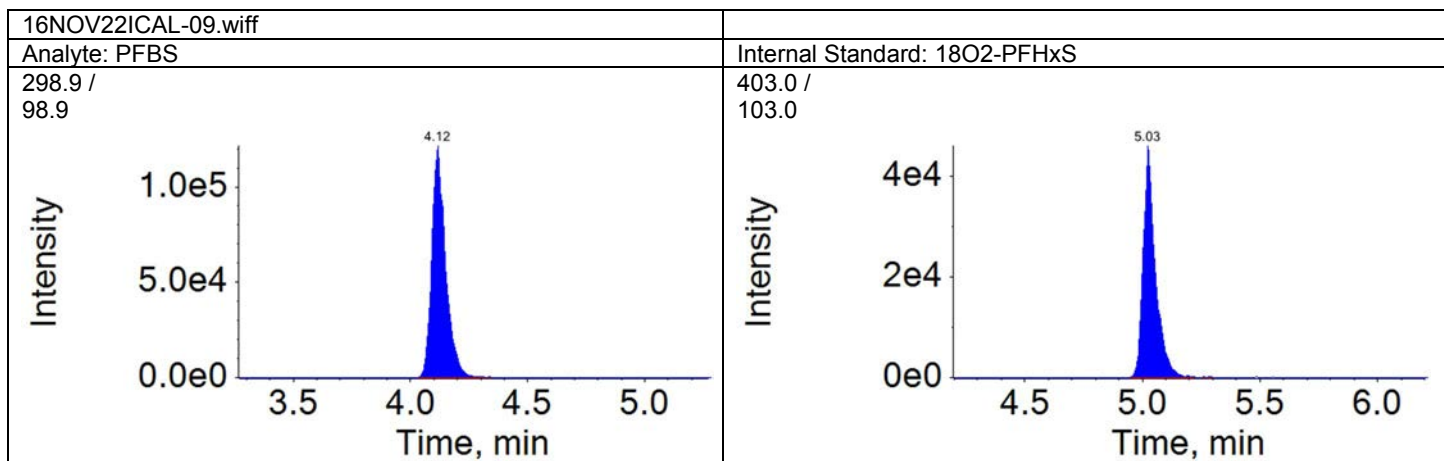
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.12	0.820	492595.9	A	18O2-PFHxS	5.03	165199.9	2.982	10.076
PFHxA	4.56	1.000	217870.9	A	13C2-PFHxA	4.56	532868.2	0.409	3.047
PFHpA	5.04	1.000	260947.6	A	13C4-PFHpA	5.04	388380.0	0.672	2.772
PFHxS	5.03	1.000	417182.9	M	18O2-PFHxS	5.03	165199.9	2.525	10.299
PFOA	5.49	1.000	404191.9	A	13C4-PFOA	5.49	640650.6	0.631	2.464
PFNA	5.92	1.000	583288.3	A	13C5-PFNA	5.92	907094.7	0.643	2.559
PFOS	5.89	1.000	444944.9	A	13C4-PFOS	5.89	190248.9	2.339	10.176
PFDA	6.31	1.000	591290.3	A	13C2-PFDA	6.31	720056.9	0.821	2.670
PFUnDA	6.68	1.000	562326.8	M	13C2-PFUnDA	6.67	888768.9	0.633	2.838
PFDodA	7.01	1.000	1395880.0	A	13C2-PFDoDA	7.01	1159530.6	1.204	4.974
PFTTrDA	7.33	1.050	1363253.2	A	13C2-PFDoDA	7.01	1159530.6	1.176	5.295
PFTeDA	7.65	1.090	1101032.4	A	13C2-PFDoDA	7.01	1159530.6	0.950	4.440

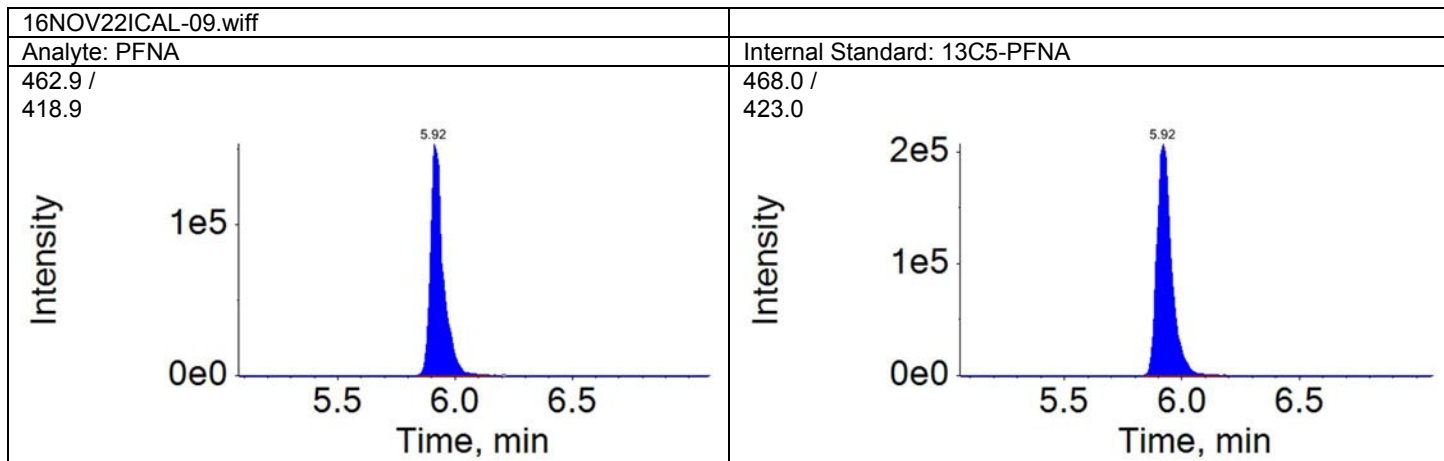
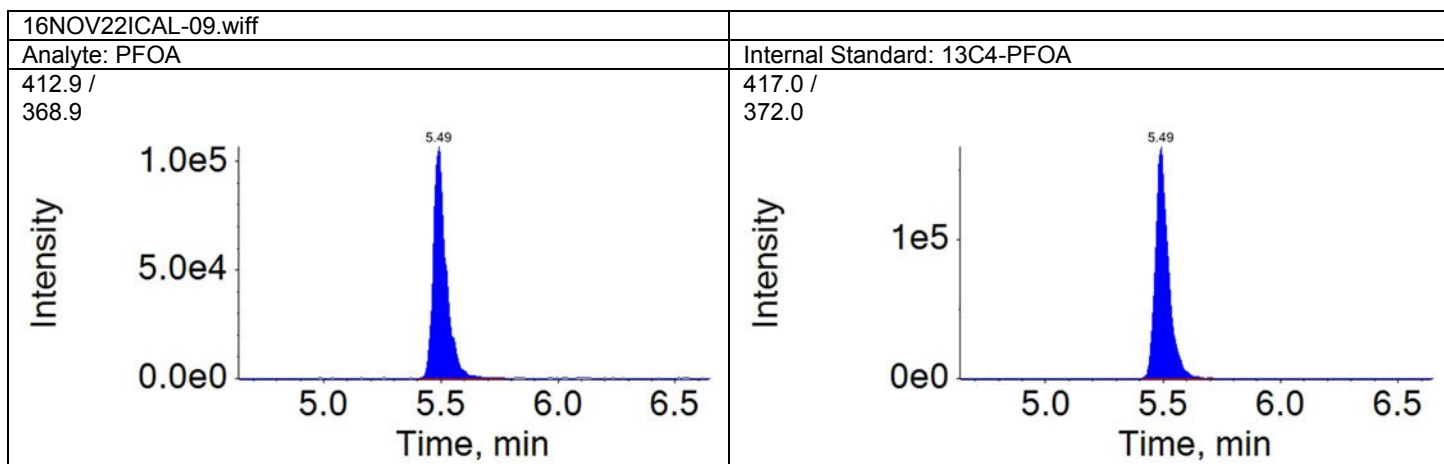
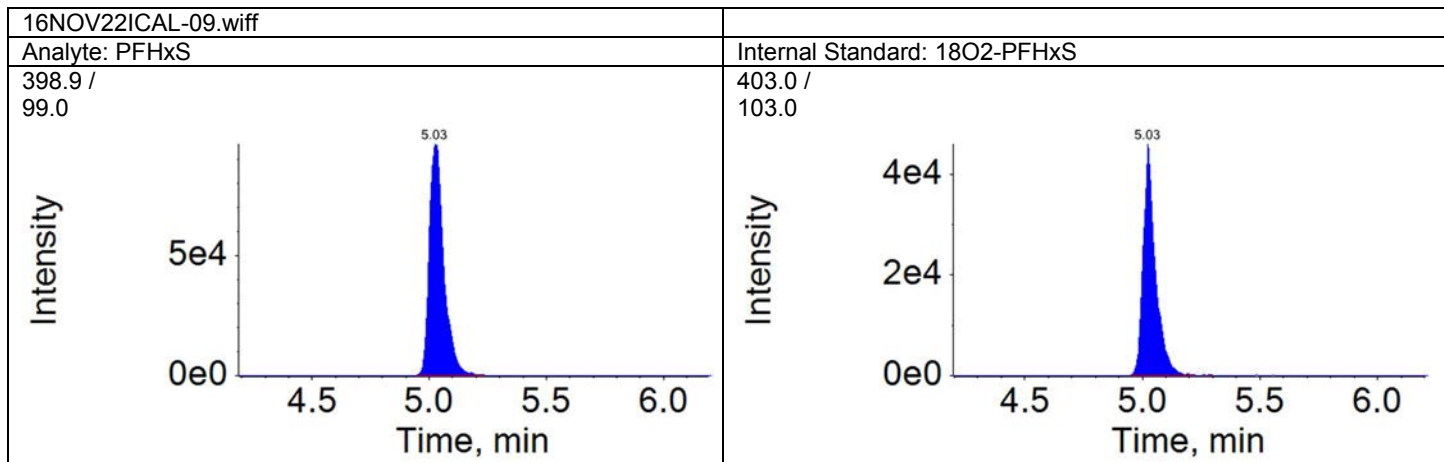
Total Ion Chromatogram  
CAL3

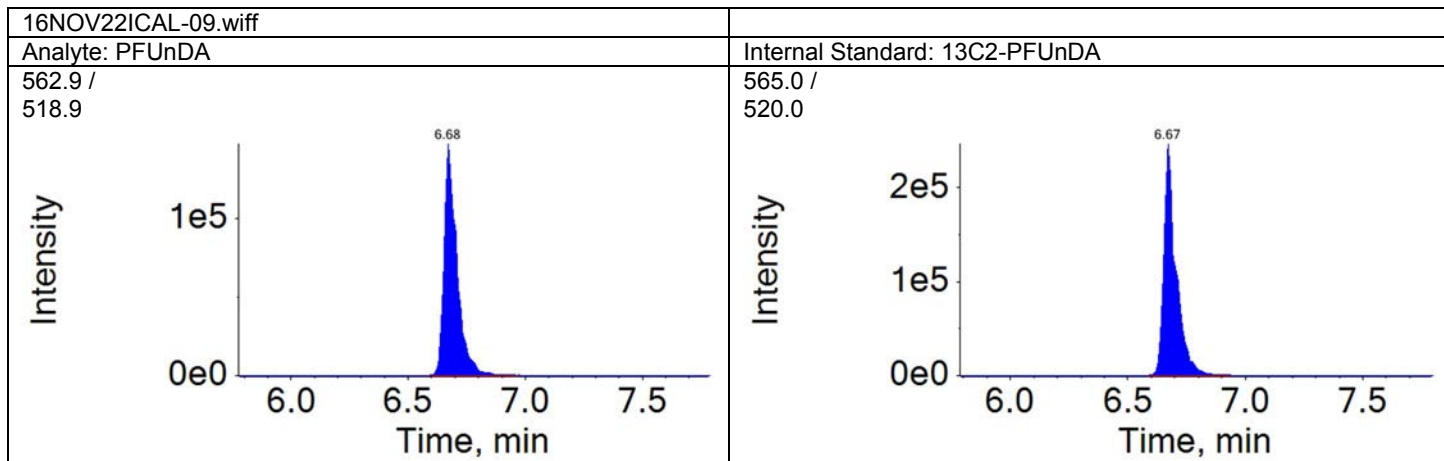
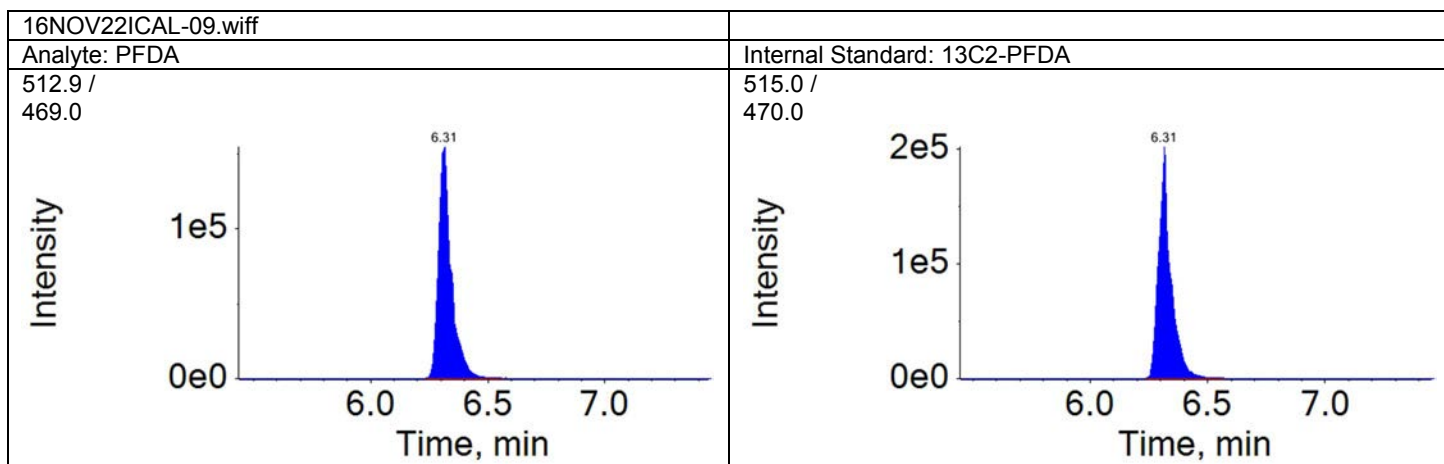
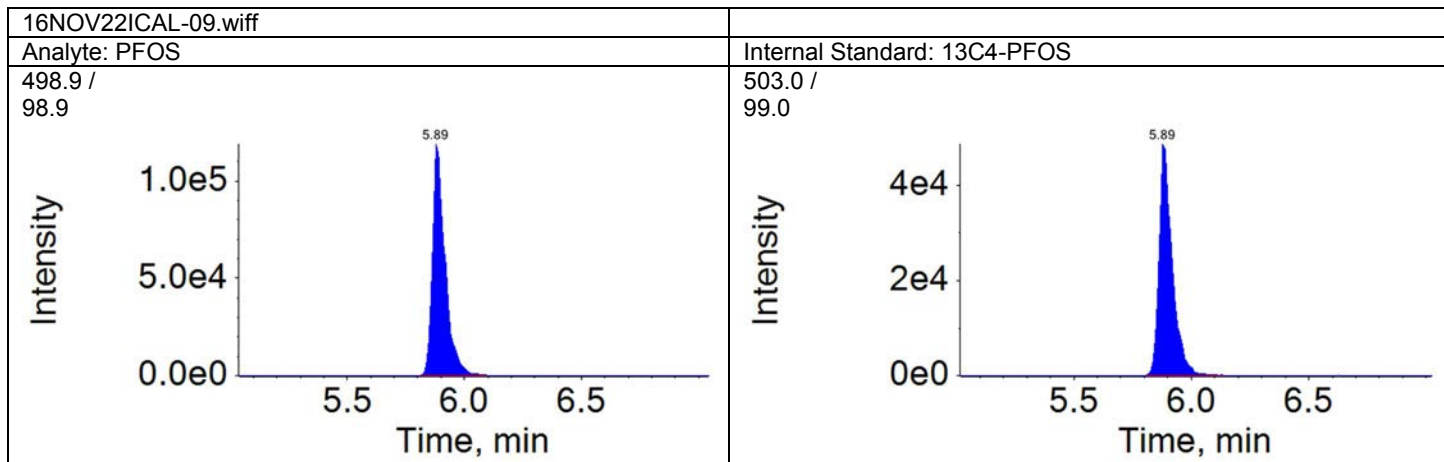


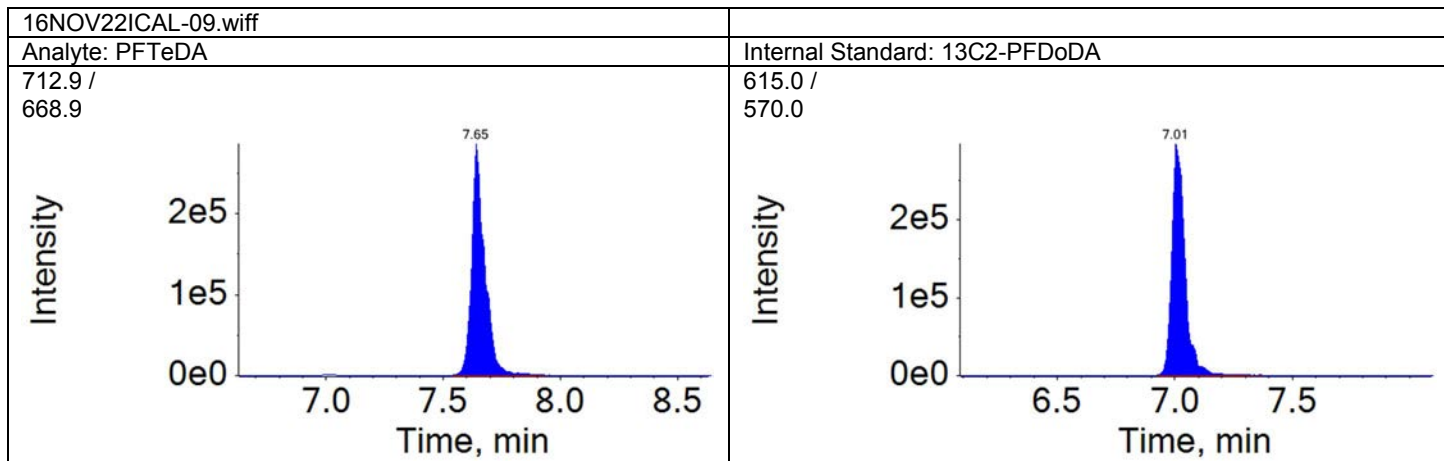
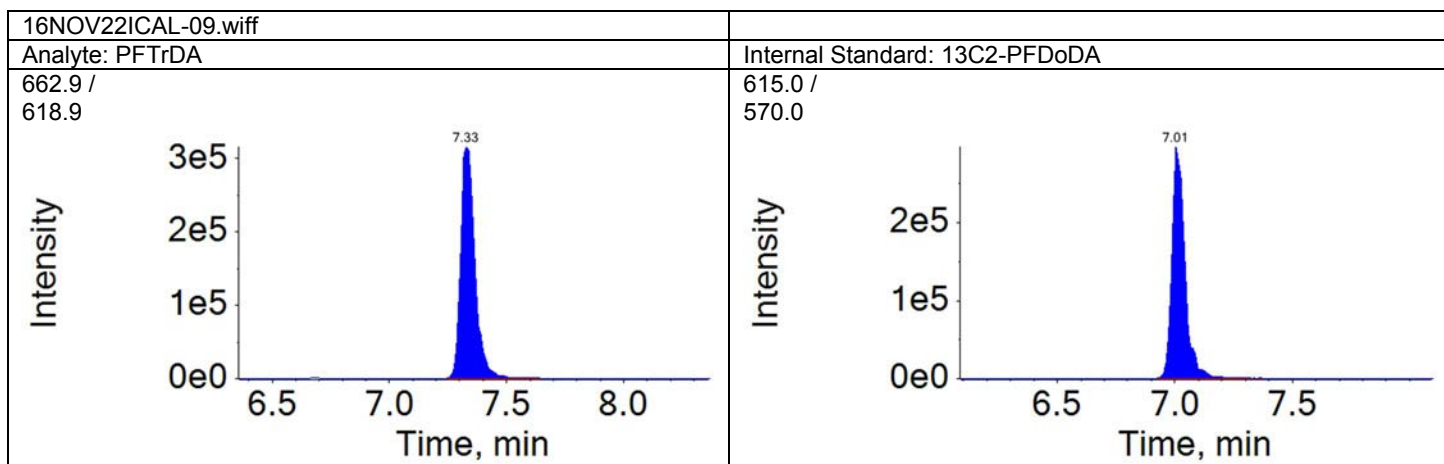
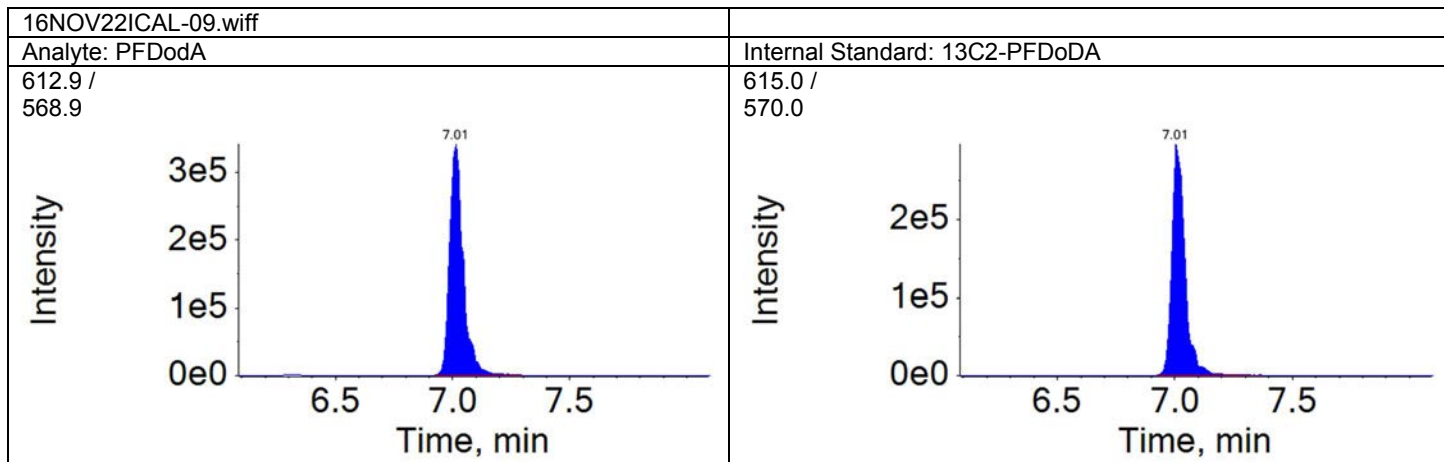








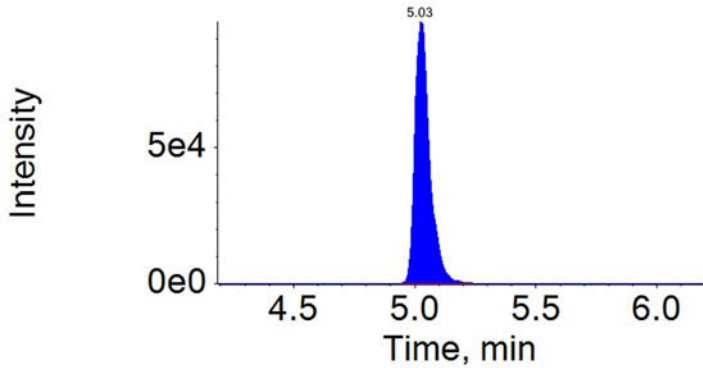




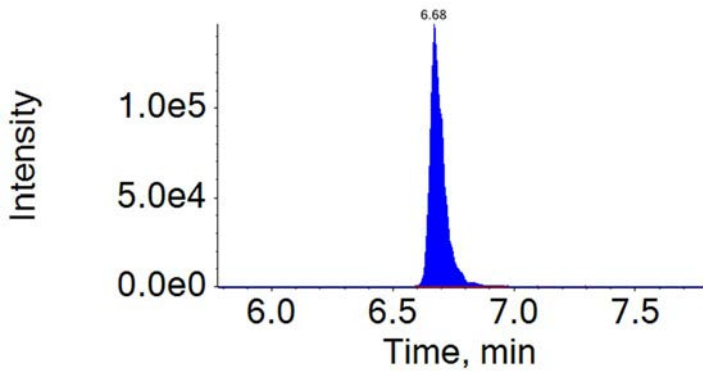
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-09.wiff	2016-11-22T13:08:30	CAL3	PFHxS	5.03	417682.8
16NOV22ICAL-09.wiff	2016-11-22T13:08:30	CAL3	PFUnDA	6.68	565581.0

Component: PFHxS  
Mass: 398.9 / 99.0



Component: PFUnDA  
Mass: 562.9 / 518.9

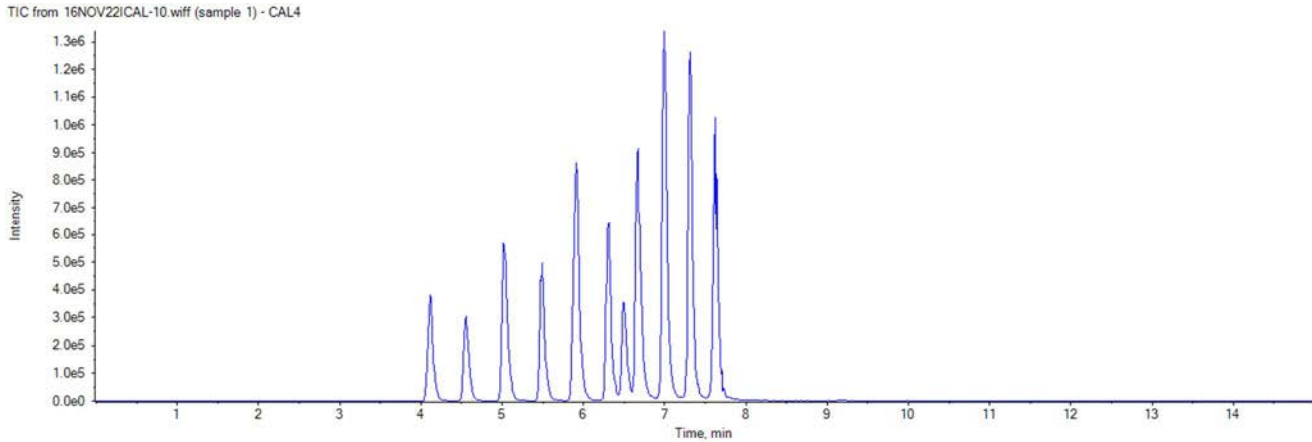


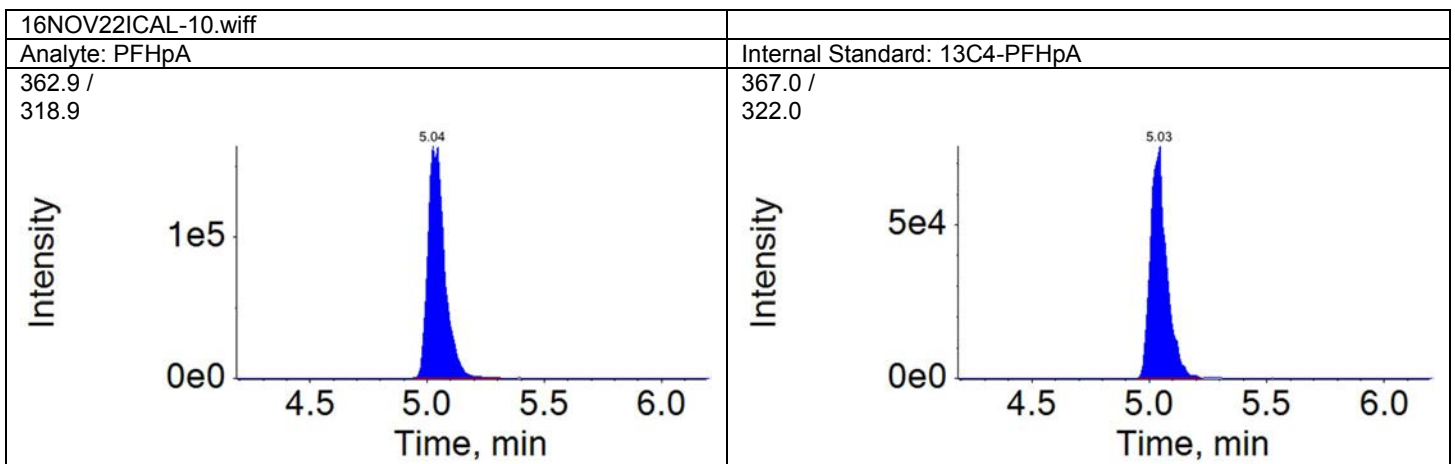
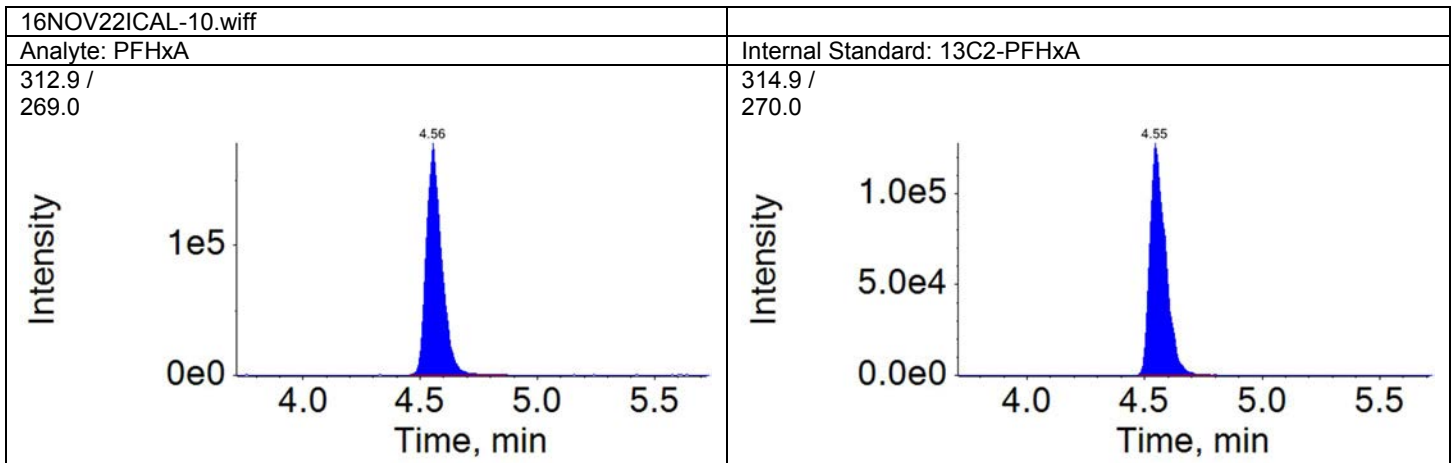
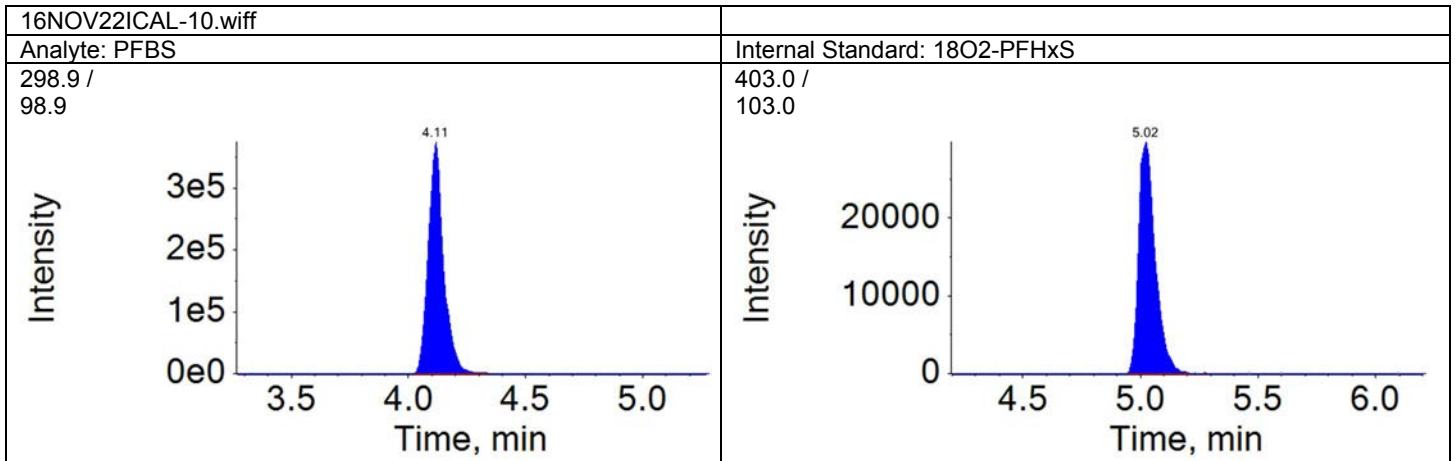
Sample Name:	CAL4		Data File:	16NOV22ICAL-10.wiff
Sample ID:	CAL4		Acquis Date:	2016-11-22T13:24:54
Sample Type:	Standard		Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	6		Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:	MQ 16330002
			ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL		Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:	1.00
Sample Vol.:	1.000		Prep Factor:	1.000

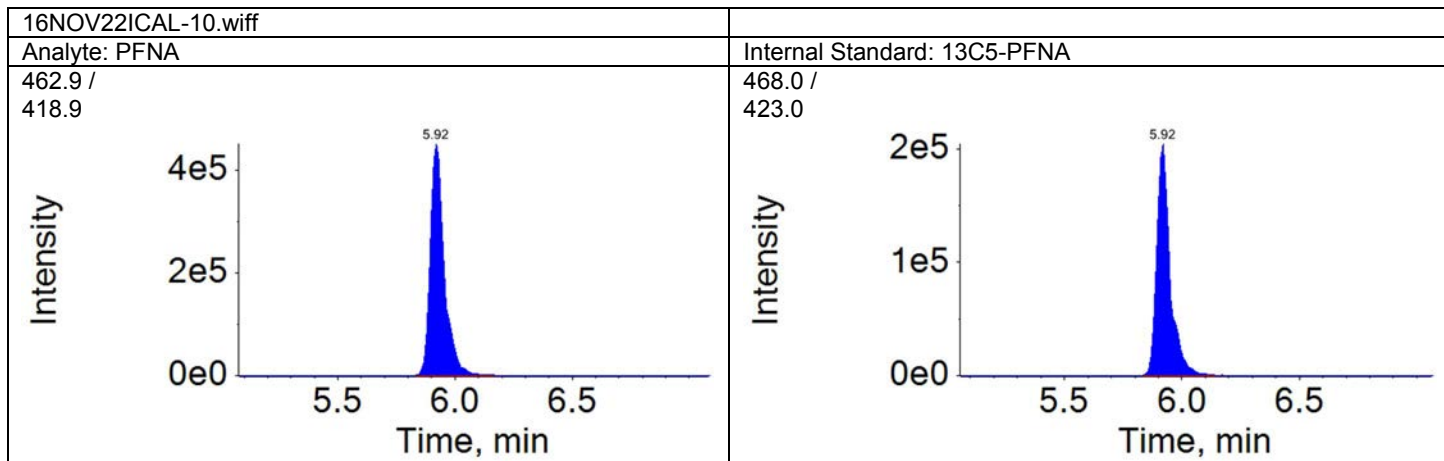
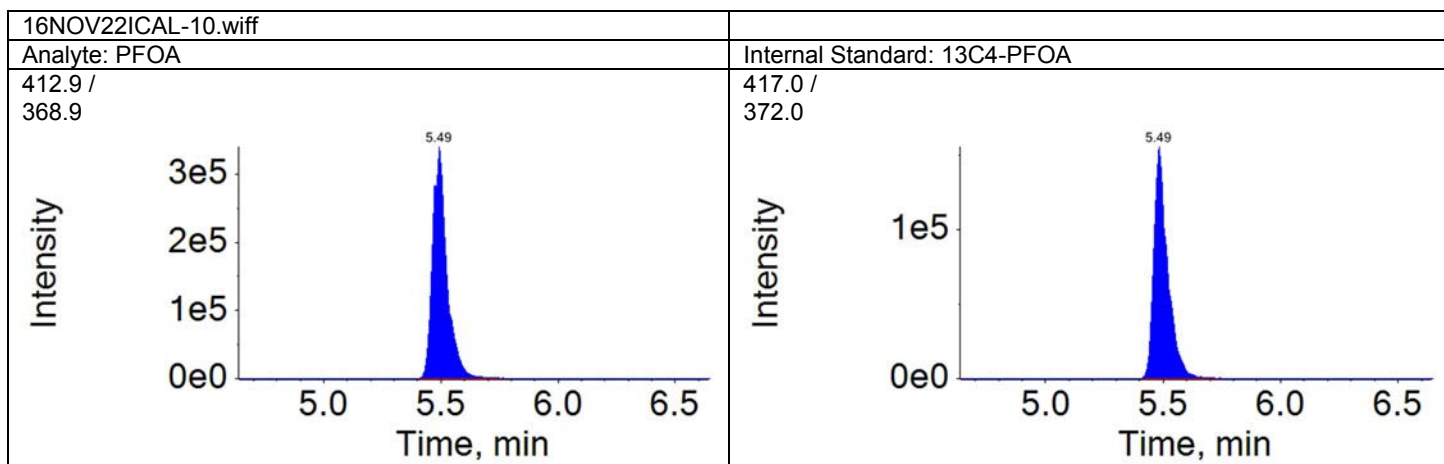
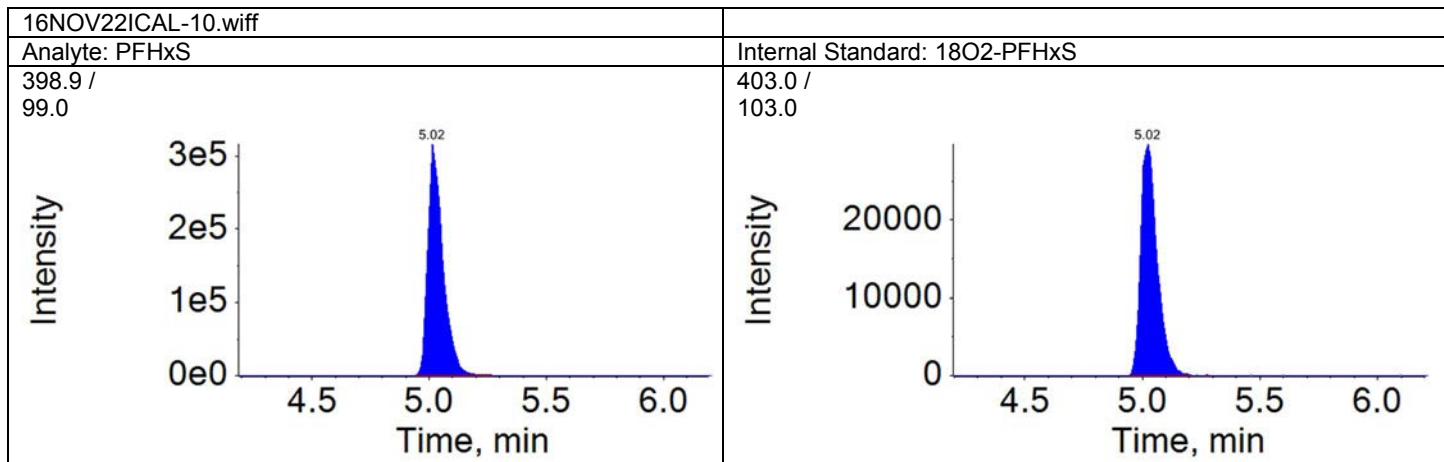
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	1687872.8	A	18O2-PFHxS	5.02	147068.5	11.477	38.782
PFHxA	4.56	1.000	807452.4	M	13C2-PFHxA	4.55	591079.2	1.366	10.179
PFHpA	5.04	1.000	827052.9	A	13C4-PFHpA	5.03	362353.6	2.282	9.416
PFHxS	5.02	1.000	1421354.1	A	18O2-PFHxS	5.02	147068.5	9.665	39.415
PFOA	5.49	1.000	1444870.0	A	13C4-PFOA	5.49	635408.4	2.274	8.882
PFNA	5.92	1.000	1888362.6	A	13C5-PFNA	5.92	814227.2	2.319	9.229
PFOS	5.89	1.000	1446650.8	A	13C4-PFOS	5.88	173928.3	8.318	36.190
PFDA	6.31	1.000	2079267.2	A	13C2-PFDA	6.30	746886.8	2.784	9.051
PFUnDA	6.66	1.000	2024471.7	A	13C2-PFUnDA	6.66	882582.7	2.294	10.287
PFDodA	7.00	1.000	4821537.3	A	13C2-PFDoDA	7.00	1063582.4	4.533	18.732
PFTTrDA	7.31	1.050	4909620.2	A	13C2-PFDoDA	7.00	1063582.4	4.616	20.789
PFTeDA	7.62	1.090	4023047.6	A	13C2-PFDoDA	7.00	1063582.4	3.783	17.686

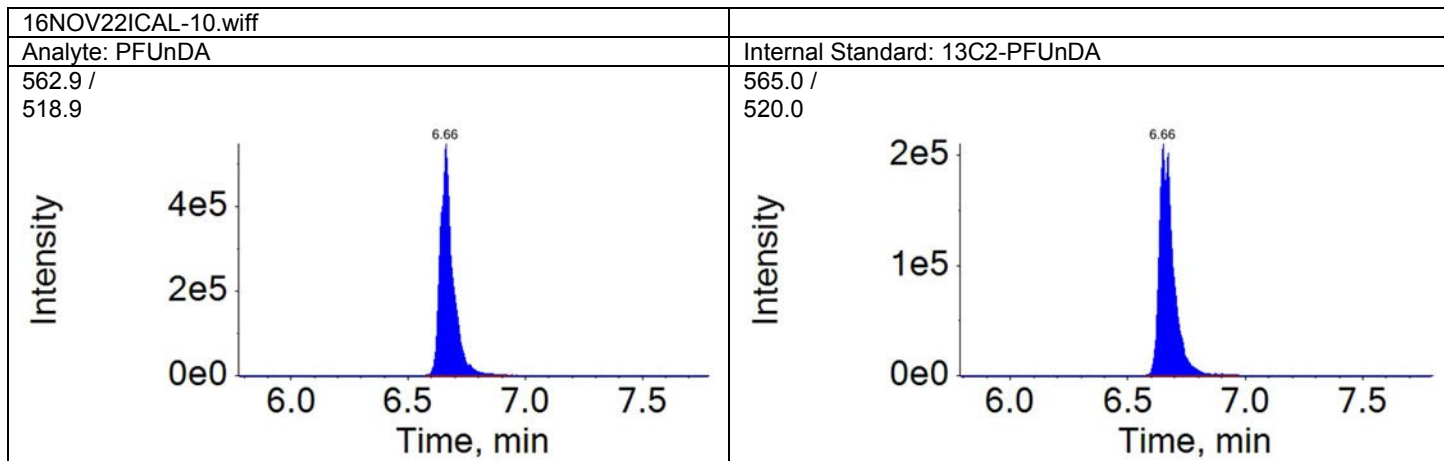
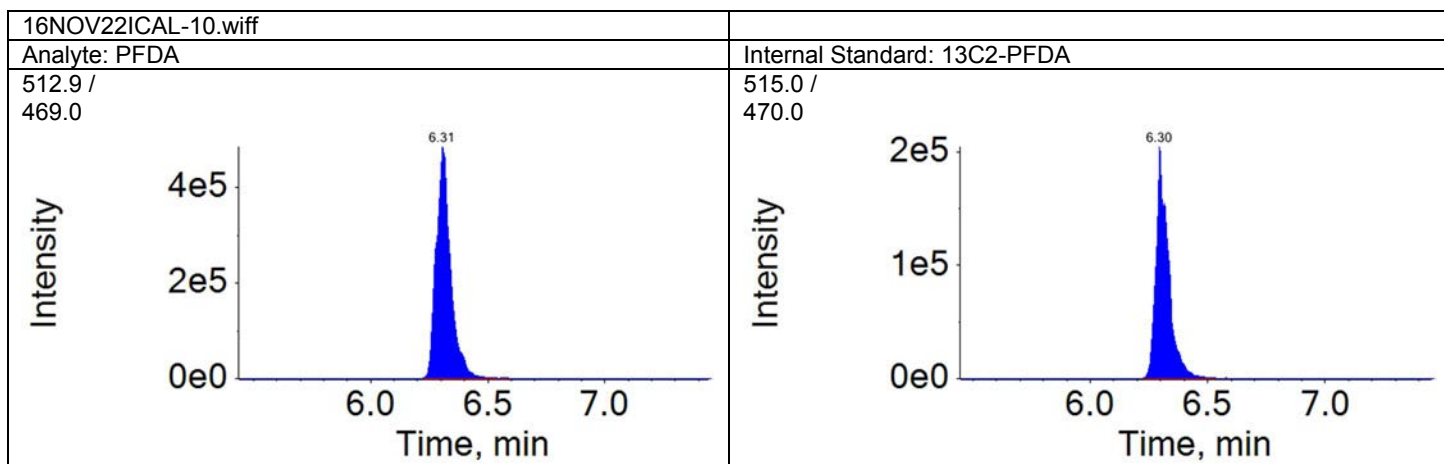
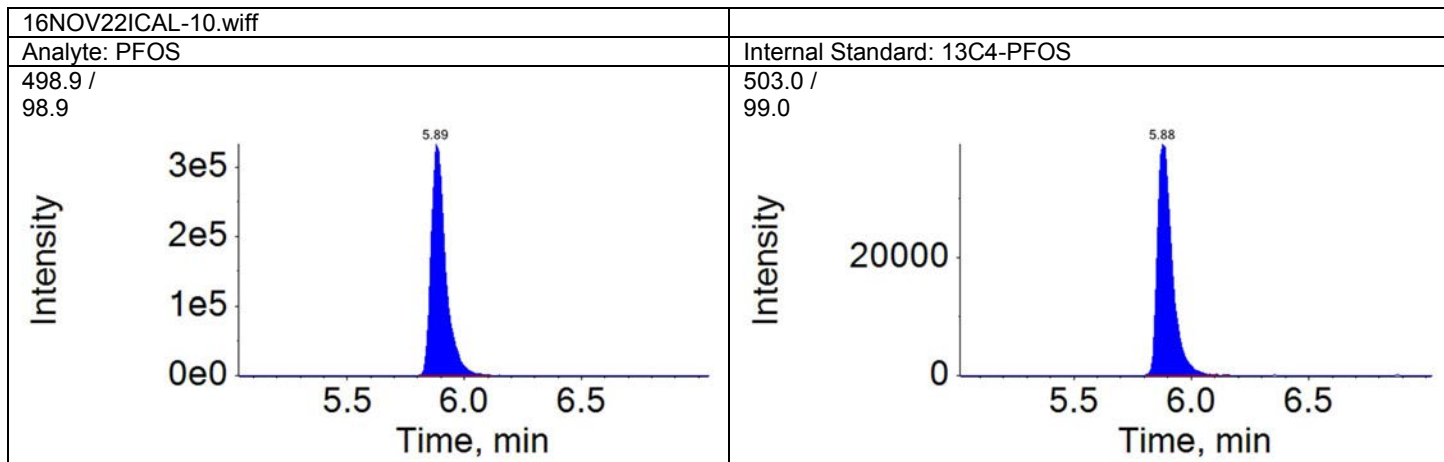
Total Ion Chromatogram  
CAL4



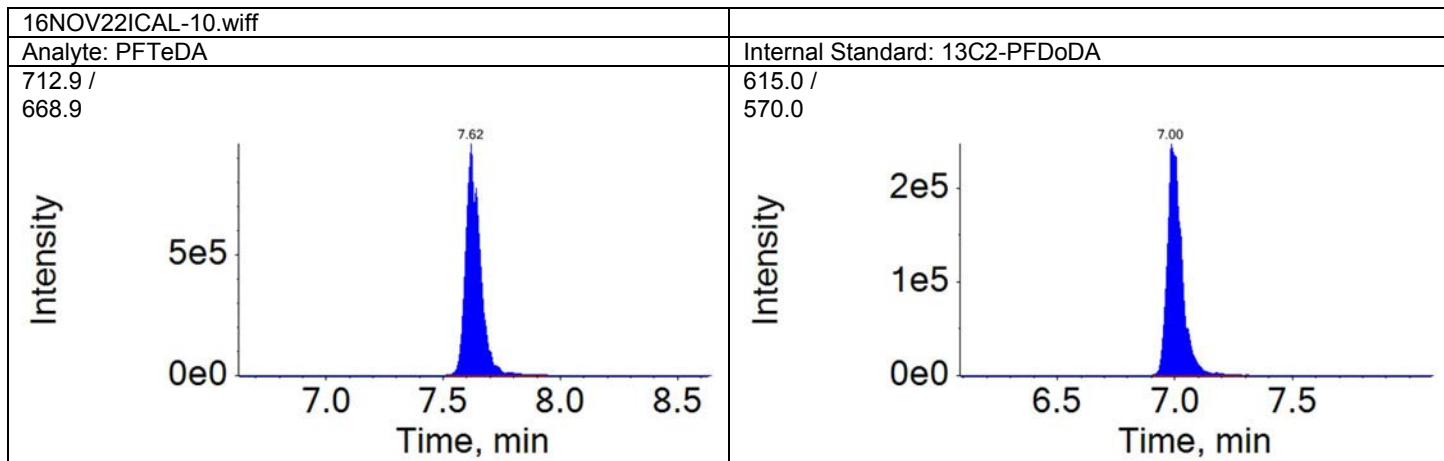
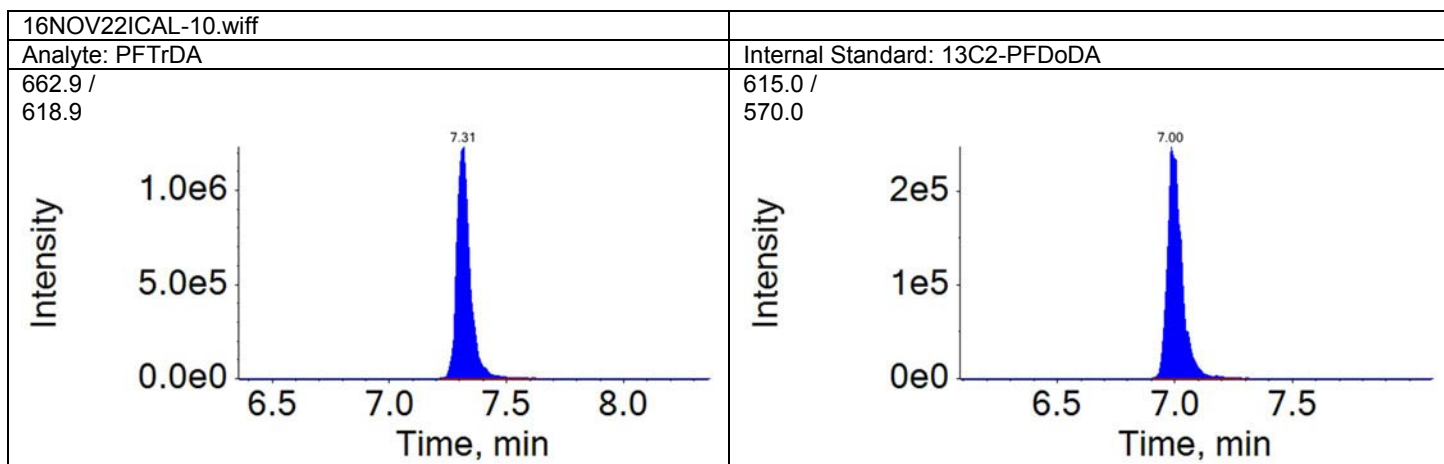
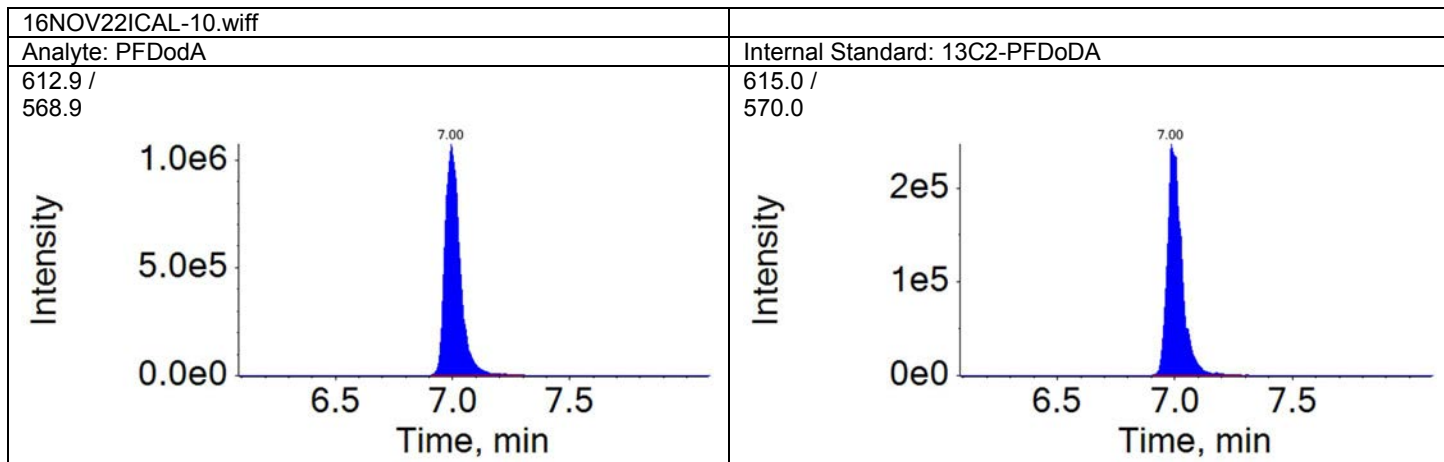








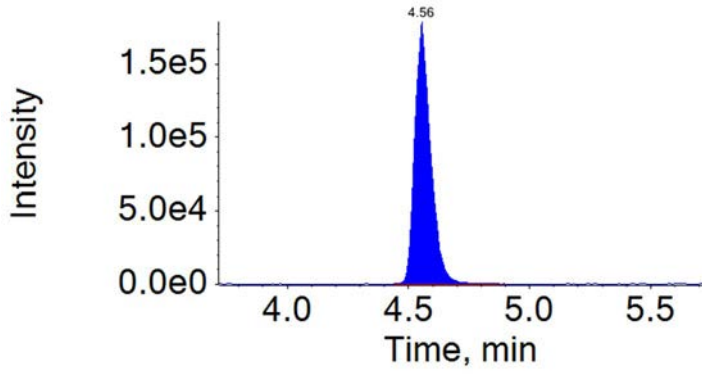




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-10.wiff	2016-11-22T13:24:54	CAL4	PFHxA	4.56	808207.0

Component: PFHxA  
Mass: 312.9 / 269.0

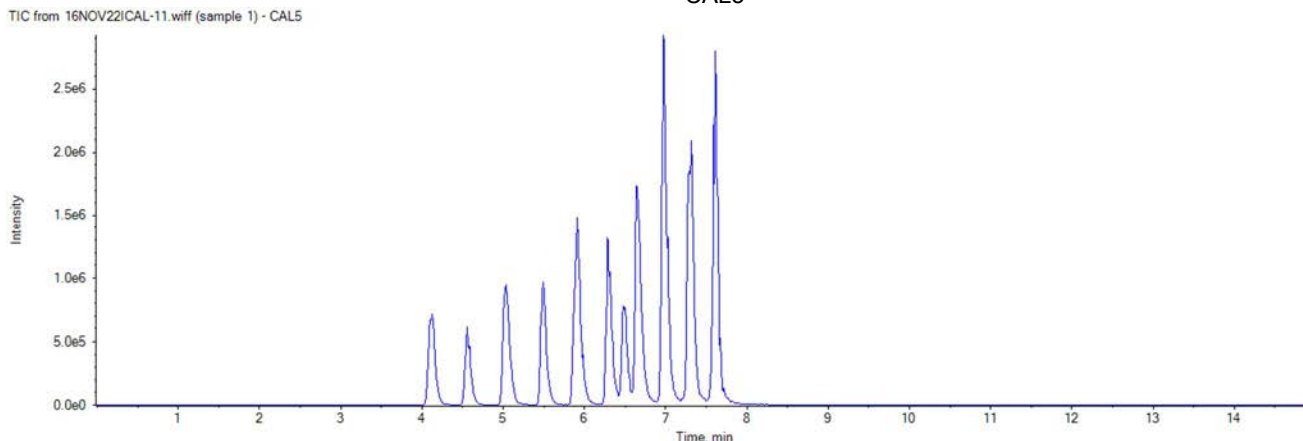


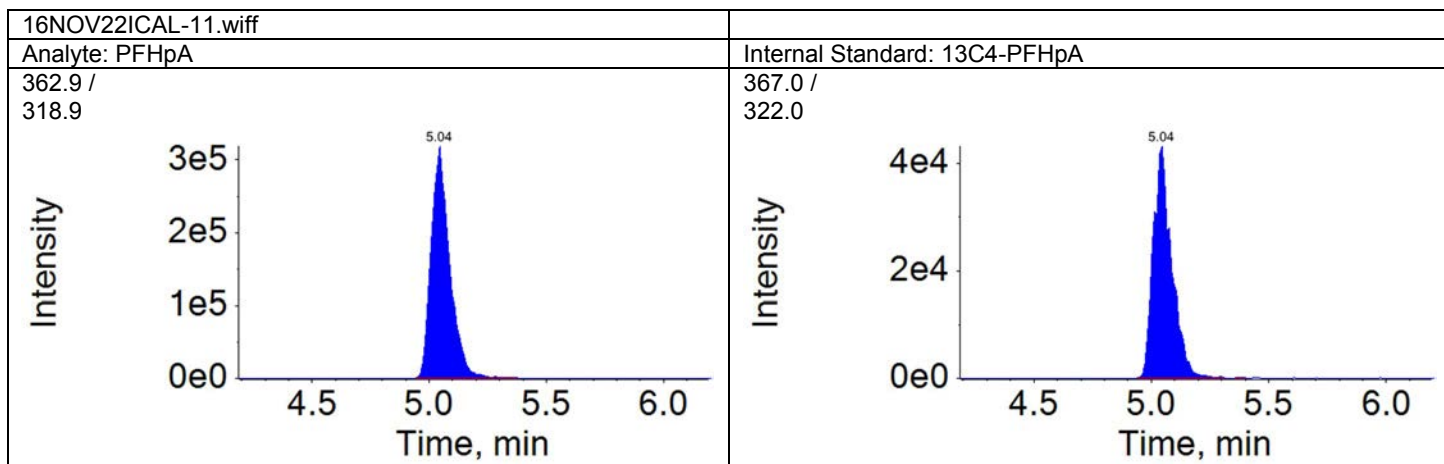
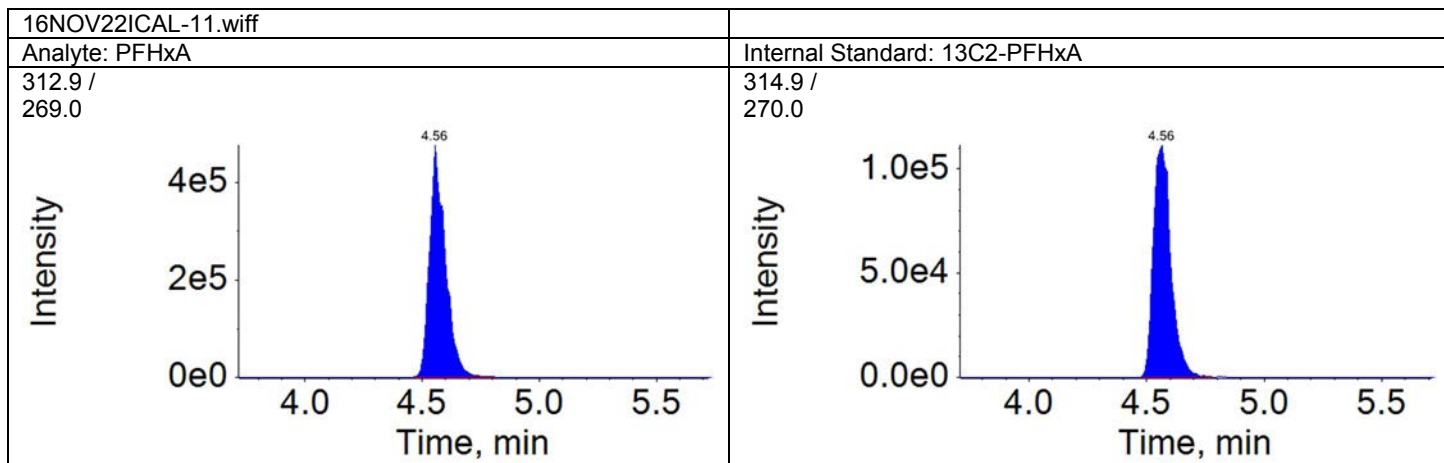
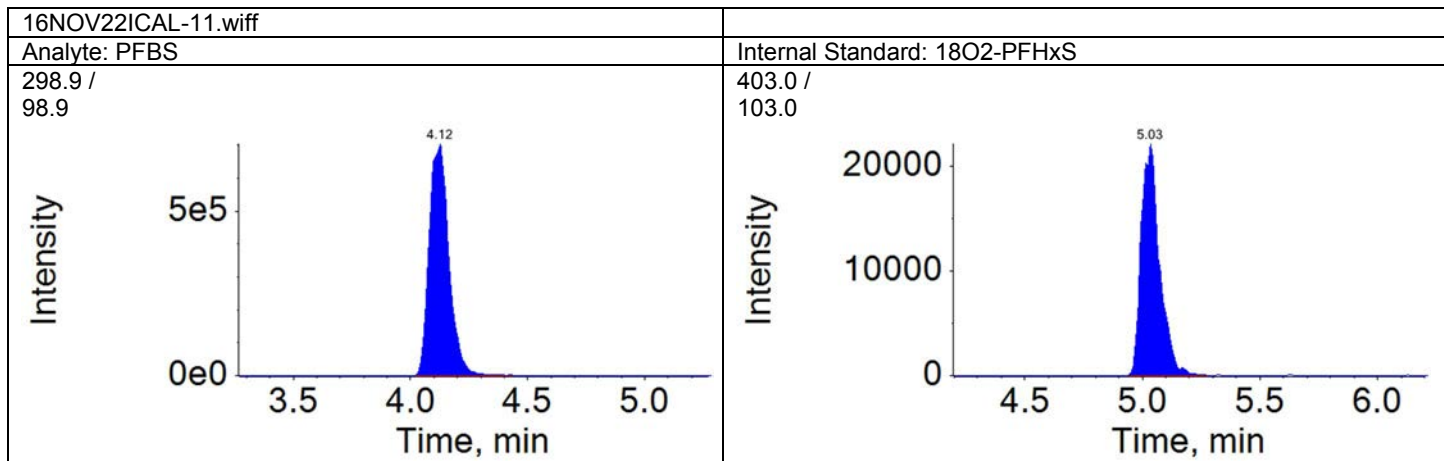
Sample Name:	CAL5		Data File:	16NOV22ICAL-11.wiff
Sample ID:	CAL5		Acquis Date:	2016-11-22T13:41:27
Sample Type:	Standard		Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	7		Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:	MQ 16330002
			ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL		Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:	1.00
Sample Vol.:	1.000		Prep Factor:	1.000

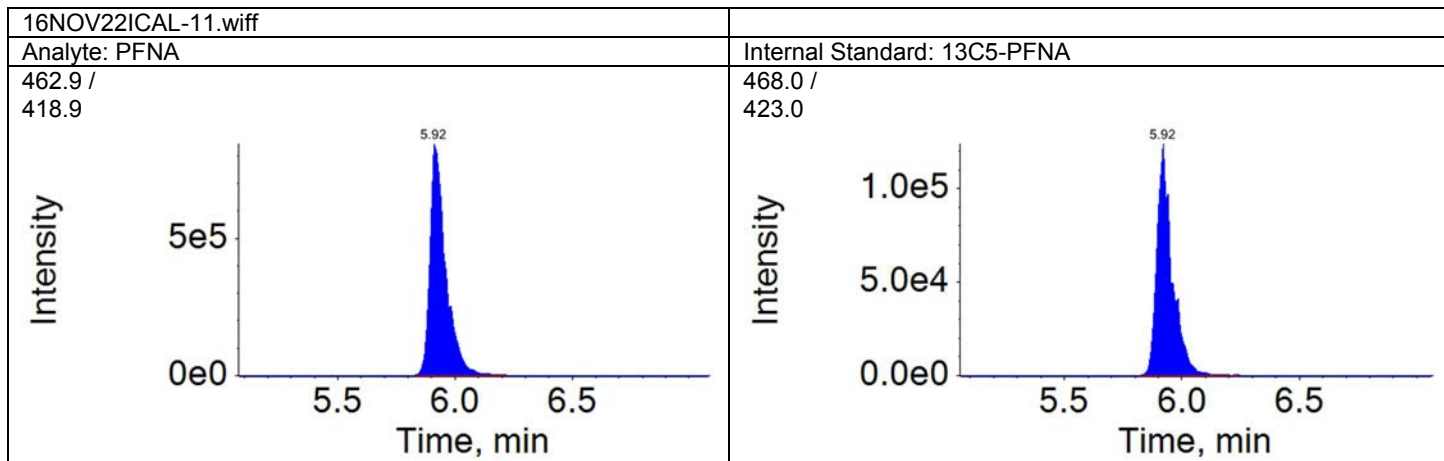
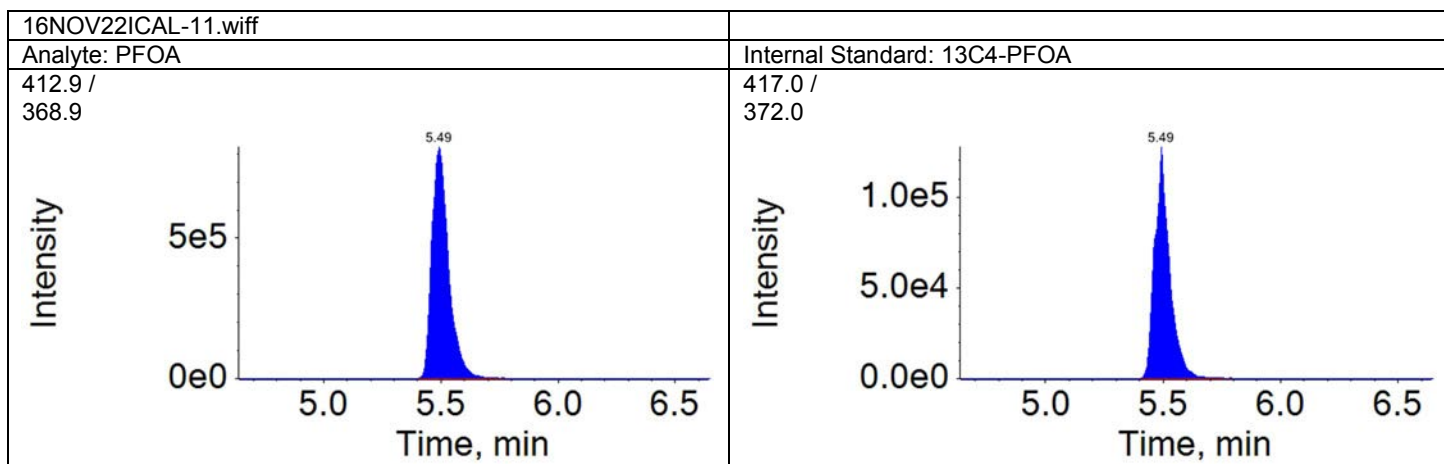
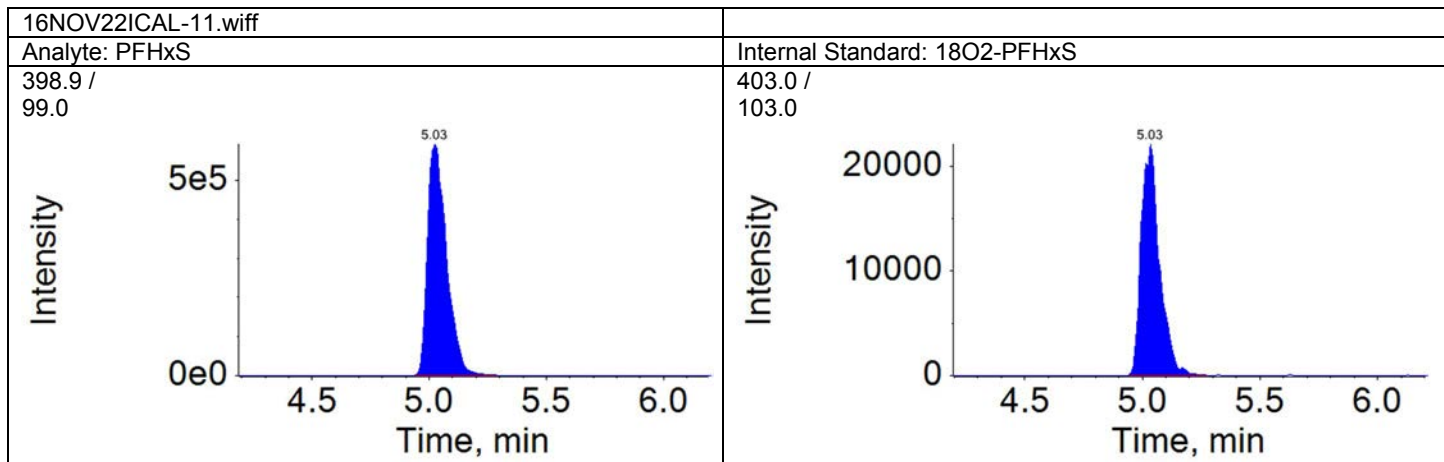
Quantitation Peak Table

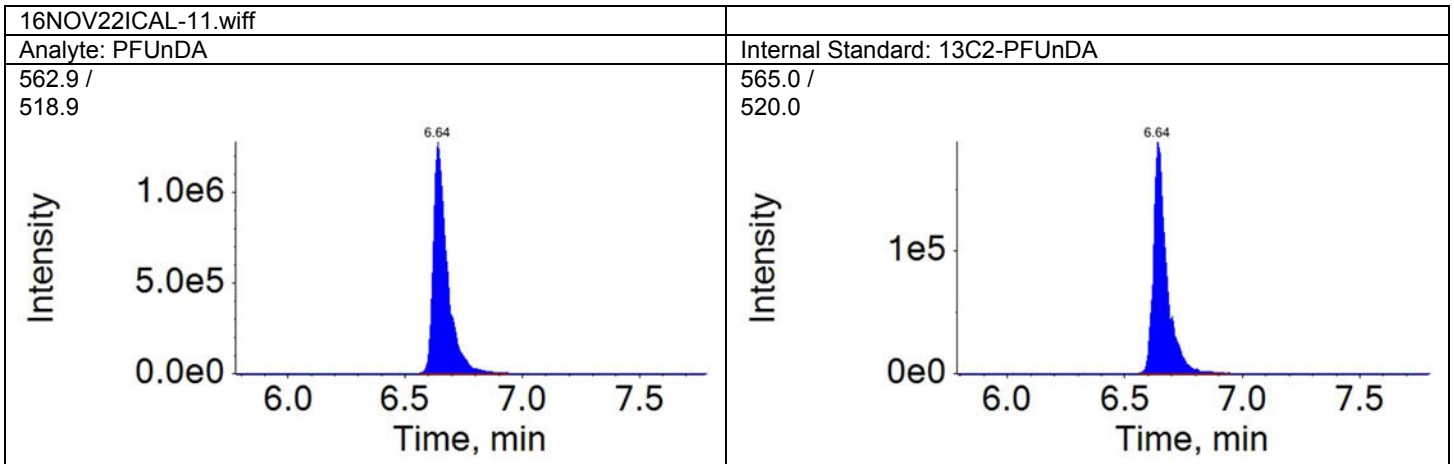
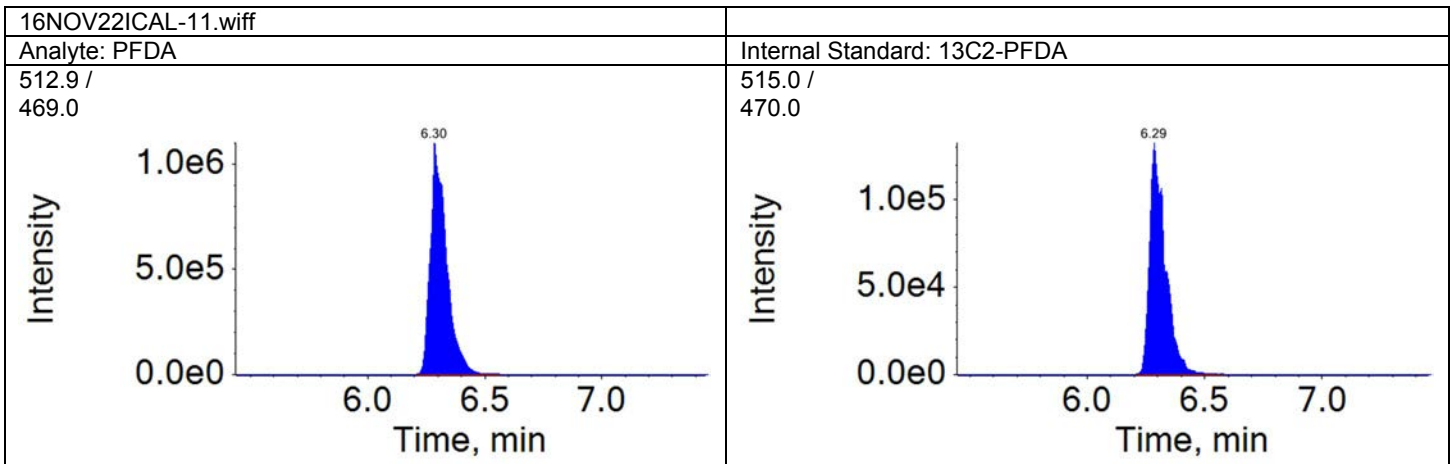
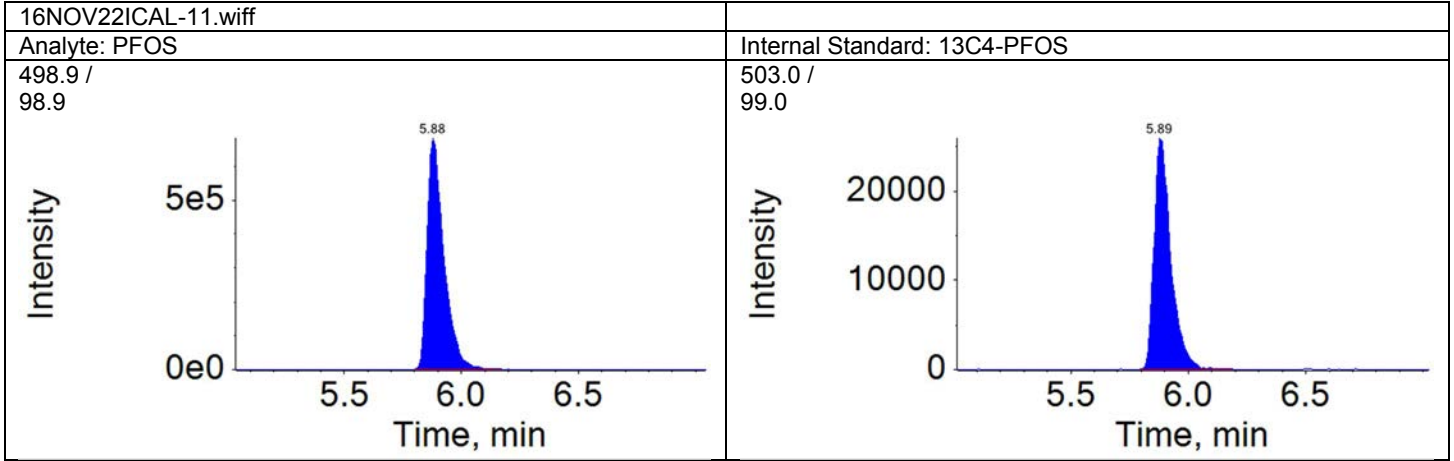
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.12	0.820	4128322.1	A	18O2-PFHxS	5.03	120582.7	34.236	115.690
PFHxA	4.56	1.000	2235260.8	A	13C2-PFHxA	4.56	581604.1	3.843	28.637
PFHpA	5.04	1.000	1758637.5	M	13C4-PFHpA	5.04	239507.5	7.343	30.293
PFHxS	5.03	1.000	3384859.5	A	18O2-PFHxS	5.03	120582.7	28.071	114.482
PFOA	5.49	1.000	4116812.5	A	13C4-PFOA	5.49	556149.0	7.402	28.914
PFNA	5.92	1.000	3969963.1	A	13C5-PFNA	5.92	559975.5	7.090	28.212
PFOS	5.88	1.000	3441546.9	A	13C4-PFOS	5.89	130525.8	26.367	114.724
PFDA	6.30	1.000	5293620.5	A	13C2-PFDA	6.29	620311.8	8.534	27.746
PFUnDA	6.64	1.000	5296568.7	A	13C2-PFUnDA	6.64	748575.7	7.076	31.733
PFDodA	6.98	1.000	12152076.2	A	13C2-PFDoDA	6.98	863287.4	14.077	58.165
PFTTrDA	7.30	1.050	11416688.6	A	13C2-PFDoDA	6.98	863287.4	13.225	59.558
PFTeDA	7.61	1.090	11377039.5	A	13C2-PFDoDA	6.98	863287.4	13.179	61.618

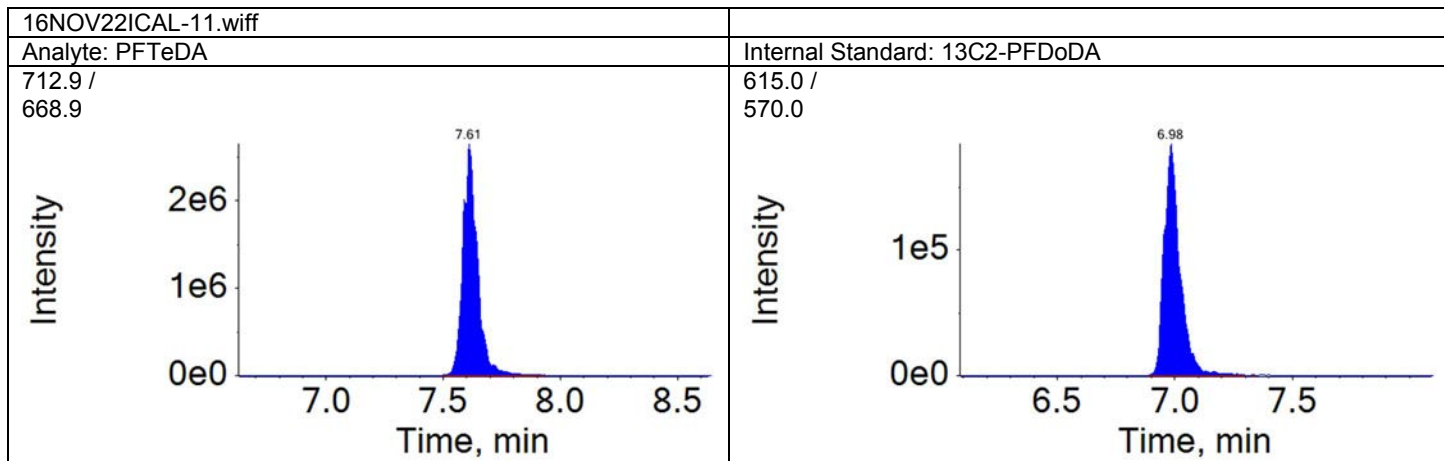
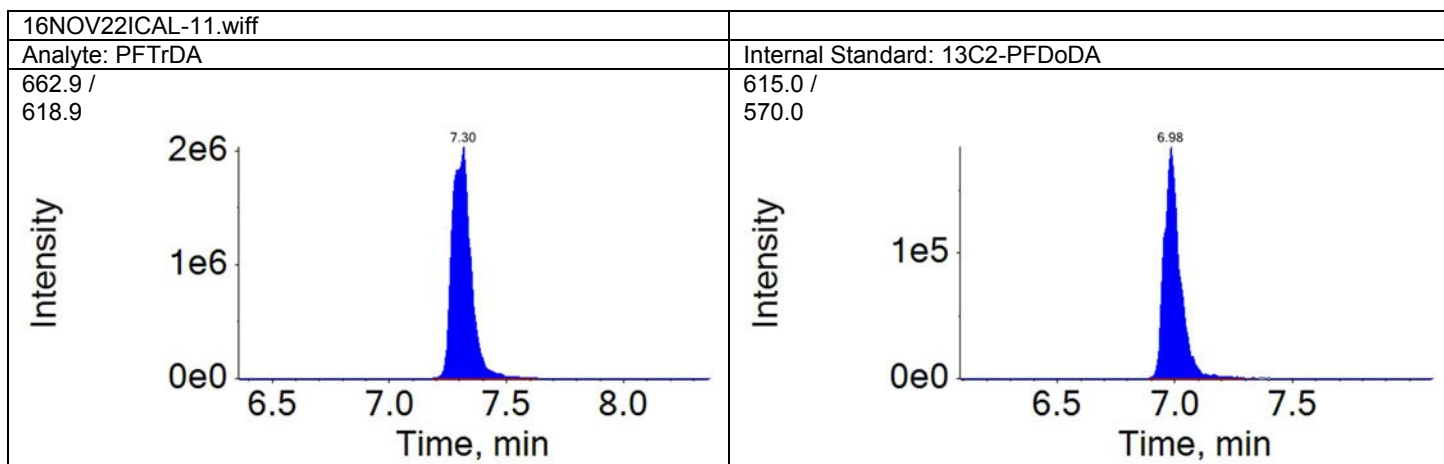
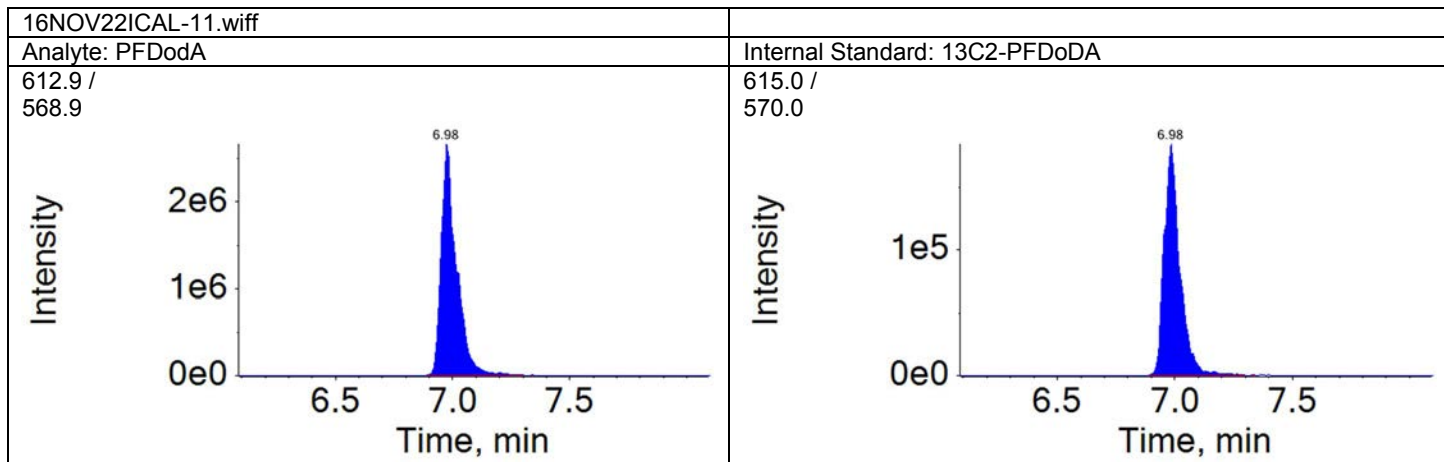
Total Ion Chromatogram  
CAL5









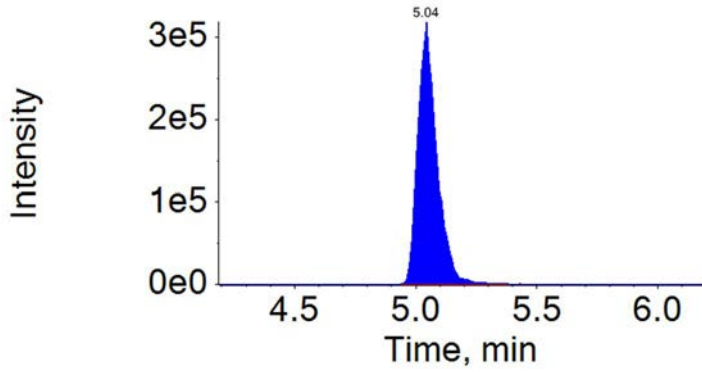




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-11.wiff	2016-11-22T13:41:27	CAL5	PFHpA	5.04	1762449.8

Component: PFHpA  
Mass: 362.9 / 318.9





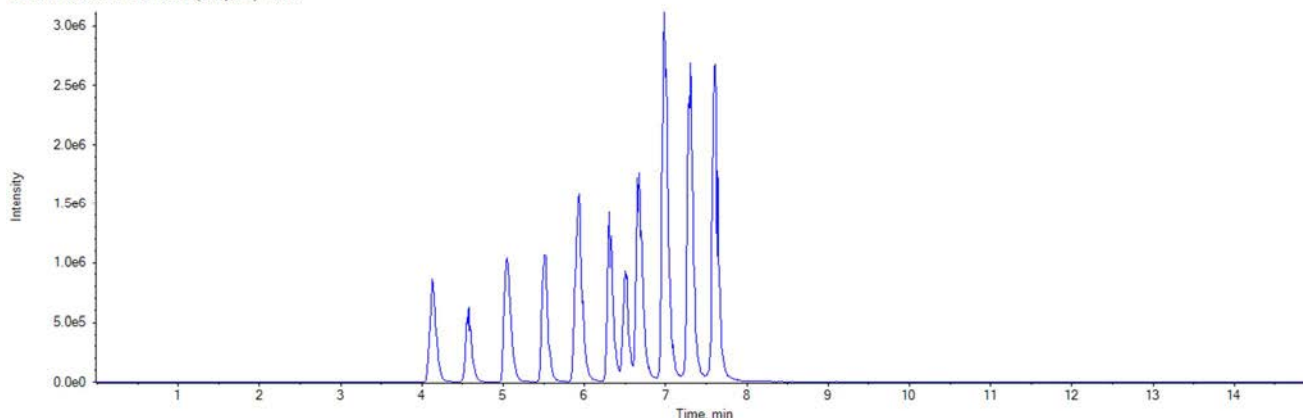
Sample Name:	CAL6		Data File:	16NOV22ICAL-12.wiff
Sample ID:	CAL6		Acquis Date:	2016-11-22T13:57:48
Sample Type:	Standard		Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	8		Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:	MQ 16330002
			ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL		Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:	1.00
Sample Vol.:	1.000		Prep Factor:	1.000

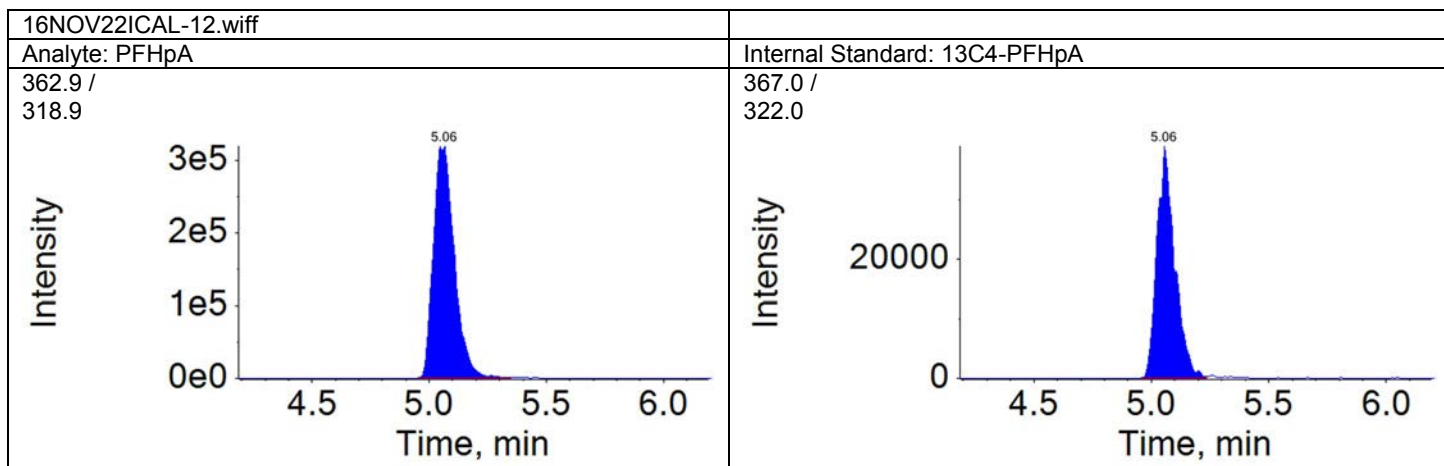
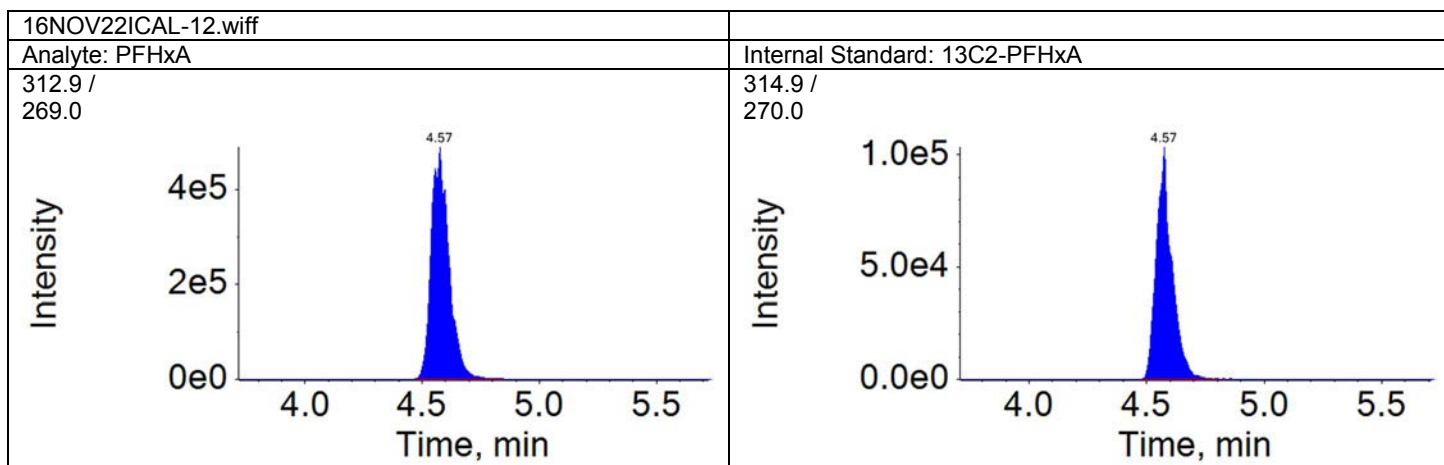
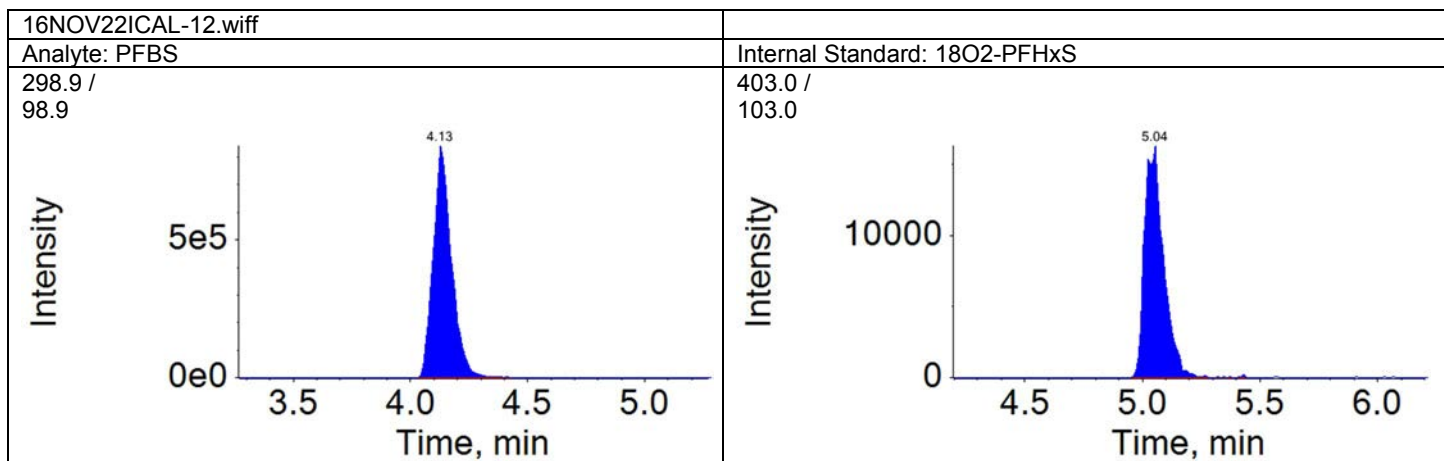
Quantitation Peak Table

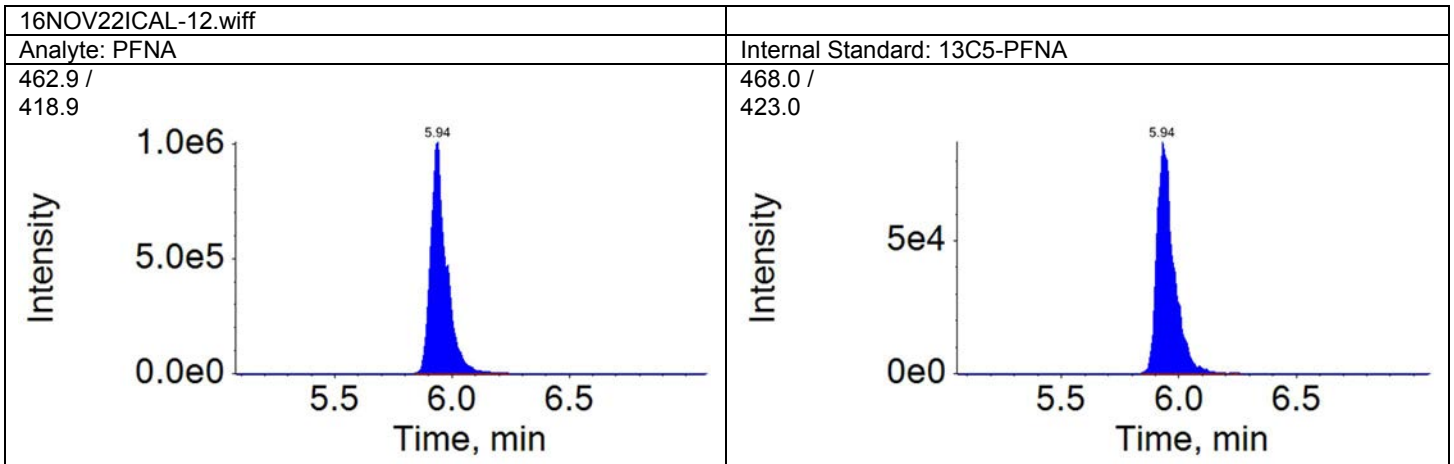
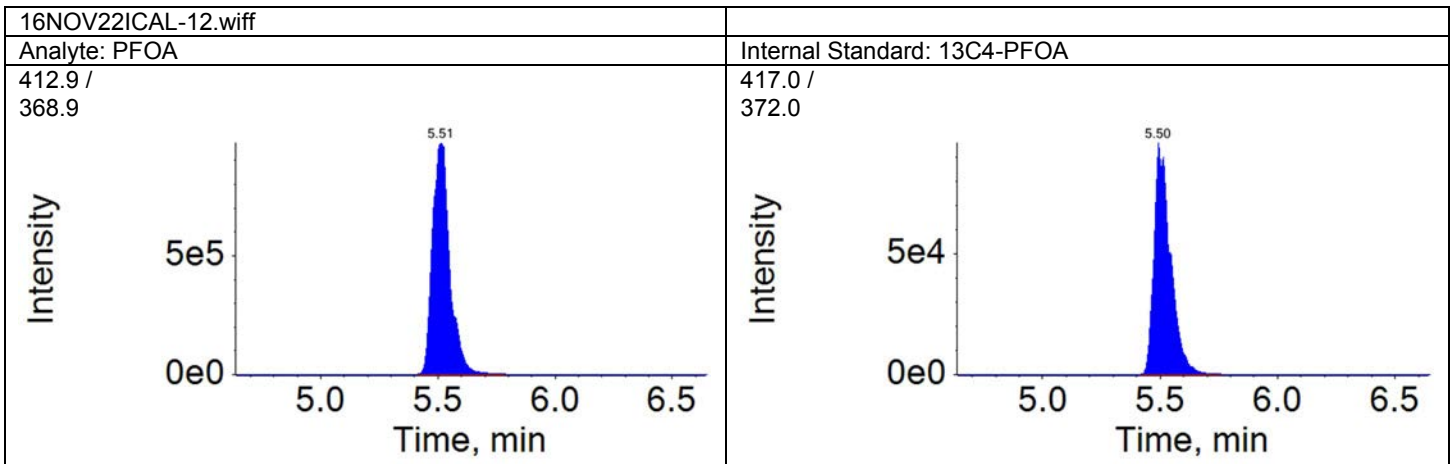
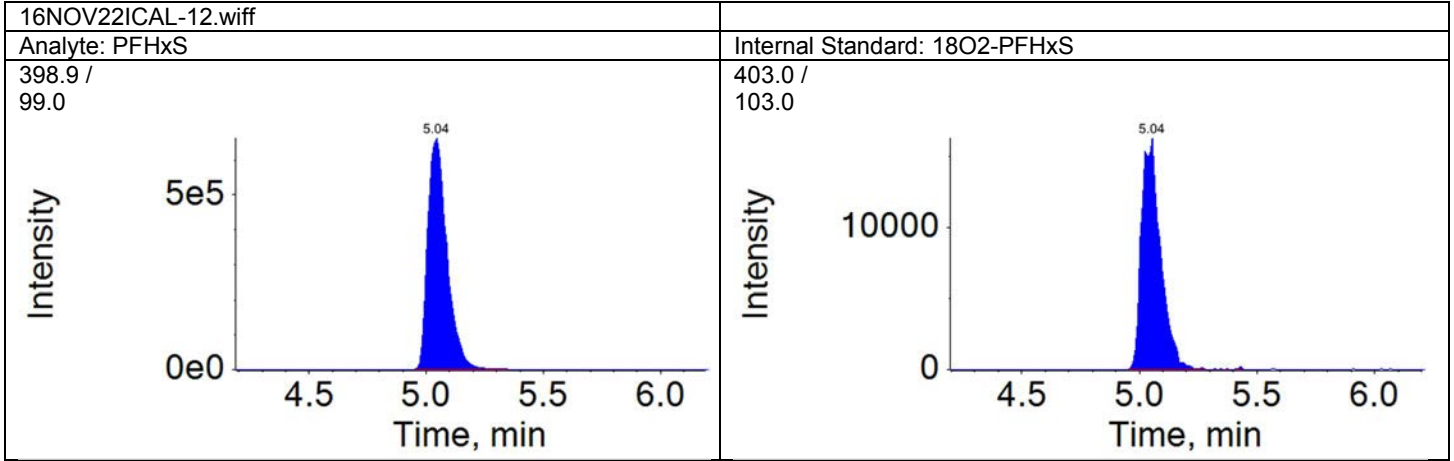
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.13	0.820	4579376.2	A	18O2-PFHxS	5.04	93657.0	48.895	165.224
PFHxA	4.57	1.000	2564848.4	A	13C2-PFHxA	4.57	471035.9	5.445	40.573
PFHpA	5.06	1.000	1998547.3	A	13C4-PFHpA	5.06	206112.5	9.696	40.003
PFHxS	5.04	1.000	3810524.1	A	18O2-PFHxS	5.04	93657.0	40.686	165.930
PFOA	5.51	1.000	5038528.9	A	13C4-PFOA	5.50	466089.1	10.810	42.225
PFNA	5.94	1.000	4710902.8	A	13C5-PFNA	5.94	440621.5	10.691	42.545
PFOS	5.90	1.000	3850521.8	A	13C4-PFOS	5.90	99316.0	38.770	168.693
PFDA	6.31	1.000	6222969.1	A	13C2-PFDA	6.31	469833.5	13.245	43.063
PFUnDA	6.66	1.000	5251018.2	A	13C2-PFUnDA	6.66	626263.8	8.385	37.604
PFDodA	6.99	1.000	15210860.6	A	13C2-PFDoDA	6.99	755937.5	20.122	83.144
PFTTrDA	7.30	1.040	13353720.2	A	13C2-PFDoDA	6.99	755937.5	17.665	79.555
PFTeDA	7.60	1.090	13192658.7	A	13C2-PFDoDA	6.99	755937.5	17.452	81.598

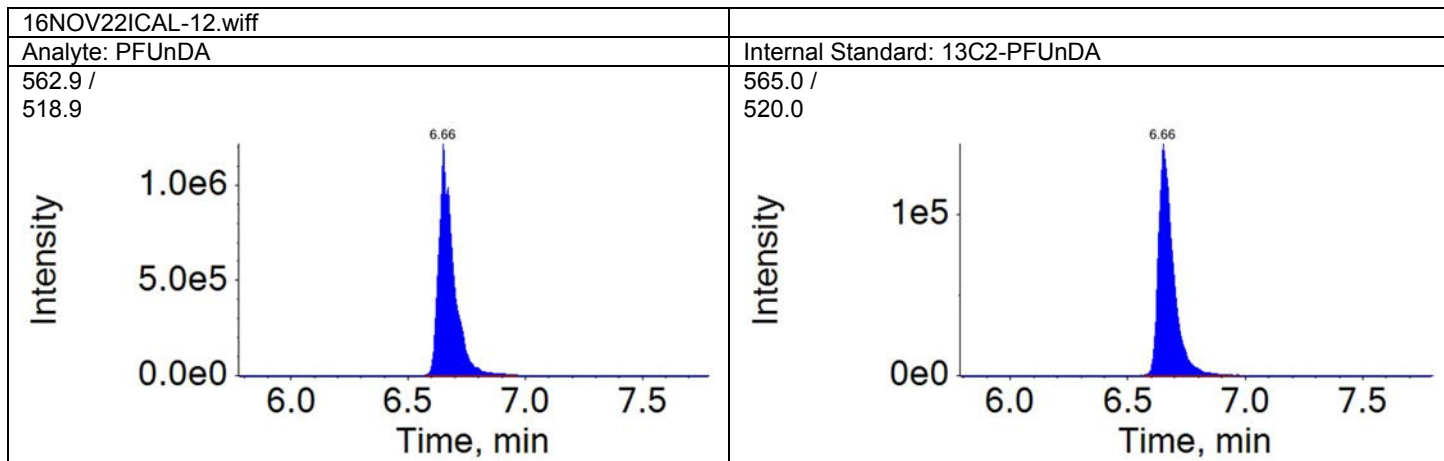
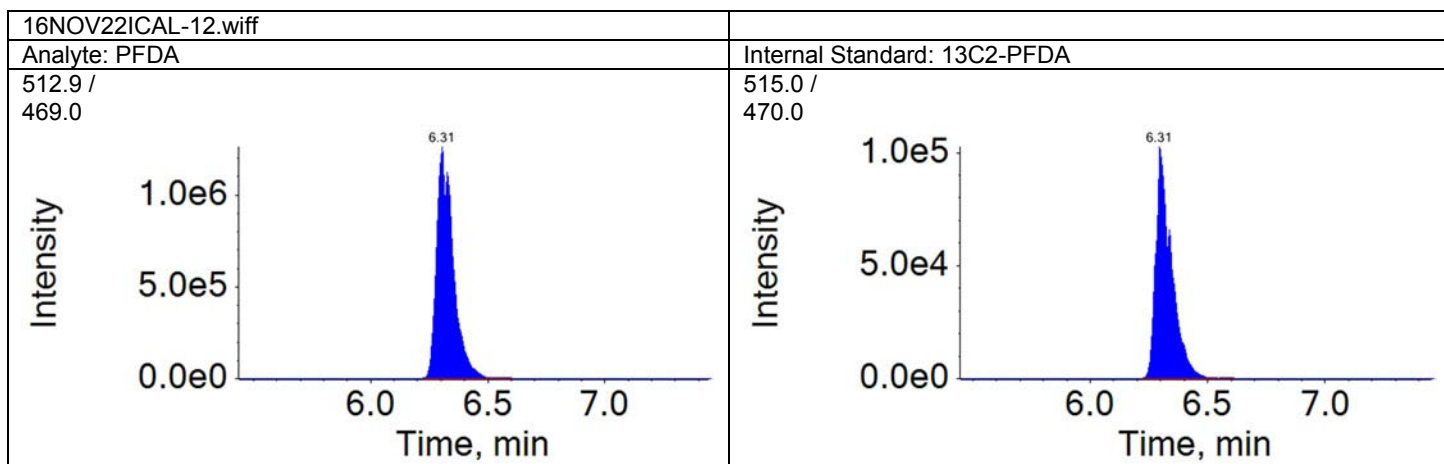
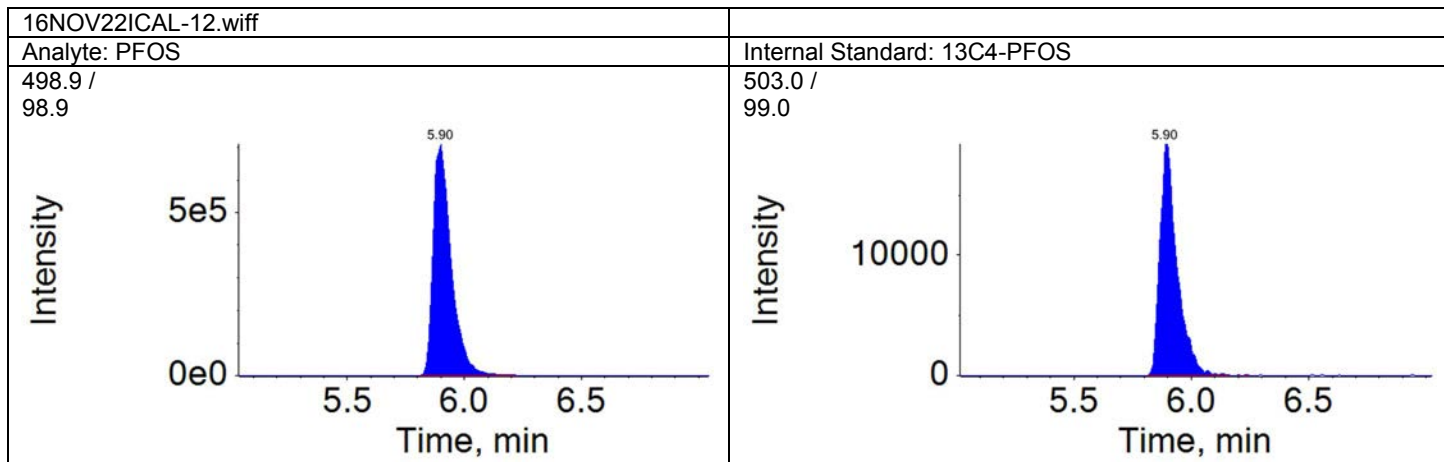
Total Ion Chromatogram  
CAL6

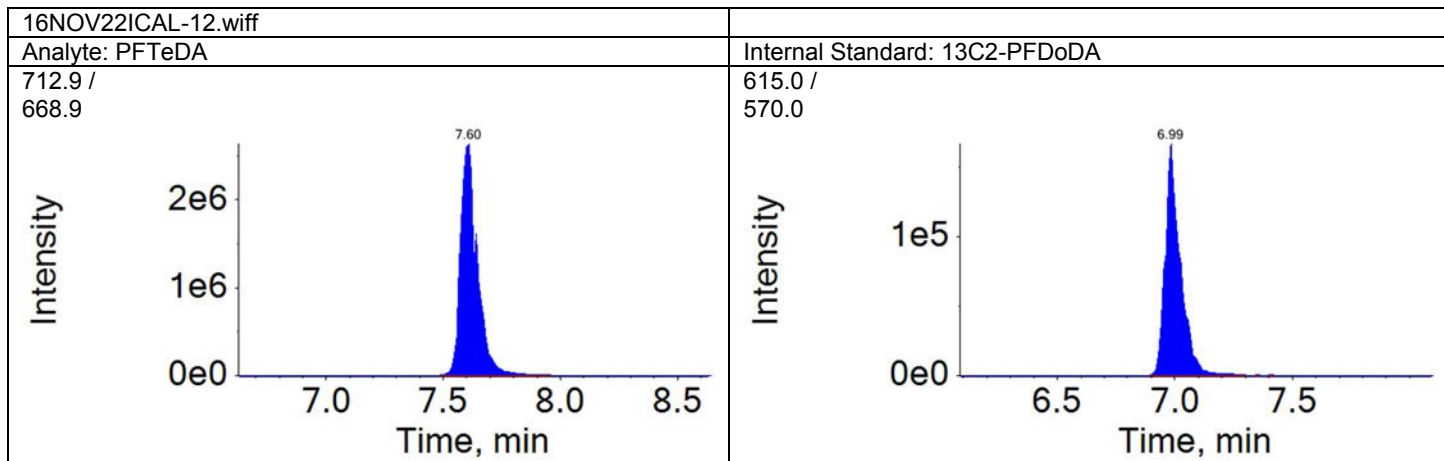
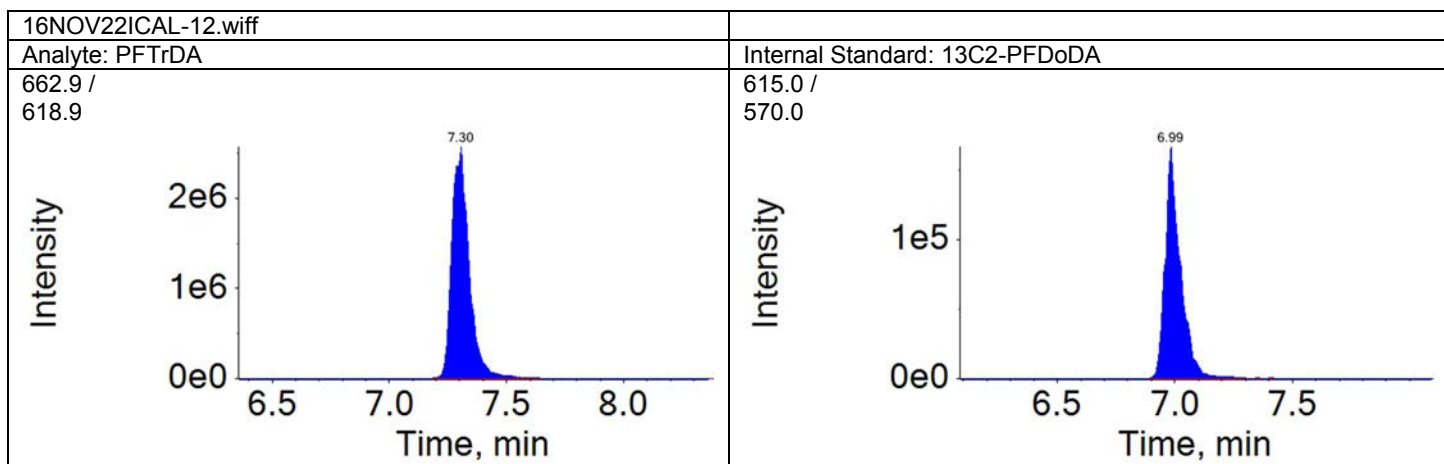
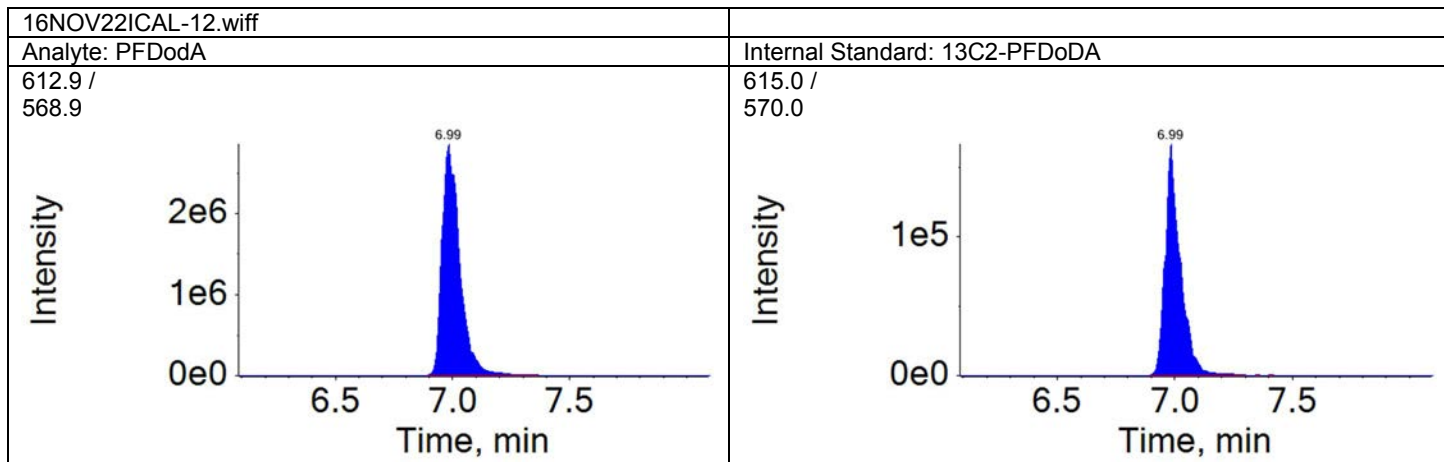
TIC from 16NOV22ICAL-12.wiff (sample 1) - CAL6









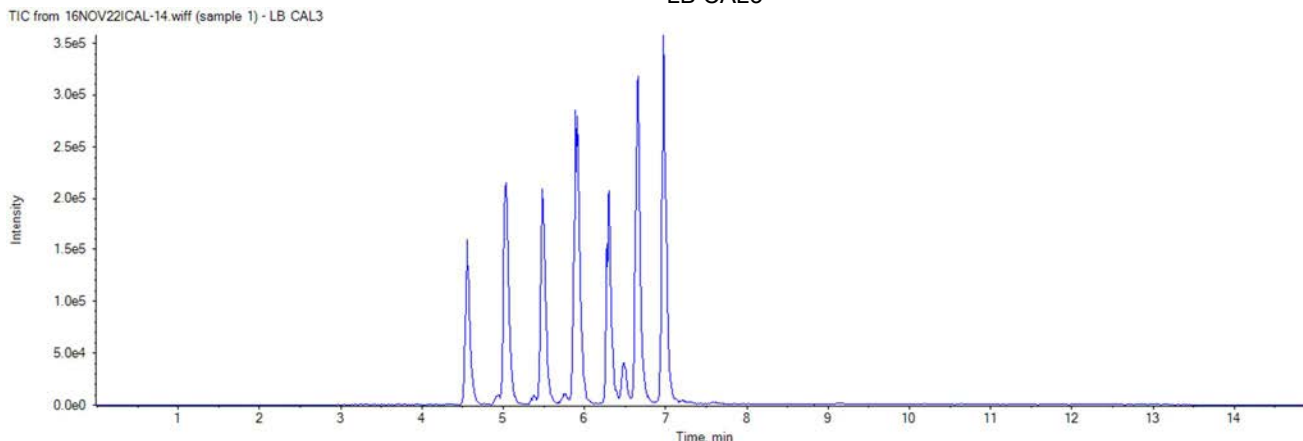


Sample Name:	LB CAL3	Data File:	16NOV22ICAL-14.wiff
Sample ID:	LB CAL3	Acquis Date:	2016-11-22T14:30:42
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	10	Acquis Method:	PFC-14compd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	PFCICAL	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

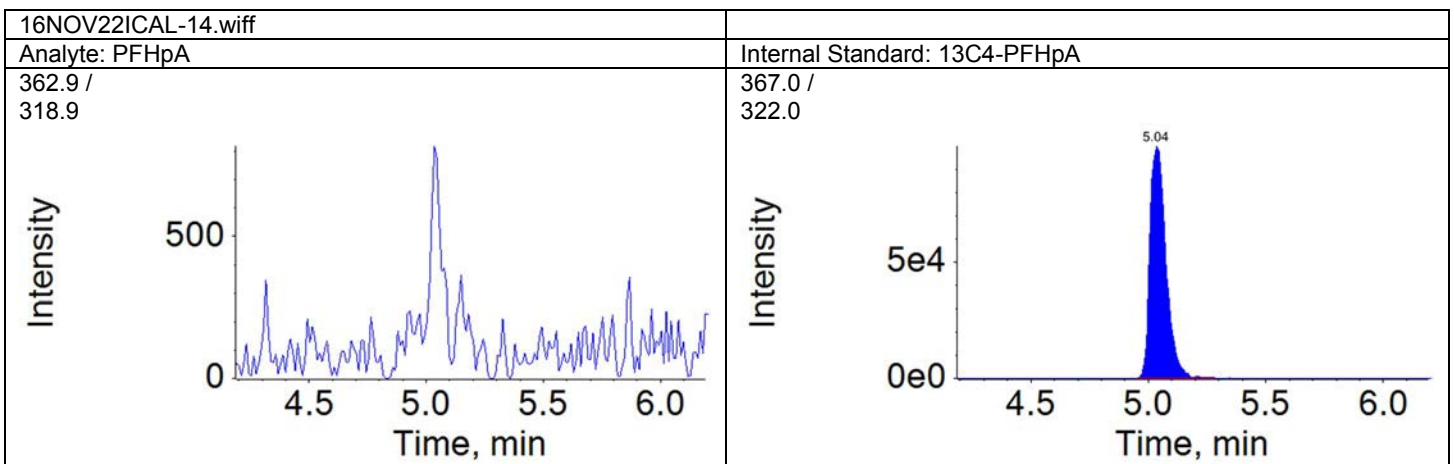
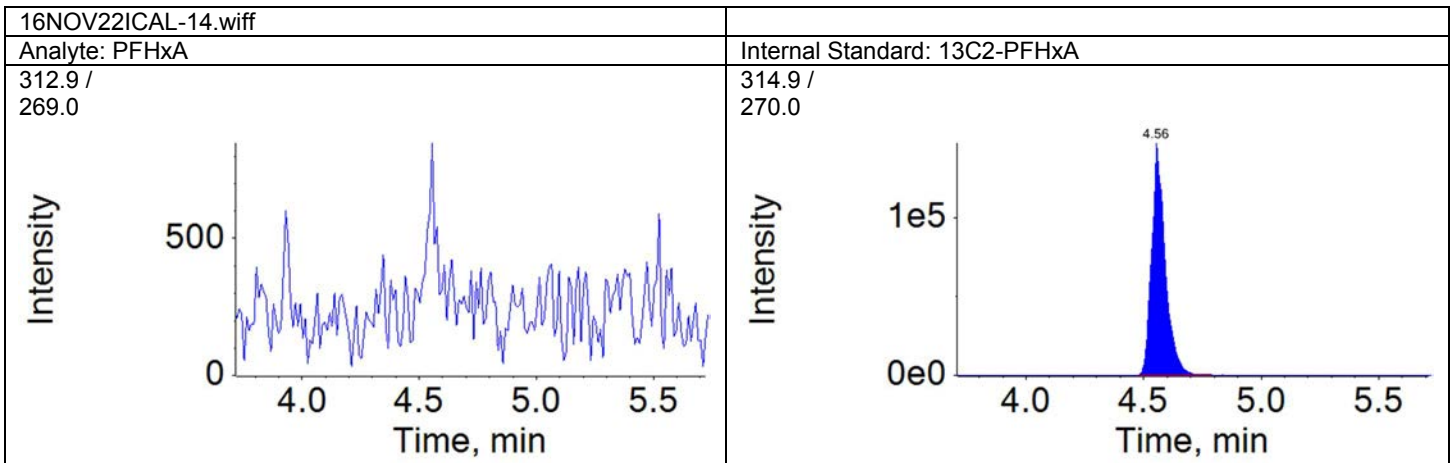
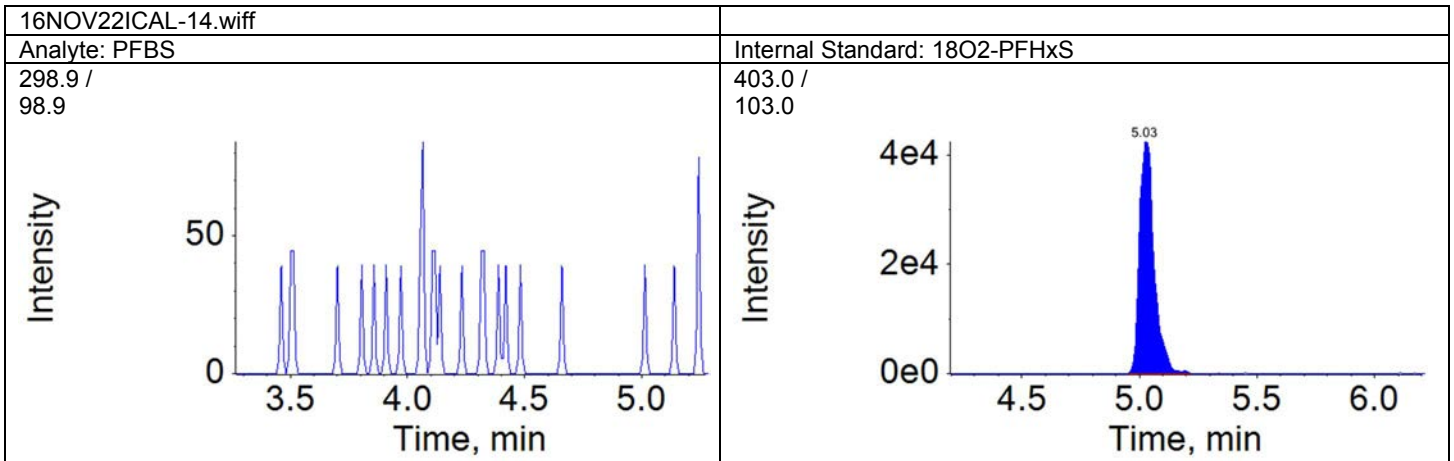
Quantitation Peak Table

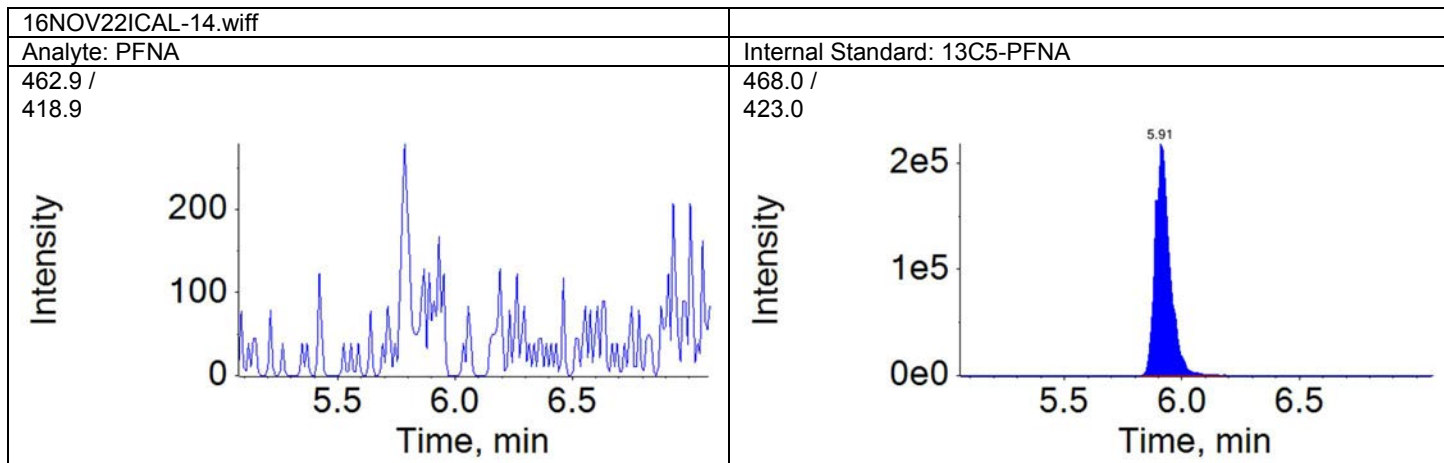
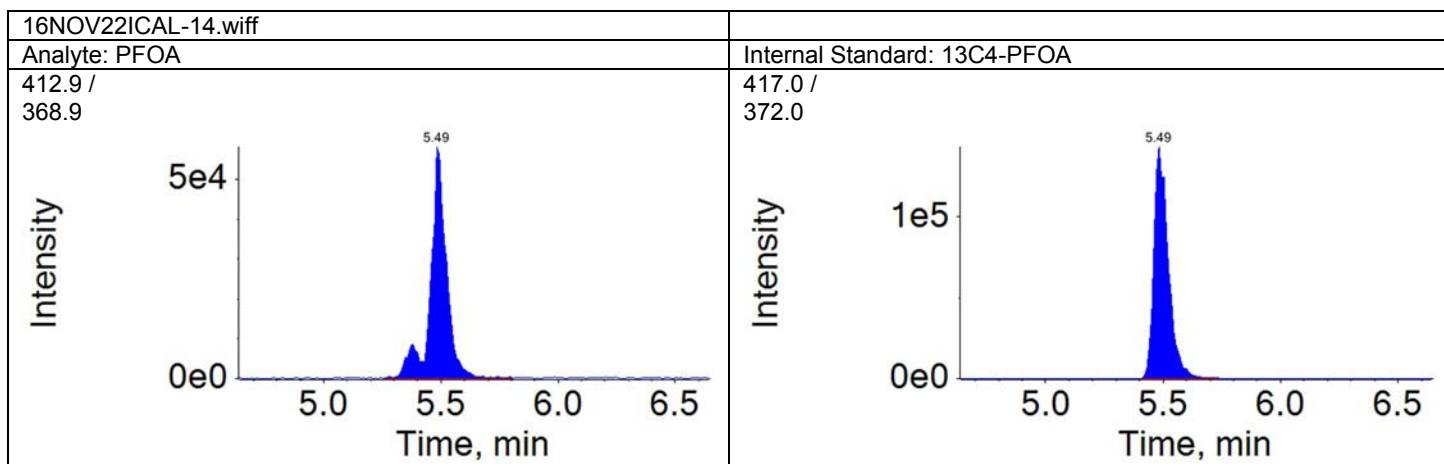
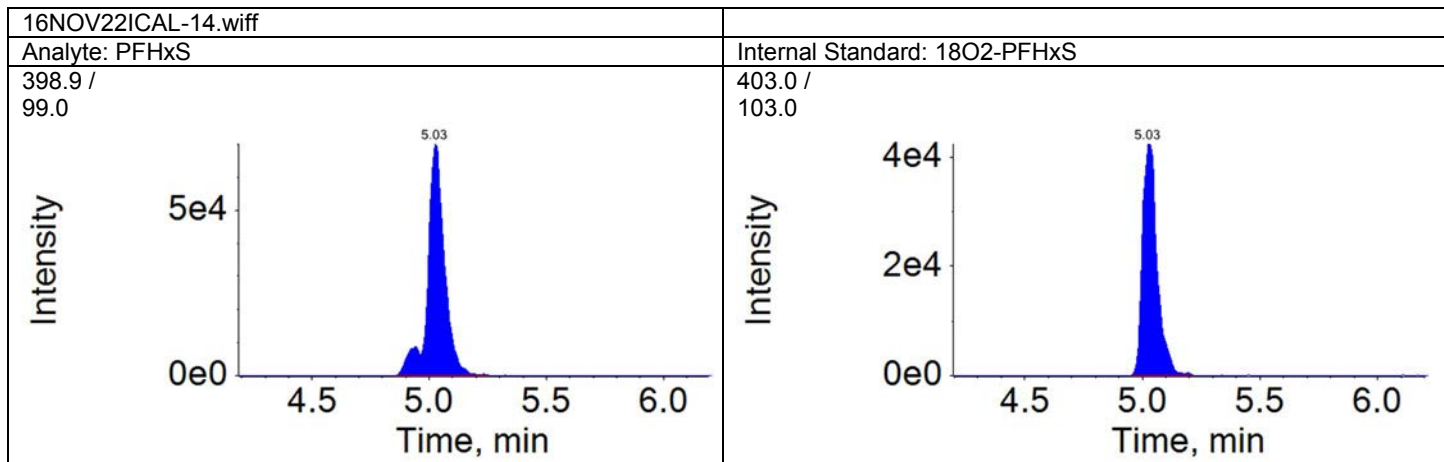
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	5.03	188407.2	N/A	N/A
PFHxA	N/A	N/A	N/A	A	13C2-PFHxA	4.56	587021.9	N/A	N/A
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.04	480291.0	N/A	N/A
PFHxS	5.03	1.000	357894.7	A	18O2-PFHxS	5.03	188407.2	1.900	7.747
PFOA	5.49	1.000	279692.5	M	13C4-PFOA	5.49	618202.8	0.452	1.767
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.91	959521.3	N/A	N/A
PFOS	5.88	1.000	264476.8	M	13C4-PFOS	5.88	208139.0	1.271	5.529
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.30	807521.5	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.66	1104557.8	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.98	1266559.4	N/A	N/A
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.98	1266559.4	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.98	1266559.4	N/A	N/A

Total Ion Chromatogram  
LB CAL3

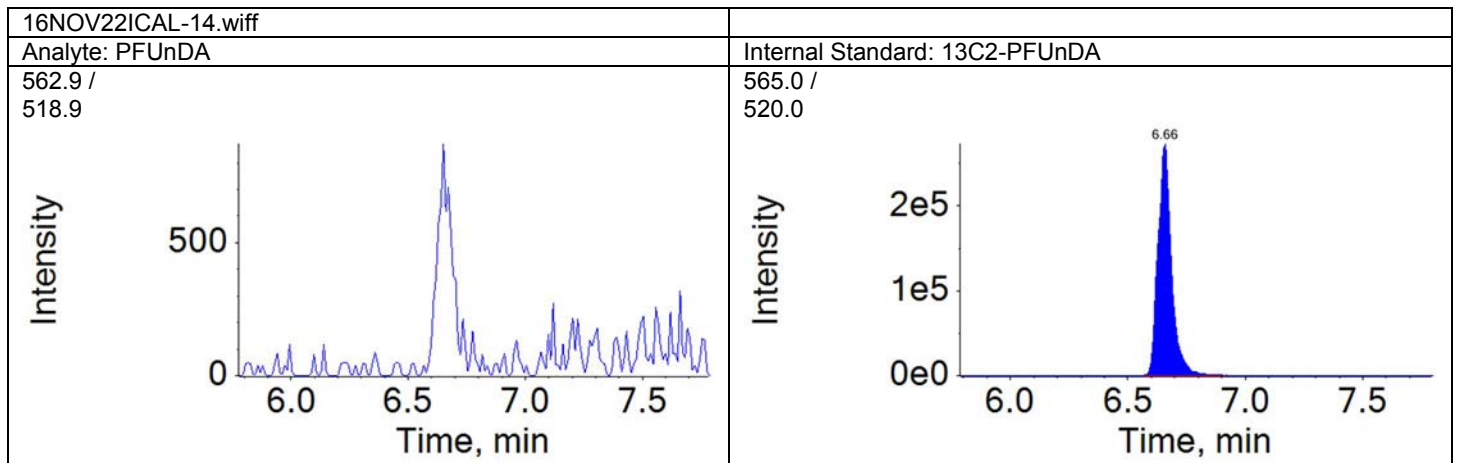
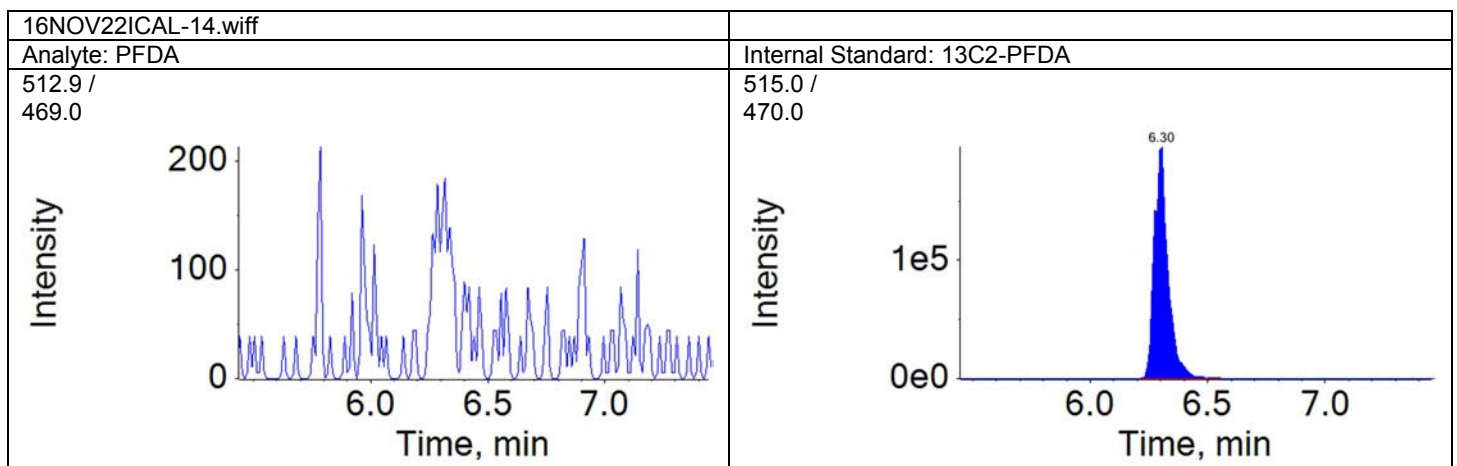
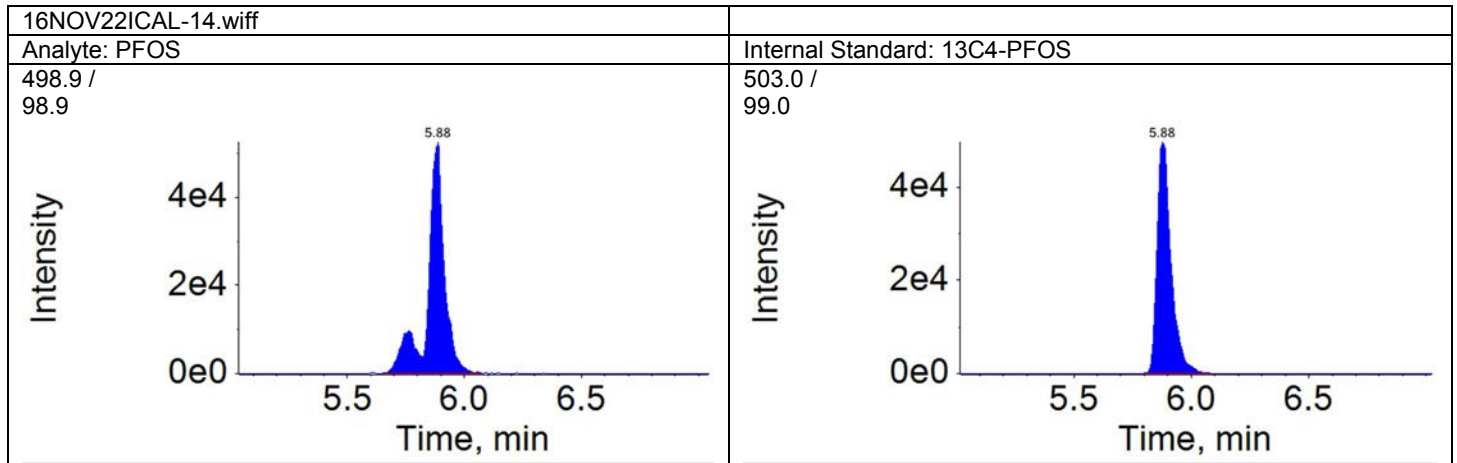


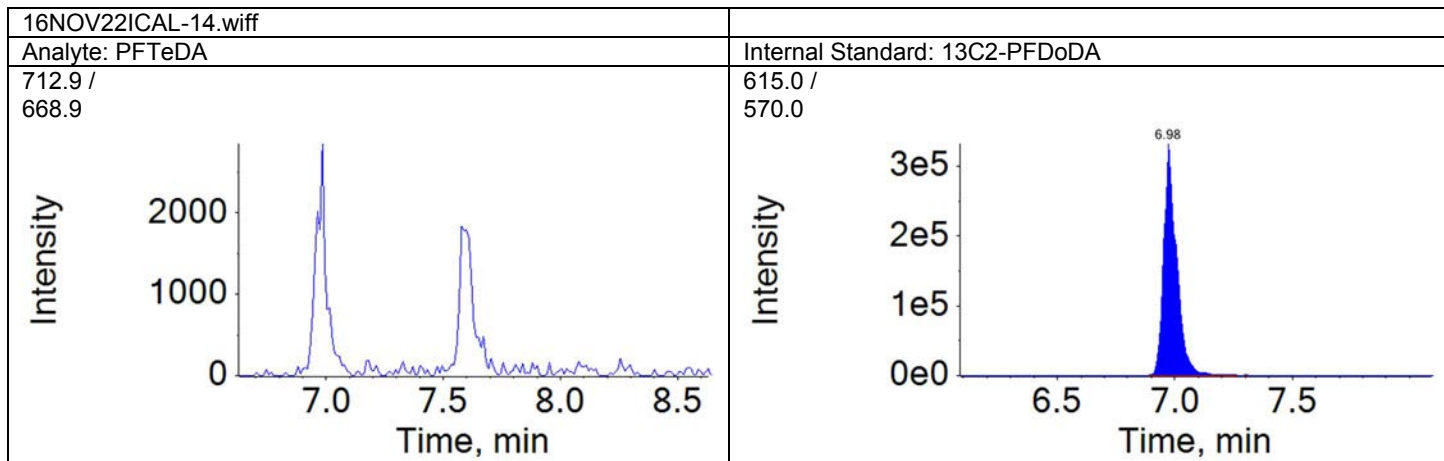
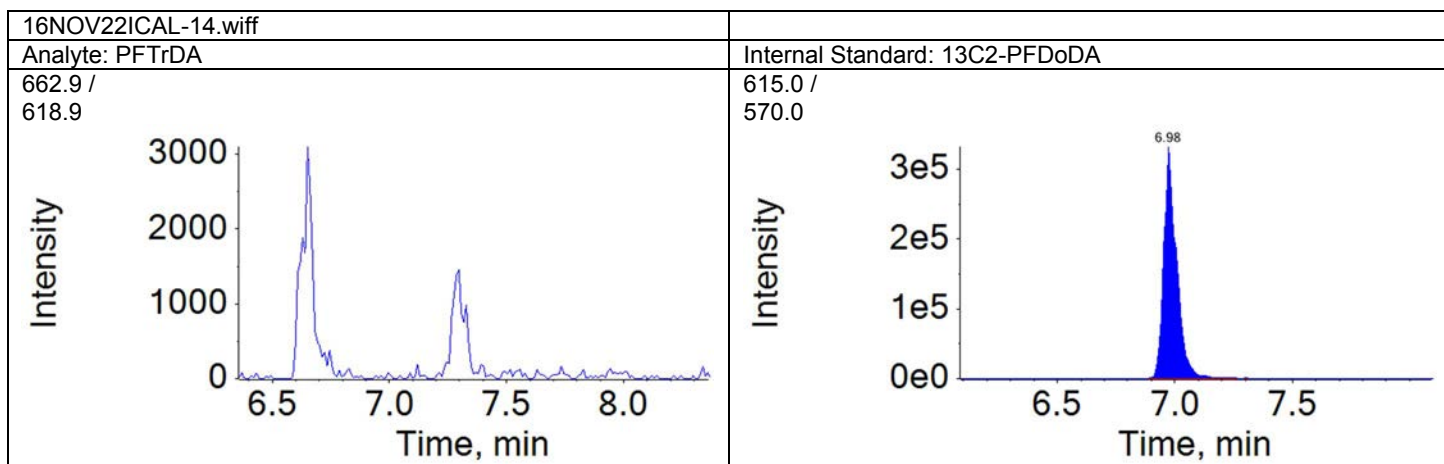
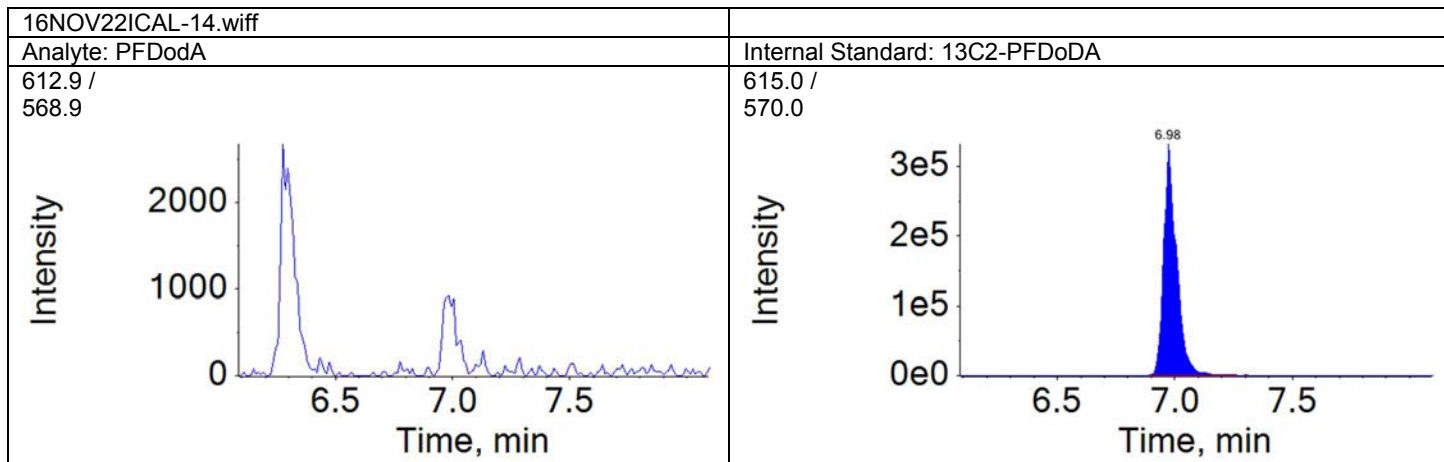








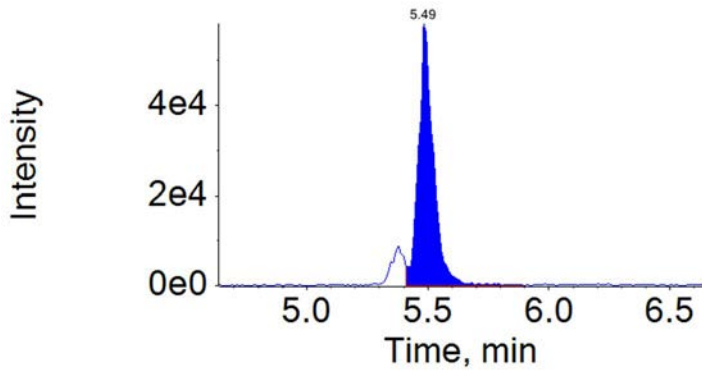




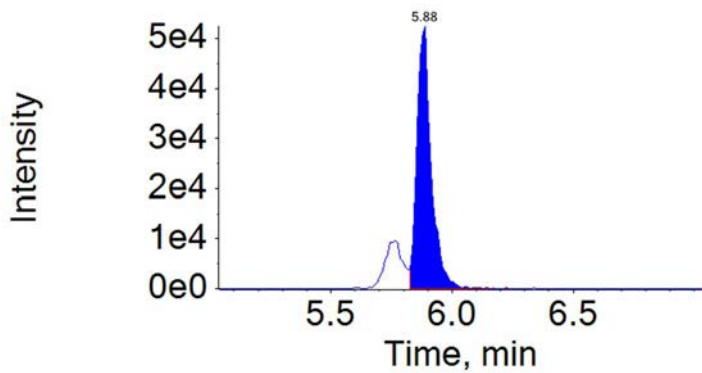
Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-14.wiff	2016-11-22T14:30:42	LB CAL3	PFOA	5.49	250515.0
16NOV22ICAL-14.wiff	2016-11-22T14:30:42	LB CAL3	PFOS	5.88	215516.8

Component: PFOA  
Mass: 412.9 / 368.9



Component: PFOS  
Mass: 498.9 / 98.9

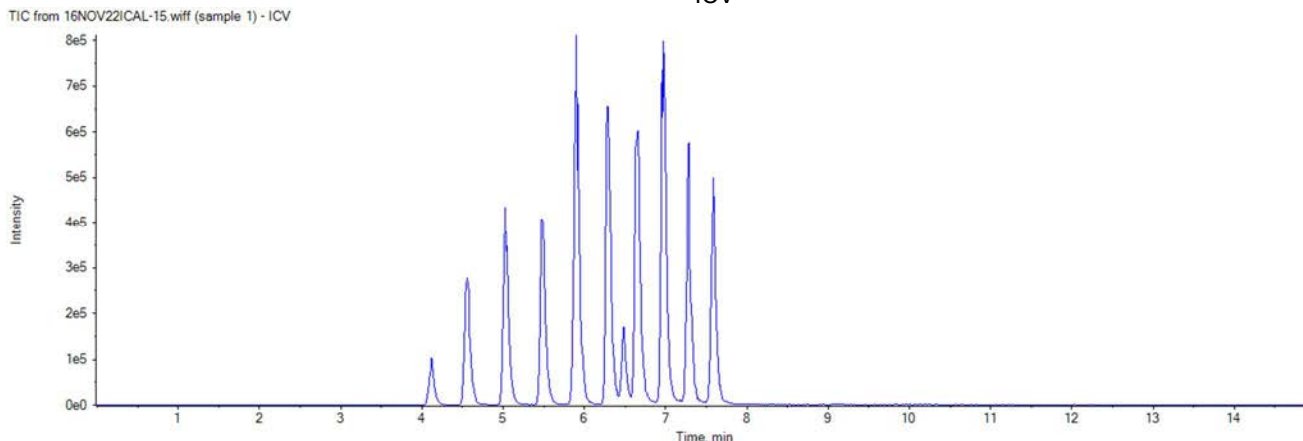


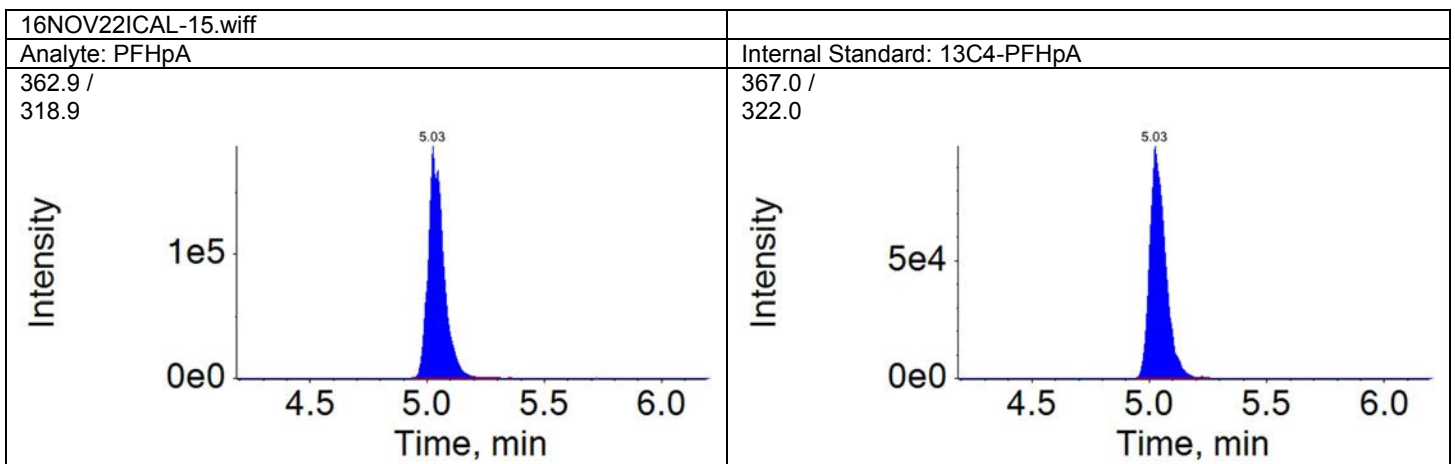
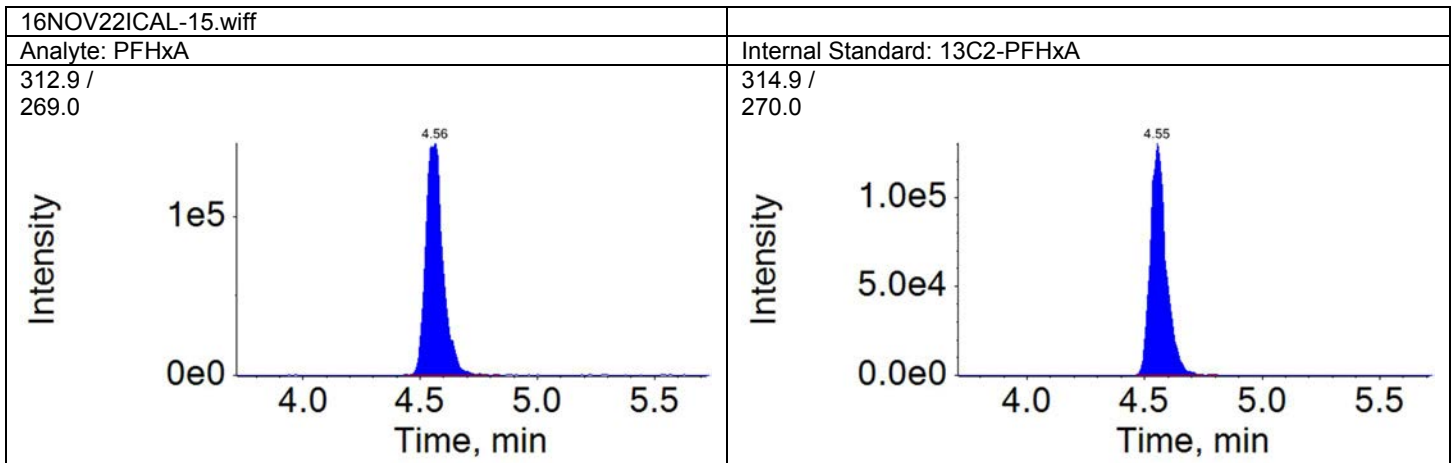
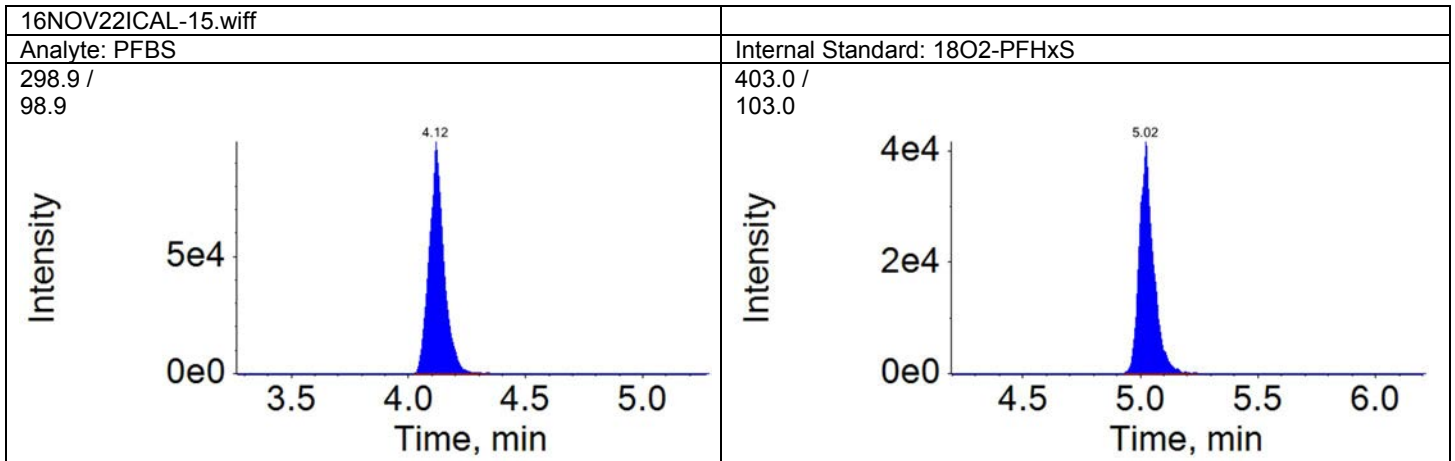
Sample Name:	ICV		Data File:		16NOV22ICAL-15.wiff
Sample ID:	ICV		Acquis Date:		2016-11-22T14:47:15
Sample Type:	Quality Control		Instrument:		Triple Quad 4500, 0, LM24743
Vial Position:	9		Acquis Method:		PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:		MQ 16330002
			ICAL Name:		16NOV22ICAL
Batch Number:	PFCICAL		Operator:		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:		1.00
Sample Vol.:	1.000		Prep Factor:		1.000

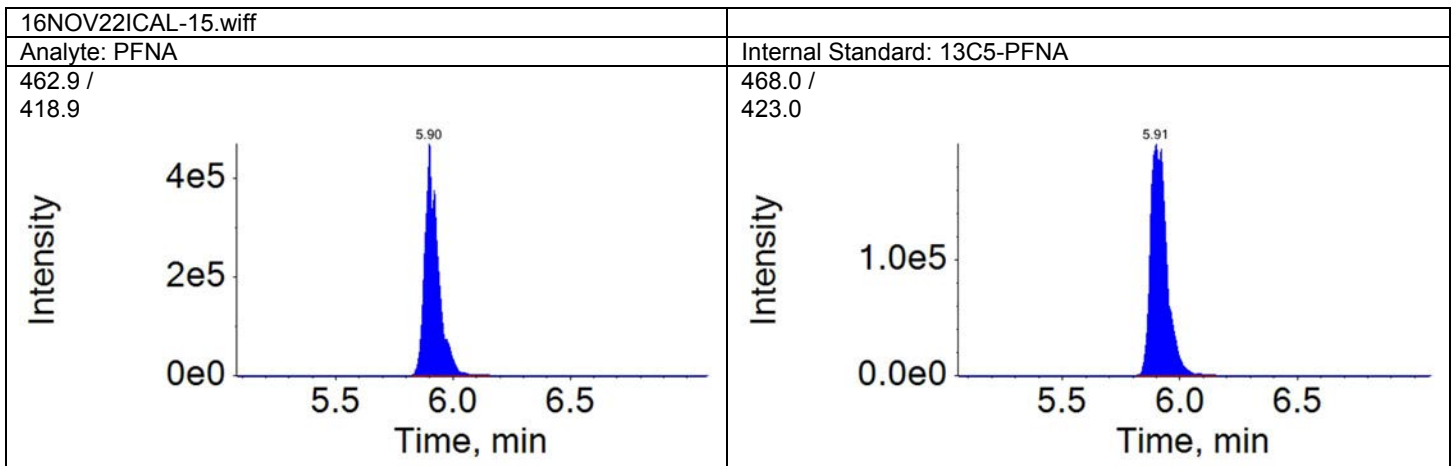
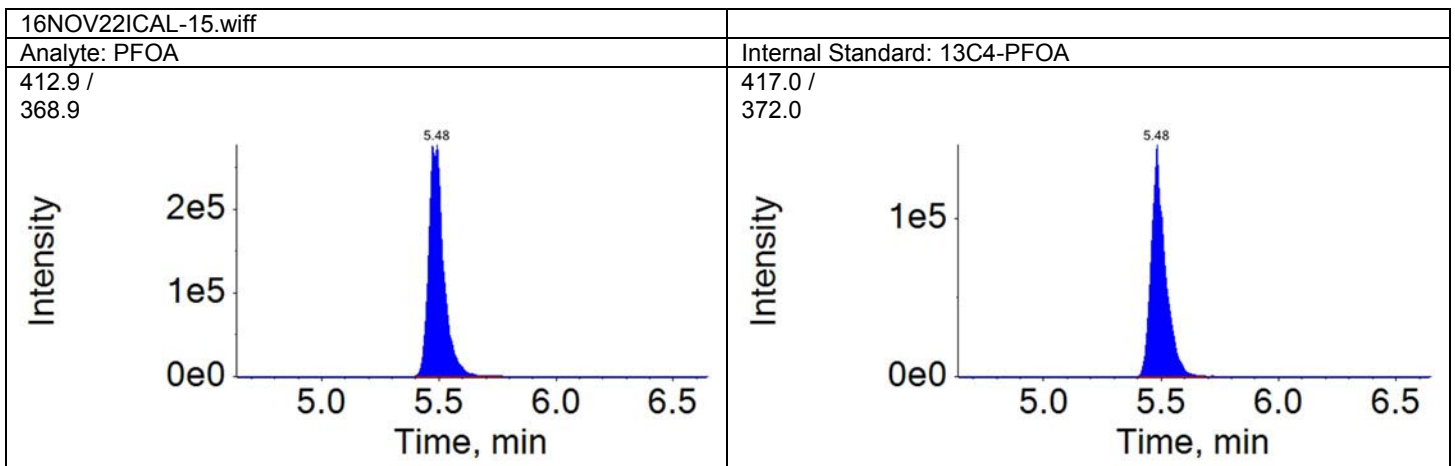
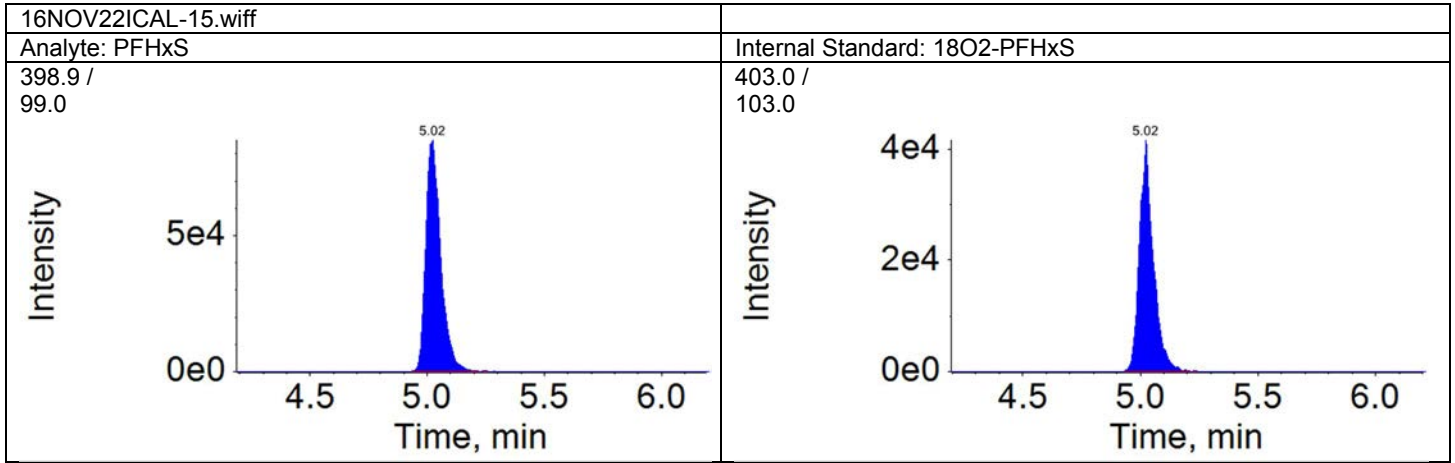
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.12	0.820	422217.9	A	18O2-PFHxS	5.02	169830.8	2.486	8.401
PFHxA	4.56	1.000	762024.2	A	13C2-PFHxA	4.55	614028.2	1.241	9.247
PFHpA	5.03	1.000	841463.2	A	13C4-PFHpA	5.03	454489.0	1.851	7.638
PFHxS	5.02	1.000	379692.0	A	18O2-PFHxS	5.02	169830.8	2.236	9.118
PFOA	5.48	1.000	1240729.3	A	13C4-PFOA	5.48	600285.6	2.067	8.073
PFNA	5.90	1.000	1813846.1	A	13C5-PFNA	5.91	983217.3	1.845	7.341
PFOS	5.87	1.000	390143.8	A	13C4-PFOS	5.87	217308.6	1.795	7.812
PFDA	6.29	1.000	2165000.8	A	13C2-PFDA	6.28	768856.6	2.816	9.155
PFUnDA	6.65	1.000	1643236.9	M	13C2-PFUnDA	6.64	866523.0	1.896	8.505
PFDodA	6.97	1.000	2343351.3	A	13C2-PFDoDA	6.97	1192354.3	1.965	8.121
PFTTrDA	7.28	1.040	2031358.1	A	13C2-PFDoDA	6.97	1192354.3	1.704	7.672
PFTeDA	7.59	1.090	1934416.6	A	13C2-PFDoDA	6.97	1192354.3	1.622	7.585

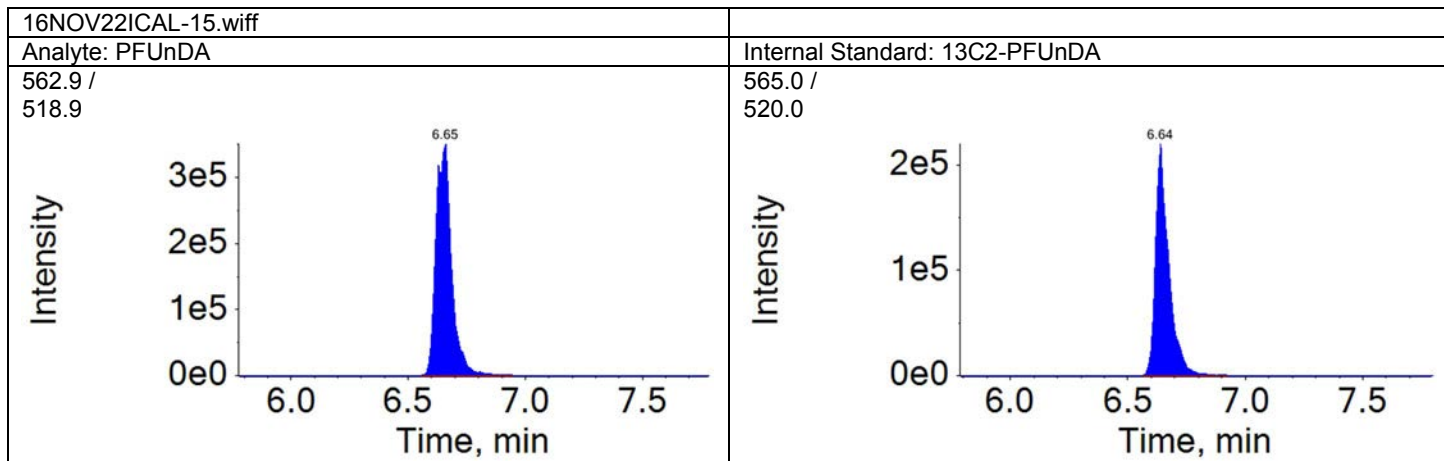
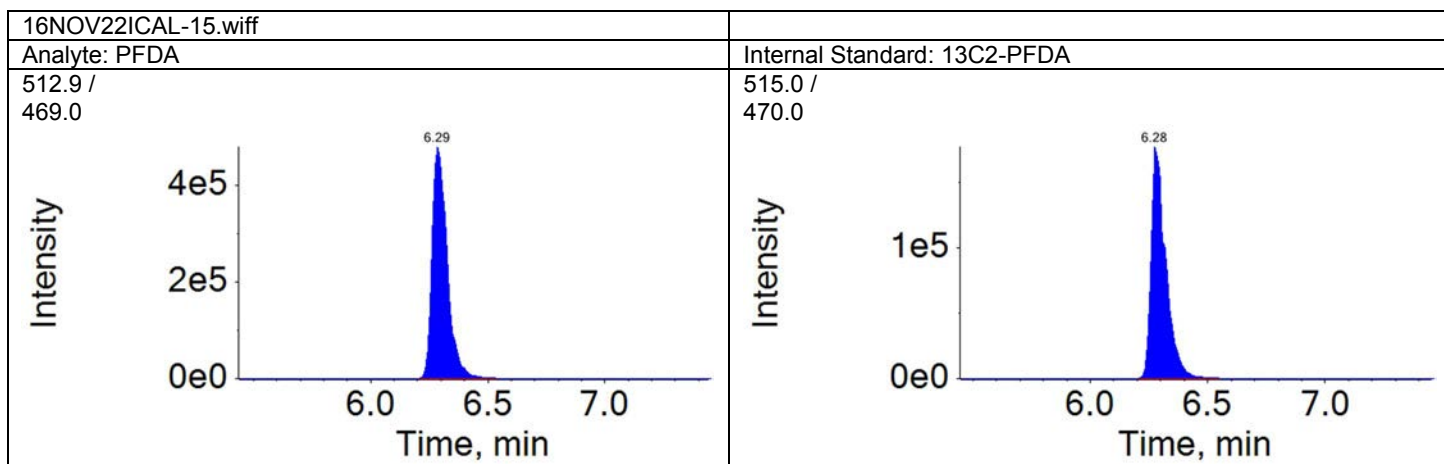
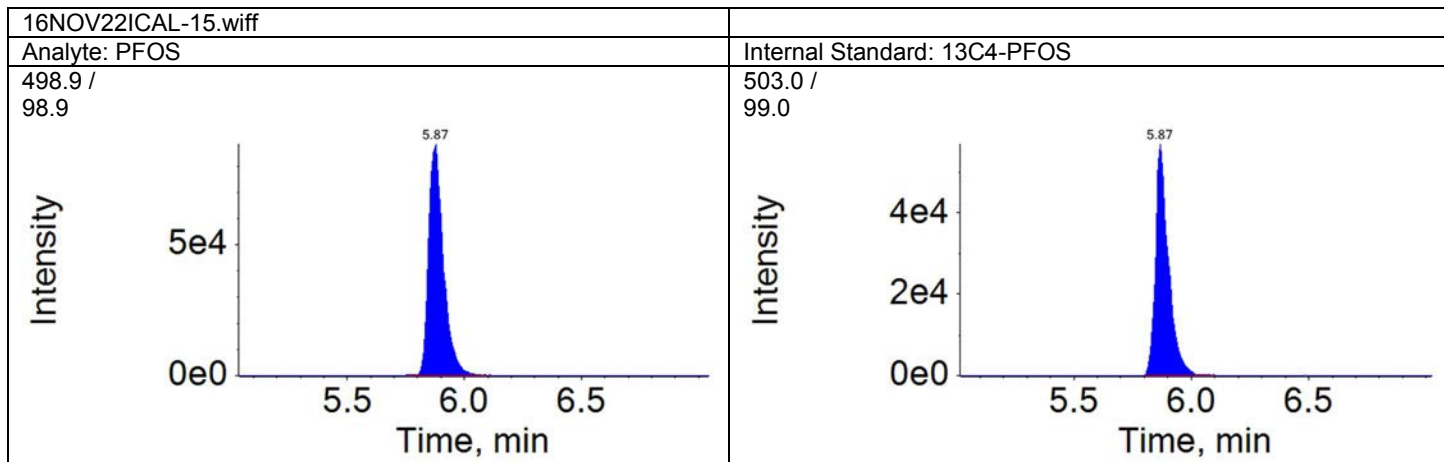
Total Ion Chromatogram  
ICV

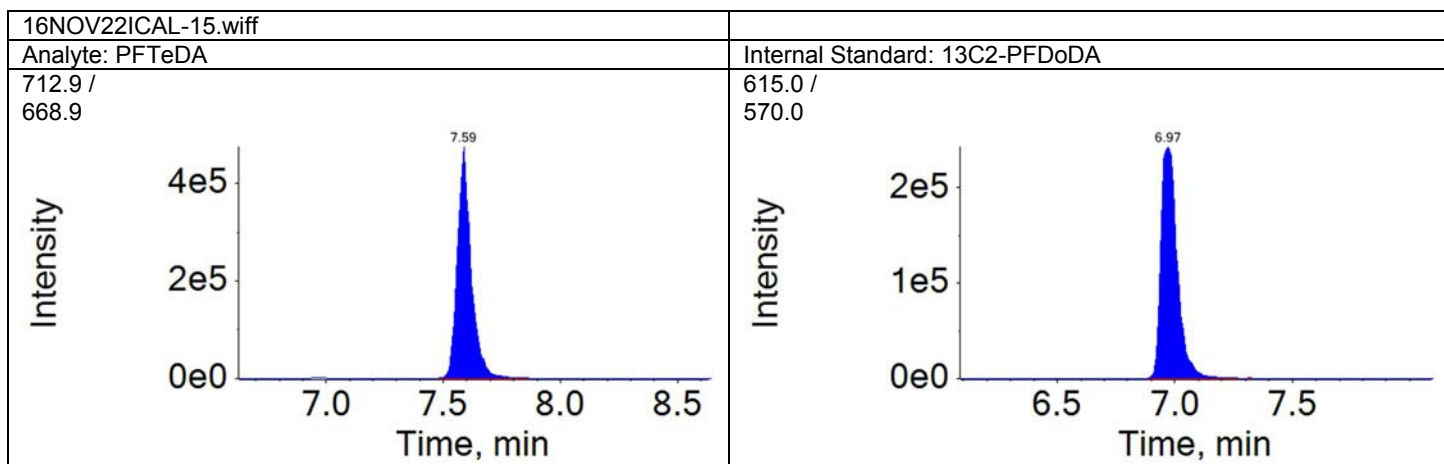
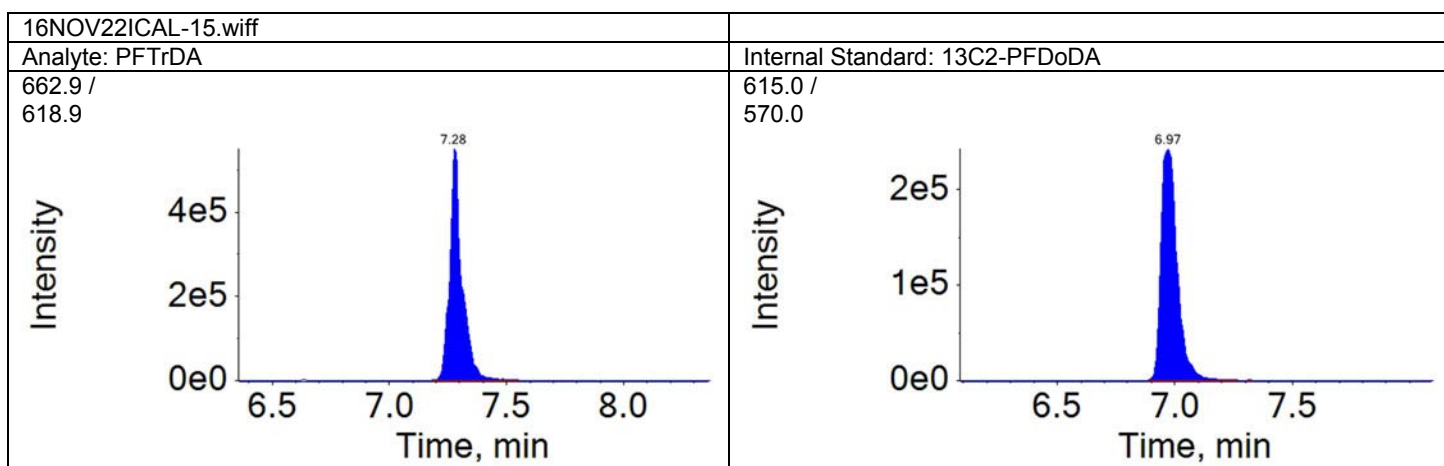
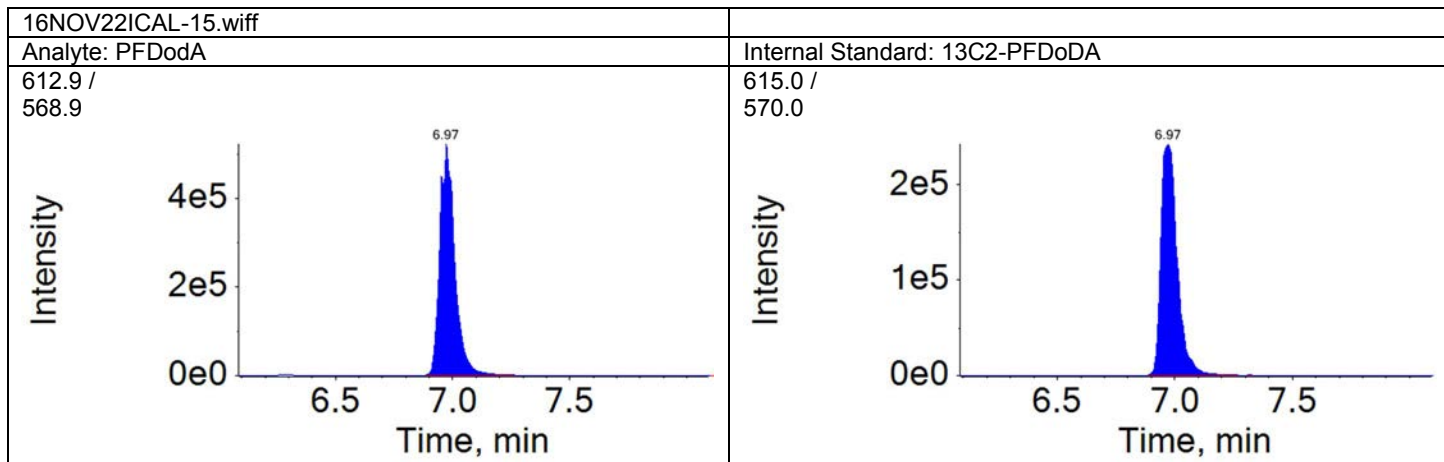










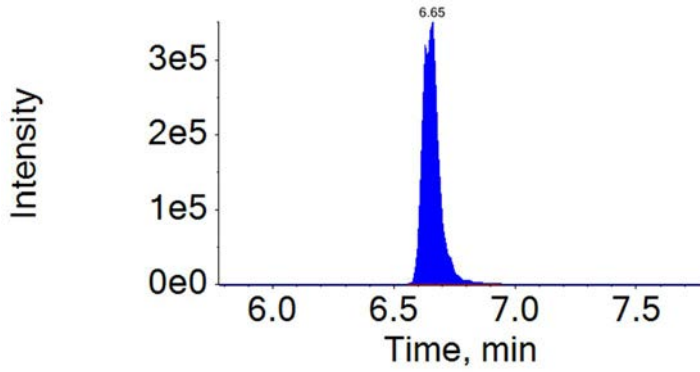




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-15.wiff	2016-11-22T14:47:15	ICV	PFUnDA	6.65	1650476.0

Component: PFUnDA  
Mass: 562.9 / 518.9

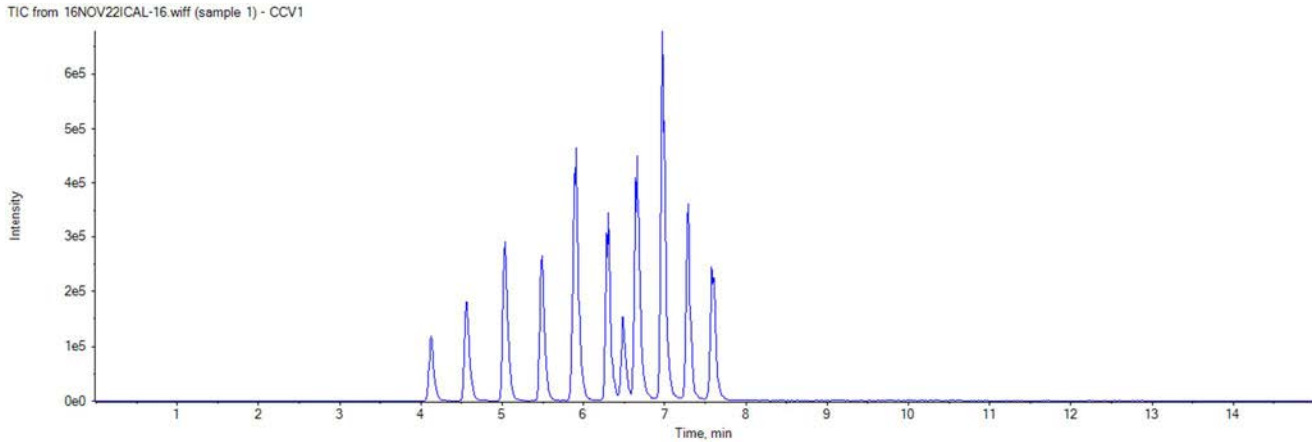


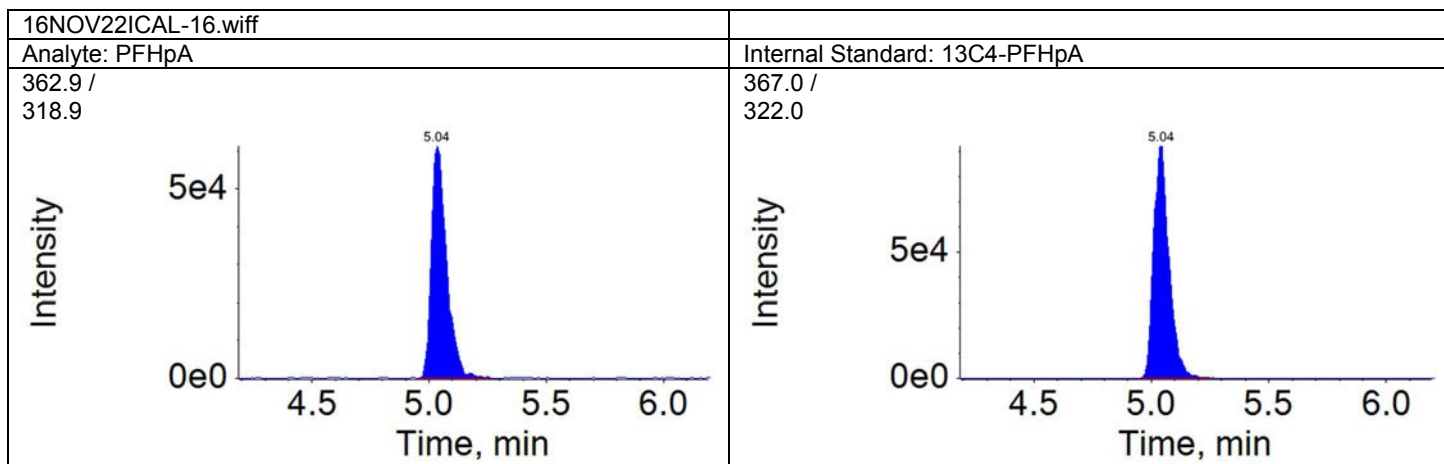
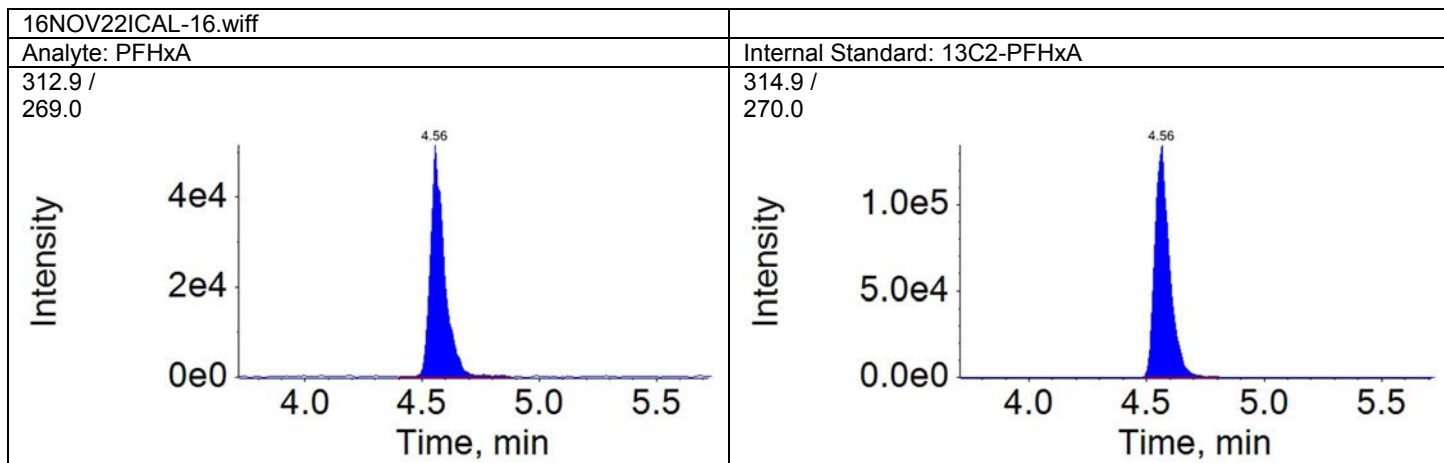
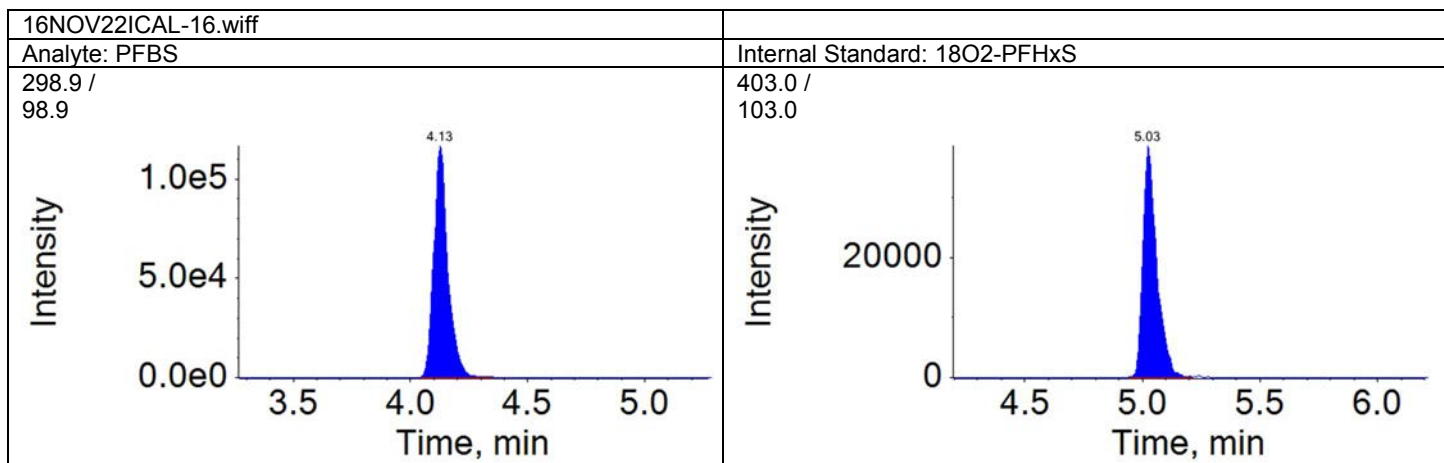
Sample Name:	CCV1		Data File:		16NOV22ICAL-16.wiff
Sample ID:	CAL3		Acquis Date:		2016-11-22T15:03:39
Sample Type:	Quality Control		Instrument:		Triple Quad 4500, 0, LM24743
Vial Position:	5		Acquis Method:		PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:		MQ 16330002
			ICAL Name:		16NOV22ICAL
Batch Number:	PFCICAL		Operator:		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:		1.00
Sample Vol.:	1.000		Prep Factor:		1.000

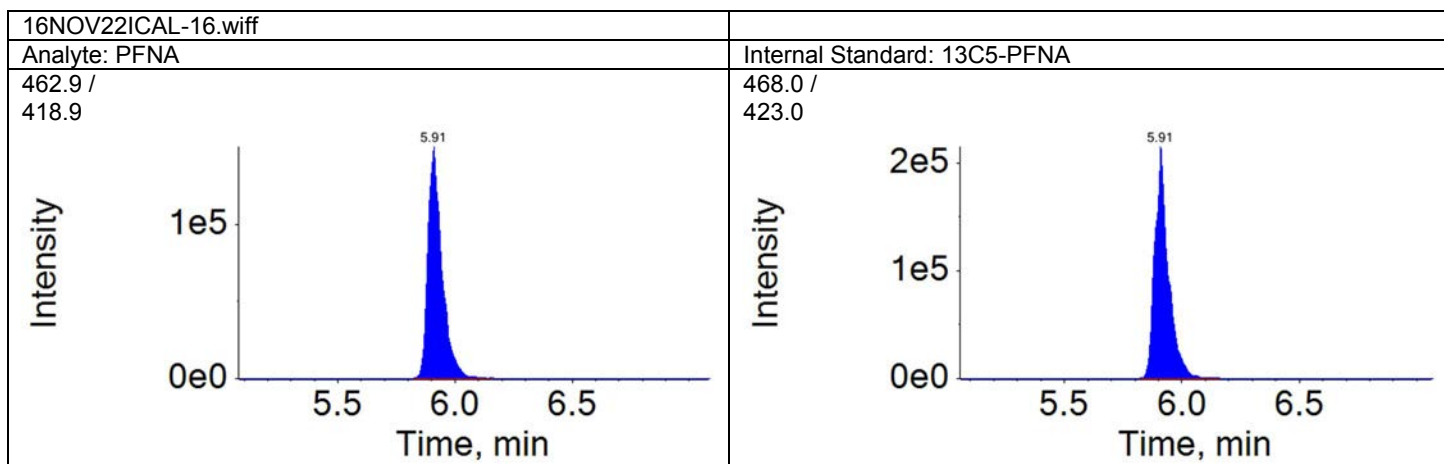
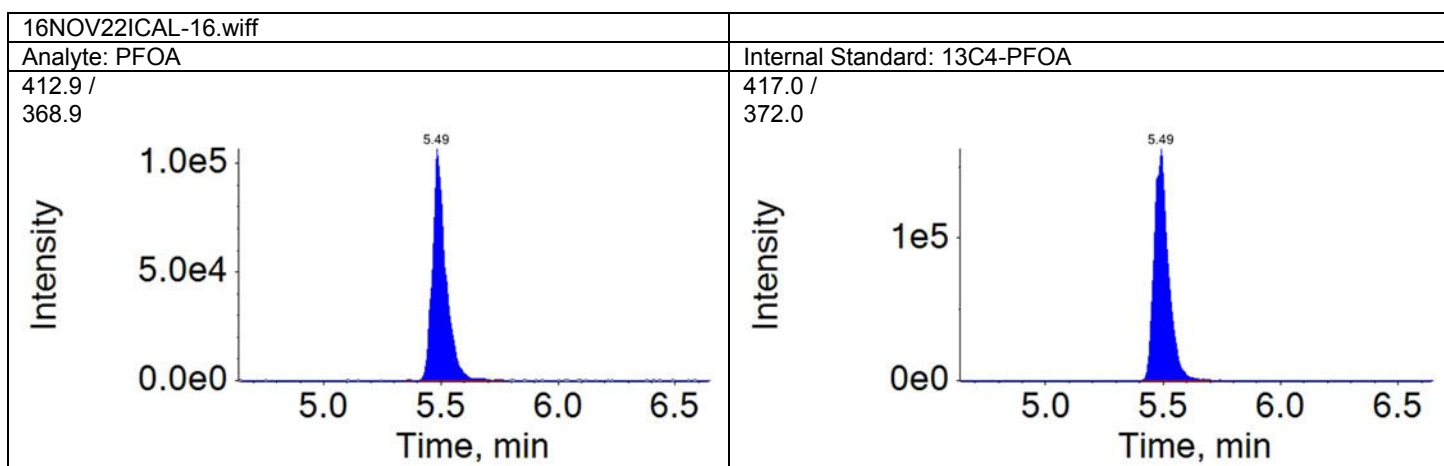
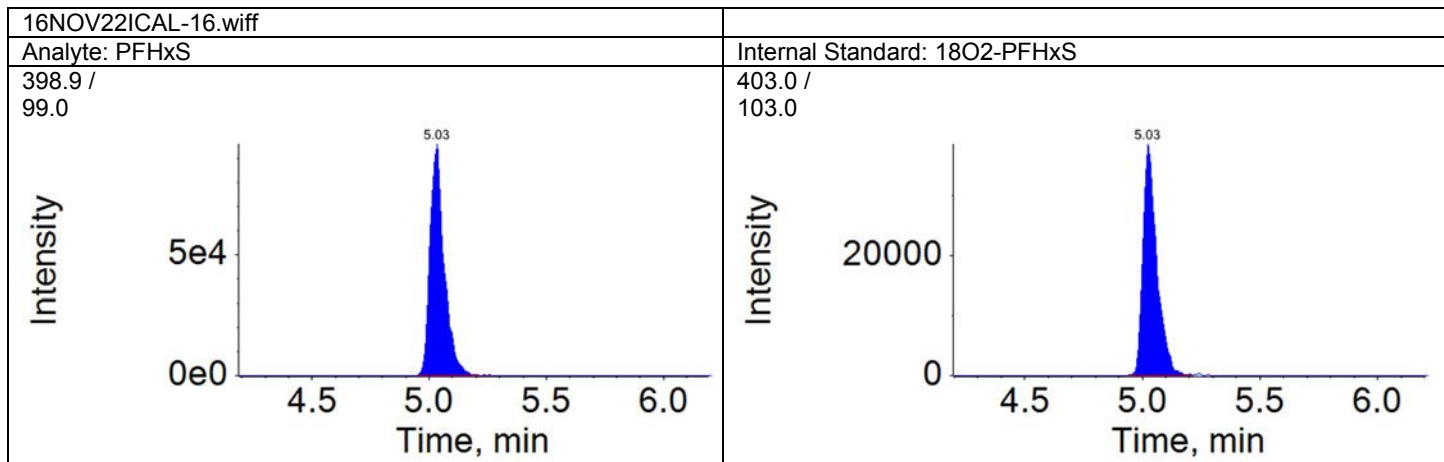
Quantitation Peak Table

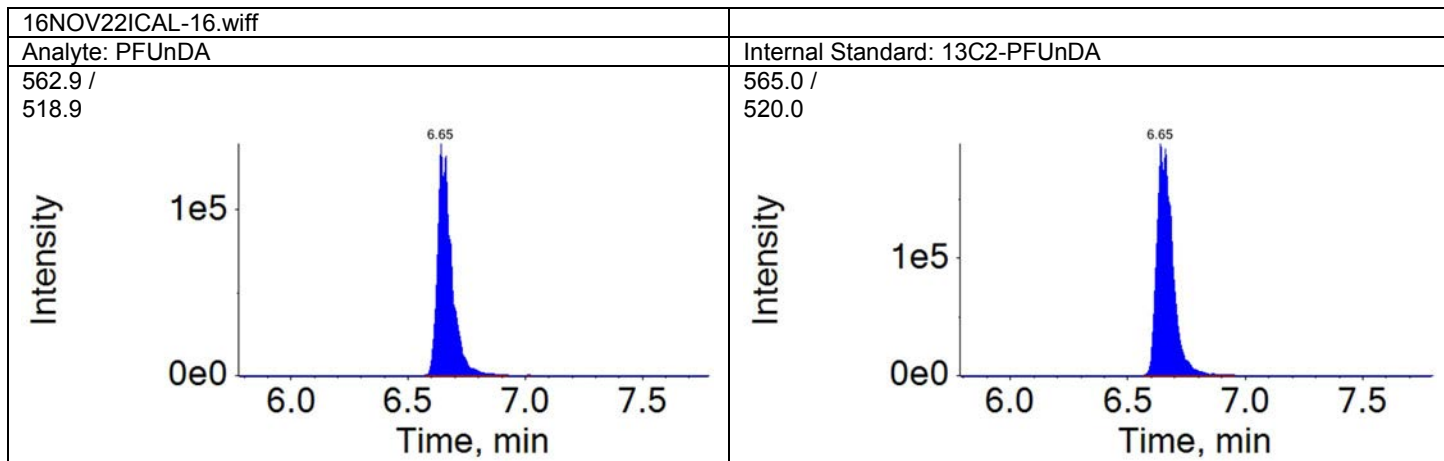
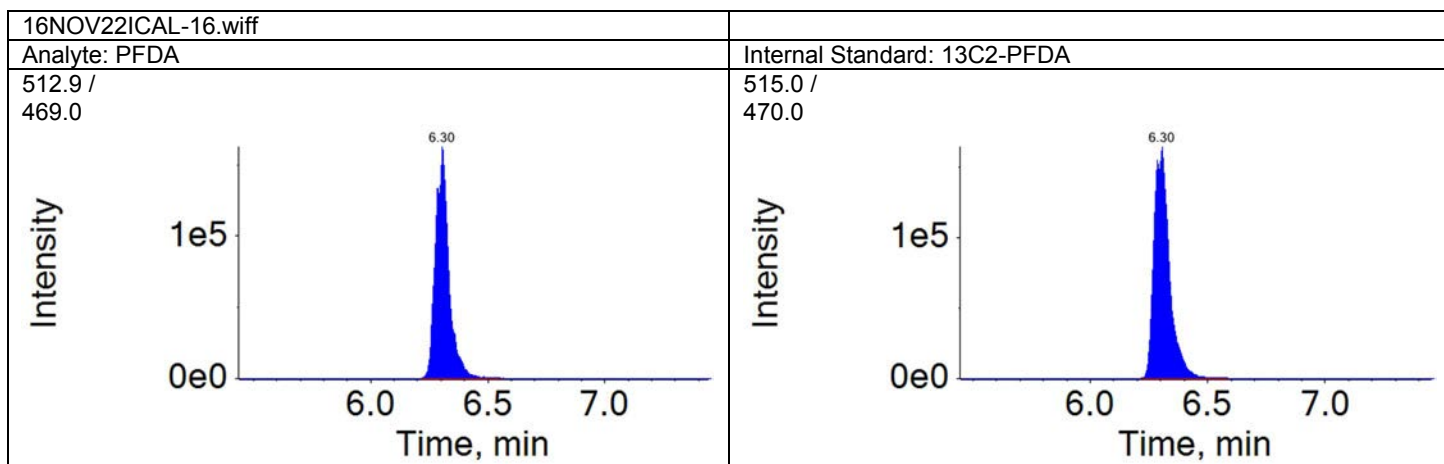
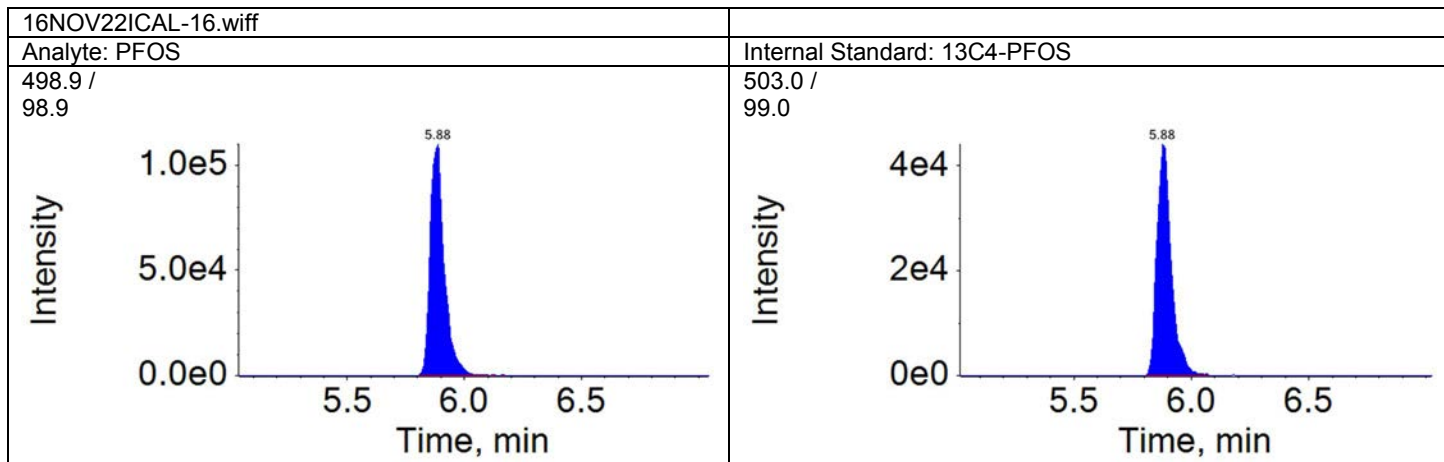
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.13	0.820	488794.0	A	18O2-PFHxS	5.03	158393.9	3.086	10.428
PFHxA	4.56	1.000	213861.3	A	13C2-PFHxA	4.56	580825.8	0.368	2.744
PFHpA	5.04	1.000	279595.1	A	13C4-PFHpA	5.04	425384.4	0.657	2.712
PFHxS	5.03	1.000	402329.1	A	18O2-PFHxS	5.03	158393.9	2.540	10.359
PFOA	5.49	1.000	414832.0	A	13C4-PFOA	5.49	678889.0	0.611	2.387
PFNA	5.91	1.000	626924.9	A	13C5-PFNA	5.91	855944.7	0.732	2.915
PFOS	5.88	1.000	465091.3	A	13C4-PFOS	5.88	188529.9	2.467	10.734
PFDA	6.30	1.000	641676.4	A	13C2-PFDA	6.30	755877.4	0.849	2.760
PFUnDA	6.65	1.000	569625.9	M	13C2-PFUnDA	6.65	922417.4	0.618	2.770
PFDodA	6.98	1.000	1444714.0	A	13C2-PFDoDA	6.98	1148713.3	1.258	5.197
PFTTrDA	7.29	1.040	1299719.1	A	13C2-PFDoDA	6.98	1148713.3	1.131	5.096
PFTeDA	7.59	1.090	1110469.1	A	13C2-PFDoDA	6.98	1148713.3	0.967	4.520

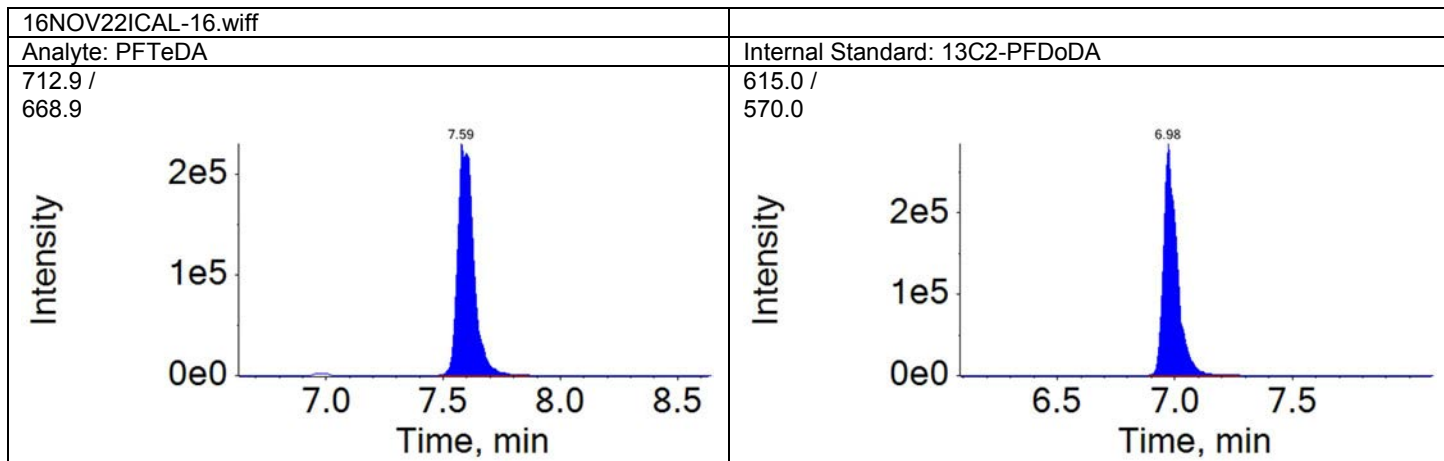
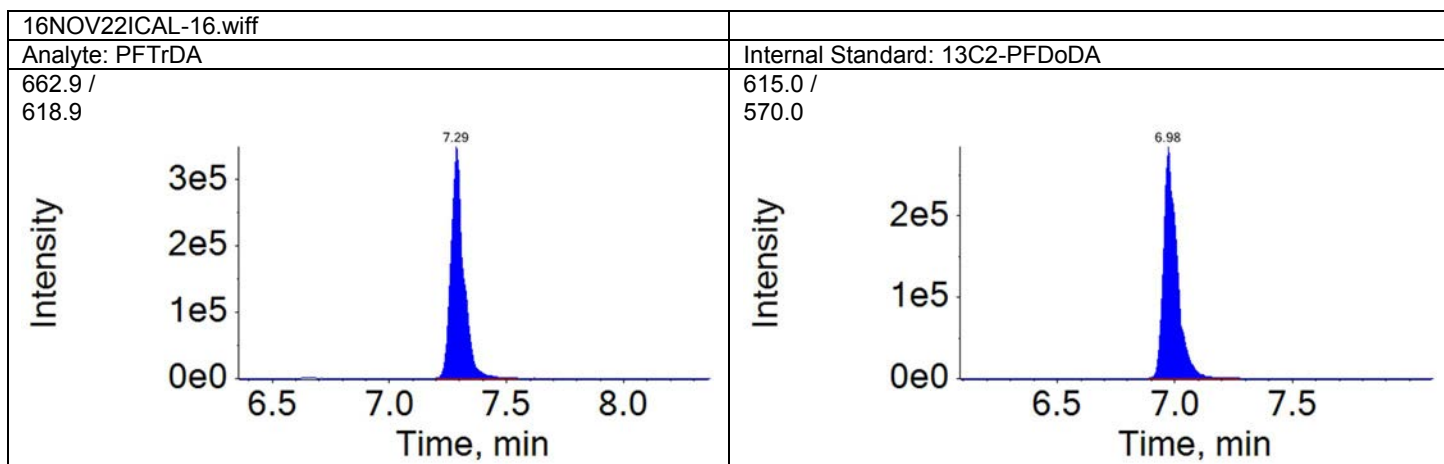
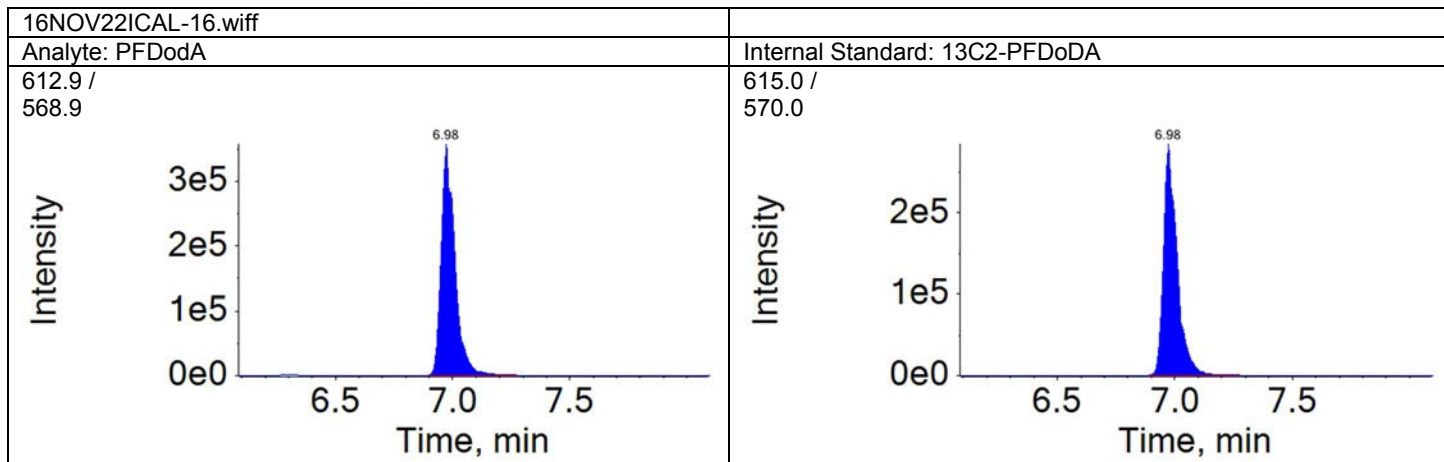
Total Ion Chromatogram  
CAL3







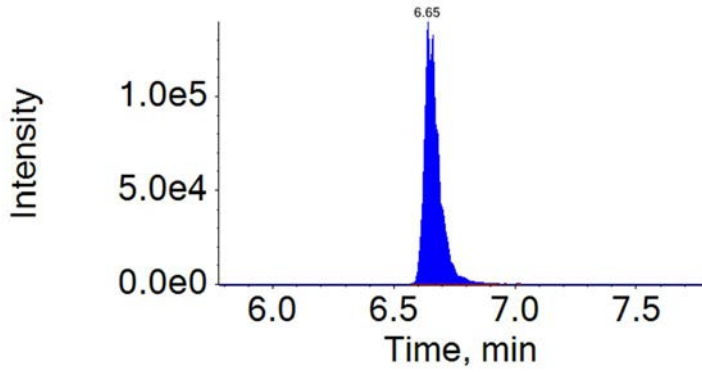




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV22ICAL-16.wiff	2016-11-22T15:03:39	CCV1	PFUUnDA	6.65	570931.3

Component: PFUnDA  
Mass: 562.9 / 518.9



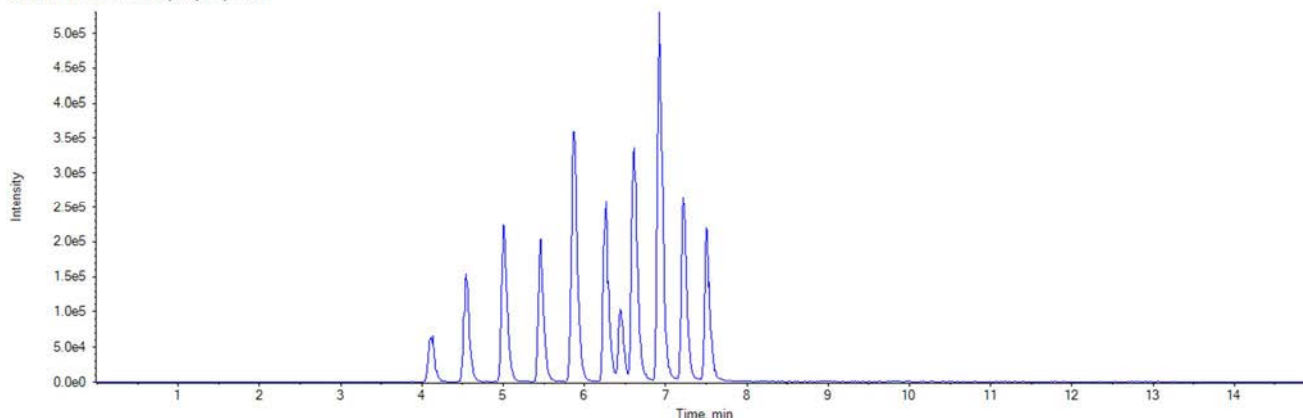
Sample Name:	CCV1	Data File:	16NOV29-03.wiff
Sample ID:	CAL3	Acquis Date:	2016-11-29T13:51:03
Sample Type:	Quality Control	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	5	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

Quantitation Peak Table

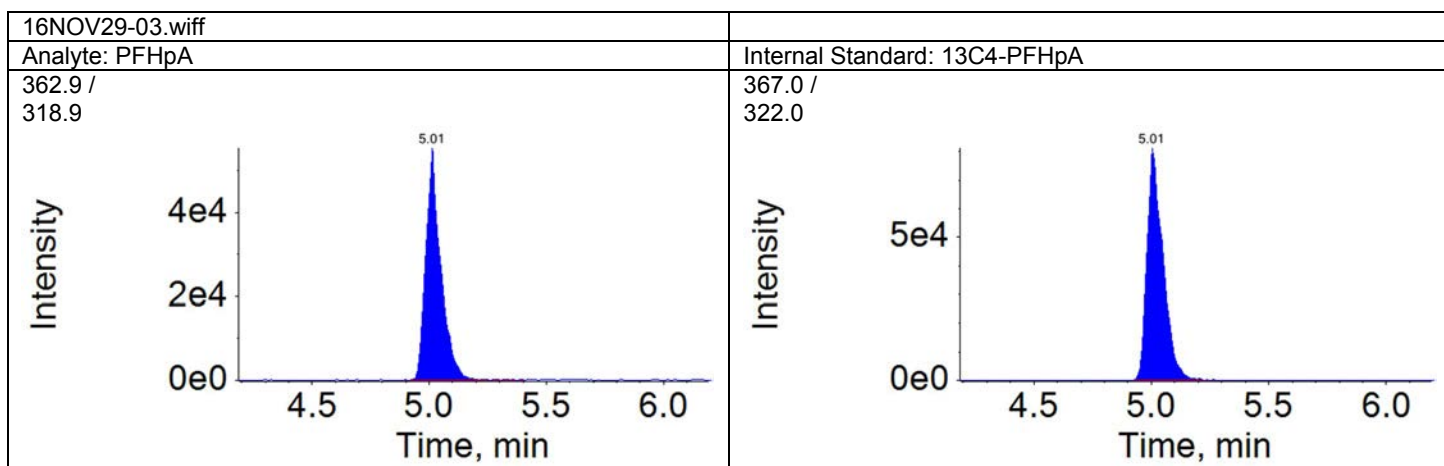
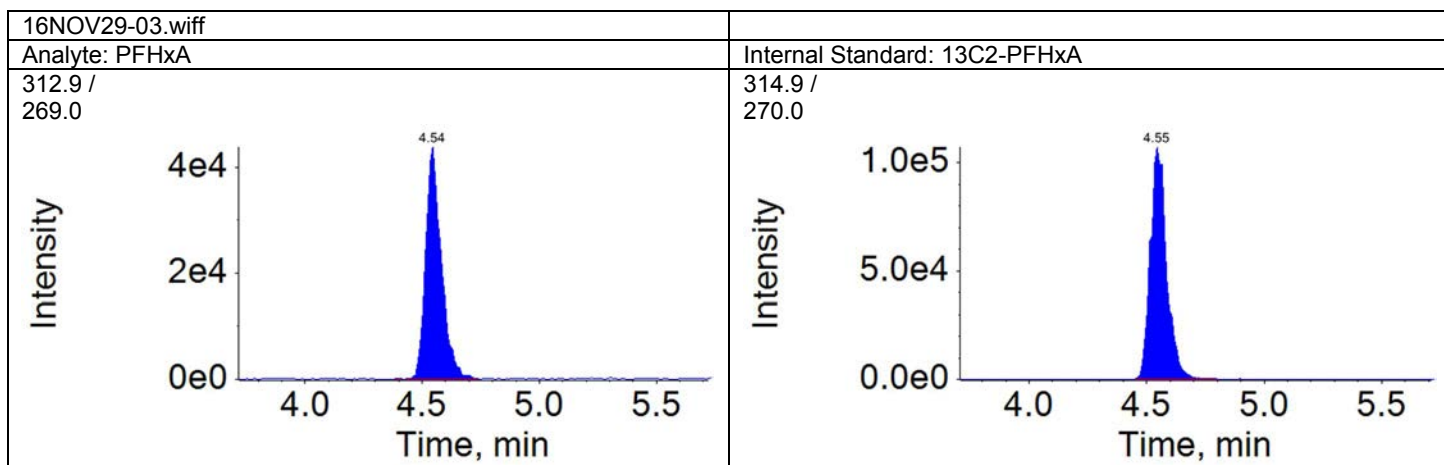
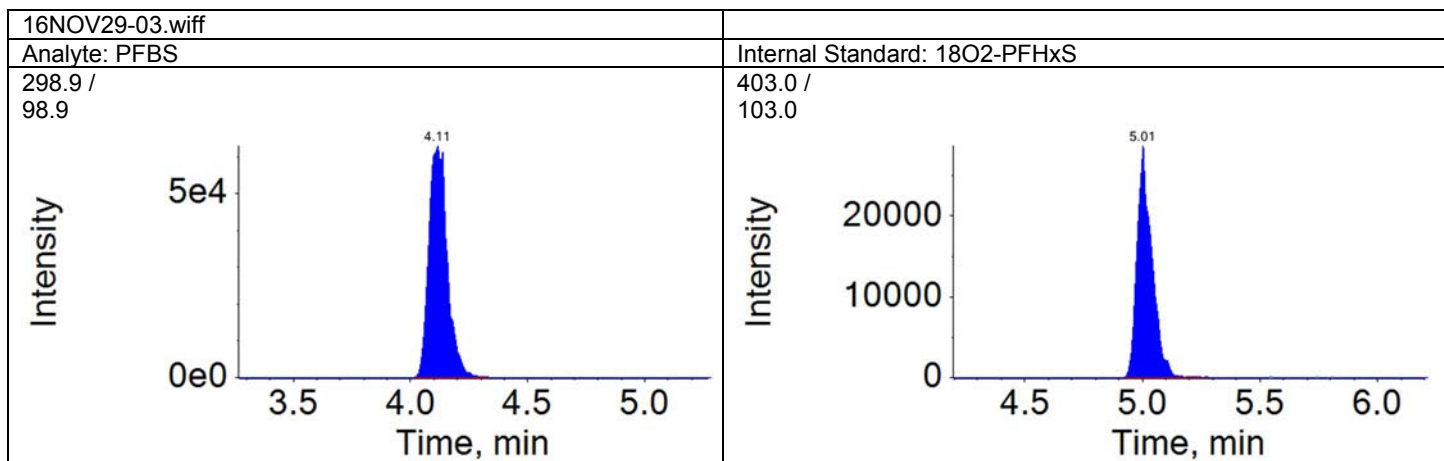
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	350701.3	A	18O2-PFHxS	5.01	126025.6	2.783	9.403
PFHxA	4.54	1.000	205656.5	A	13C2-PFHxA	4.55	520561.4	0.395	2.944
PFHpA	5.01	1.000	245067.4	A	13C4-PFHpA	5.01	384515.9	0.637	2.629
PFHxS	5.01	1.000	314496.3	A	18O2-PFHxS	5.01	126025.6	2.495	10.177
PFOA	5.46	1.000	350660.0	A	13C4-PFOA	5.46	552948.7	0.634	2.477
PFNA	5.88	1.000	507657.8	A	13C5-PFNA	5.88	831756.4	0.610	2.429
PFOS	5.85	1.000	337985.1	A	13C4-PFOS	5.85	149384.8	2.263	9.844
PFDA	6.26	1.000	523495.3	A	13C2-PFDA	6.26	678227.9	0.772	2.510
PFUnDA	6.61	1.000	491674.1	A	13C2-PFUnDA	6.60	806512.4	0.610	2.734
PFDodA	6.93	1.000	1312551.9	A	13C2-PFDoDA	6.93	1042298.5	1.259	5.203
PFTTrDA	7.22	1.040	1207808.7	A	13C2-PFDoDA	6.93	1042298.5	1.159	5.219
PFTeDA	7.51	1.080	962406.6	A	13C2-PFDoDA	6.93	1042298.5	0.923	4.317

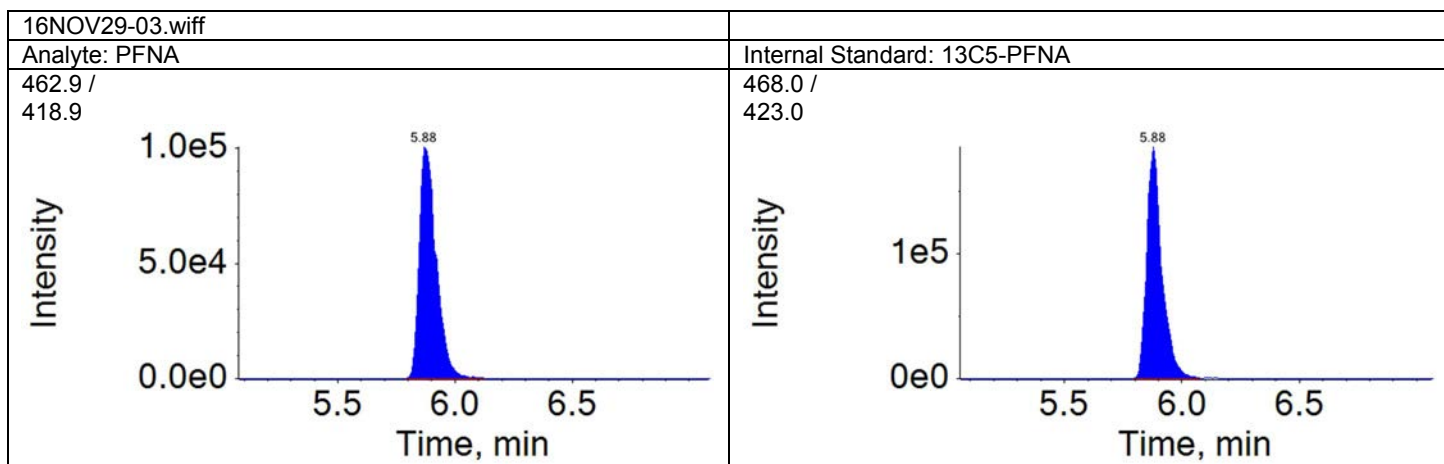
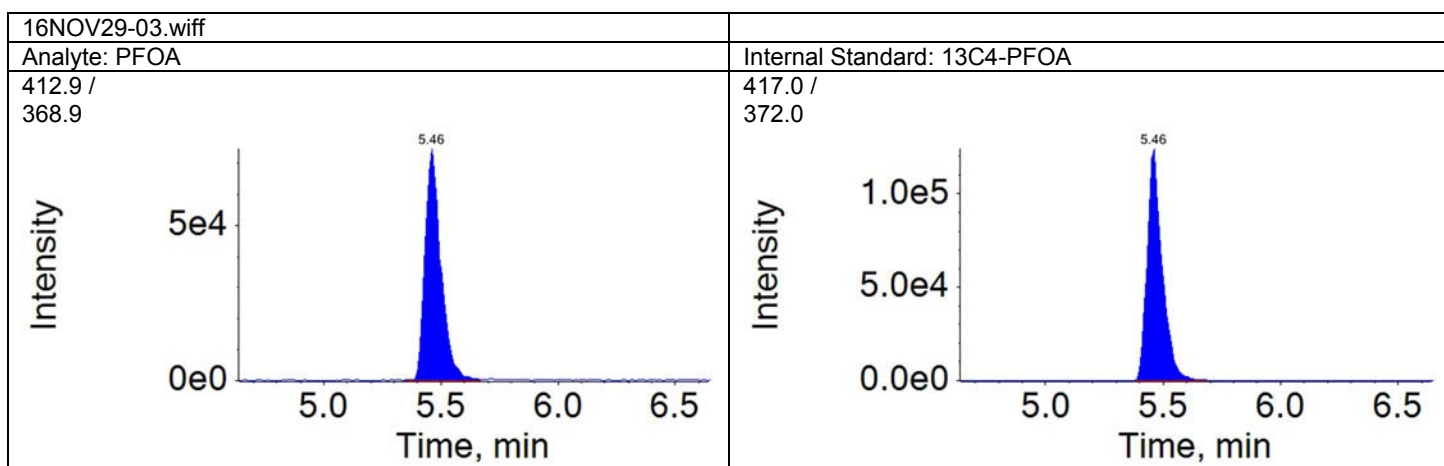
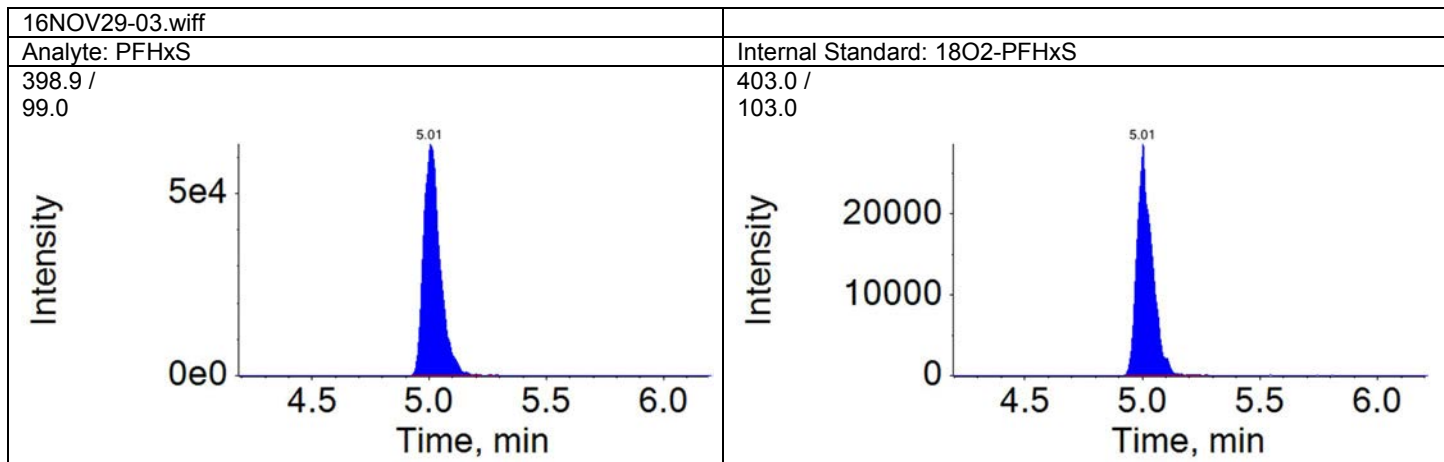
Total Ion Chromatogram  
CAL3

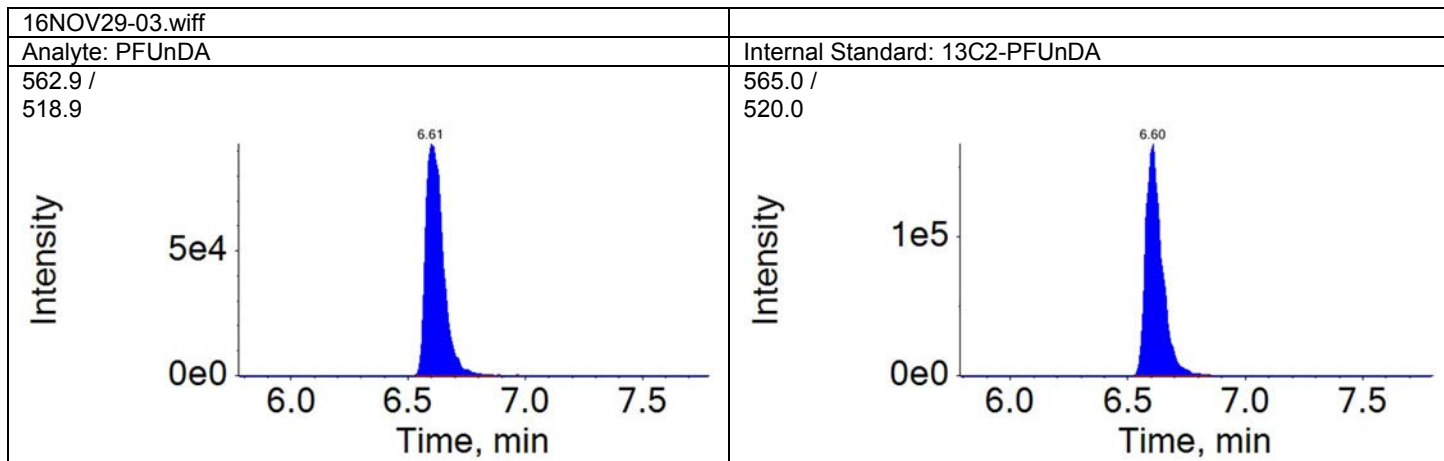
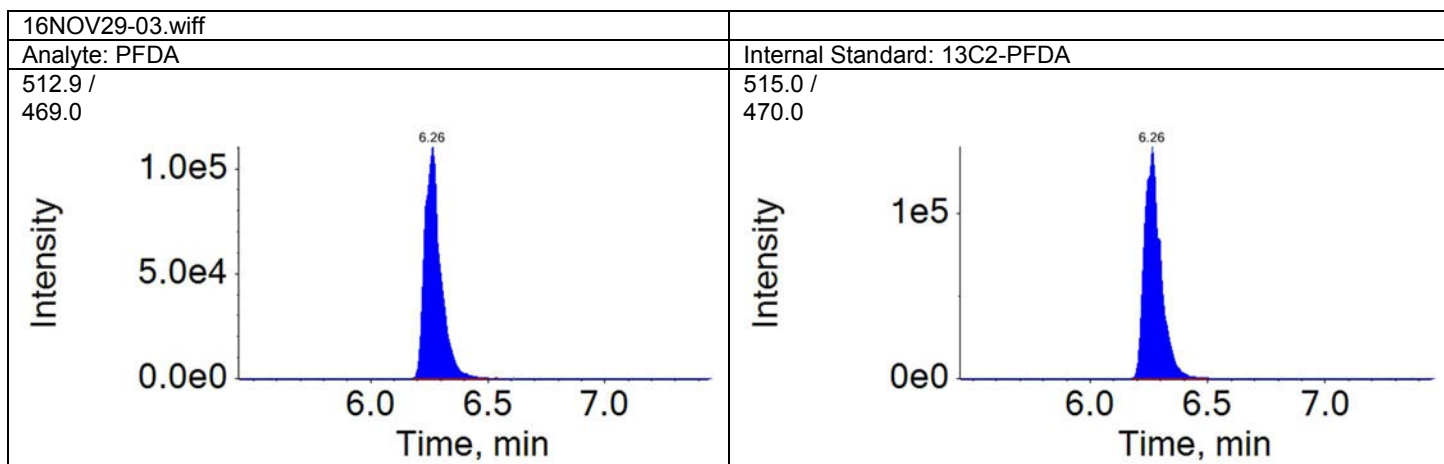
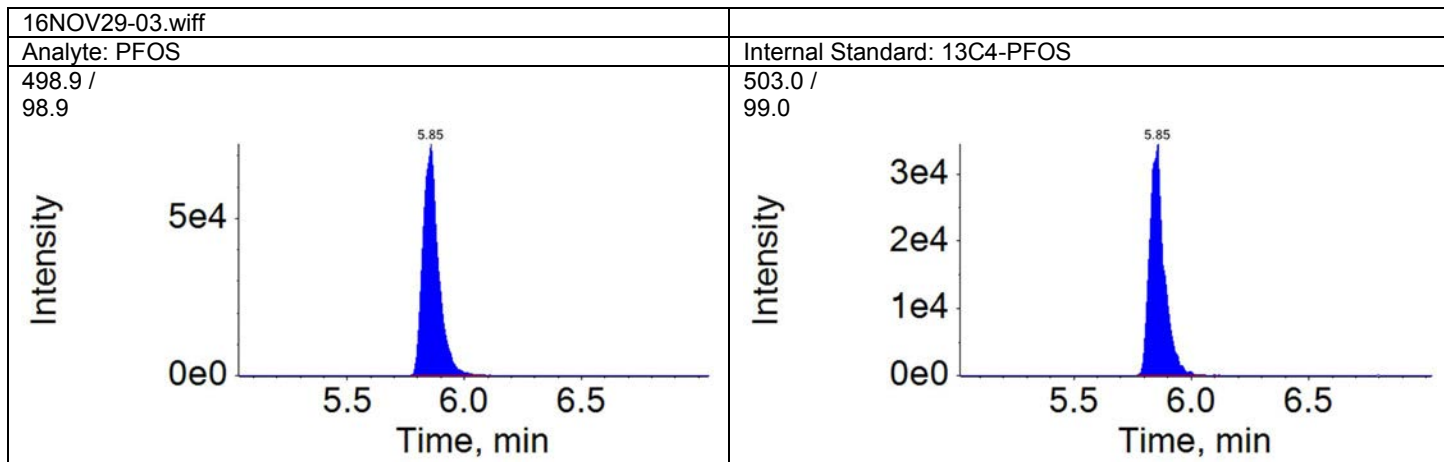
TIC from 16NOV29-03.wiff (sample 1) - CCV1

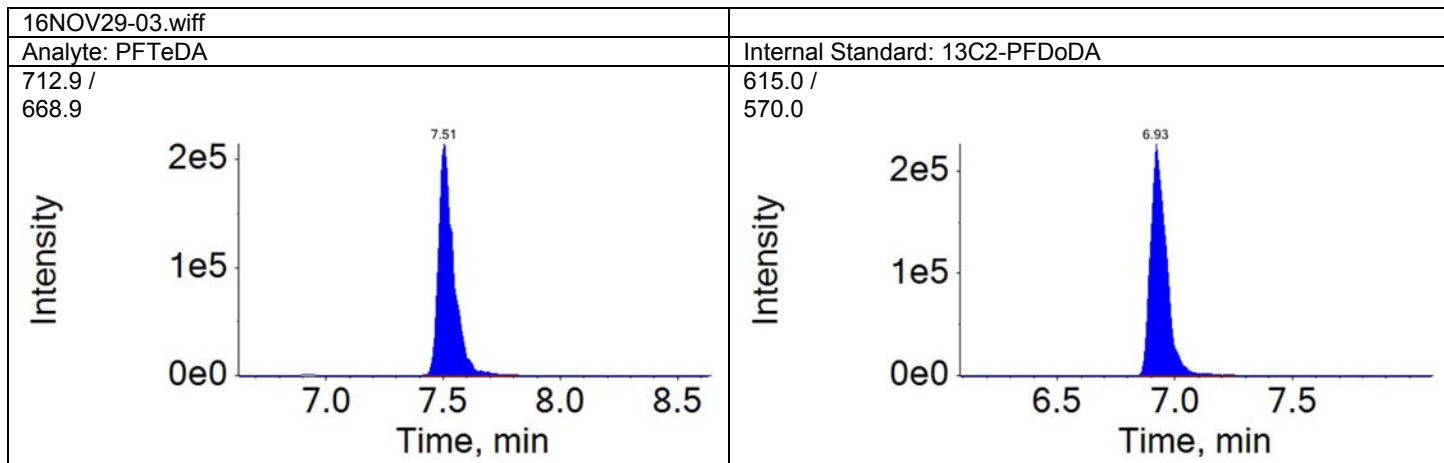
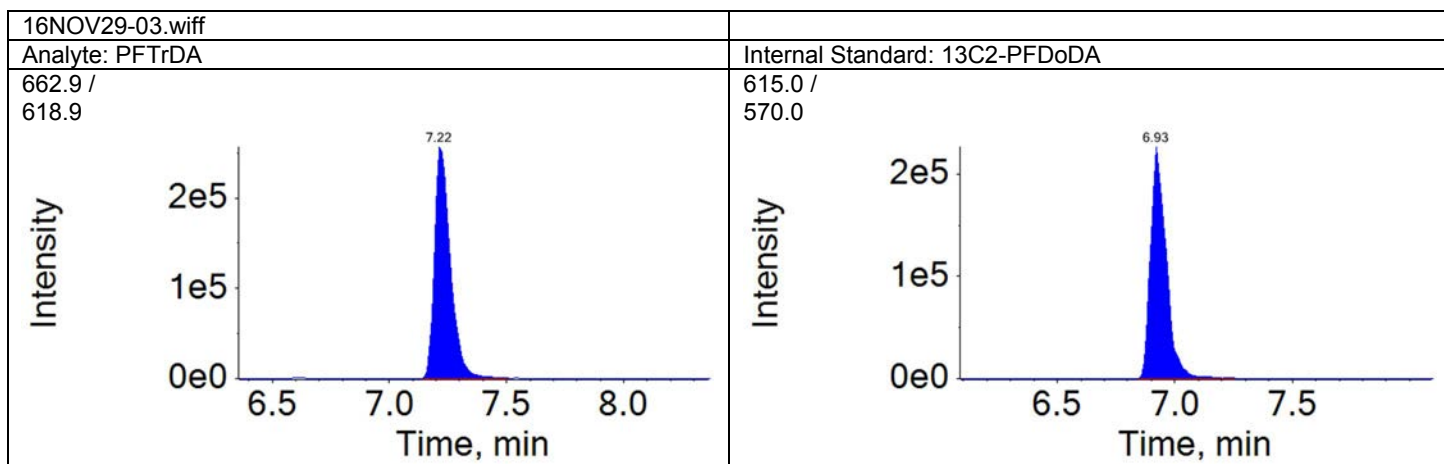
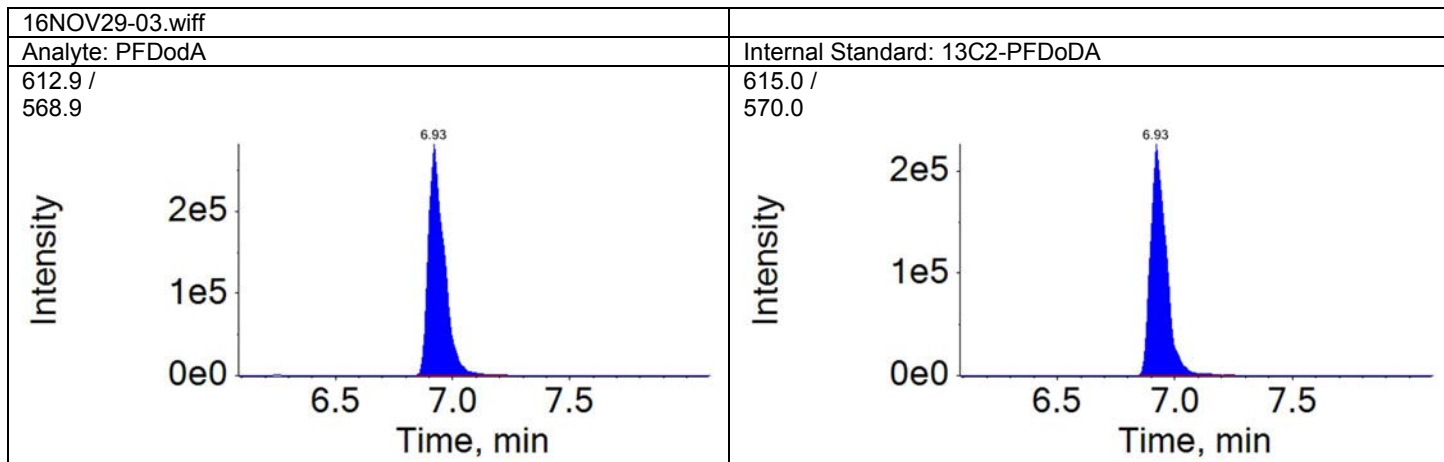












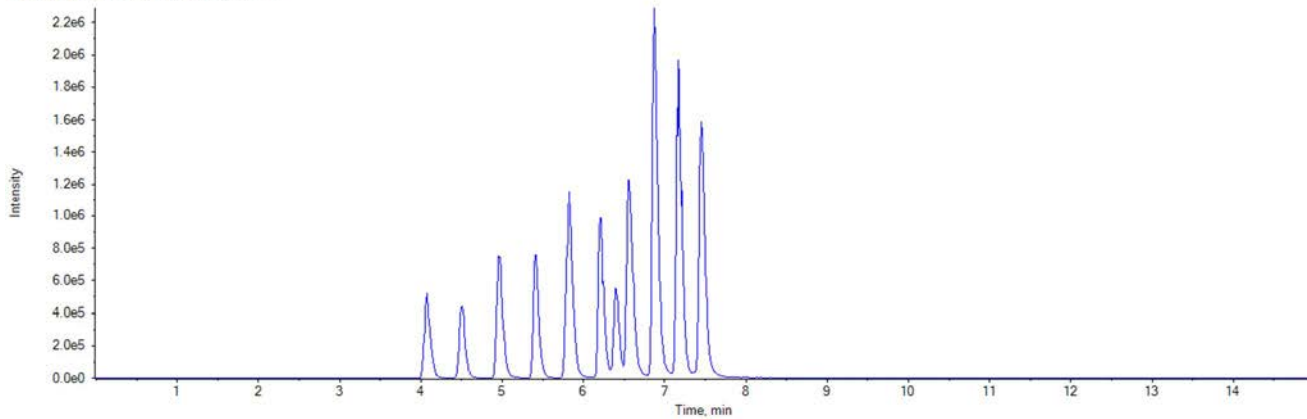
Sample Name:	CCV3	Data File:	16NOV29-19.wiff
Sample ID:	CAL5	Acquis Date:	2016-11-29T18:13:21
Sample Type:	Quality Control	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	7	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330003	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	1.00000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

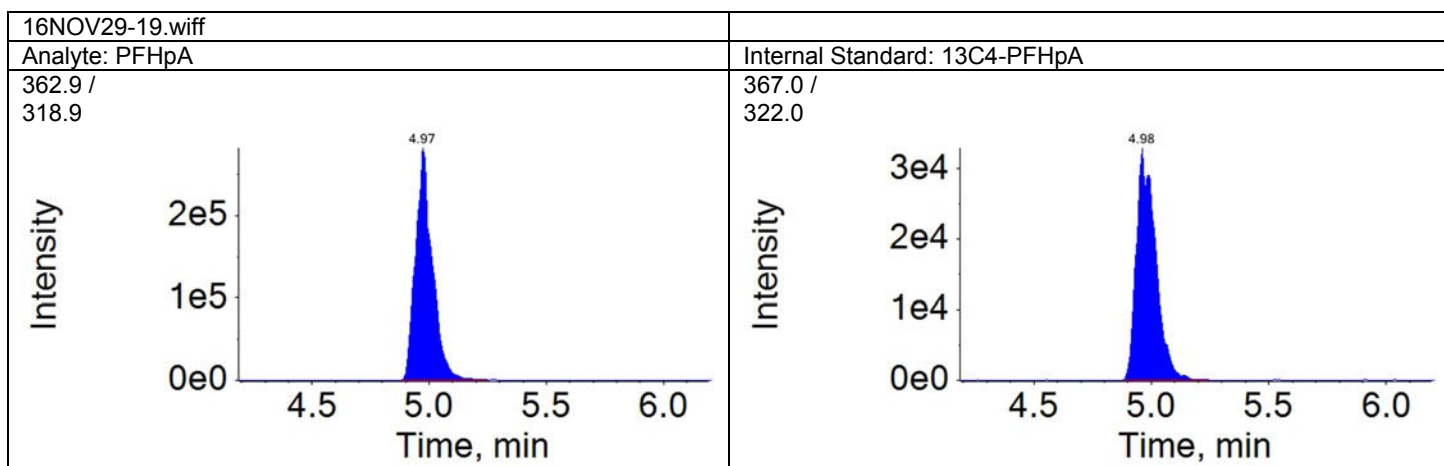
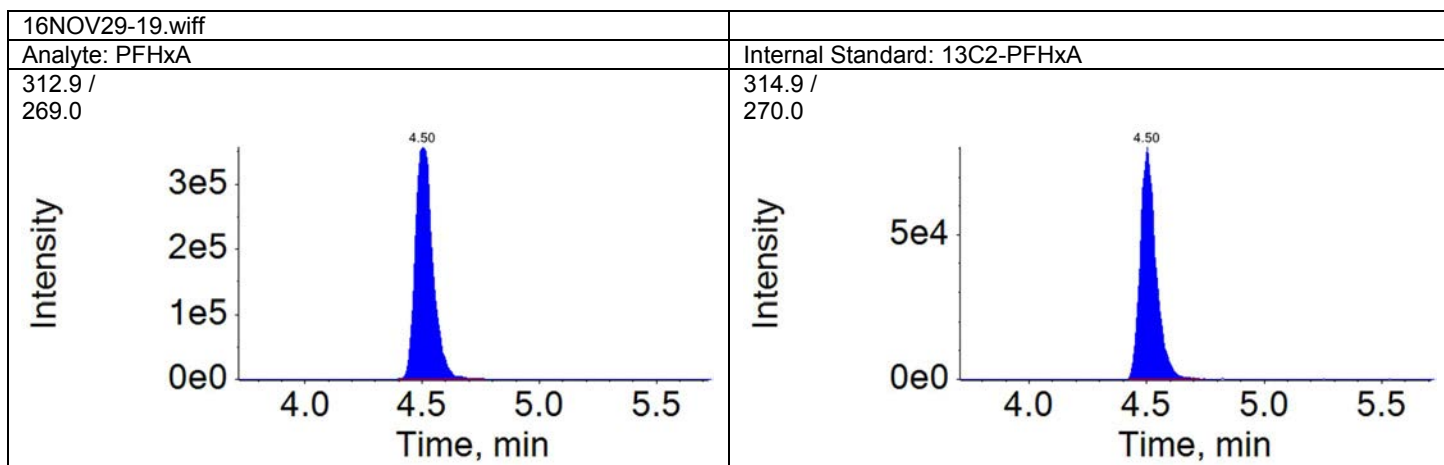
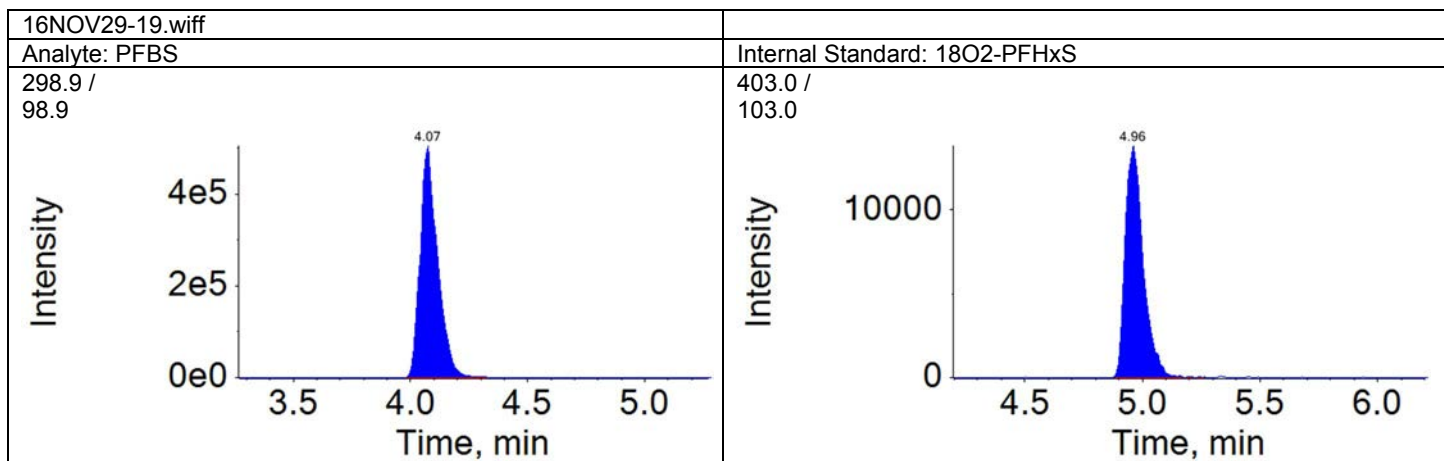
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.07	0.820	2635083.4	A	18O2-PFHxS	4.96	74300.3	35.465	119.842
PFHxA	4.50	1.000	1879500.5	A	13C2-PFHxA	4.50	374179.0	5.023	37.428
PFHpA	4.97	1.000	1417143.8	A	13C4-PFHpA	4.98	188656.7	7.512	30.990
PFHxS	4.96	1.000	2320864.6	A	18O2-PFHxS	4.96	74300.3	31.236	127.391
PFOA	5.41	1.000	3202102.0	A	13C4-PFOA	5.41	393947.5	8.128	31.749
PFNA	5.84	1.000	3188927.1	A	13C5-PFNA	5.84	426878.8	7.470	29.727
PFOS	5.80	1.000	2471573.5	A	13C4-PFOS	5.80	77676.4	31.819	138.446
PFDA	6.21	1.000	4362747.3	A	13C2-PFDA	6.21	450484.5	9.685	31.487
PFUnDA	6.56	1.000	3914248.6	A	13C2-PFUnDA	6.55	526884.5	7.429	33.318
PFDodA	6.88	1.000	10344309.0	A	13C2-PFDoDA	6.87	687430.9	15.048	62.178
PFTTrDA	7.17	1.040	9244532.2	A	13C2-PFDoDA	6.87	687430.9	13.448	60.563
PFTeDA	7.46	1.080	8187892.2	A	13C2-PFDoDA	6.87	687430.9	11.911	55.690

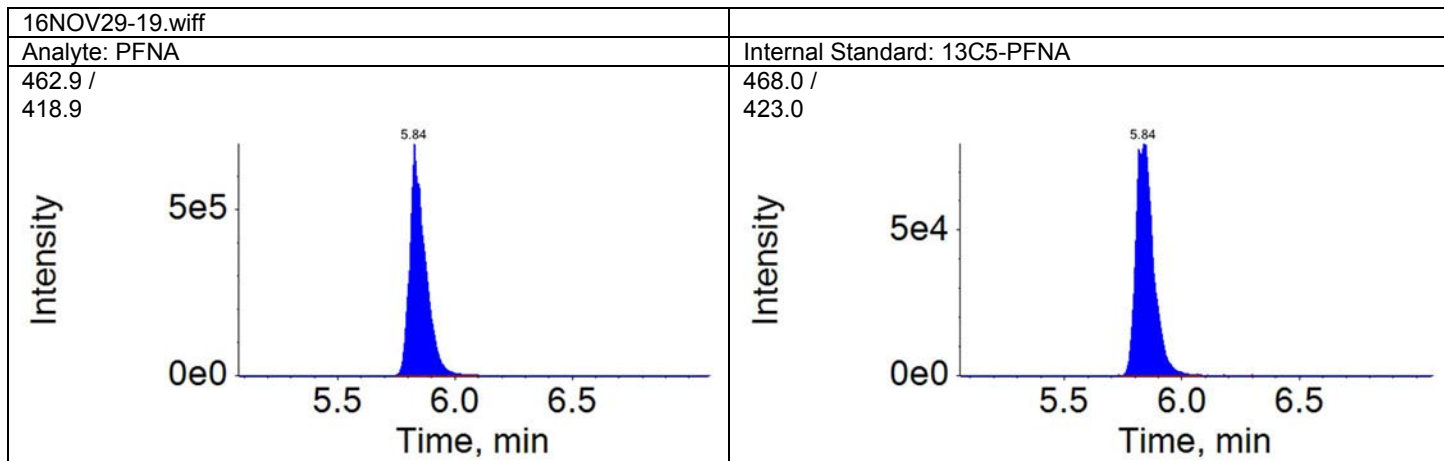
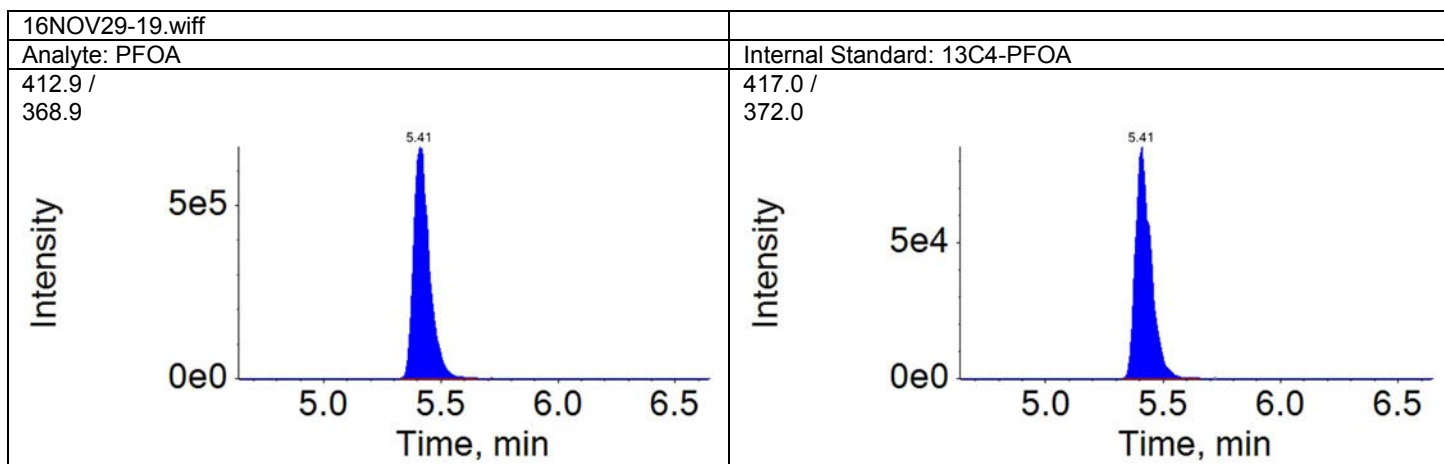
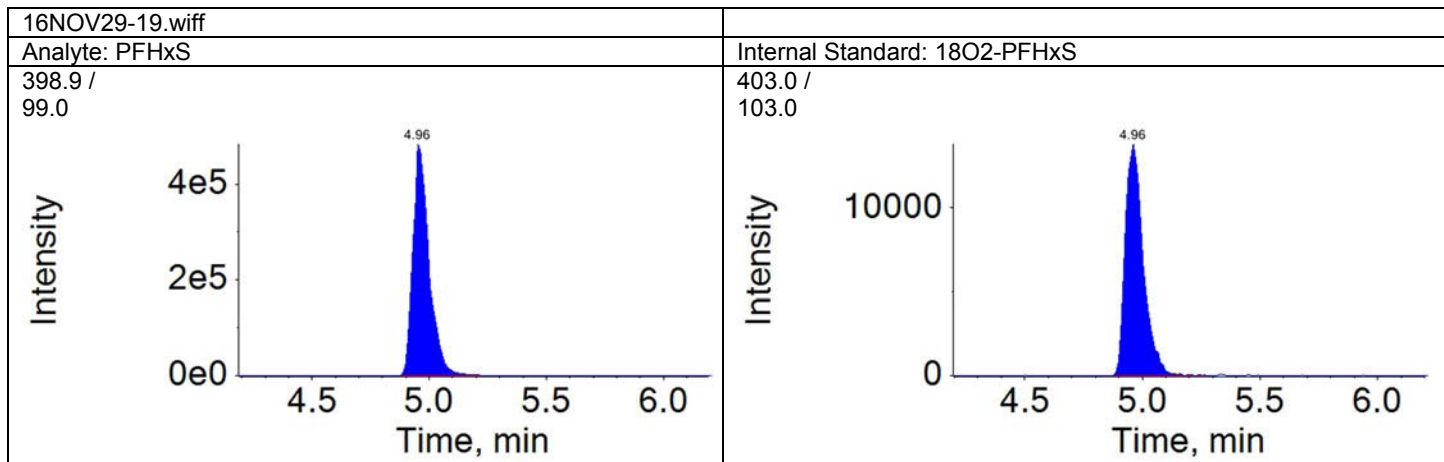
Total Ion Chromatogram  
CAL5

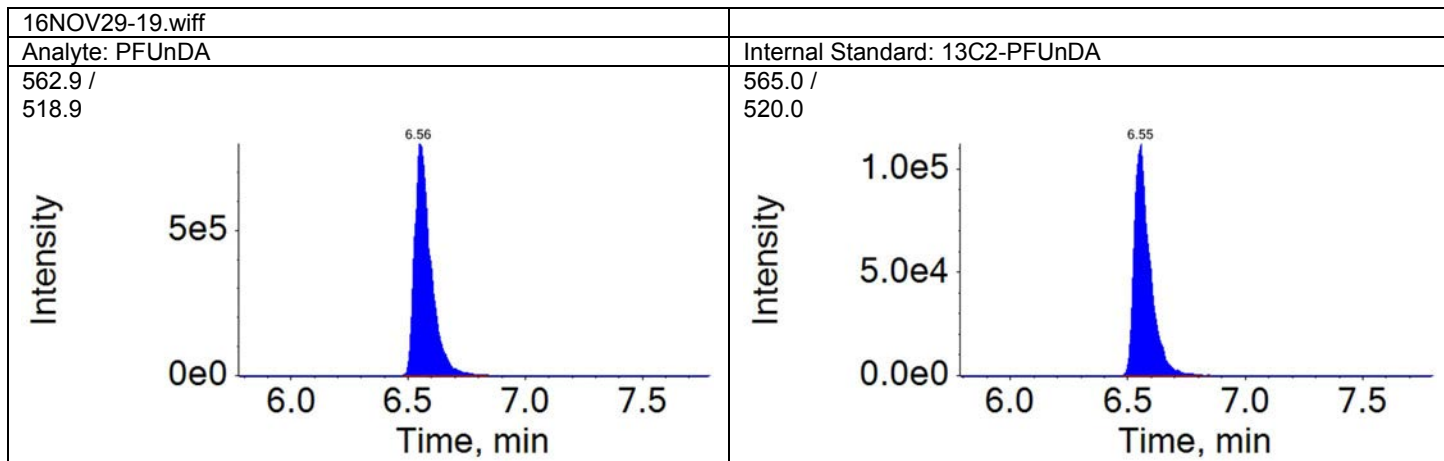
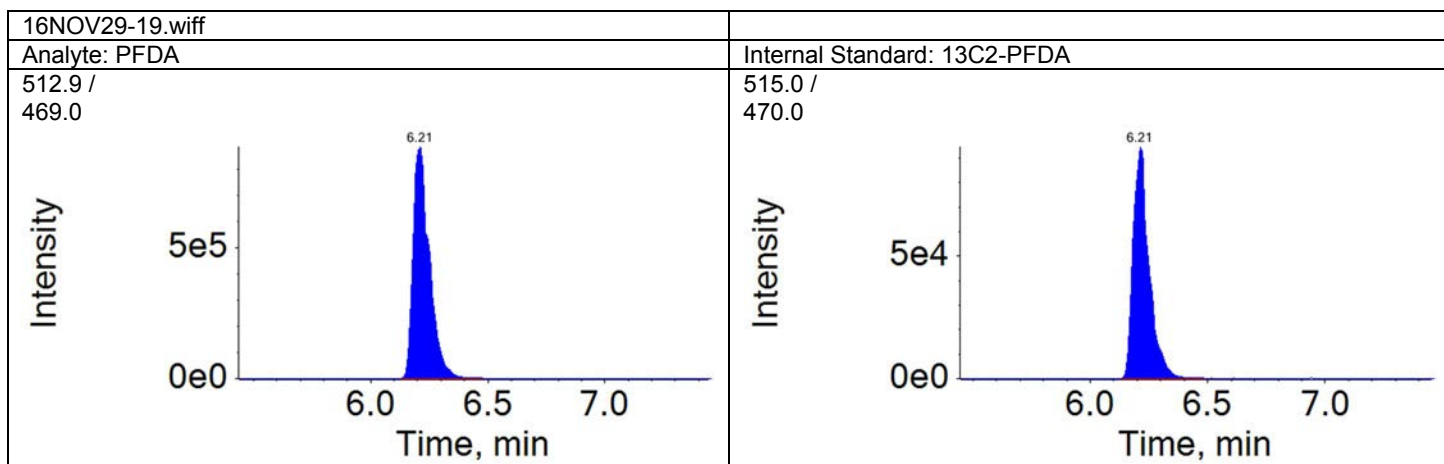
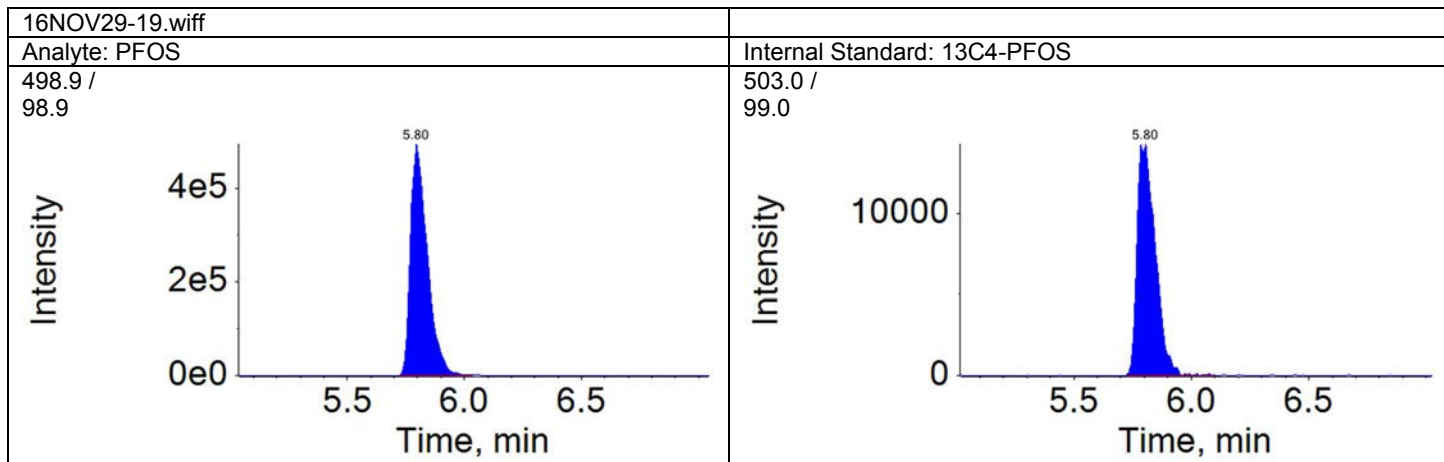
TIC from 16NOV29-19.wiff (sample 1) - CCV3



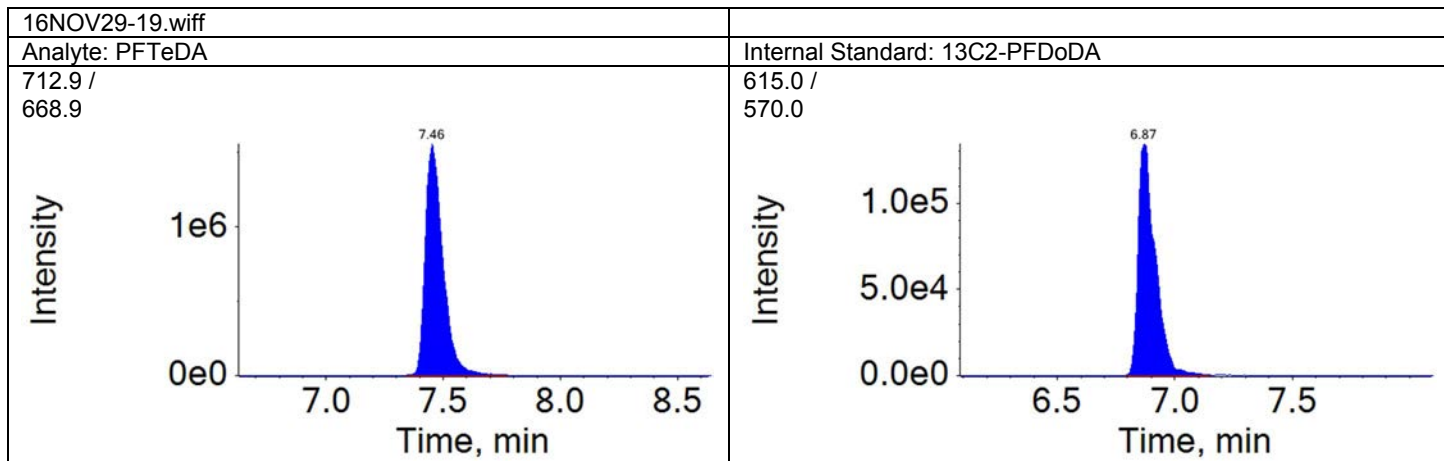
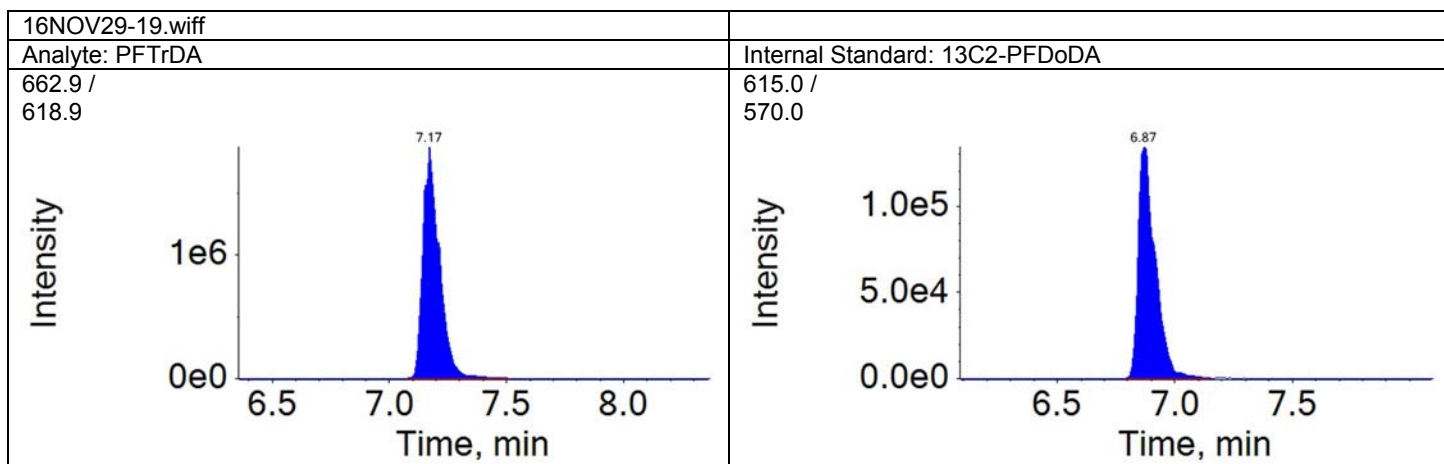
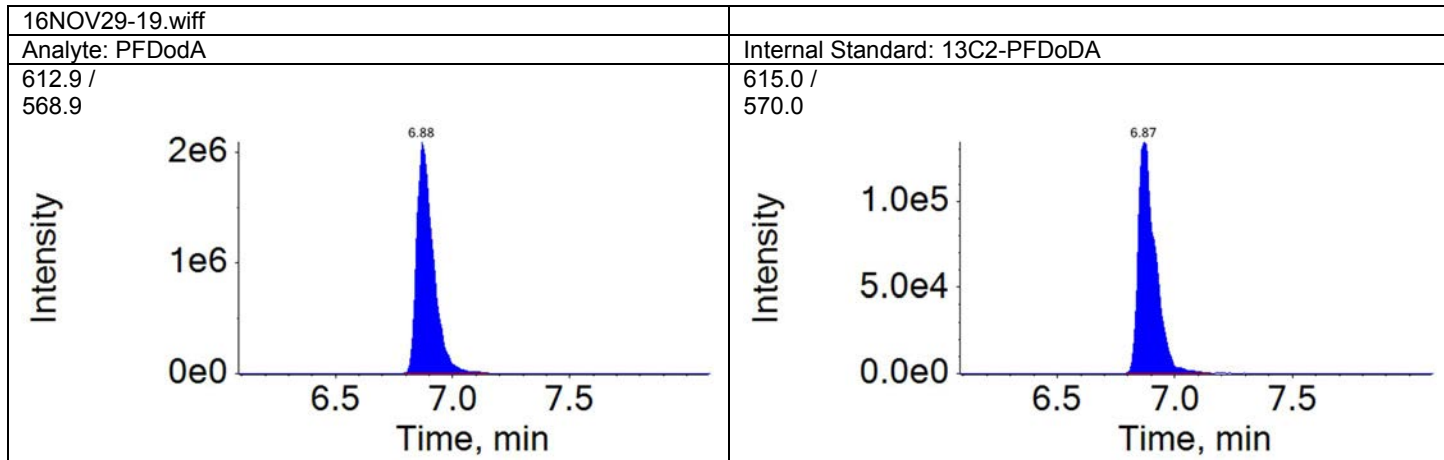












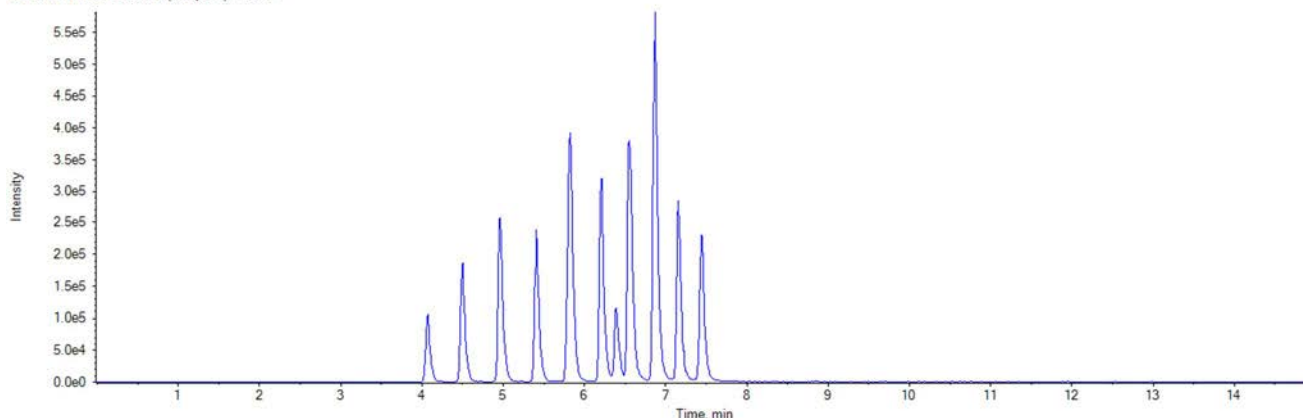
Sample Name:	CCV4		Data File:		16NOV29-29.wiff
Sample ID:	CAL3		Acquis Date:		2016-11-29T20:57:12
Sample Type:	Quality Control		Instrument:		Triple Quad 4500, 0, LM24743
Vial Position:	5		Acquis Method:		PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00		Result Table:		MQ 16330002
			ICAL Name:		16NOV22ICAL
Batch Number:	16326005		Operator:		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		Dilution Factor:		1.00
Sample Vol.:	1.000		Prep Factor:		1.000

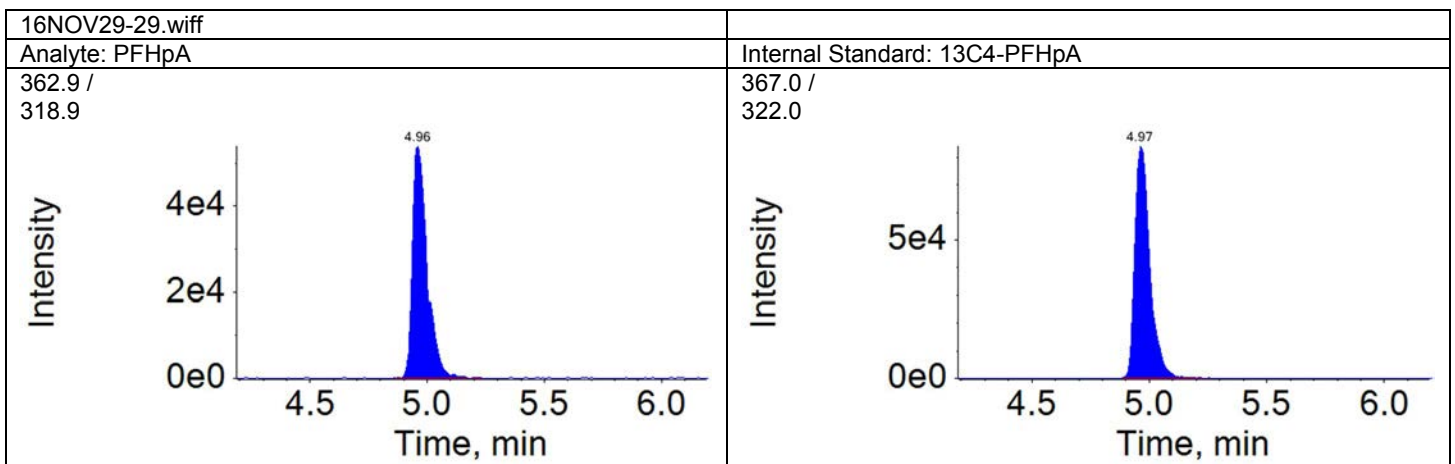
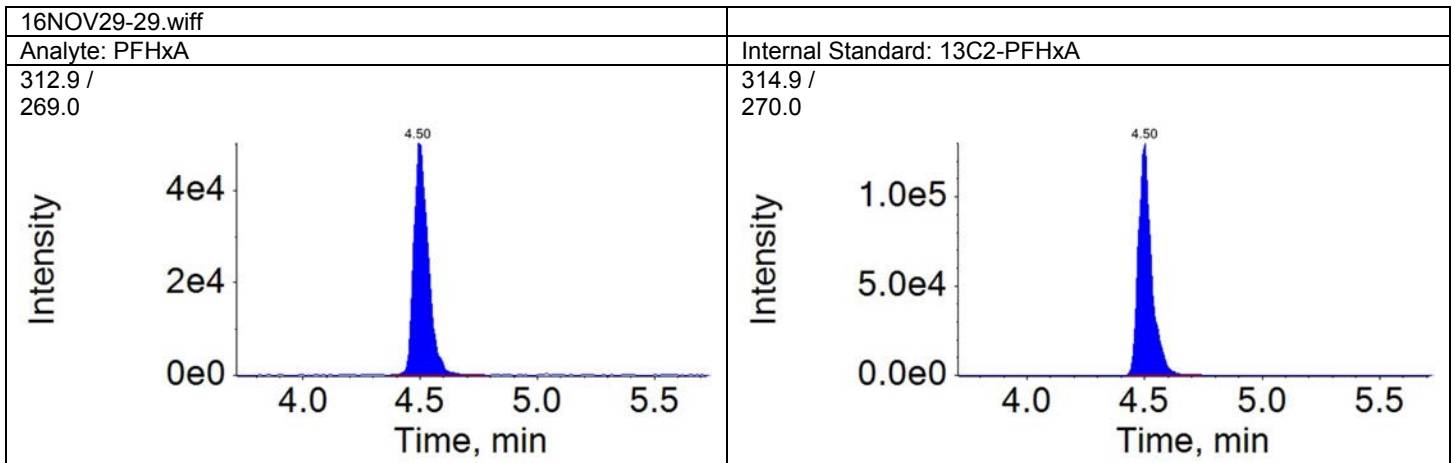
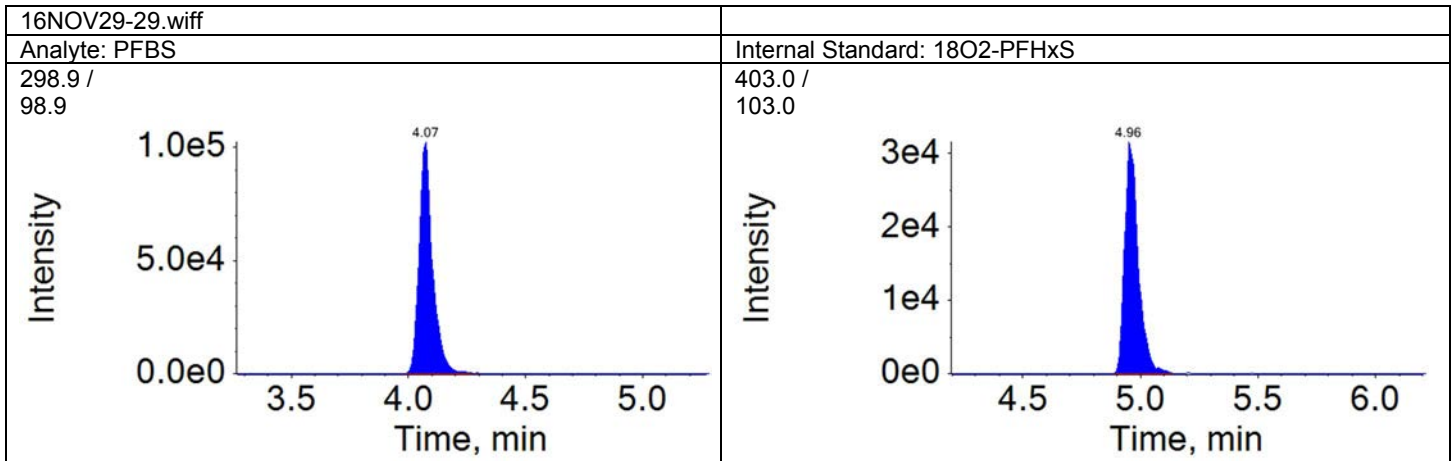
Quantitation Peak Table

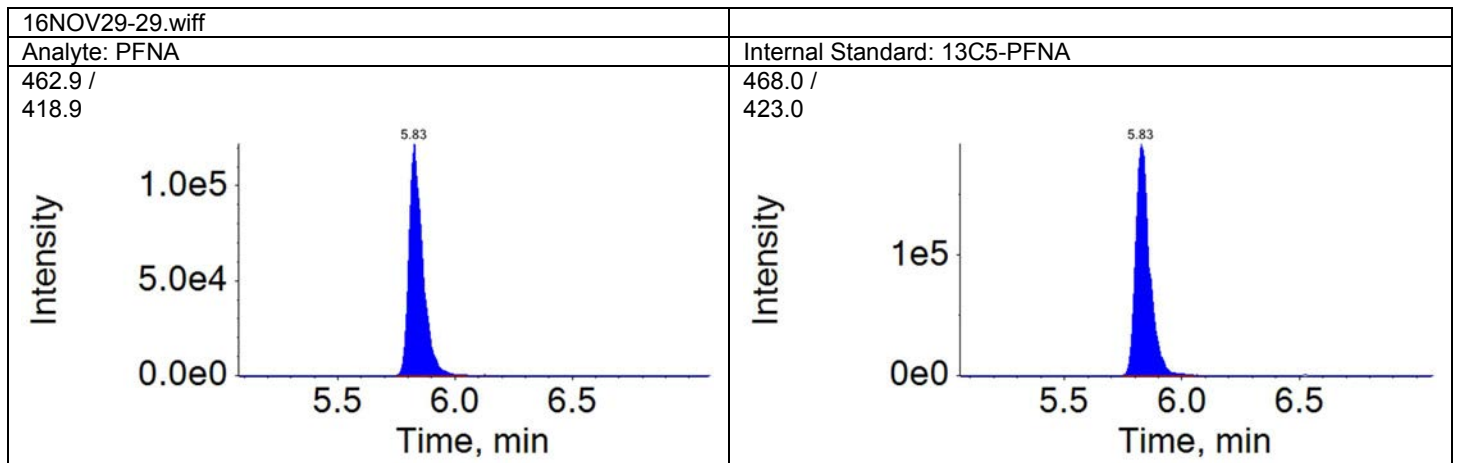
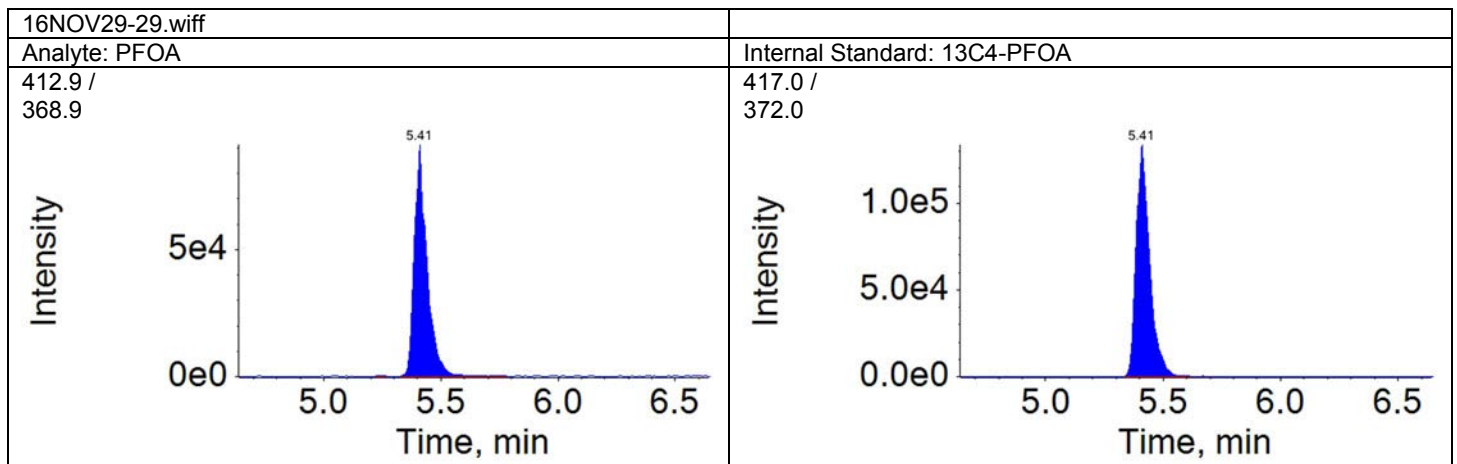
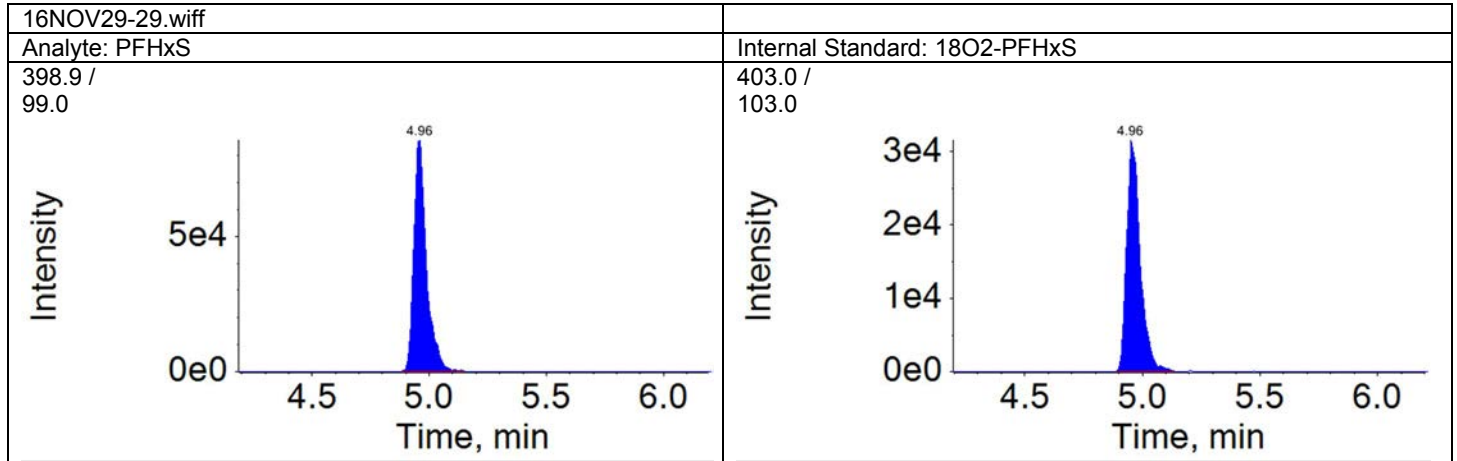
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.07	0.820	406253.8	A	18O2-PFHxS	4.96	127426.9	3.188	10.773
PFHxA	4.50	1.000	216882.1	A	13C2-PFHxA	4.50	506871.7	0.428	3.188
PFHpA	4.96	1.000	237740.7	A	13C4-PFHpA	4.97	376406.0	0.632	2.606
PFHxS	4.96	1.000	325711.3	A	18O2-PFHxS	4.96	127426.9	2.556	10.424
PFOA	5.41	1.000	343123.5	A	13C4-PFOA	5.41	535321.5	0.641	2.504
PFNA	5.83	1.000	497197.2	A	13C5-PFNA	5.83	801629.7	0.620	2.468
PFOS	5.80	1.000	353451.9	A	13C4-PFOS	5.80	152007.5	2.325	10.117
PFDA	6.21	1.000	514829.7	A	13C2-PFDA	6.21	732666.4	0.703	2.285
PFUnDA	6.55	1.000	504014.9	A	13C2-PFUnDA	6.55	815763.9	0.618	2.771
PFDodA	6.87	1.000	1260199.3	A	13C2-PFDoDA	6.87	1043814.3	1.207	4.989
PFTTrDA	7.16	1.040	1079622.8	A	13C2-PFDoDA	6.87	1043814.3	1.034	4.658
PFTeDA	7.44	1.080	943922.6	A	13C2-PFDoDA	6.87	1043814.3	0.904	4.228

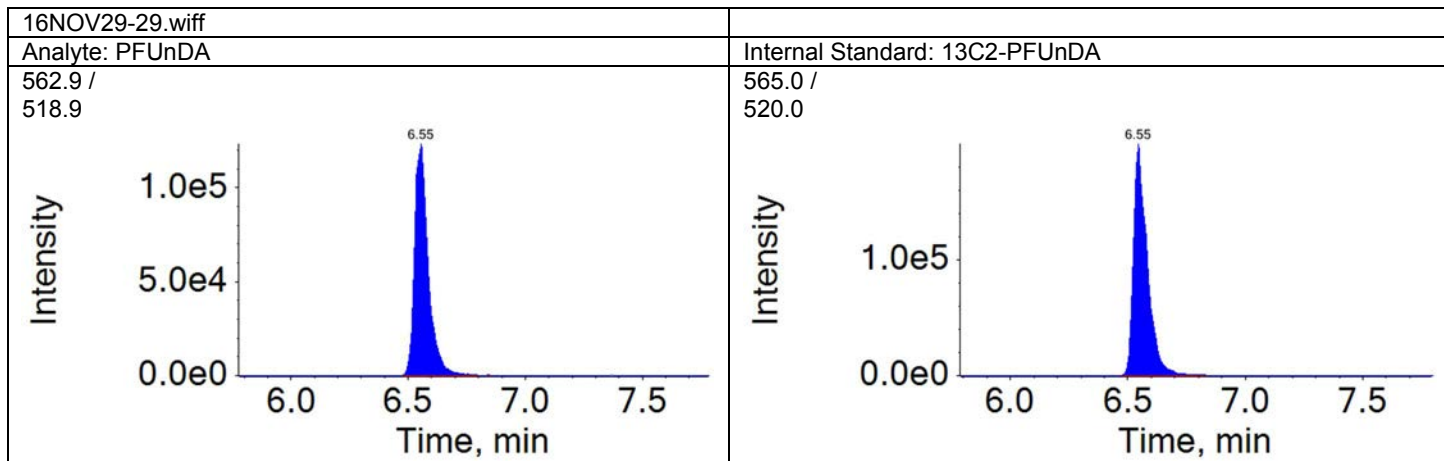
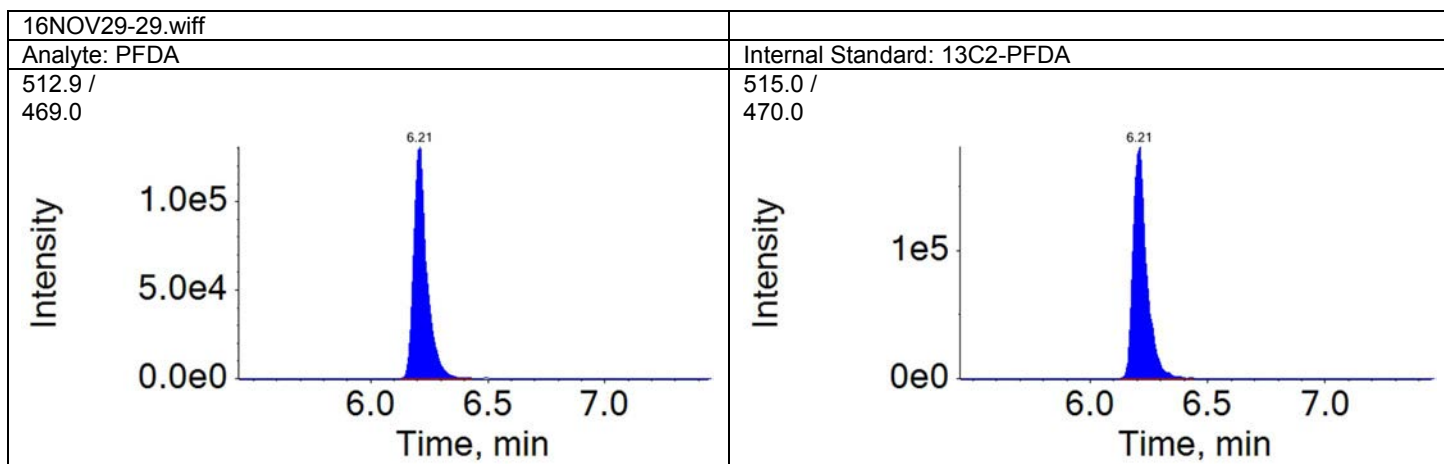
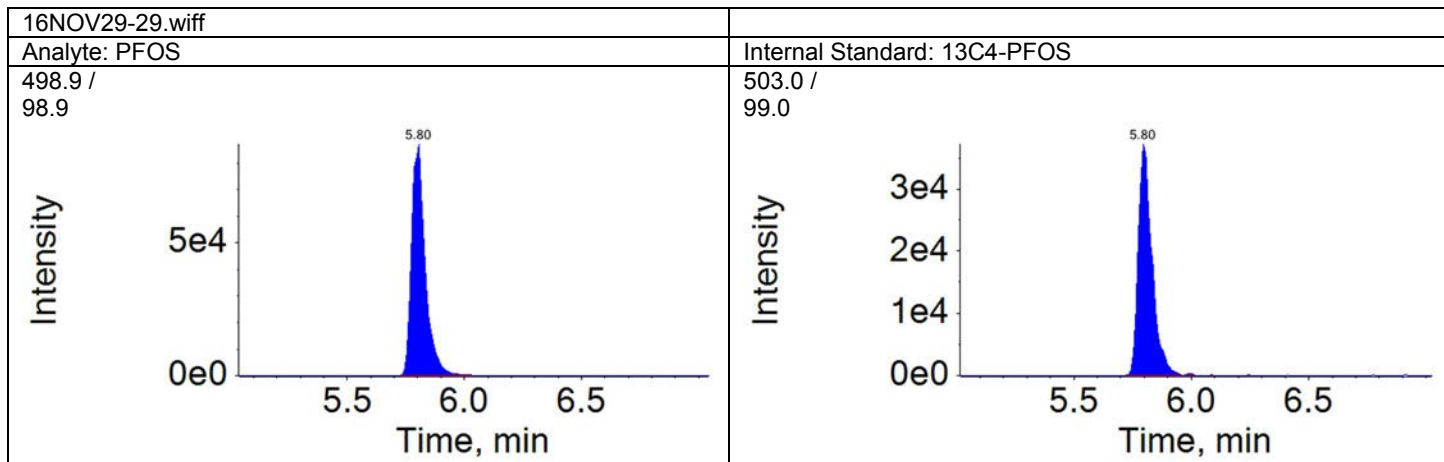
Total Ion Chromatogram  
CAL3

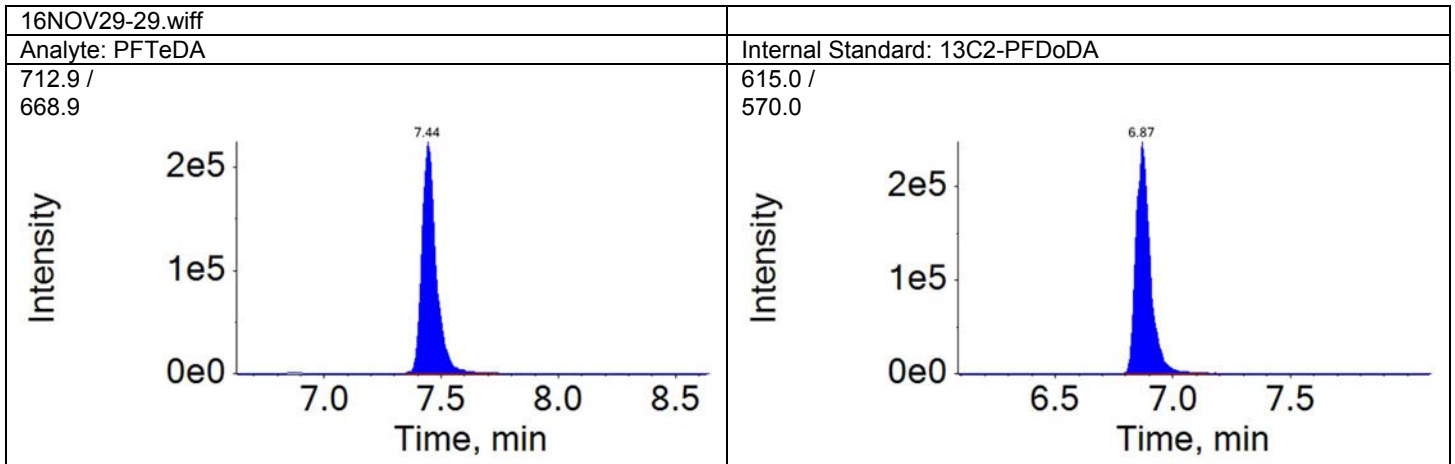
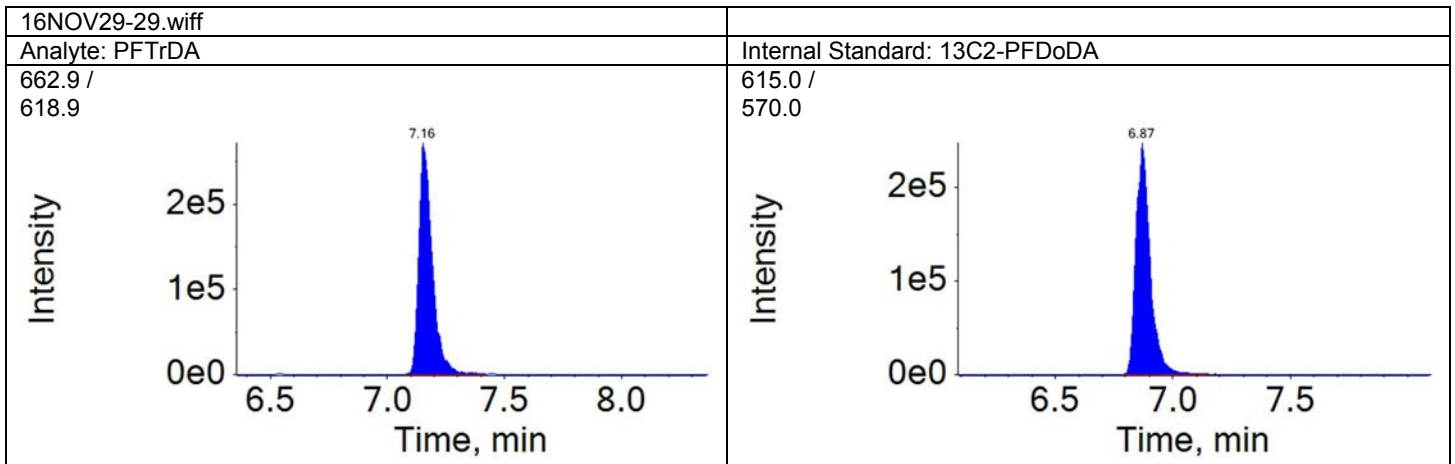
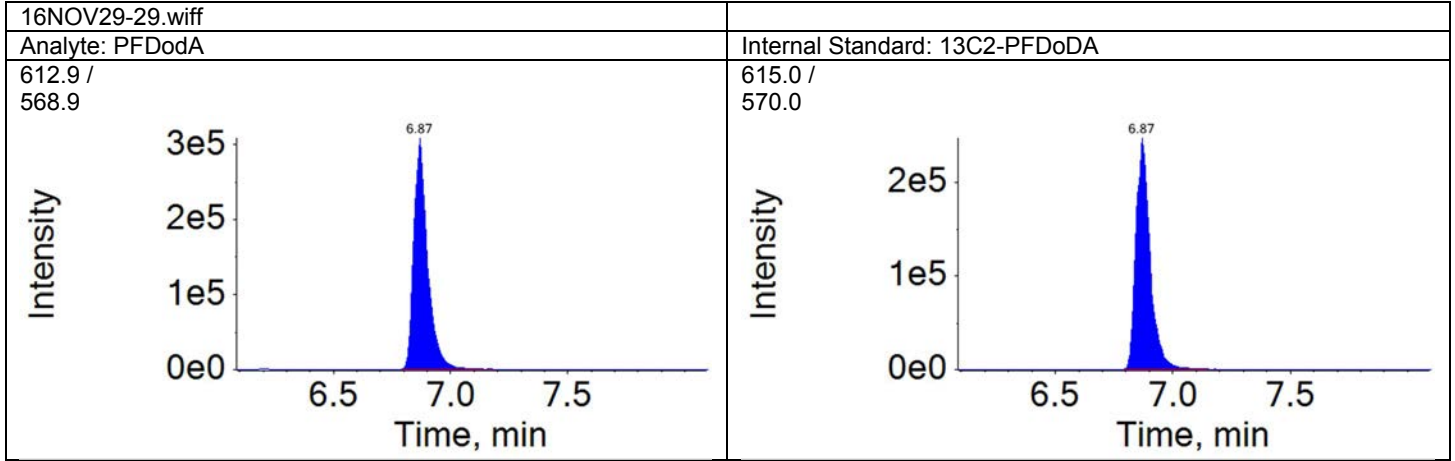
TIC from 16NOV29-29.wiff (sample 1) - CCV4











**Raw QC Data**

**PFAAs by LC/MS/MS**

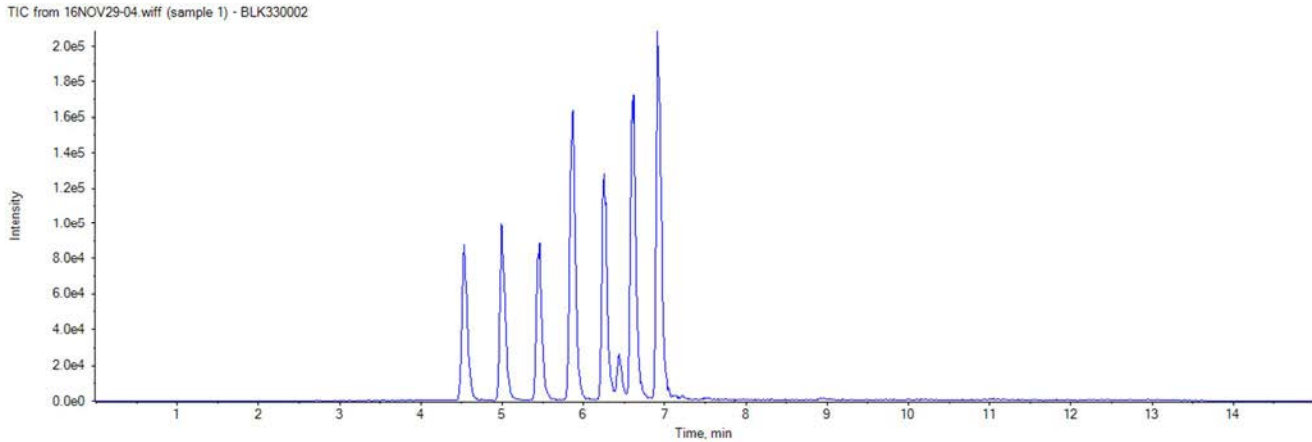


Sample Name:	BLK330002	Data File:	16NOV29-04.wiff
Sample ID:	16330002	Acquis Date:	2016-11-29T14:07:26
Sample Type:	Unknown	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	12	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.10000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

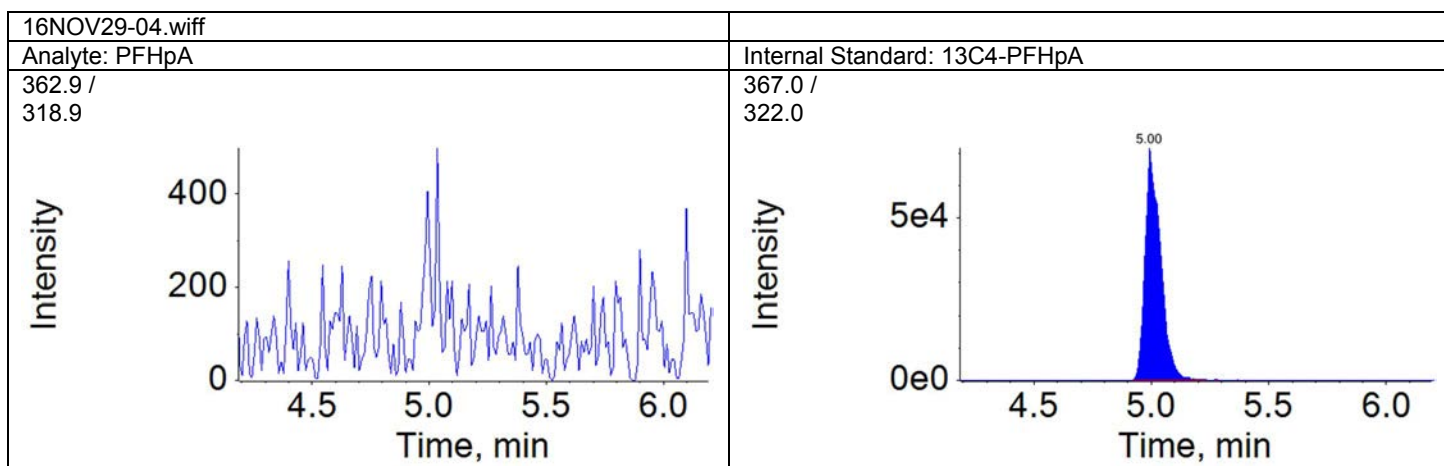
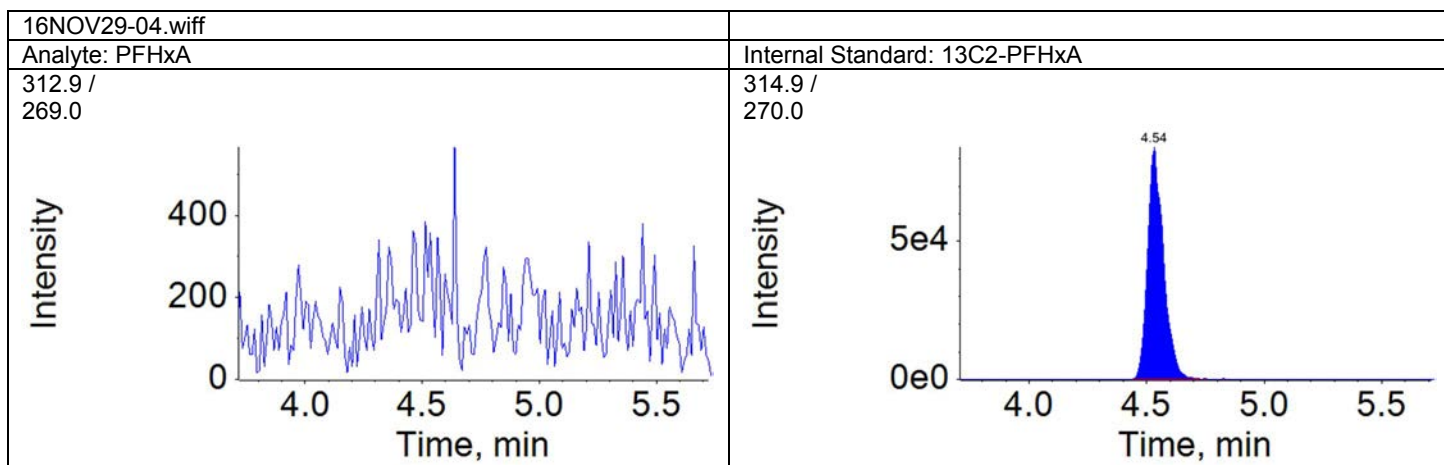
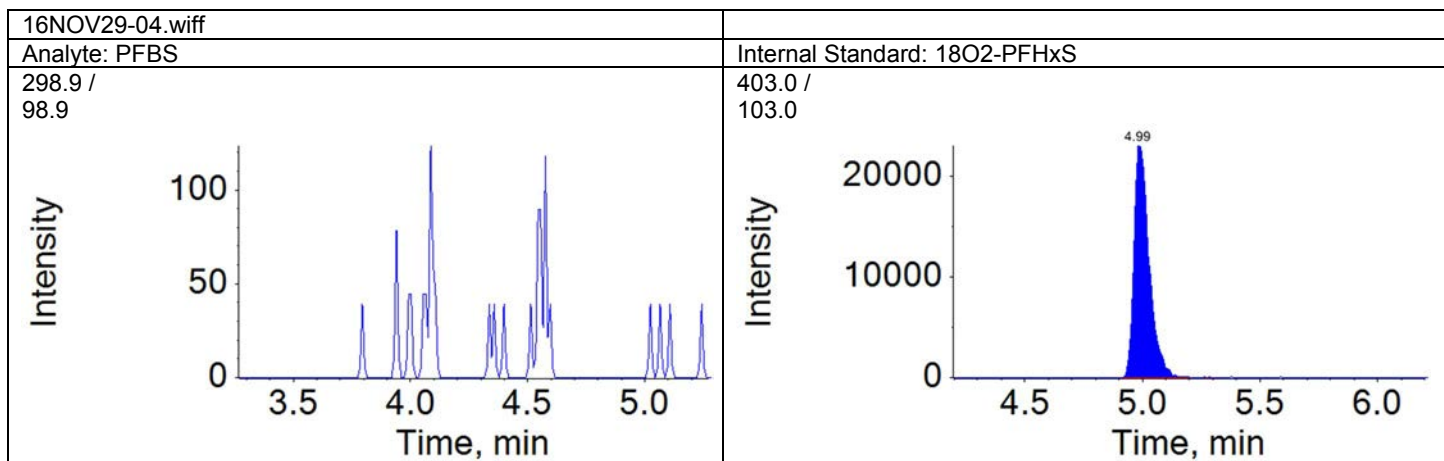
Quantitation Peak Table

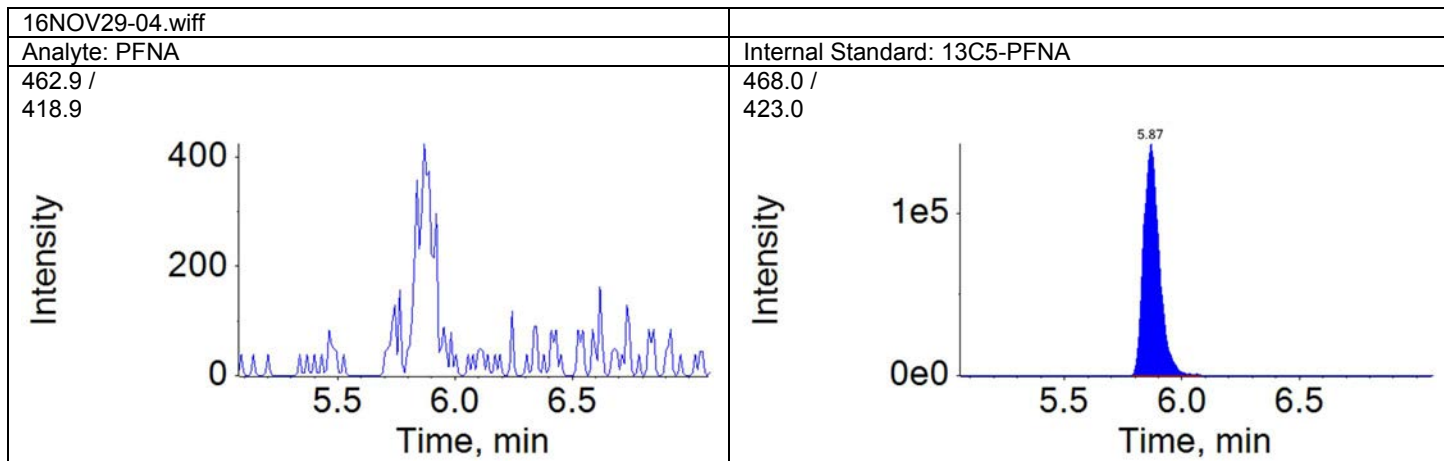
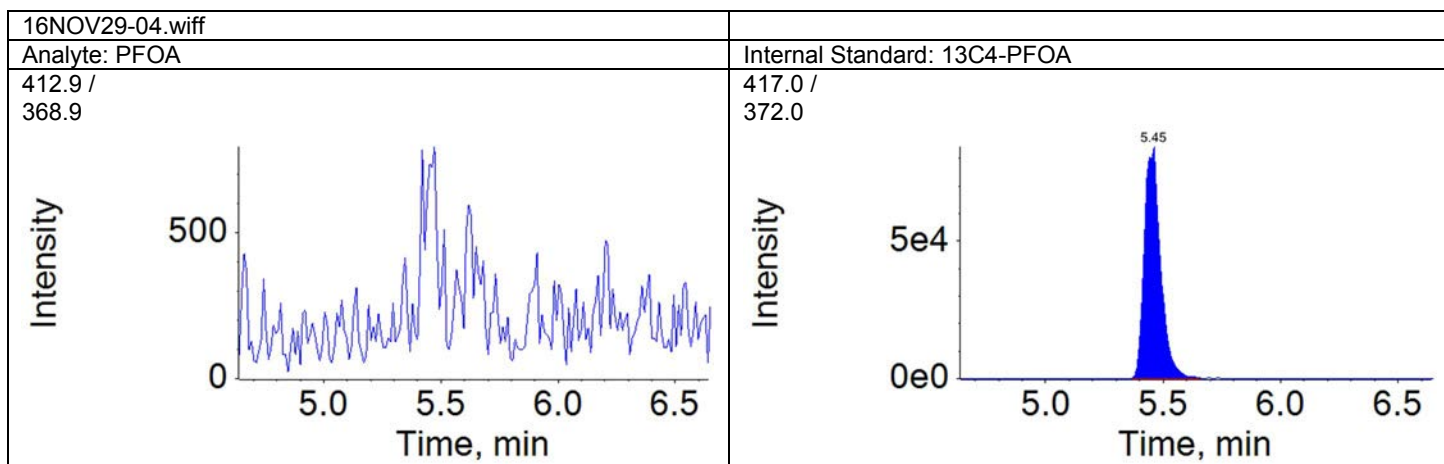
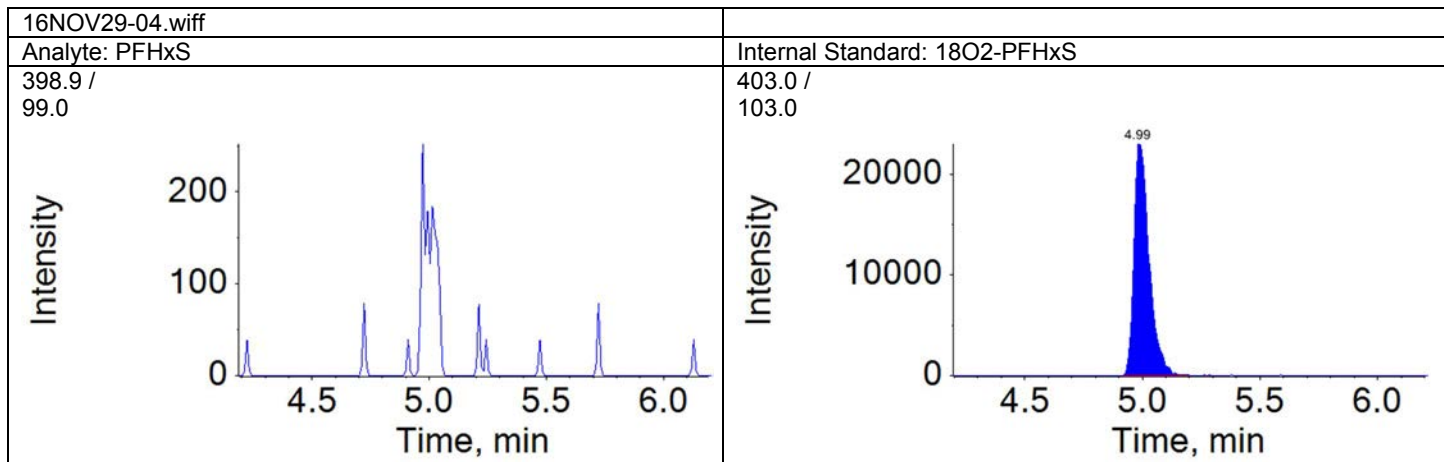
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.99	104355.8	N/A	N/A
PFHxA	N/A	N/A	N/A	A	13C2-PFHxA	4.54	397883.9	N/A	N/A
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.00	326945.2	N/A	N/A
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.99	104355.8	N/A	N/A
PFOA	N/A	N/A	N/A	A	13C4-PFOA	5.45	405872.1	N/A	N/A
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.87	666025.5	N/A	N/A
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.84	119519.4	N/A	N/A
PFDA	N/A	N/A	N/A	A	13C2-PFDA	6.26	575152.0	N/A	N/A
PFUnDA	N/A	N/A	N/A	A	13C2-PFUnDA	6.61	688423.3	N/A	N/A
PFDodA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	891996.2	N/A	N/A
PFTTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	891996.2	N/A	N/A
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	891996.2	N/A	N/A

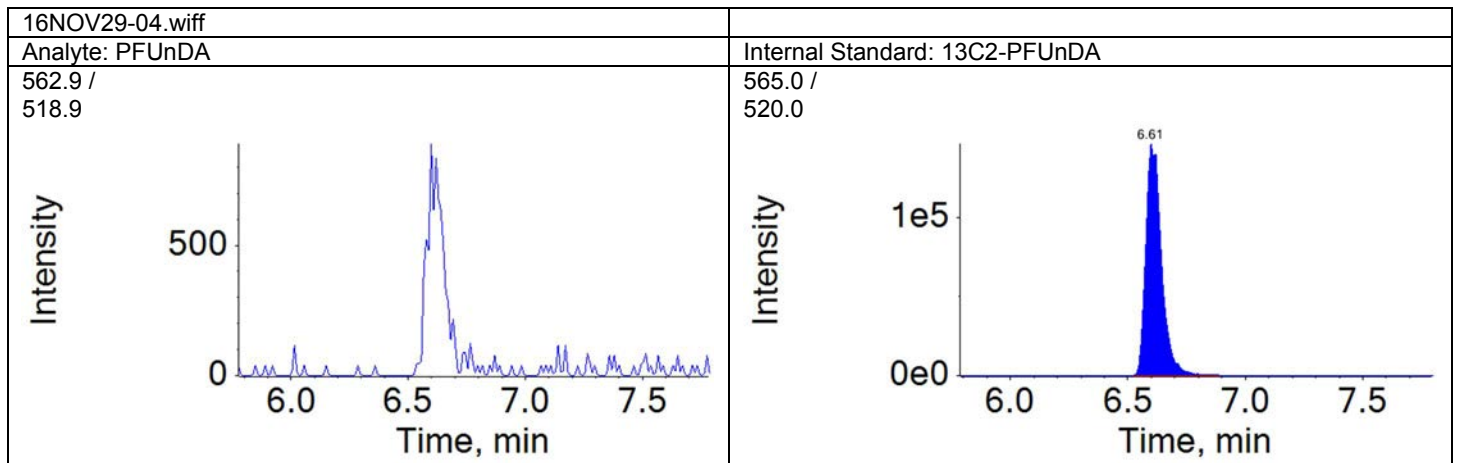
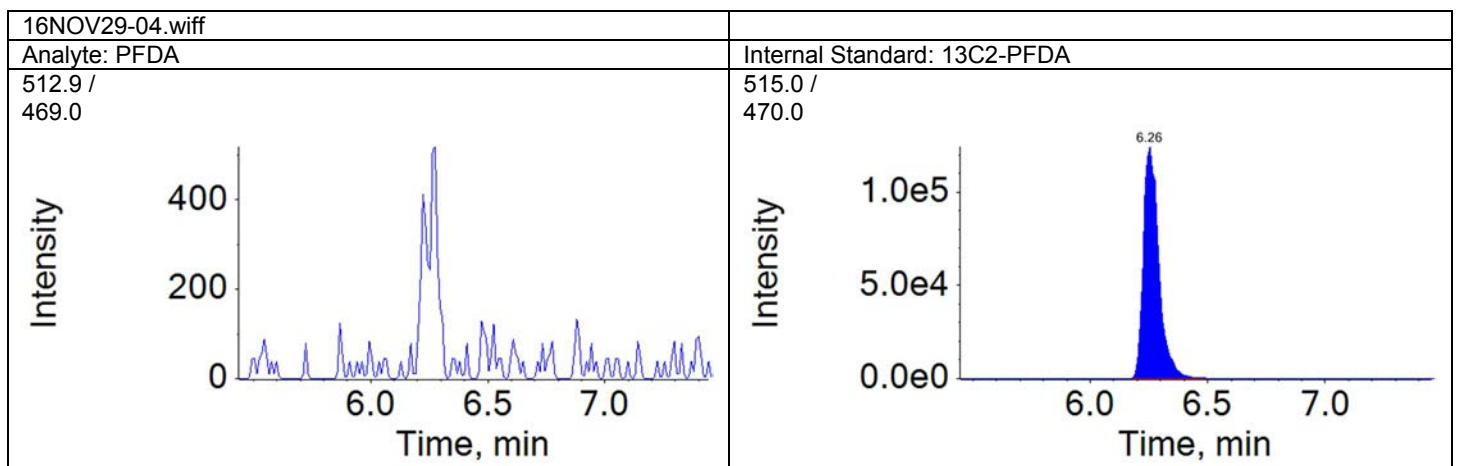
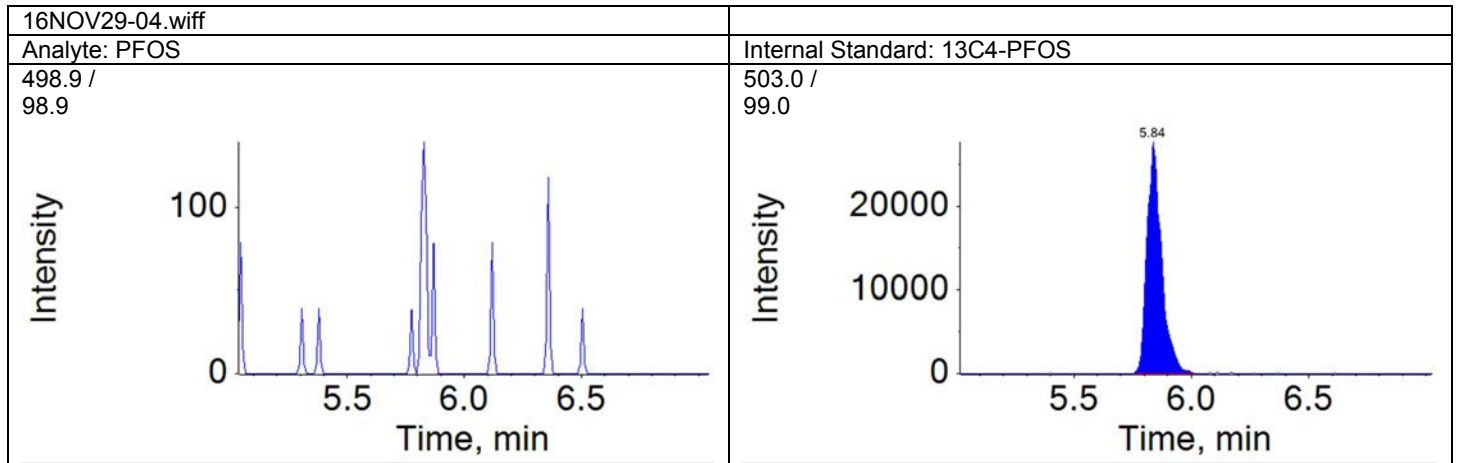
Total Ion Chromatogram  
16330002

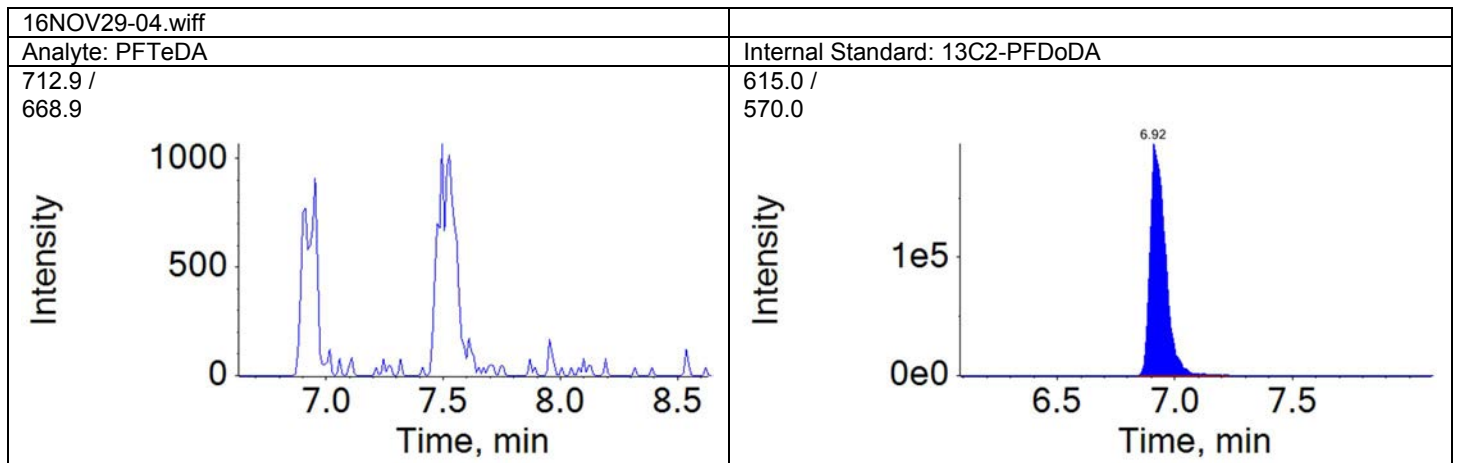
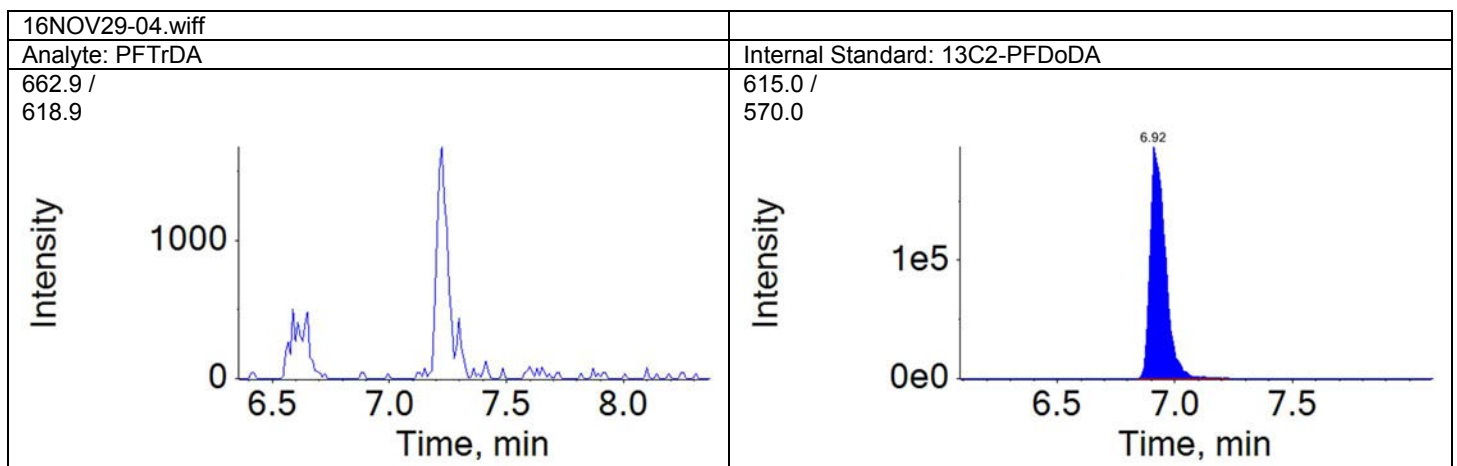
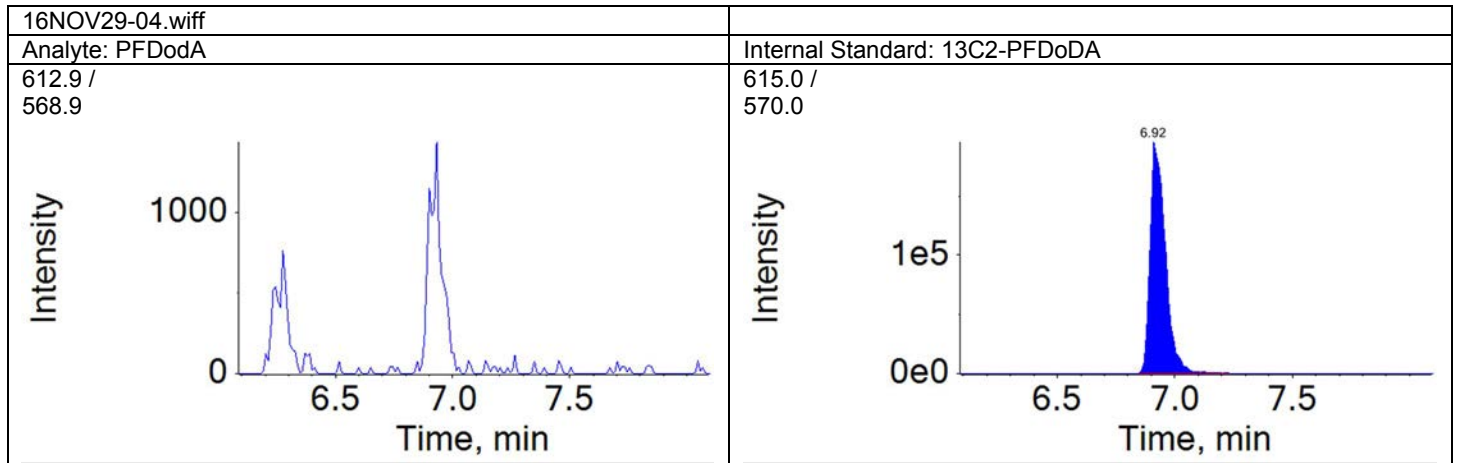












SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707405MS
Sample (vol): 0.0998 (L)		Lab File ID: 14:56
Sample Prep: SPE		Date Collected: 11/18/2016 12:30
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 14:56
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	150	
307-24-4	PFHxA	220	
375-85-9	PFHpA	190	
355-46-4	PFHxS	170	
335-67-1	PFOA	1000	E
375-95-1	PFNA	150	
1763-23-1	PFOS	160	
335-76-2	PFDA	150	
2058-94-8	PFUnDA	160	
307-55-1	PFDoDA	160	
72629-94-8	PFTrDA	160	
376-06-7	PFTeDA	140	

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

<b>Sample Name:</b>	8707405MS	<b>Data File:</b>	16NOV29-07.wiff
<b>Sample ID:</b>	EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016)-MS Grab	<b>Acquis Date:</b>	2016-11-29T14:56:39
<b>Sample Type:</b>	Quality Control	<b>Instrument:</b>	Triple Quad 4500, 0, LM24743
<b>Vial Position:</b>	15	<b>Acquis Method:</b>	PFC-14cmpd-16OCT07.dam
<b>Injection Vol:</b>	10.00	<b>Result Table:</b>	MQ 16330002
		<b>ICAL Name:</b>	16NOV22ICAL
<b>Batch Number:</b>	16330002	<b>Operator:</b>	US19INS00015\4500TRIPLE
<b>Sample Wt.:</b>	0.09976	<b>Dilution Factor:</b>	1.00
<b>Sample Vol.:</b>	1.000	<b>Prep Factor:</b>	1.000

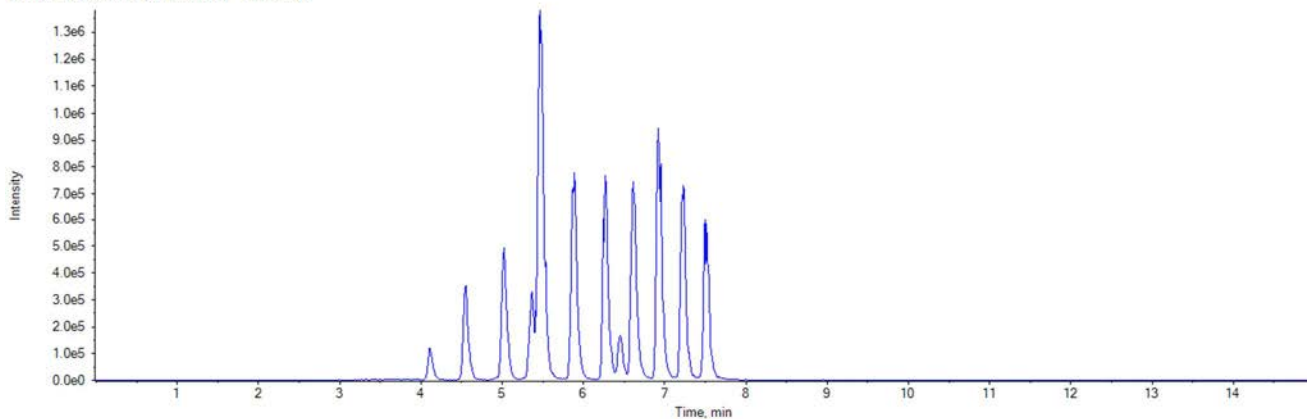
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	496766.3	A	18O2-PFHxS	5.02	113388.7	4.381	148.400
PFHxA	4.55	1.000	1157564.6	M	13C2-PFHxA	4.55	401667.4	2.882	215.255
PFHpA	5.02	1.000	1381422.1	M	13C4-PFHpA	5.03	305511.1	4.522	186.993
PFHxS	5.02	1.000	463059.8	A	18O2-PFHxS	5.02	113388.7	4.084	166.952
PFOA	5.47	1.000	8211326.7	M	13C4-PFOA	5.47	309431.1	26.537	1039.025
PFNA	5.89	1.000	2505480.2	A	13C5-PFNA	5.89	678378.7	3.693	147.325
PFOS	5.86	1.000	517985.6	A	13C4-PFOS	5.86	137534.0	3.766	164.266
PFDA	6.27	1.000	2861136.8	A	13C2-PFDA	6.27	619174.9	4.621	150.599
PFUnDA	6.61	1.000	2424425.5	A	13C2-PFUnDA	6.61	675880.8	3.587	161.262
PFDodA	6.93	1.000	3608262.5	A	13C2-PFDoDA	6.93	927069.0	3.892	161.211
PFTTrDA	7.23	1.040	3387749.4	A	13C2-PFDoDA	6.93	927069.0	3.654	164.966
PFTeDA	7.51	1.080	2799626.9	A	13C2-PFDoDA	6.93	927069.0	3.020	141.535

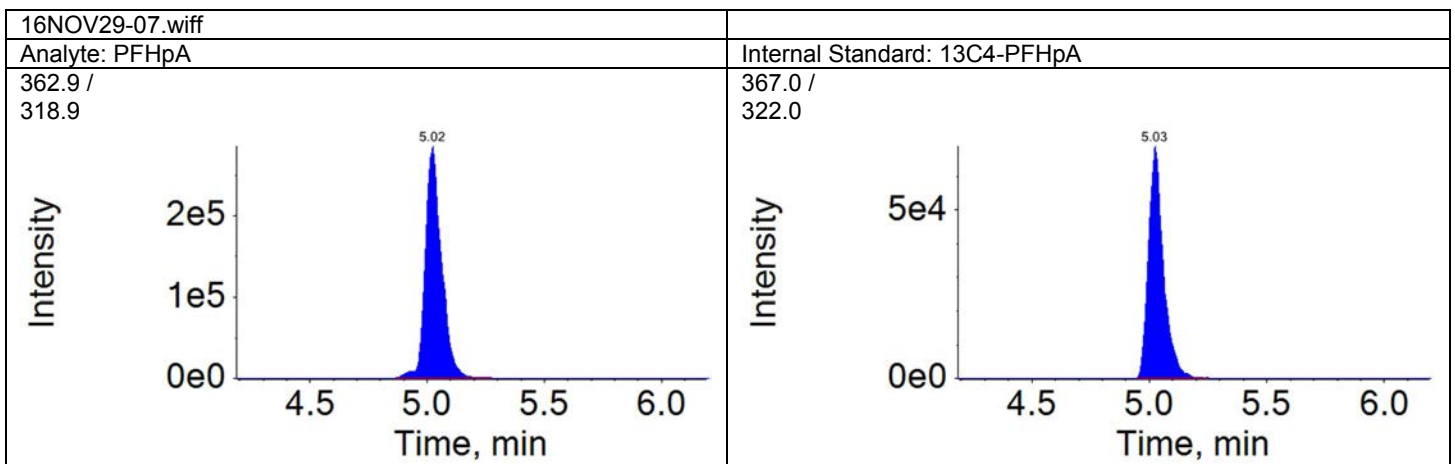
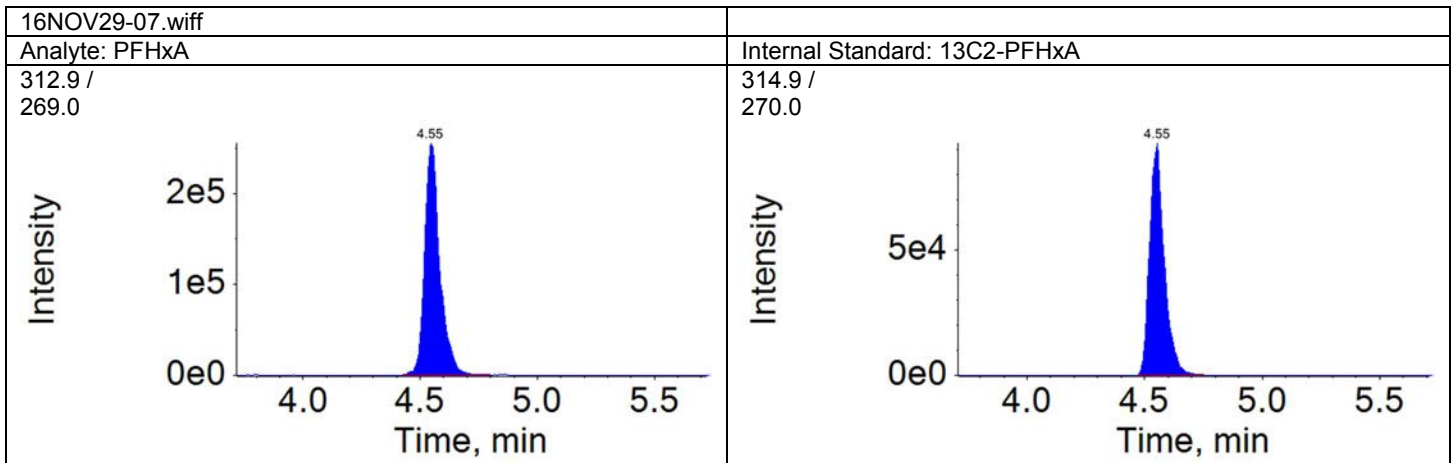
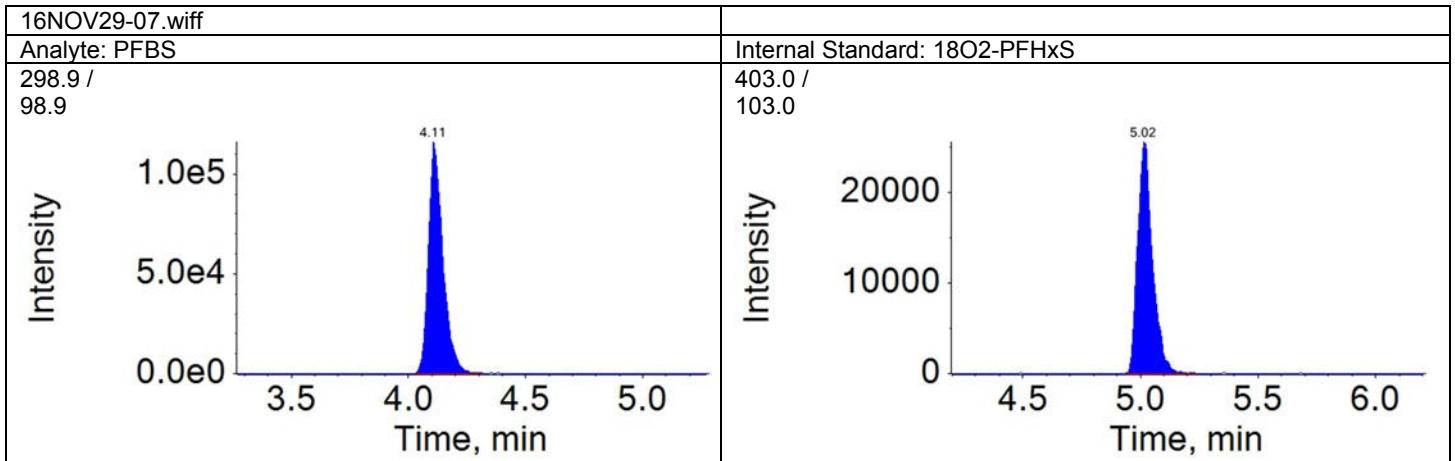
Total Ion Chromatogram

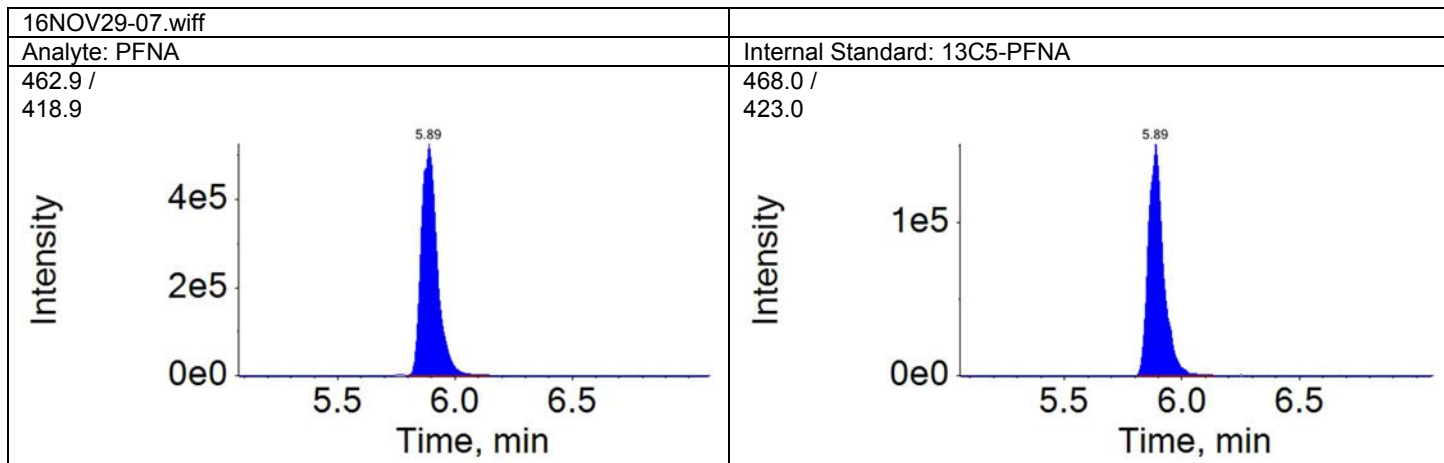
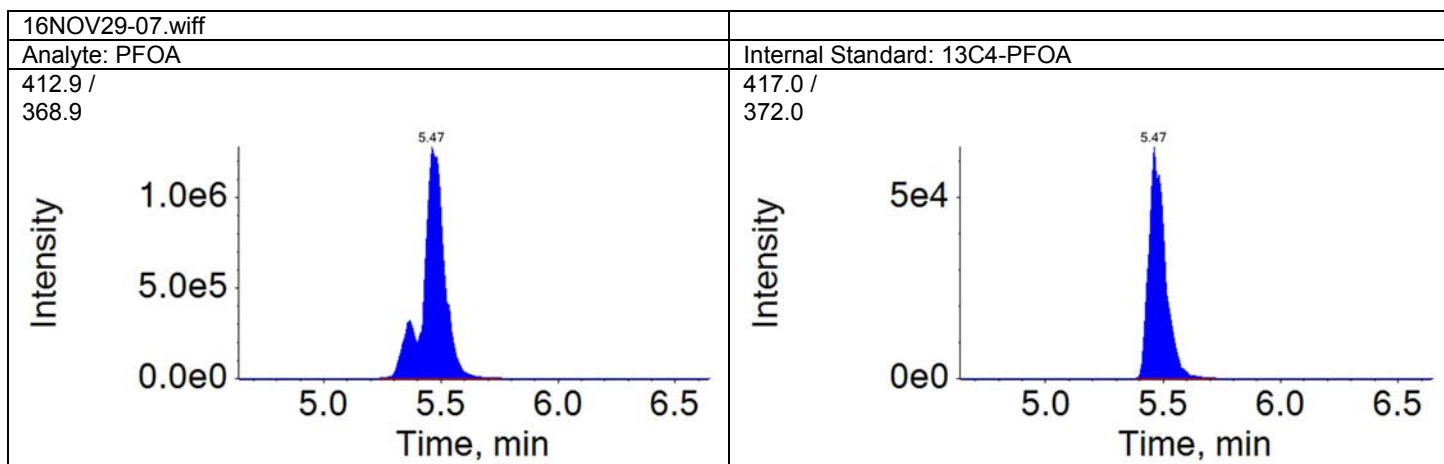
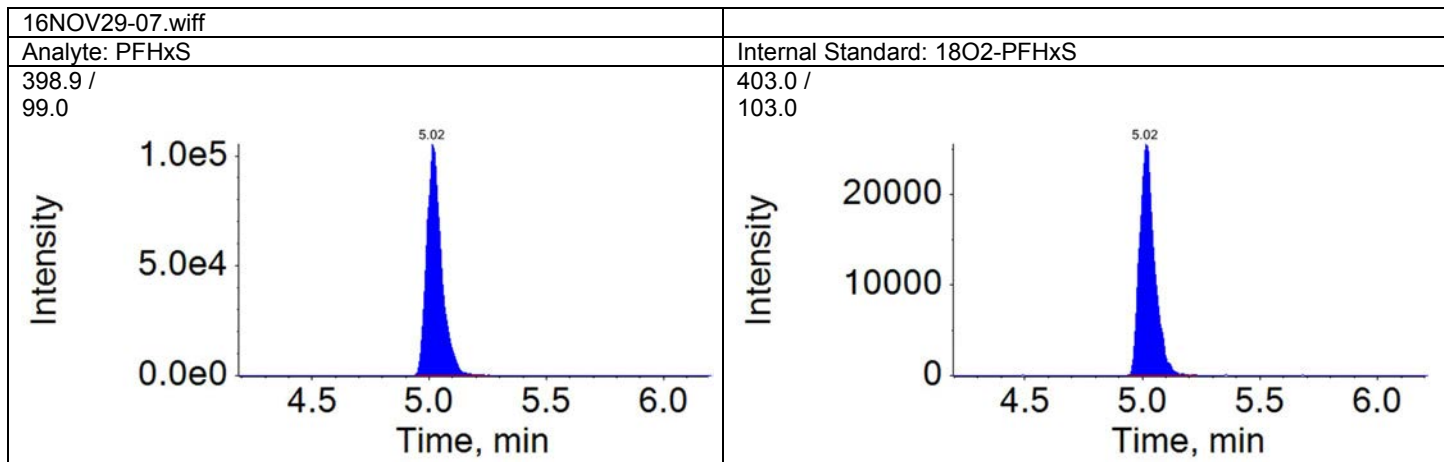
EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016)-MS Grab

TIC from 16NOV29-07.wiff (sample 1) - 8707405MS

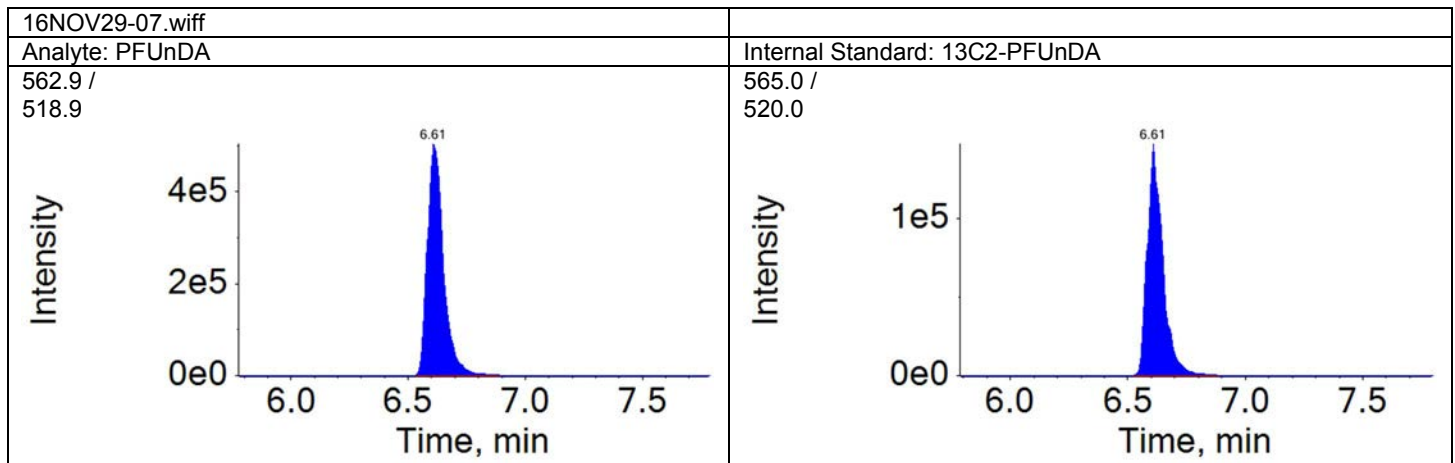
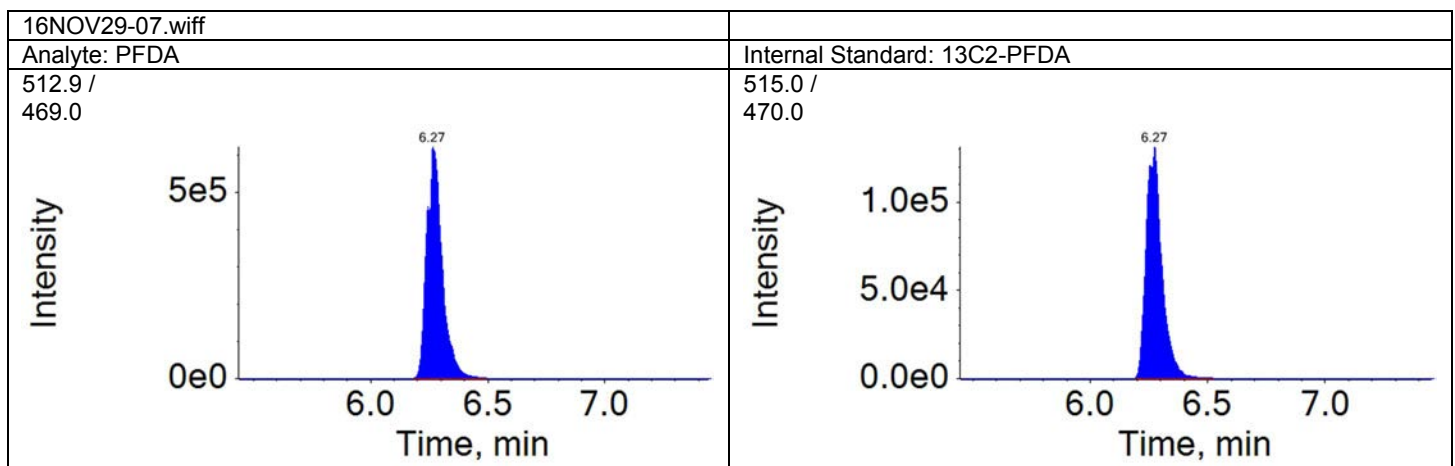
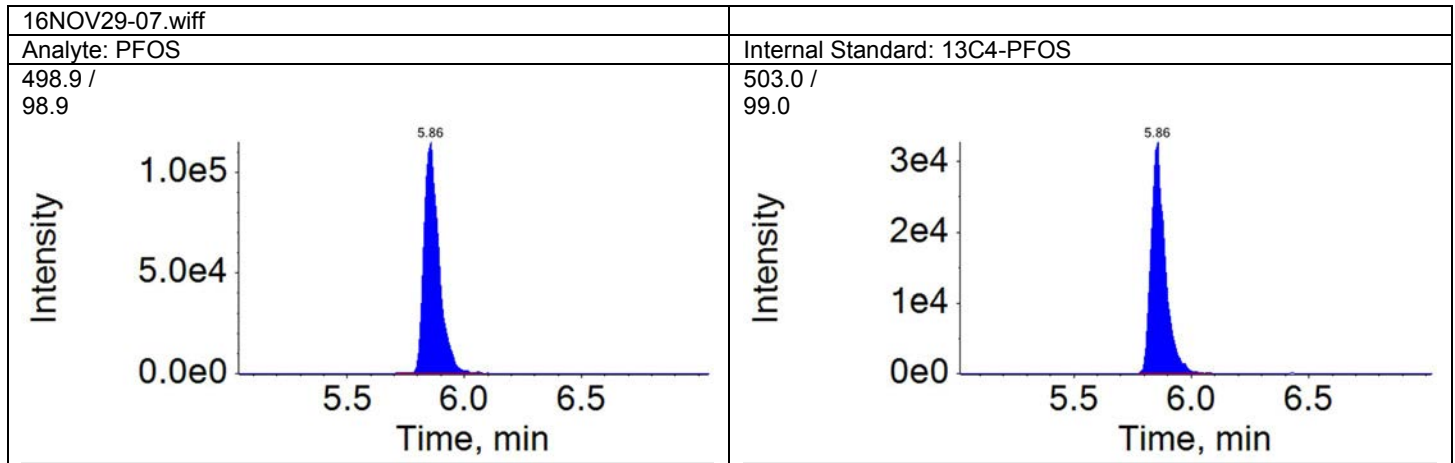


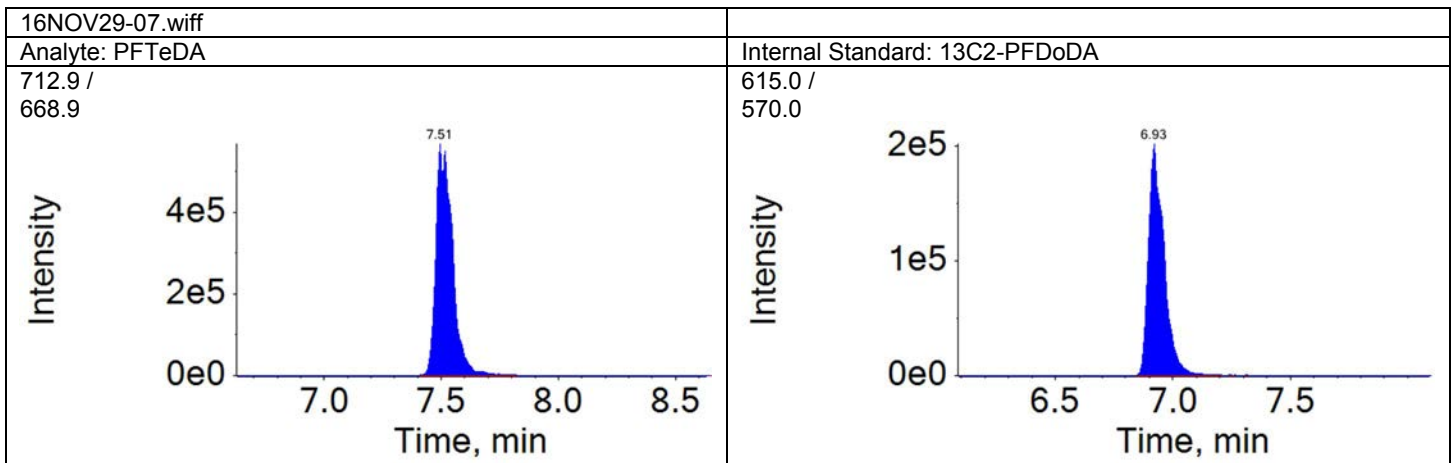
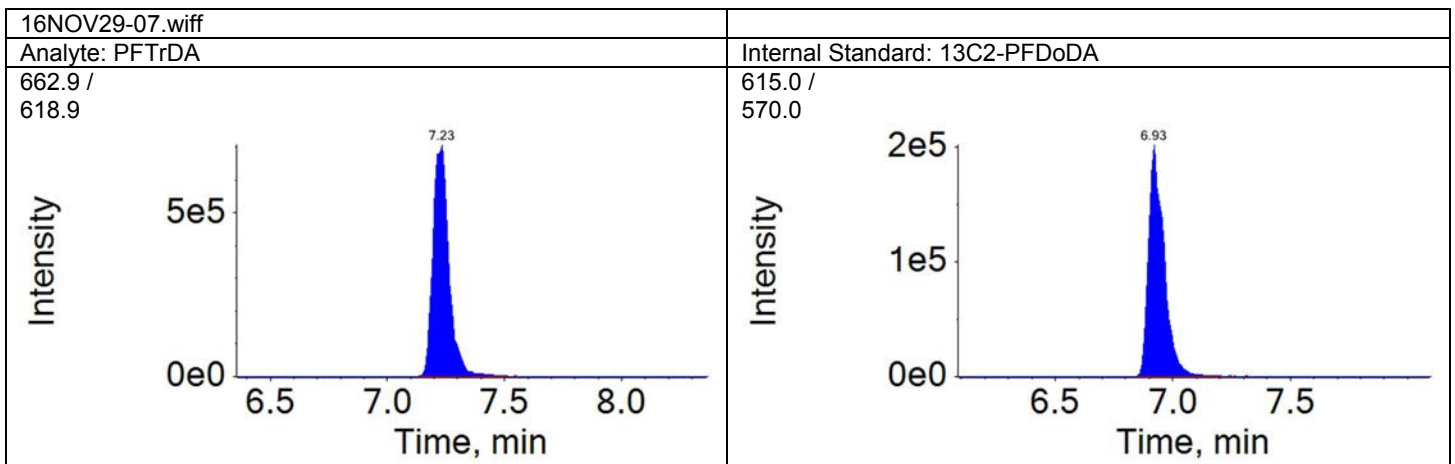
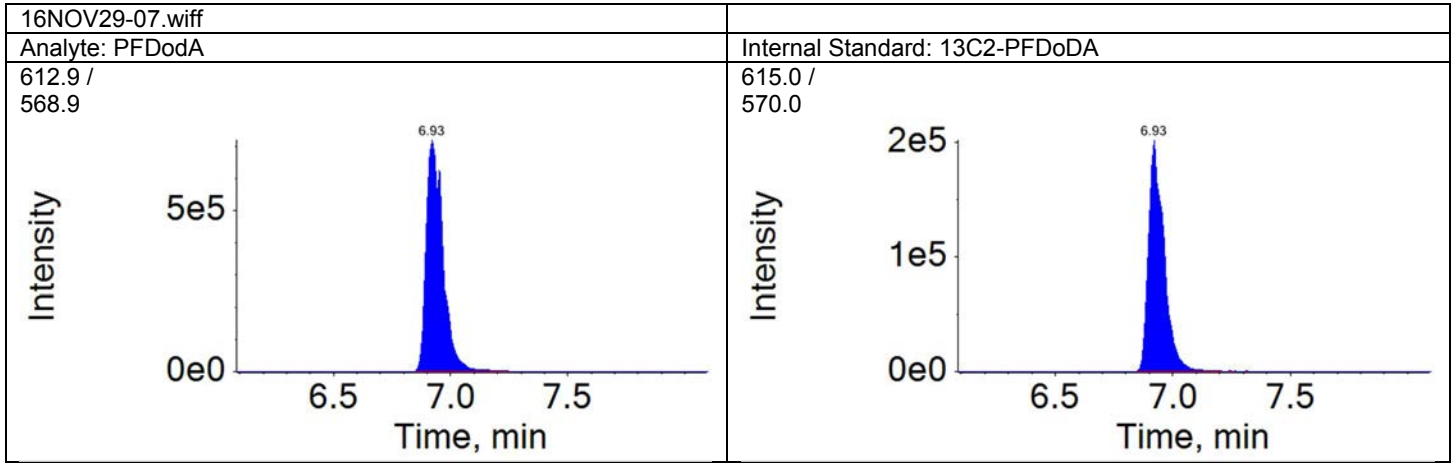








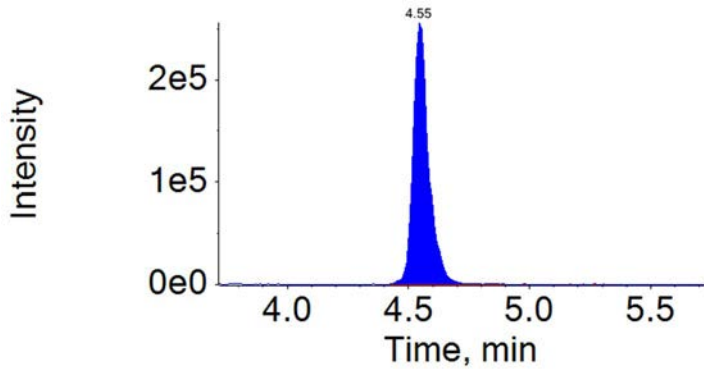




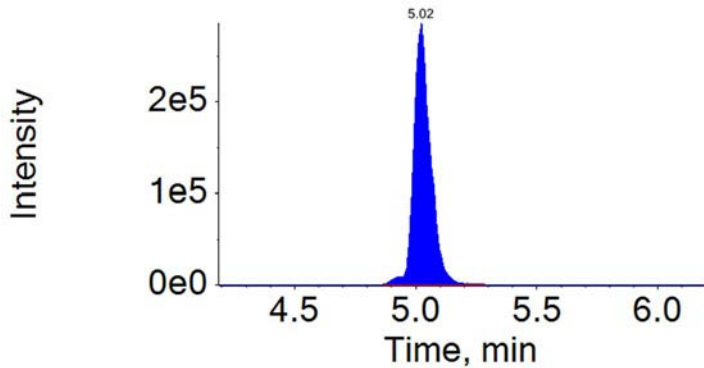
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16NOV29-07.wiff	2016-11-29T14:56:39	8707405MS	PFHxA	4.55	1167979.9
16NOV29-07.wiff	2016-11-29T14:56:39	8707405MS	PFHpA	5.02	1385964.6
16NOV29-07.wiff	2016-11-29T14:56:39	8707405MS	PFOA	5.47	6955534.2

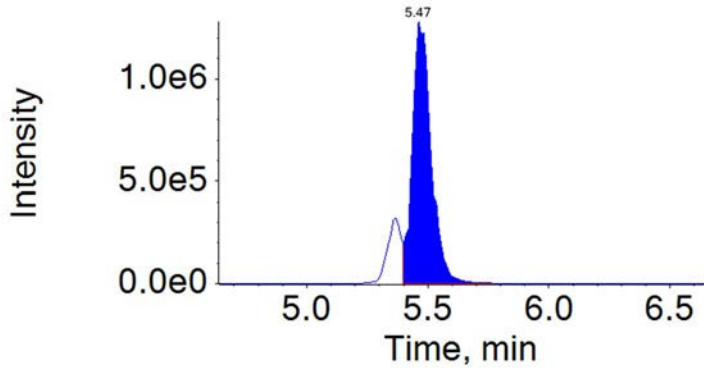
Component: PFHxA  
Mass: 312.9 / 269.0



Component: PFHpA  
Mass: 362.9 / 318.9



Component: PFOA  
Mass: 412.9 / 368.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: 8707406MSD
Sample (vol): 0.1001 (L)		Lab File ID: 15:13
Sample Prep: SPE		Date Collected: 11/18/2016 12:30
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 15:13
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	130	
307-24-4	PFHxA	170	
375-85-9	PFHpA	160	
355-46-4	PFHxS	140	
335-67-1	PFOA	930	E
375-95-1	PFNA	130	
1763-23-1	PFOS	140	
335-76-2	PFDA	150	
2058-94-8	PFUnDA	130	
307-55-1	PFDoDA	140	
72629-94-8	PFTrDA	140	
376-06-7	PFTeDA	120	

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

Sample Name:	8707406MSD	Data File:	16NOV29-08.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016)-MSD Grab	Acquis Date:	2016-11-29T15:13:06
Sample Type:	Quality Control	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	16	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.10005	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

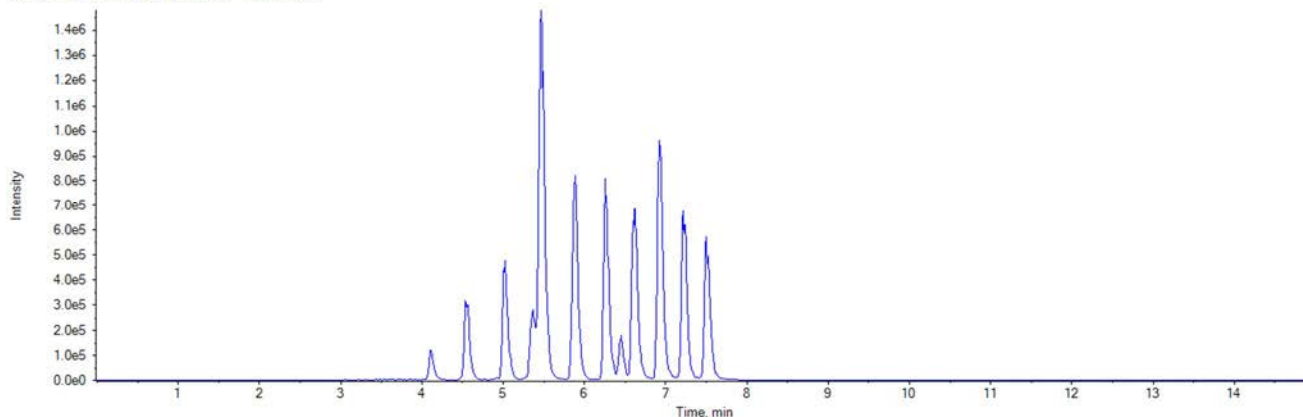
Quantitation Peak Table

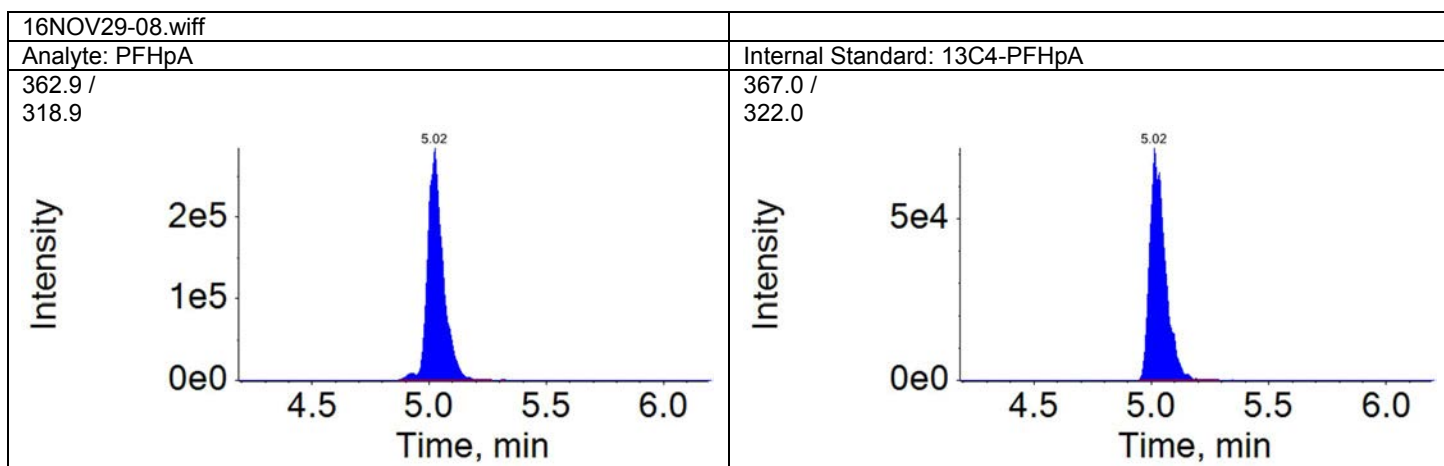
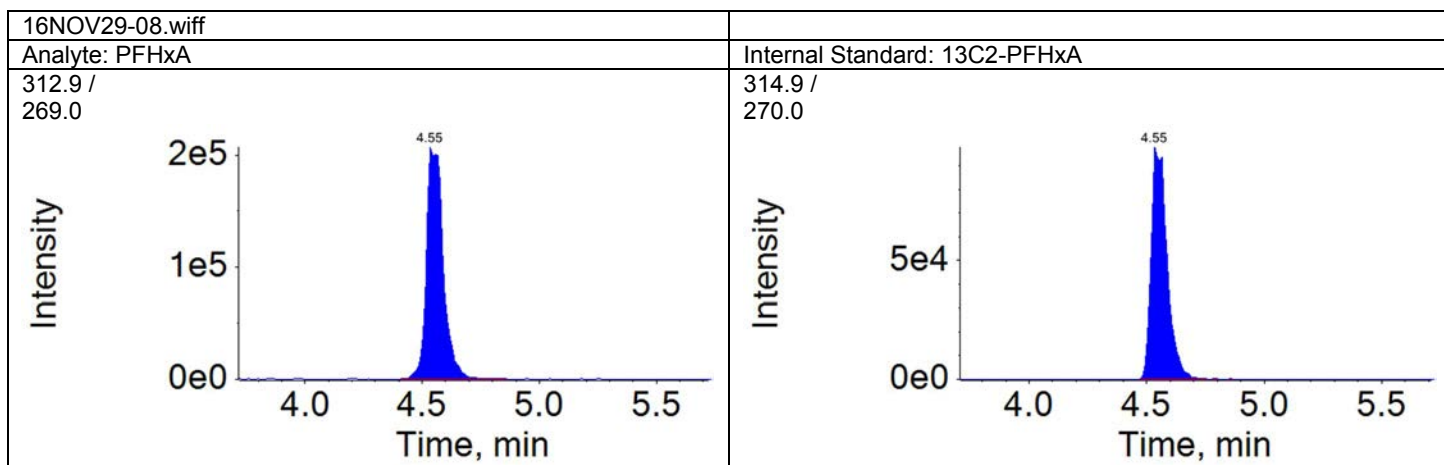
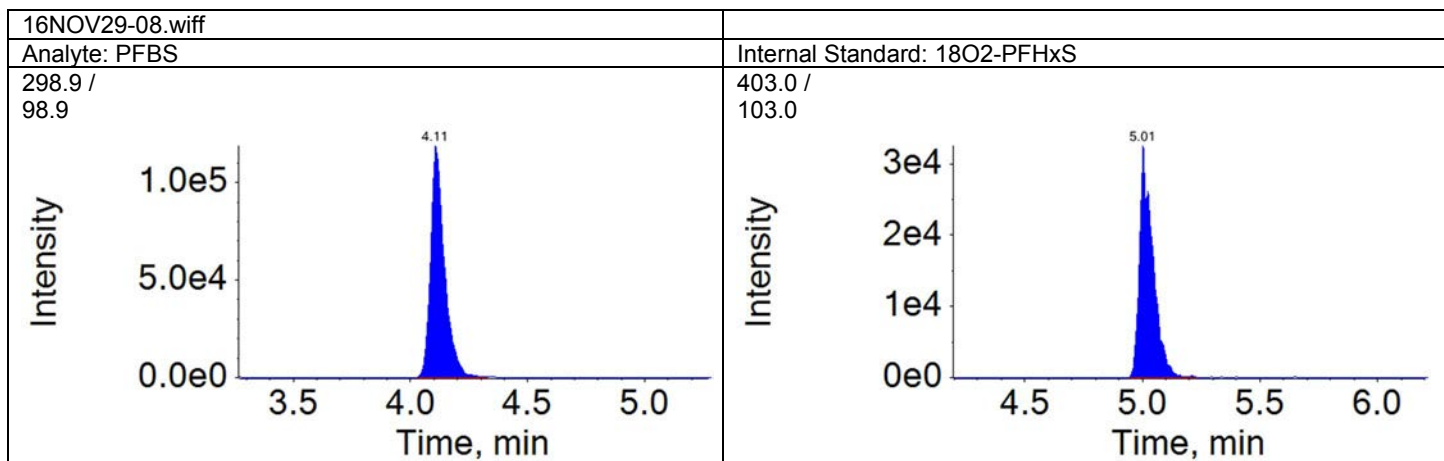
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	487385.8	A	18O2-PFHxS	5.01	127931.0	3.810	128.673
PFHxA	4.55	1.000	1049865.2	A	13C2-PFHxA	4.55	464622.7	2.260	168.286
PFHpA	5.02	1.000	1295167.0	A	13C4-PFHpA	5.02	326409.7	3.968	163.616
PFHxS	5.01	1.000	426475.6	A	18O2-PFHxS	5.01	127931.0	3.334	135.888
PFOA	5.47	1.000	8484055.6	M	13C4-PFOA	5.47	356903.8	23.771	928.043
PFNA	5.89	1.000	2523019.0	A	13C5-PFNA	5.88	776898.9	3.248	129.167
PFOS	5.86	1.000	493505.2	A	13C4-PFOS	5.85	158142.1	3.121	135.714
PFDA	6.26	1.000	2919330.2	A	13C2-PFDA	6.27	625331.3	4.668	151.708
PFUnDA	6.61	1.000	2290413.8	A	13C2-PFUnDA	6.61	788356.5	2.905	130.234
PFDodA	6.93	1.000	3616134.5	A	13C2-PFDoDA	6.93	1072157.9	3.373	139.295
PFTTrDA	7.23	1.040	3252310.1	A	13C2-PFDoDA	6.93	1072157.9	3.033	136.543
PFTeDA	7.51	1.080	2773175.8	A	13C2-PFDoDA	6.93	1072157.9	2.587	120.875

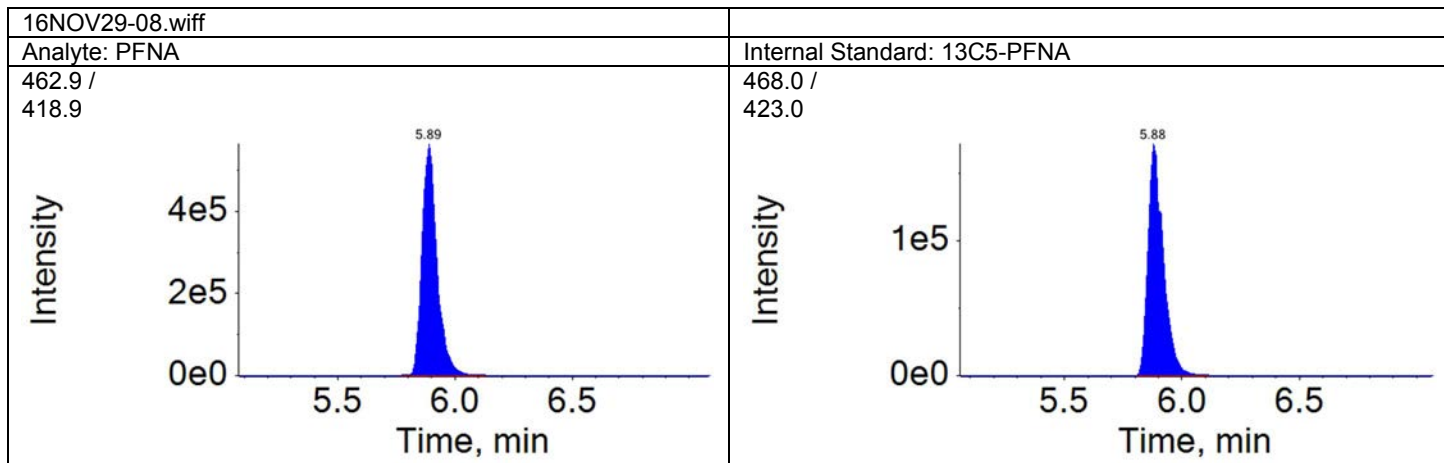
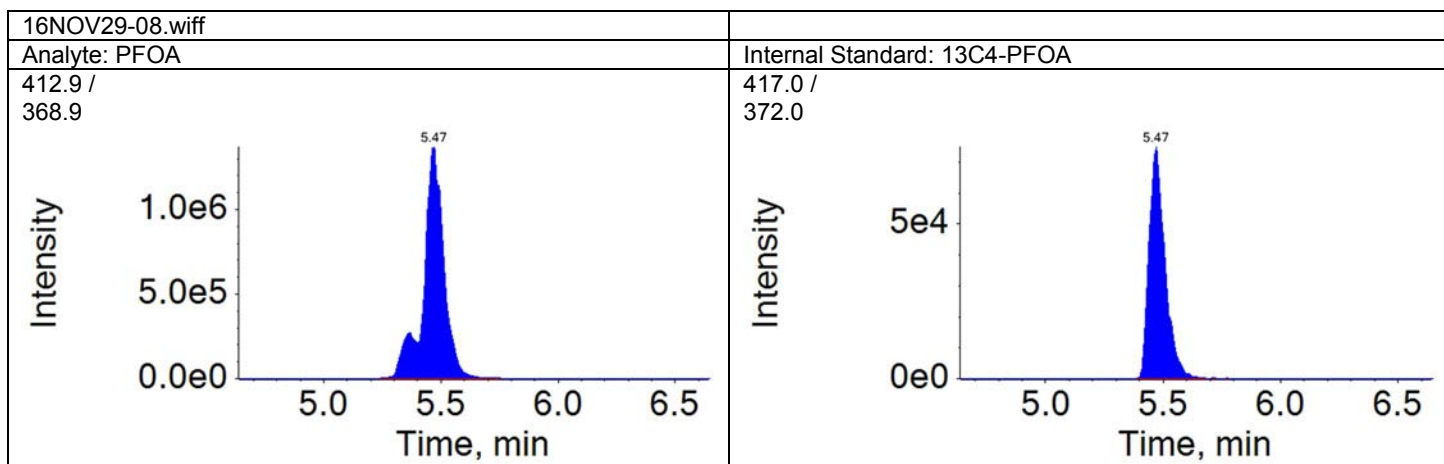
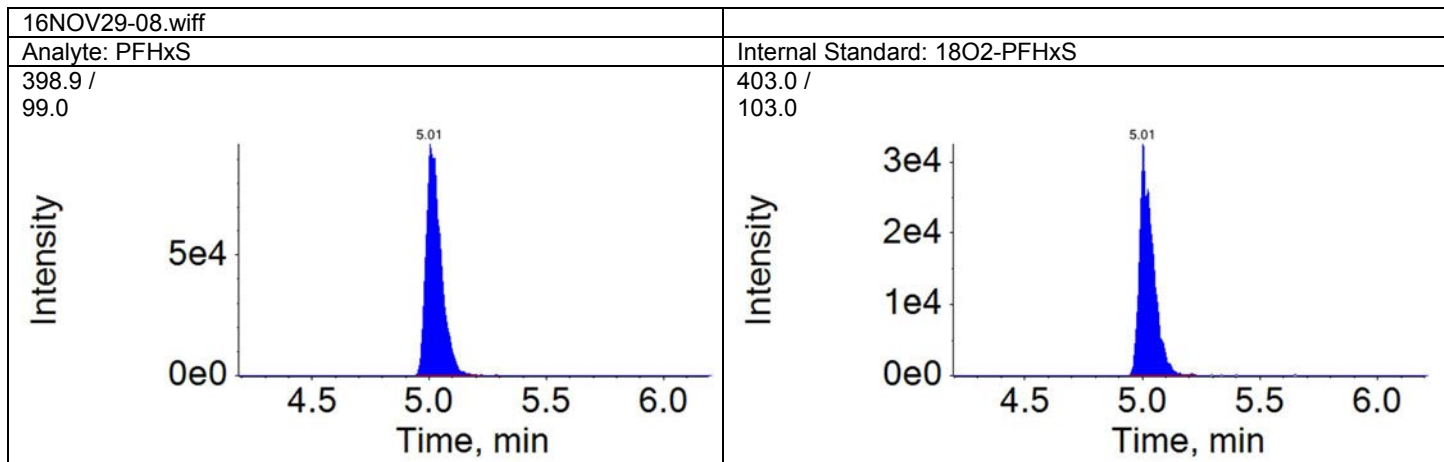
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16330002 MS-MW-4(11182016)-MSD Grab

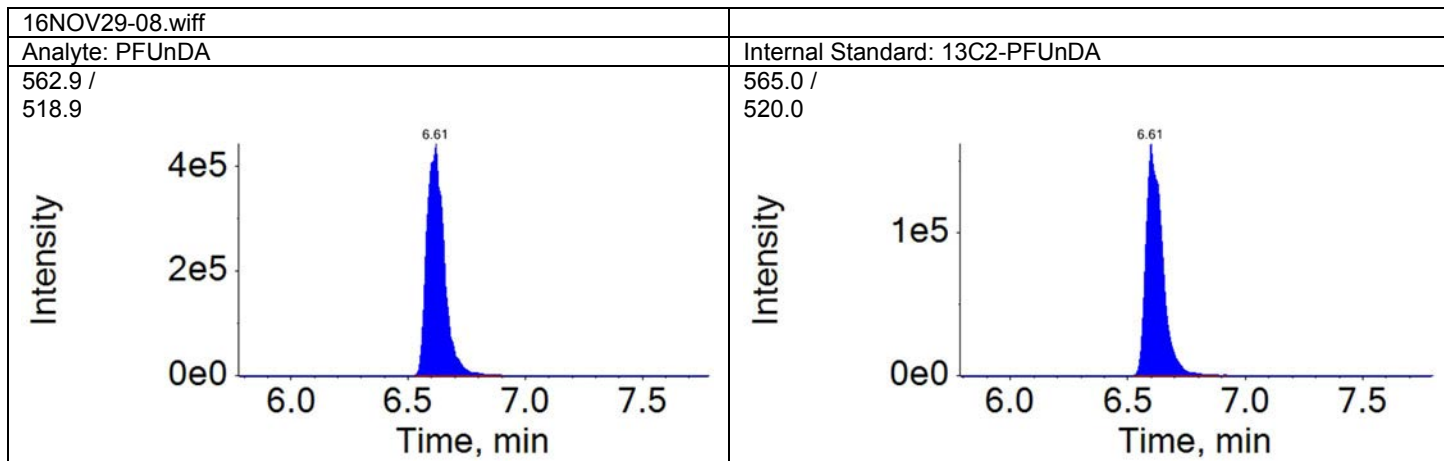
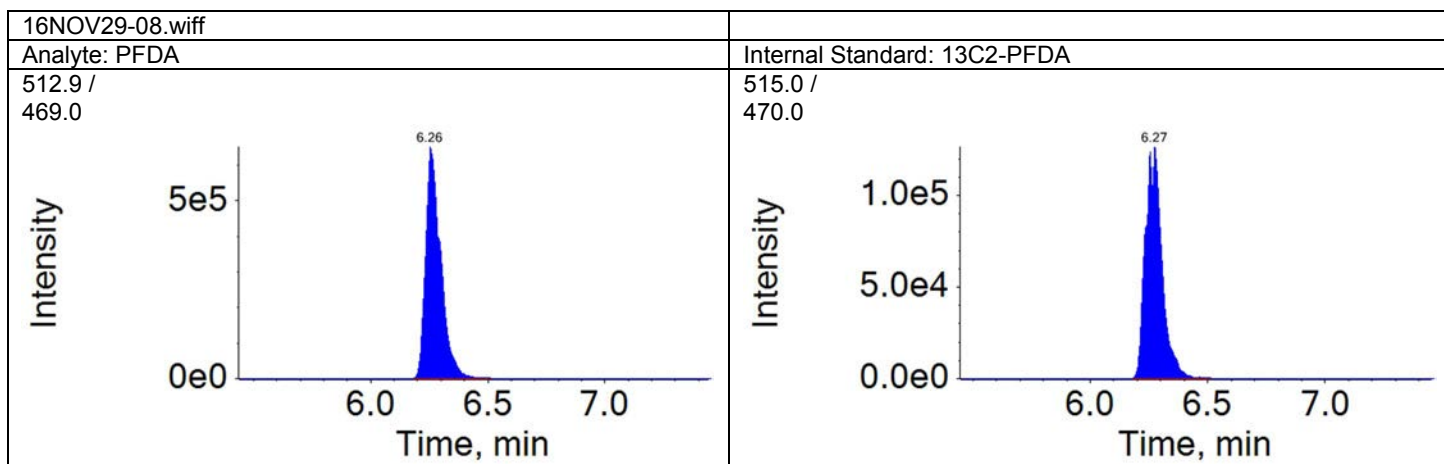
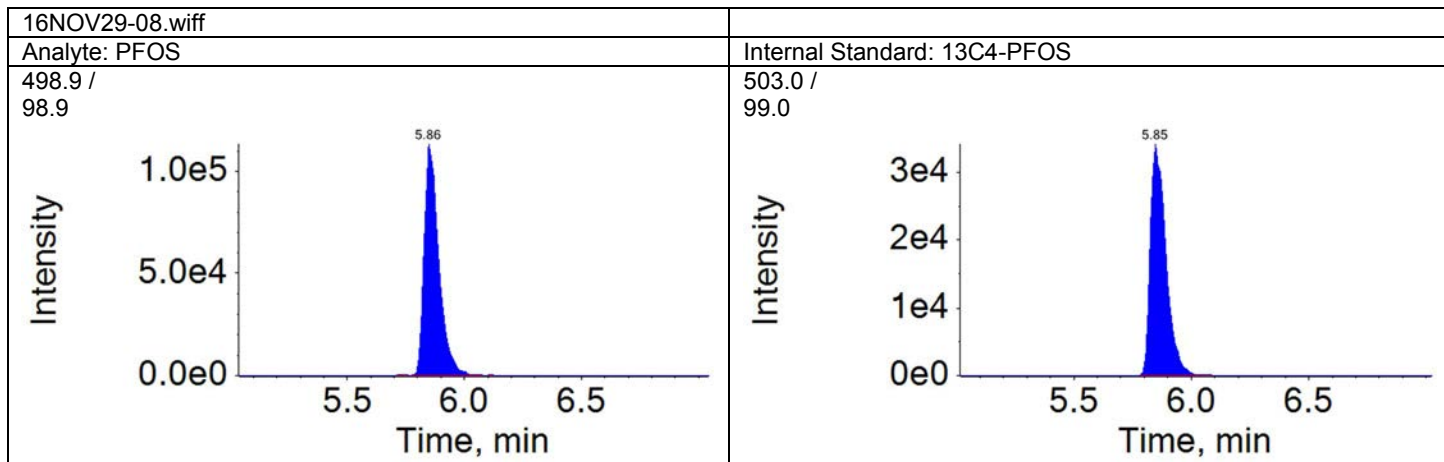
TIC from 16NOV29-08.wiff (sample 1) - 8707406MSD



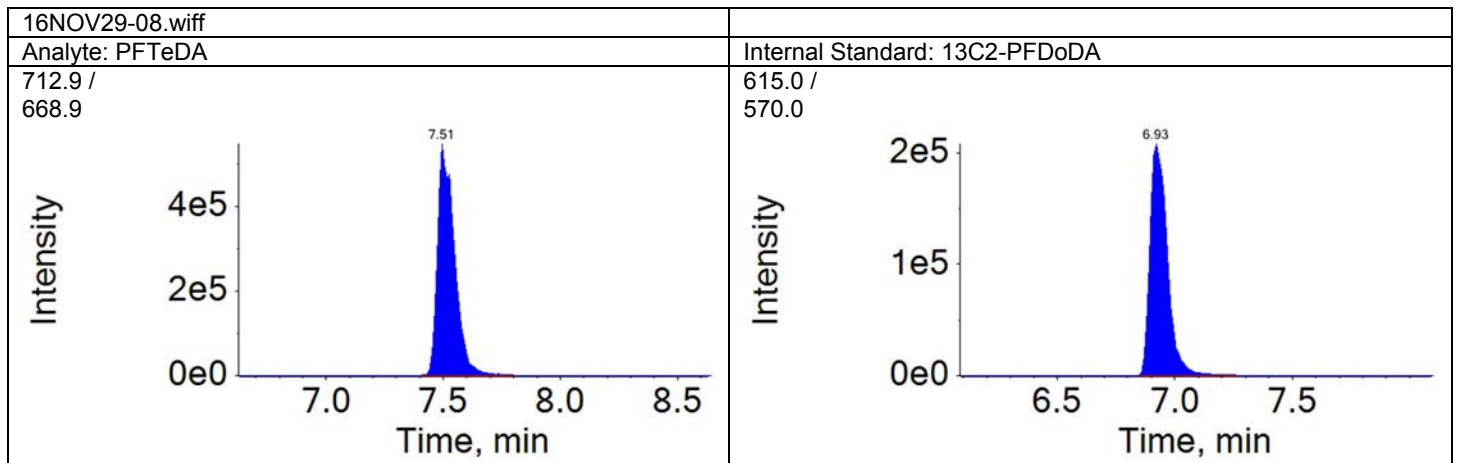
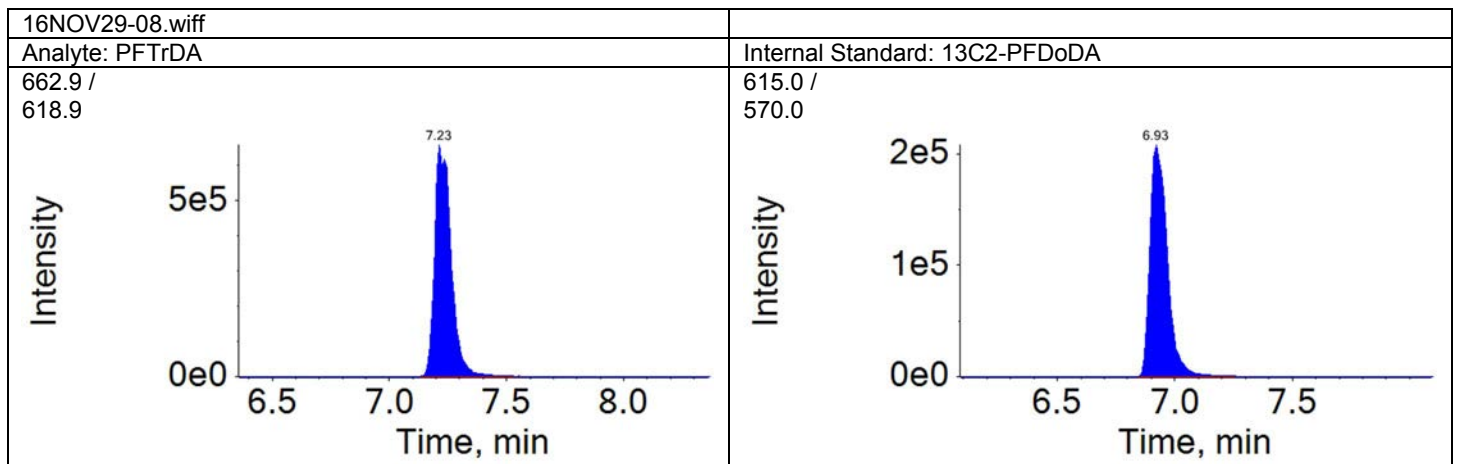
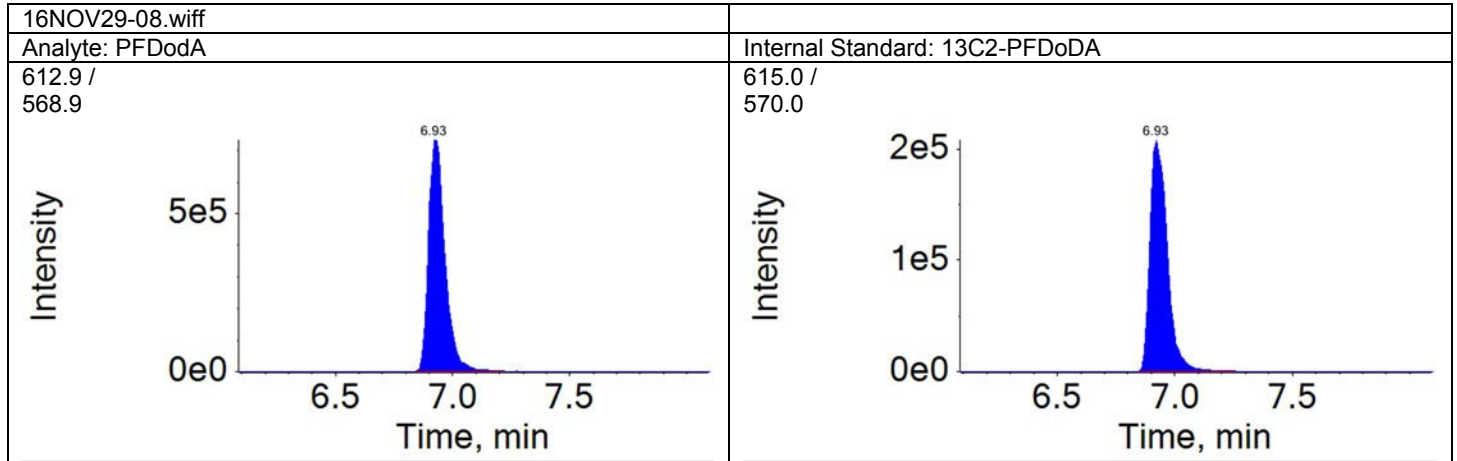








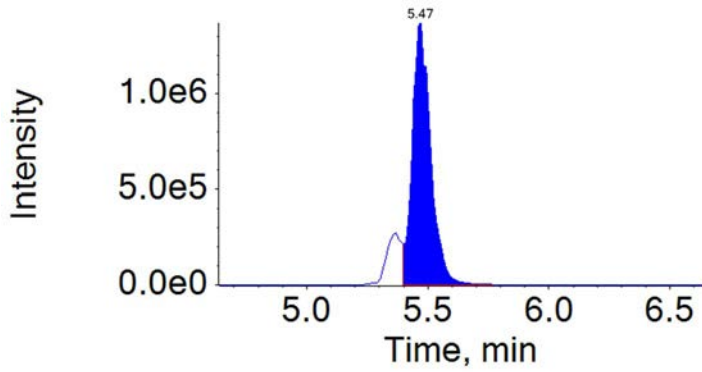




Auto Integrations prior to Manual Integration

<u>File Name</u>	<u>Acquis Date</u>	<u>Sample Name</u>	<u>Component</u>	<u>RT</u>	<u>Peak Area</u>
16NOV29-08.wiff	2016-11-29T15:13:06	8707406MSD	PFOA	5.47	7325984.2

Component: PFOA  
Mass: 412.9 / 368.9



SDG No.: PFO91

Matrix: WATER	Instrument ID: 24743	Lab Sample ID: LCS330002
Sample (vol): 0.1000 (L)		Lab File ID: 14:23
Sample Prep: SPE		Date Collected: N/A
Concentration Extract Volume: 1.00 (uL)		Date Extracted: 11/28/2016 07:50
Injection Volume: 1.00 (uL)		Date Analyzed: 11/29/2016 14:23
% Moisture: N/A		Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	160	
307-24-4	PFHxA	200	
375-85-9	PFHpA	170	
355-46-4	PFHxS	170	
335-67-1	PFOA	170	
375-95-1	PFNA	160	
1763-23-1	PFOS	160	
335-76-2	PFDA	170	
2058-94-8	PFUnDA	170	
307-55-1	PFDoDA	180	
72629-94-8	PFTrDA	170	
376-06-7	PFTeDA	160	

Qualifiers:

- B = Detected in Method Blank
- U = Undetected
- J = Estimated concentration between MDL and LOQ
- N = See comment in Case Narrative
- \* = Outside QC Limits

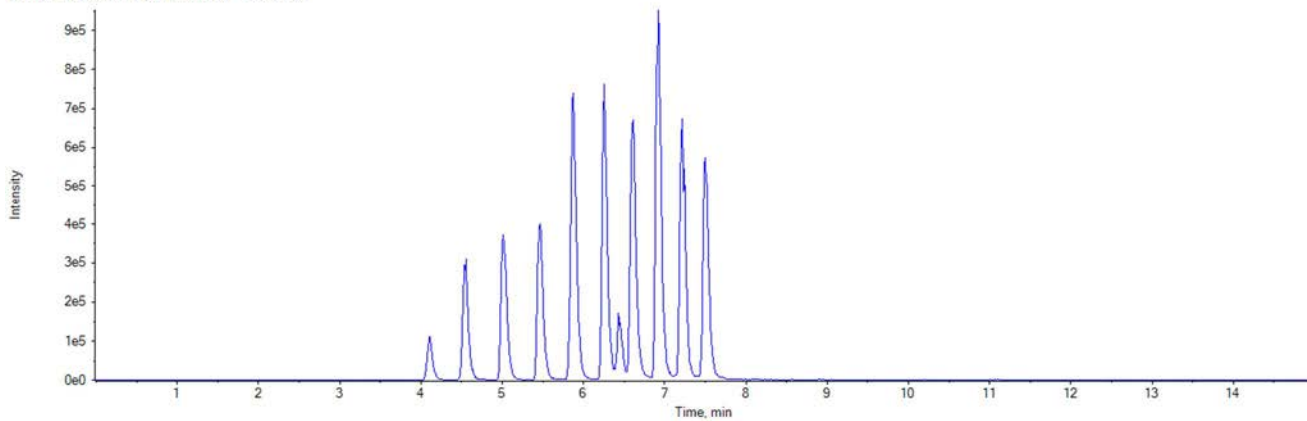
Sample Name:	LCS330002	Data File:	16NOV29-05.wiff
Sample ID:	16330002	Acquis Date:	2016-11-29T14:23:50
Sample Type:	Quality Control	Instrument:	Triple Quad 4500, 0, LM24743
Vial Position:	13	Acquis Method:	PFC-14cmpd-16OCT07.dam
Injection Vol:	10.00	Result Table:	MQ 16330002
		ICAL Name:	16NOV22ICAL
Batch Number:	16330002	Operator:	US19INS00015\4500TRIPLE
Sample Wt.:	0.10000	Dilution Factor:	1.00
Sample Vol.:	1.000	Prep Factor:	1.000

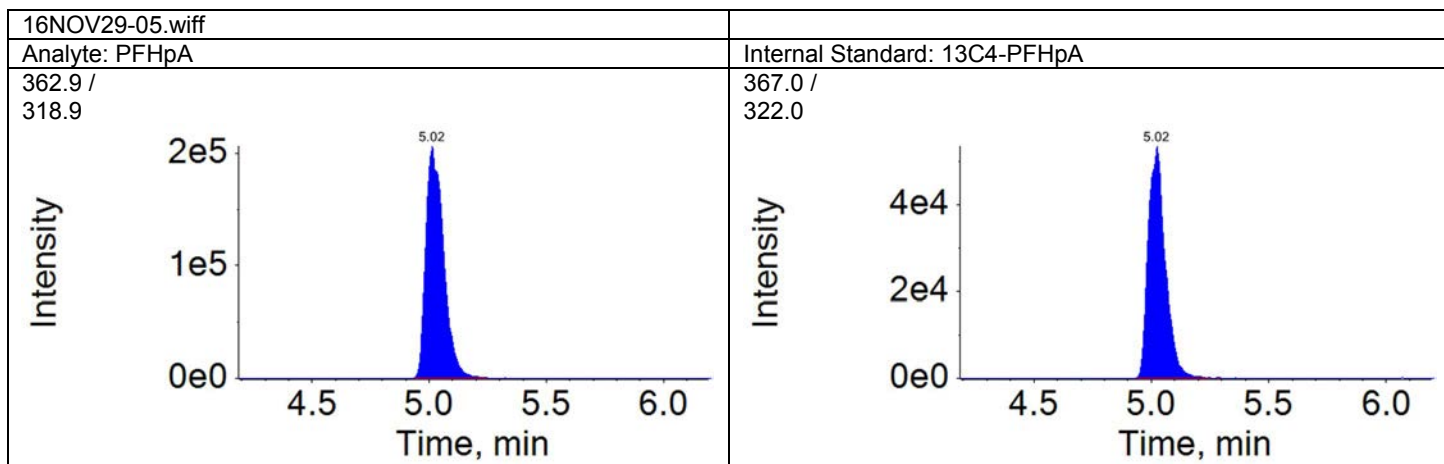
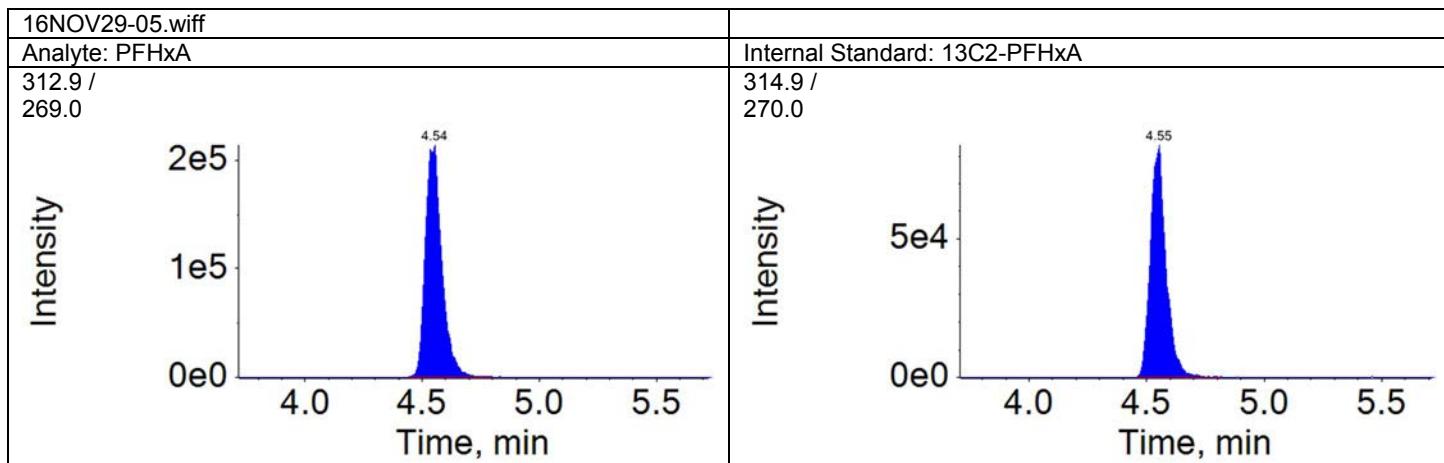
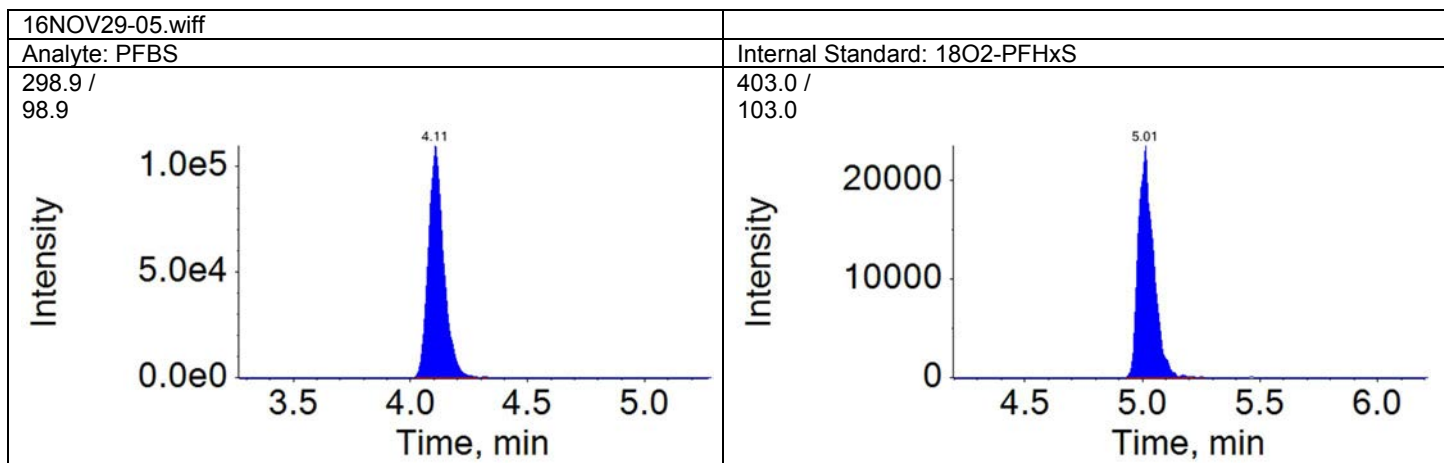
Quantitation Peak Table

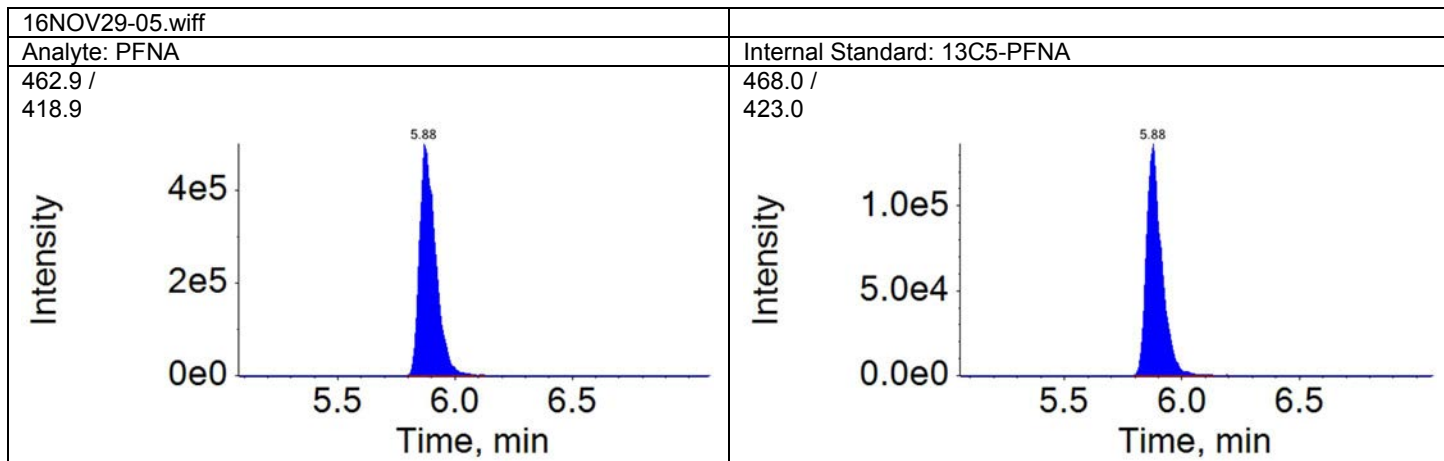
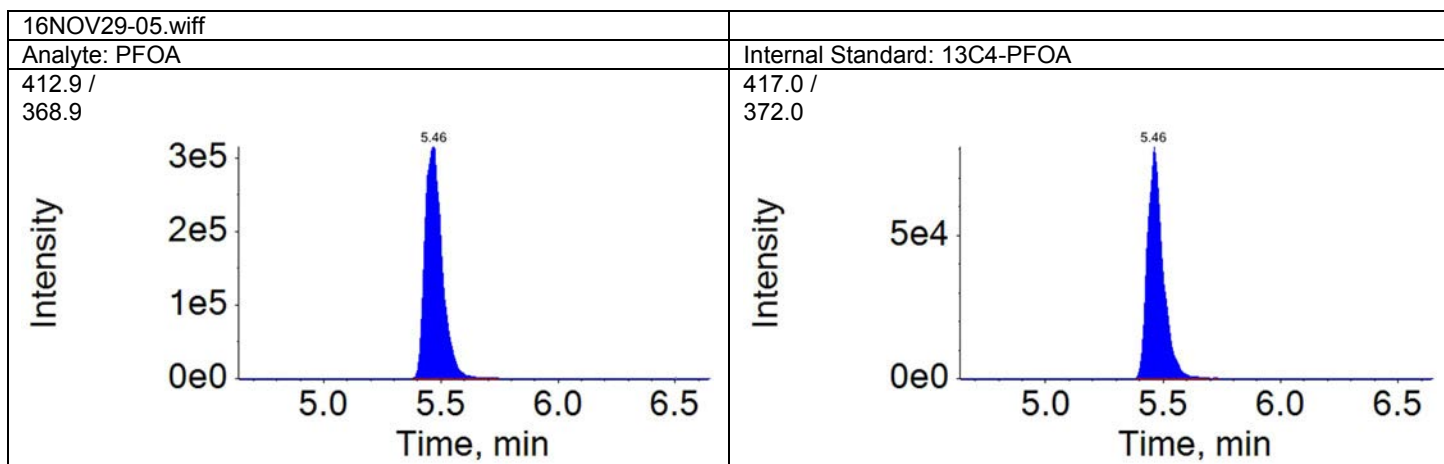
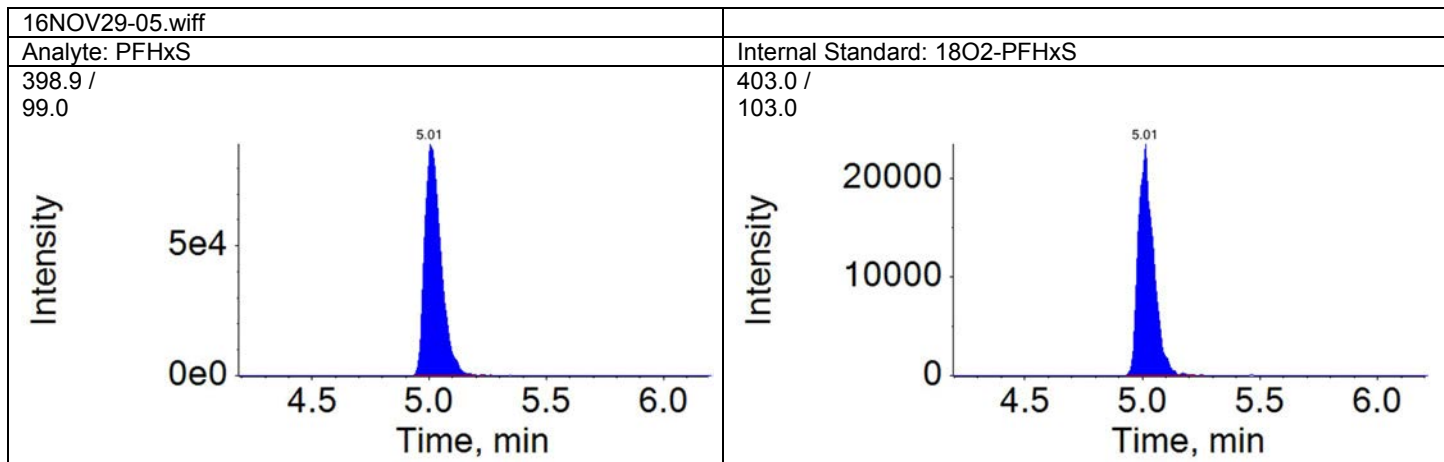
Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.11	0.820	496448.4	A	18O2-PFHxS	5.01	104698.2	4.742	160.229
PFHxA	4.54	1.000	1050552.3	A	13C2-PFHxA	4.55	384717.8	2.731	203.473
PFHpA	5.02	1.000	1094855.0	A	13C4-PFHpA	5.02	270434.3	4.049	167.023
PFHxS	5.01	1.000	433356.7	A	18O2-PFHxS	5.01	104698.2	4.139	168.806
PFOA	5.46	1.000	1632507.8	A	13C4-PFOA	5.46	367570.6	4.441	173.479
PFNA	5.88	1.000	2381531.6	A	13C5-PFNA	5.88	610638.3	3.900	155.198
PFOS	5.85	1.000	447775.3	A	13C4-PFOS	5.85	120301.8	3.722	161.951
PFDA	6.26	1.000	2801260.0	A	13C2-PFDA	6.26	545271.2	5.137	167.030
PFUnDA	6.61	1.000	2255524.2	A	13C2-PFUnDA	6.60	580489.0	3.886	174.262
PFDodA	6.92	1.000	3720999.5	A	13C2-PFDoDA	6.92	851907.8	4.368	180.481
PFTTrDA	7.22	1.040	3265929.1	A	13C2-PFDoDA	6.92	851907.8	3.834	172.650
PFTeDA	7.50	1.080	2850472.8	A	13C2-PFDoDA	6.92	851907.8	3.346	156.444

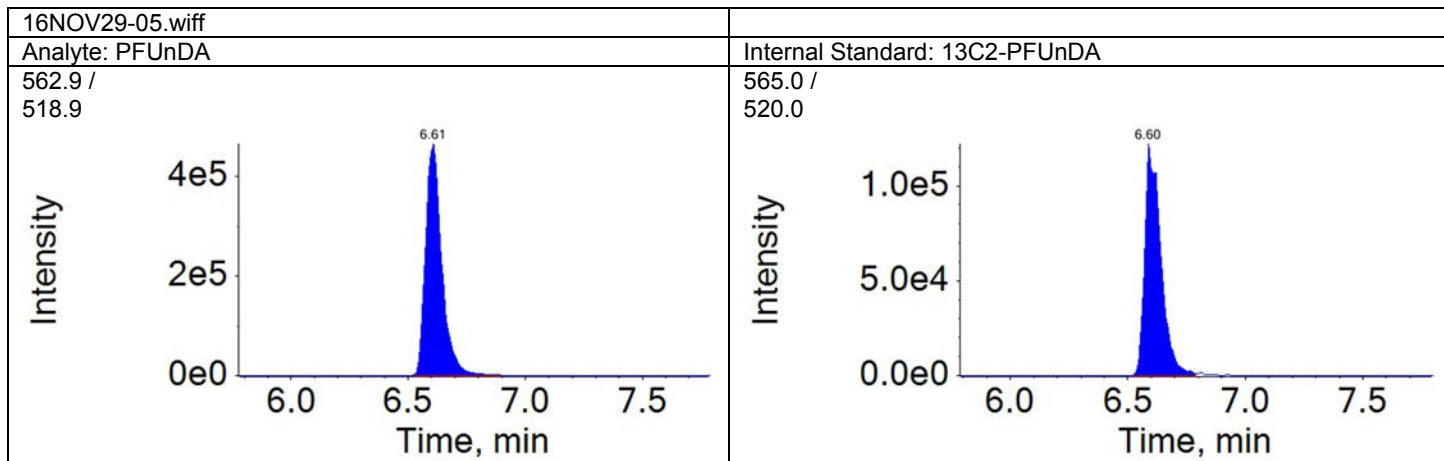
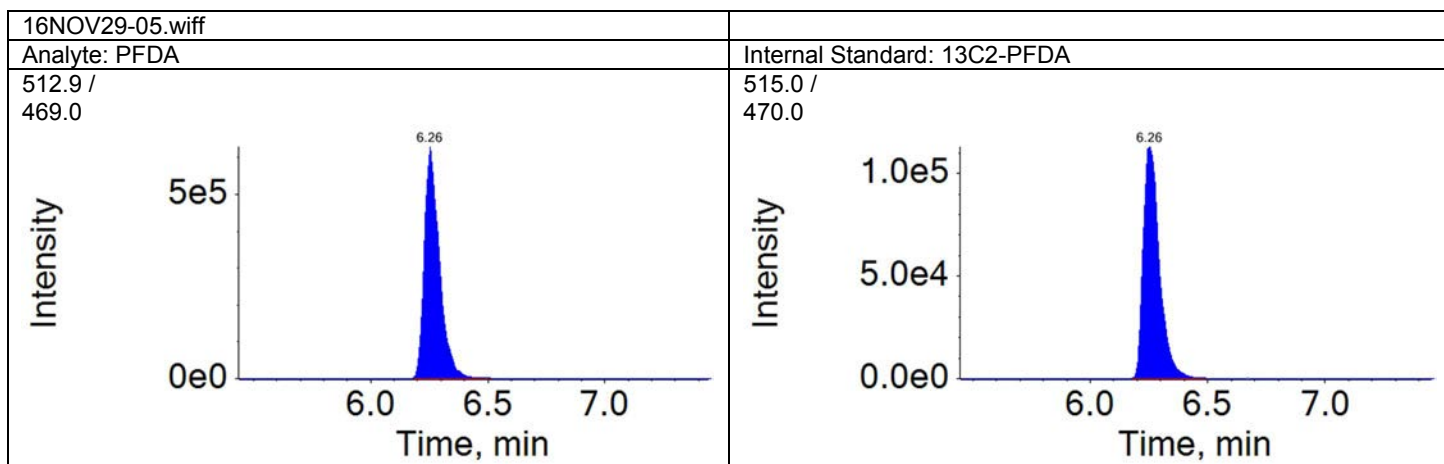
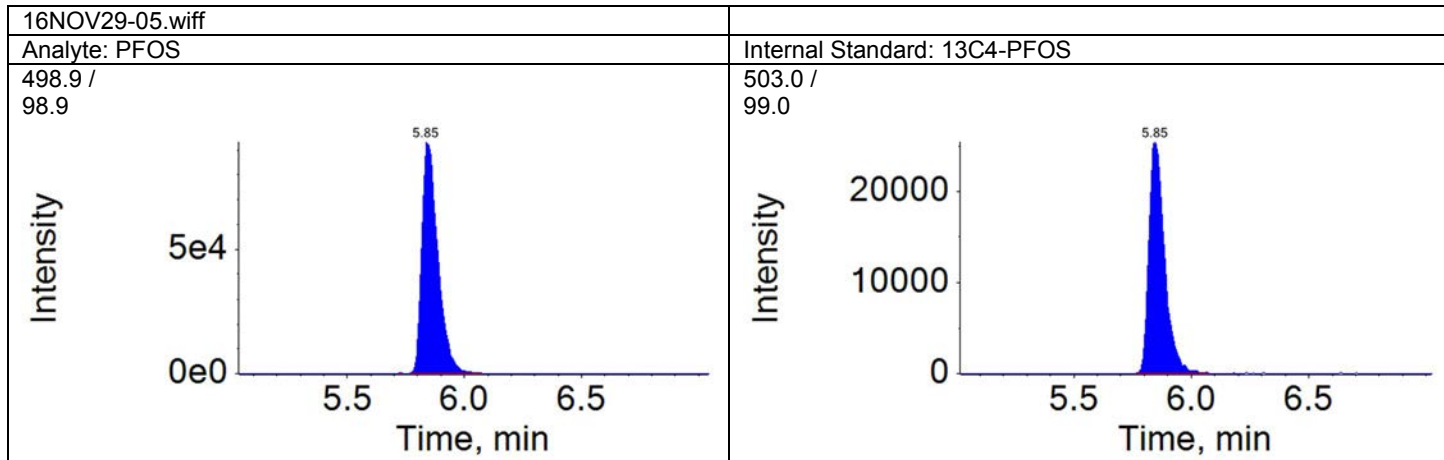
Total Ion Chromatogram  
16330002

TIC from 16NOV29-05.wiff (sample 1) - LCS330002

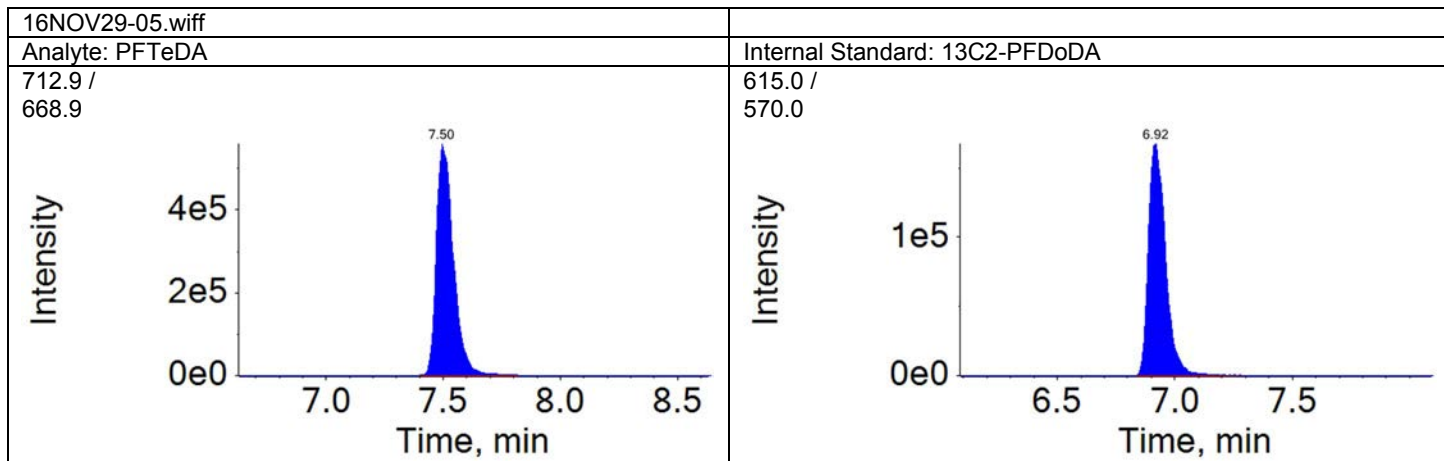
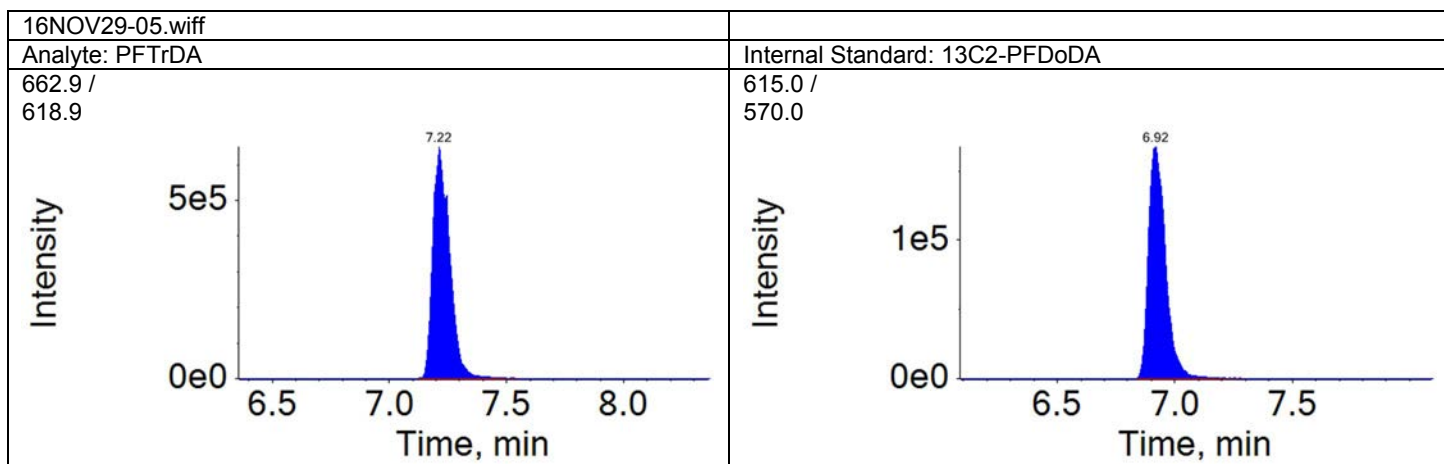
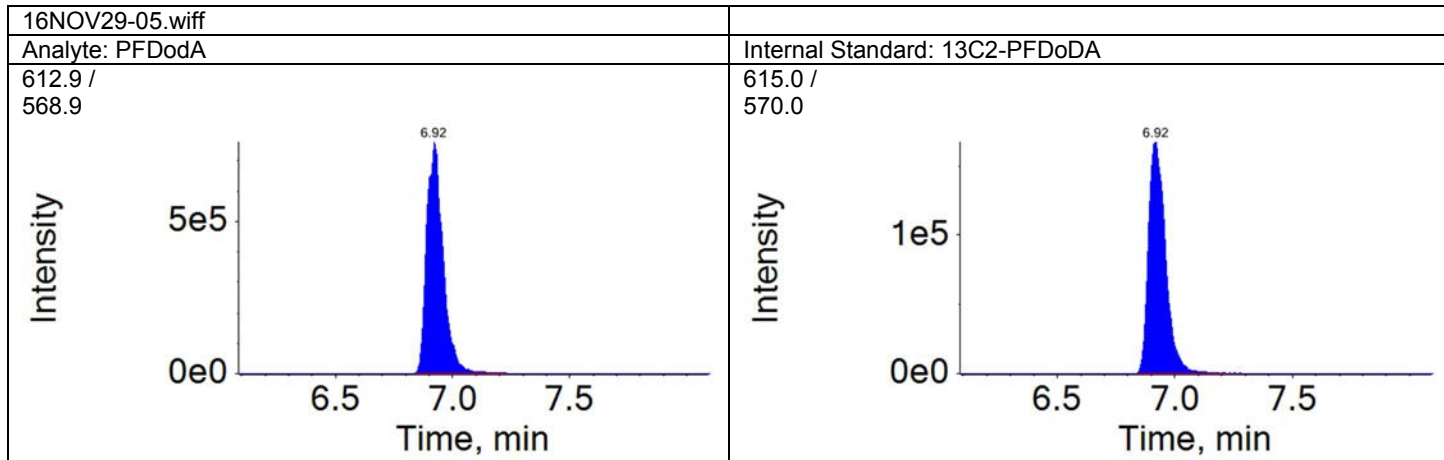














**Preparation Logs**  
**PFAAs by LC/MS/MS**

Organic Extraction Batchlog  
 Assigned to: 375 Robert Brown  
 Reviewed by: MED 7824  
 Start Date: 11-28-16  
 Start time: 07:50

16330002  
 Tech 1: PLB/375  
 Tech 2: \_\_\_\_\_

Analyses on Batch: PFAAs in Water by LC/MS/MS

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
8707405MS	MSM04	99.76	SS1632637A	0.25	LCSPFCX1637Z	0.40			201a	Centrifuged
8707406MSD	MSM04	100.05		0.25	LCSPFCX1637Z	0.40			201a	↓
BLANKA	BLK330002	100								
LCSA	OPR330002	100			LCSPFCX1637Z	0.40				

pipette IPS: P1000-2

Strike Solutions: Witness: MED 7824  
 Instrument: AB sieve LM24743  
 Sequence: 16NOV22PFC/16NOV29

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
8707403	MSM06	100.13	SS1632637A	0.25	1 mL		201a	Centrifuged	10954	11/30/2016	N
8707404	BKGM04	99.57		0.25			201a	↓	10954	11/30/2016	N
8707407	FD MSMFI	99.95		0.25			201a		10954	11/30/2016	N
8707408	EB MSMEI	99.99		0.25			201a		10954	11/30/2016	N

DF10 for PFAA - samples 8707404, 403, 407  
 96% made in Milli-Q H<sub>2</sub>O: 3751151637A  
 SS1632637A  
 MED 7824 11/29/16  
 pipette IPS: P1000-1  
 P1000-2

Reagent/Material	Lot No.
96% MeOH:H2O	3751151637A
Acetate Buffer	
Methanol	163320
Milli-Q H2O	House, 11-28
NH4OH:H2O	
NH4OH:MeOH	
SPE Cartridge	041336287A
Sodium Thiosulfate	
Trizma	SLBN2122V

Balance # BL29764122

SPE Manifold # / Vacuum Port

N-evap C

16330002



## NYSDEC ASP Category B Data Package

Prepared for:

**Honeywell International, Inc.**

6100 Philadelphia Pike  
Claymont DE 19703

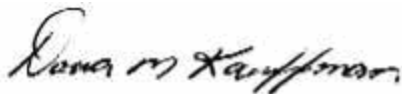
Project: Hoosick  
Groundwater Samples  
Collected on 11/18/16

**SDG# PFO92**

GROUP	SAMPLE NUMBERS
1735637	8707415-8707419

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by:



Dana M. Kauffman  
Manager

Date: 12/02/2016

Any questions or concerns you might have regarding this data package should be directed to your client representative, Kay Hower at (510) 672-3979.

## Table of Contents for SDG# PFO92

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**Sample Reference List for SDG Number PFO92  
with a Data Package Type of NYSDEC B****10651 - Honeywell International, Inc.**

Project: Hoosick

<b>Lab Sample Number</b>	<b>Client Sample ID</b>	<b>Collection Date</b>	<b>Date Received</b>
8707415	MS-MW-8(11182016)	11/18/2016 09:45	11/19/2016 10:00
8707416	MS-MW-4(11182016)	11/18/2016 12:30	11/19/2016 10:00
8707417	MS-MW-4(11182016)-MS	11/18/2016 12:30	11/19/2016 10:00
8707418	MS-MW-4(11182016)-MSD	11/18/2016 12:30	11/19/2016 10:00
8707419	MS-DUP-001(11182016)	11/18/2016 12:00	11/19/2016 10:00

# Sample pH Log

**SDG: PFO92**

<u>LLI Sample Number</u>	<u>Bottle Code</u>	<u>Actual pH</u>	<u>Exp. pH</u>	<u>pH Check Code</u>	<u>Adj. pH</u>	<u>Adjusted Date</u>	<u>Adjusted Time</u>	<u>Preservative Added</u>	<u>Preservative Lot #</u>	<u>LLI Supplied Bottle?</u>	<u>Sulfide Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Res. Cl. Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
8707415	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:29:58AM	0
8707415	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:30:25AM	0
8707416	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:28:56AM	0
8707416	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:30:09AM	0
8707417	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:29:06AM	0
8707417	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:27:58AM	0
8707418	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:28:26AM	0
8707418	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:28:12AM	0
8707419	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:28:40AM	0
8707419	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	11/22/2016 7:29:26AM	0

<b>Check Code Key</b>
<b>PK</b> = Original container checked - pH is within the correct range. (No preservative was added)
<b>PA</b> = Original container checked - pH adjusted to correct range. (Preservative was added)
<b>PV</b> = Volatile container checked
<b>PC</b> = pH checked (unpreserved container)
<b>SPK</b> = Subsampled from an original container. Original container checked - pH is within correct range
<b>SPA</b> = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
<b>SPC</b> = Subsampled from an original container. pH checked (unpreserved container).
<b>SUP</b> = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
<b>UP</b> = Unable to preserve due to matrix of the sample.
<b>NA</b> = Not applicable

**00273 Total Organic Carbon**

TOC is determined by first removing the inorganic carbon from a sample. The remaining carbon is then oxidized to carbon dioxide, which is measured by a nondispersive infrared detector. The mass of carbon dioxide detected is proportional to the mass of TOC in the sample.

Reference: Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005, Method 5310 C-2000

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**12152 pH**

The activity of hydrogen ions in the sample is measured using a glass electrode and a reference electrode.

Reference: Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005, Method 4500 H/B-2000

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**12151 Temperature of pH**

The temperature of the sample measured during the pH analysis.

Reference: Temperature EPA 170.1 Methods for Chemical Analysis of Water and Wastes USEPA 600.

# **Analysis Reports / Field Chain of Custody**



## ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental  
2425 New Holland Pike  
Lancaster, PA 17601

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Report Date: November 30, 2016

### Project: Hoosick

Submittal Date: 11/19/2016

Group Number: 1735637

SDG: PFO92

PO Number: 4400034187

State of Sample Origin: NY

Lancaster Labs

#### Client Sample Description

	(LL) #
MS-MW-8(11182016) Grab Groundwater	8707415
MS-MW-4(11182016) Grab Groundwater	8707416
MS-MW-4(11182016)-MS Grab Groundwater	8707417
MS-MW-4(11182016)-MSD Grab Groundwater	8707418
MS-DUP-001(11182016) Grab Groundwater	8707419

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To ERM  
Electronic Copy To ERM  
Electronic Copy To ERM  
Electronic Copy To Honeywell International, Inc.

Attn: Andrew Coenen  
Attn: Jon Fox  
Attn: Maureen Leahy  
Attn: Helen Fahy

Respectfully Submitted,



Kay Hower

(510) 672-3979

Sample Description: MS-MW-8(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707415  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:45 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-8 SDG#: PFO92-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
00273	Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 0.50 U	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.5	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.4	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603B	11/22/2016 22:01	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:42	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:42	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-MW-4(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707416  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-4 SDG#: PFO92-02BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
00273	Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 1.1	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.3	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.1	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 19:35	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:32	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:32	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-MW-4(11182016)-MS Grab Groundwater  
Hoosick

LL Sample # WW 8707417  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-4 SDG#: PFO92-02MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
	SM 5310 C-2000		mg/l	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	11.9	0.50	1.0	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 19:49	Drew M Gerhart	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-MW-4(11182016)-MSD Grab Groundwater  
Hoosick

LL Sample # WW 8707418  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-4 SDG#: PFO92-02MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
	SM 5310 C-2000		mg/l	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	11.8	0.50	1.0	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 20:02	Drew M Gerhart	1

\*=This limit was used in the evaluation of the final result

Sample Description: MS-DUP-001(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707419  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:00 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-D SDG#: PFO92-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
00273	Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 0.53 J	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.4	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.4	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 20:15	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:46	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:46	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

Client Name: Honeywell International, Inc.  
Reported: 11/30/2016 09:51

Group Number: 1735637

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

### Method Blank

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 16327667603A	Sample number(s): 8707416-8707419		
Total Organic Carbon	0.50 U	0.50	1.0
Batch number: 16327667603B	Sample number(s): 8707415		
Total Organic Carbon	0.50 U	0.50	1.0

### LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16327667603A	Sample number(s): 8707416-8707419								
Total Organic Carbon	25	26.29			105		91-113		
Batch number: 16327667603B	Sample number(s): 8707415								
Total Organic Carbon	25	26.29			105		91-113		
	<b>Std. Units</b>	<b>Std. Units</b>	<b>Std. Units</b>	<b>Std. Units</b>					
Batch number: 16334003103A	Sample number(s): 8707415-8707416,8707419								
pH	7.00	6.99			100		95-105		

### MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16327667603A	Sample number(s): 8707416-8707419 UNSPK: 8707416									
Total Organic Carbon	1.13	10	11.85	10	11.8	107	107	91-113	0	20
Batch number: 16327667603B	Sample number(s): 8707415 UNSPK: 8707415									
Total Organic Carbon	0.50 U	10	11.36			114*		91-113		

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.



## Quality Control Summary

Client Name: Honeywell International, Inc.  
Reported: 11/30/2016 09:51

Group Number: 1735637

### Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 16327667603B Total Organic Carbon	Sample number(s): 8707415 BKG: 8707415 0.50 U	0.50 U	0 (1)	3
Batch number: 16334003103A Temperature of pH	Degrees C Sample number(s): 8707415-8707416,8707419 BKG: P710188 21.93	Degrees C 22.08	1	5
Batch number: 16334003103A pH	Std. Units Sample number(s): 8707415-8707416,8707419 BKG: P710188 7.35	Std. Units 7.50	2	3

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

# Environmental Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

Acct. # 10651 Group # 1735637 Sample # 8707415-19

Client: <b>Honeywell</b>				<b>Matrix</b>			<b>Analyses Requested</b>										<b>For Lab Use Only</b>			
Project Name/#: Hoosick		Site ID #:		<input type="checkbox"/> Tissue	<input checked="" type="checkbox"/> Ground	<input type="checkbox"/> Surface	<b>Preservation Codes</b>										SF #: _____			
Project Manager: Maureen Leahy/Jon Fox		P.O. #: 357439		<input type="checkbox"/> Potable	<input type="checkbox"/> NPDES	<input type="checkbox"/> Water											SCR #: _____			
Sampler: <u>Tim Daniluk</u>		PWSID #:		<input type="checkbox"/> Sediment	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:														
Phone #: <u>315-317-2044</u>		Quote #:		<input type="checkbox"/> Soil	<input type="checkbox"/> Water	<input type="checkbox"/> Other:														
State where samples were collected: <input type="checkbox"/> NY For Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>							<b>Total # of Containers</b>													
								PFCs - EPA Method 537-1.1	VOCs - EPA Method 8260	SVOCs - EPA Method 8270	PCBs - EPA Method 8082	Pesticides - EPA Method 8081	Metals - EPA Method 6010	Mercury - EPA Method 7471	Cyanide - EPA Method 9010	TOC EPA Method 9060	pH - EPA Method 9045			
<b>Sample Identification</b>				<b>Collection</b>		<b>Grab</b>	<b>Composite</b>											<b>Remarks</b>		
		Date	Time																	
<u>MS-MW-8(11182016)</u>		<u>11-18-16</u>	<u>0945</u>	<u>X</u>				<u>GW</u>												
<u>MS-MW-4(11182016)</u>		<u>↓</u>	<u>1230</u>	<u>X</u>				<u>GW</u>												
<u>MS-MW-4(11182016)-MS</u>		<u>↓</u>	<u>1230</u>	<u>X</u>				<u>GW</u>												
<u>MS-MW-4(11182016)-MSD</u>		<u>↓</u>	<u>1230</u>	<u>X</u>				<u>GW</u>												
<u>MS-DUP-001(11182016)</u>		<u>↓</u>	<u>1200</u>	<u>X</u>				<u>GW</u>												
<u>MS-EB-001(11182016)</u>																				
<b>Turnaround Time Requested (TAT)</b> (please check): Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>																				
(Rush TAT is subject to laboratory approval and surcharges.)																				
Date results are needed:				Relinquished by: <u>[Signature]</u>			Date	Time	Received by:	Date	Time									
Rush results requested by (please check): E-Mail <input type="checkbox"/> Phone <input type="checkbox"/>				Relinquished by:			Date	Time	Received by:	Date	Time									
E-mail Address: jon.fox@erm.com; maureen.leahy@erm.com				Relinquished by:			Date	Time	Received by:	Date	Time									
Phone:				Relinquished by:			Date	Time	Received by:	Date	Time									
<b>Data Package Options</b> (please check if required)				Relinquished by:			Date	Time	Received by:	Date	Time									
Type I (Validation/non-CLP) <input type="checkbox"/>		MA MCP <input type="checkbox"/>		Relinquished by:			Date	Time	Received by:	Date	Time									
Type III (Reduced non-CLP) <input type="checkbox"/>		CT RCP <input type="checkbox"/>		Relinquished by:			Date	Time	Received by:	Date	Time									
Type VI (Raw Data Only) <input type="checkbox"/>		TX TRRP-13 <input type="checkbox"/>		Relinquished by:			Date	Time	Received by:	Date	Time									
NJ DKQP <input type="checkbox"/>		NYSDEC Category <input type="checkbox"/>		A or <input checked="" type="checkbox"/> B	Relinquished by Commercial Carrier:															
<b>EDD Required?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, format: <u>NYSDEC EQUIS</u>				UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/>														Temperature upon receipt <u>25</u> °C		

Client: Honeywell

**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>11/19/2016 10:00</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NY</u>		

**Arrival Condition Summary**

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3060) at 14:36 on 11/19/2016

**Samples Chilled Details**

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	2.5	DT	Wet	Y	Bagged	N

# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>BMQL</b>	Below Minimum Quantitation Level	<b>mg</b>	milligram(s)
<b>C</b>	degrees Celsius	<b>mL</b>	milliliter(s)
<b>cfu</b>	colony forming units	<b>MPN</b>	Most Probable Number
<b>CP Units</b>	cobalt-chloroplatinate units	<b>N.D.</b>	none detected
<b>F</b>	degrees Fahrenheit	<b>ng</b>	nanogram(s)
<b>g</b>	gram(s)	<b>NTU</b>	nephelometric turbidity units
<b>IU</b>	International Units	<b>pg/L</b>	picogram/liter
<b>kg</b>	kilogram(s)	<b>RL</b>	Reporting Limit
<b>L</b>	liter(s)	<b>TNTC</b>	Too Numerous To Count
<b>lb.</b>	pound(s)	<b>µg</b>	microgram(s)
<b>m3</b>	cubic meter(s)	<b>µL</b>	microliter(s)
<b>meq</b>	milliequivalents	<b>umhos/cm</b>	micromhos/cm
<b>&lt;</b>	less than		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value  $\geq$  the Method Detection Limit (MDL or DL) and  $<$  the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column  $>40\%$ . The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column  $>100\%$ . The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

# **Instrumental Wet Chemistry Data**

# **Case Narrative/Conformance Summary**

## **Instrumental Wet Chemistry**

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO92**

### Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
8707415	MS-MW-8(11182016)	X		1	
8707416	MS-MW-4(11182016)	X		1	Unspiked
8707417	MS-MW-4(11182016)-MS	X		1	Matrix Spike
8707418	MS-MW-4(11182016)-MSD	X		1	Matrix Spike Duplicate
8707419	MS-DUP-001(11182016)	X		1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

#### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

#### HOLDING TIME:

All holding times were met.

#### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

#### CALIBRATION/STANDARDIZATION:

All criteria were met.

#### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

##### MS/MSD

Method defined actions are taken for any failed matrix QC.

Batch#: 16327667603B (Sample number(s): 8707415, UNSPK: 8707415, BKG: 8707415)  
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Total Organic Carbon

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO92**

### Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

#### SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Due to the limitations of the data package software, form I's are not available for the Instrumental Analysis data. Please refer to the analysis reports for this information.

00273 (Total Organic Carbon)

TOC water (mg/l) = raw result (mg/l) X dilution factor

#### Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer



# **Quality Control and Calibration Summary Forms**

## **Instrumental Wet Chemistry**

### Quality Control Reference List Instrumental Water Quality

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO92**

**Fraction: Instrumental Wet Chemistry**

<b>Analysis</b>	<b>Batch Number</b>	<b>Sample Number</b>	<b>Analysis Date</b>
Total Organic Carbon	16327667603A	P32767CB	11/22/2016 18:42:00
		P32767CQ	11/22/2016 18:29:00
		8707416 UNSPK	11/22/2016 19:35:00
		8707417 MS	11/22/2016 19:49:00
		8707418 MSD	11/22/2016 20:02:00
		8707419	11/22/2016 20:15:00
Total Organic Carbon	16327667603B	8707415 UNSPK/BKG	11/22/2016 22:01:00
		8707415 DUP	11/22/2016 22:14:00
		8707415 MS	11/22/2016 22:27:00

Fraction: Instrumental Wet Chemistry

16327667603A / P32767CB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
Total Organic Carbon	TOC	11/22/16	N.D.	mg/l	0.50	1.0

**Instrumental Water Quality**

Fraction: Instrumental Wet Chemistry

UNSPK: 8707416 MS: 8707417 MSD: 8707418	Batch: <b>16327667603A</b> (Sample number(s): 8707416-8707419 )									
<b>Parameter</b>	<b>ME</b>	<b>Spike Added mg/l</b>	<b>Unspiked Conc mg/l</b>	<b>MS Conc mg/l</b>	<b>MSD Conc mg/l</b>	<b>MS %Rec</b>	<b>MSD %Rec</b>	<b>%Rec Limits</b>	<b>%RPD</b>	<b>%RPD Limits</b>
Total Organic Carbon	TOC	10	1.13	11.85	11.8	107	107	91-113	0	20

UNSPK: 8707415 MS: 8707415	Batch: <b>16327667603B</b> (Sample number(s): 8707415 )									
<b>Parameter</b>	<b>ME</b>	<b>Spike Added mg/l</b>	<b>Unspiked Conc mg/l</b>	<b>MS Conc mg/l</b>	<b>MSD Conc mg/l</b>	<b>MS %Rec</b>	<b>MSD %Rec</b>	<b>%Rec Limits</b>	<b>%RPD</b>	<b>%RPD Limits</b>
Total Organic Carbon	TOC	10	N.D.	11.36	NA	114 *	NA	91-113	NA	NA

Comments:

(2) The unspiked sample result is greater than four times the spike added.

\* = Out of Specification

Results are being reported on an as received basis.

**Instrumental Water Quality**

Fraction: Instrumental Wet Chemistry

BKG: 8707415 DUP: 8707415	Batch: <b>16327667603B</b> (Sample number(s): 8707415 )				
<b>Parameter</b>	<b>ME</b>	<b>Unspiked Conc mg/l</b>	<b>DUP Conc mg/l</b>	<b>%RPD</b>	<b>%RPD Limits</b>
Total Organic Carbon	TOC	N.D.	N.D.	0 (1)	3

Comments:

(1) The sample and/or duplicate result is less than five times the LOQ.

\* = Out of Specification

Results are being reported on an as received basis.

SDG: PFO92  
Matrix: LIQUID

**Instrumental Water Quality**  
Fraction: Instrumental Wet Chemistry

LCS: P32767CQ		Batch: <b>16327667603A</b> (Sample number(s): 8707416-8707419 )							
		Batch: <b>16327667603B</b> (Sample number(s): 8707415 )							
Parameter	ME	Spike Added mg/l	LCS Conc mg/l	LCSD Conc mg/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Total Organic Carbon	TOC	25	26.29	NA	105	NA	91-113	NA	NA

SDG: PFO92

Instrument ID: 12177  
Calibration Date: 11/18/2016

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
TOC	11479	63902	80798	198612	376878	722183	0.9997

Acceptance Range:  
ICV/CCV: 90%-110%  
ICB/CCB: < LOQ

Concentration units: mg/L

Batch Numbers: 16327667603A, 16327667603B  
Run Start Dates: 11/22/2016  
Run Names: 1632701G04

Sample	TOC		
	True	Result	%Rec
ICV	25	25.088	100
ICB	0	ND	NA
CCV2	25	26.528	106
CCB	0	ND	NA
CCV2	25	26.348	105
CCB	0	ND	NA
CCV2	25	26.702	107
CCB	0	ND	NA
CCV2	25	26.520	106
CCB	0	ND	NA

# **Raw Data**

## **Instrumental Wet Chemistry**



Fraction: Instrumental Wet Chemistry

<b>00273: Total Organic Carbon</b> <b>Analyte Name</b>	<b>Default</b> <b>MDL</b>	<b>Default</b> <b>LOQ</b>	<b>Units</b>
Total Organic Carbon	0.50	1.0	mg/l

Run Name: 1632301G04  
 Data File Name: 16323CAL.G04  
 Run Start Date/Time: 11/18/2016 11:32  
 Instrument Number: 12177  
 Instrument Name: O.I. Analytical Aurora 1030  
 Analyst: Drew M Gerhart 6676

Book ID                      Page Number  
 242920                              42

**Initial Calibration Summary**

<u>Standards</u>	<u>Area Counts</u>	<u>True (mg/L)</u>
S0	953	0
S1.0	11479	1.0
S7.5	63902	7.5
S10.0	80798	10.0
S25.0	198612	25.0
S50.0	376878	50.0
S100.0	722183	100.0

File Name: 16323CAL.G04  
Calibration Date/Time: 11/18/2016 11:32:03AM  
Correlation Coefficient: 0.99965  
Y Intercept: 8831.77483  
Slope: 7198.87636

**QC Values**

<u>Type</u>	<u>Description</u>	<u>True (mg/L)</u>	<u>Lower Window (mg/L)</u>	<u>Upper Window (mg/L)</u>
LCS				
PB		0.0	-1.00	1.00

Reviewed By:

DG6676

Reviewed Date

11-18-16

Verified By:

Verified Date

  
 Joseph McGenzie  
 Chemist

NOV 19 2016

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1632301G04

Instrument Number: 12177

Analyst ID: 6676

Injection # Date/Time: 11/18/2016 11:32

<b>0</b> <b>CLEANUP</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 0.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 5783
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Comments: -----

Injection # Date/Time: 11/18/2016 11:42

<b>1</b> <b>RINSE</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 0.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 898
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Comments: -----

Injection # Date/Time: 11/18/2016 11:54

<b>2</b> <b>MBLANK</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 0.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 1079
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Comments: -----

Injection # Date/Time: 11/18/2016 12:04

<b>3</b> <b>S0</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 0.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 953
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Comments: -----

Injection # Date/Time: 11/18/2016 12:14

<b>4</b> <b>S1.0</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 1.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 11479
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Comments: -----

Injection # Date/Time: 11/18/2016 12:21

<b>5</b> <b>S7.5</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 7.50000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 63902
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Comments: -----

Injection # Date/Time: 11/18/2016 12:28

<b>6</b> <b>S10.0</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 10.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 80798
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Comments: -----

Injection # Date/Time: 11/18/2016 12:35

<b>7</b> <b>S25.0</b>	<u>Dil Factor</u> 1.0	<u>Raw Result (mg/L)</u> 25.00000	<u>Calculated Result (mg/L)</u>	<u>Area Count</u> 198612
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Comments: -----

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1632301G04

Instrument Number: 12177

Analyst ID: 6676

Injection # Date/Time: 11/18/2016 12:42

	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>8</b> S50.0	1.0	50.00000		376878

Comments: -----

Injection # Date/Time: 11/18/2016 12:49

	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>9</b> S100.0	1.0	100.00000		722183

Comments: -----

Injection # Date/Time: 11/18/2016 12:59

	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>10</b> RINSE	1.0	0.00000		1560

Comments: -----

Injection # Date/Time: 11/18/2016 13:12

	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>11</b> ICV	1.0	25.08800		189438

Comments: -----

Injection # Date/Time: 11/18/2016 13:18

	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>12</b> ICB	1.0	0.00000		755

Comments: -----

User ID: toc	Name: Total Organic Carbon
Title: Mr	Dept: OIC-TOC

**Results - Quick View - Result Data**

Result Information

Date/Time Start: 2016-11-18; 11:23:06 AM  
 Date/Time End: 2016-11-18; 01:18:45 PM  
 Comments: Result Header

Configuration:

Active Syringe:  
 Active Syringe Size: 10.00 (mL)  
 Priming at Start of Run: Y

Rinse:  
 Rinse Vol: 10.00 (mL)  
 Rinse at Start of Run: Y

Active Sample Intro: Rotary Auto Sampler  
 Sample Strirring in A/S: N  
 With Solids/CRDS: N

Options:  
 Chamber 1: Y  
 Chamber 2: Y  
 Use POC Module: N

Other Devices:  
 Use Attached Printer: N

Automatic Repeat of Sequence  
 Enable Auto Repeat: N  
 Delay (hh:mm:ss): 00:00:00

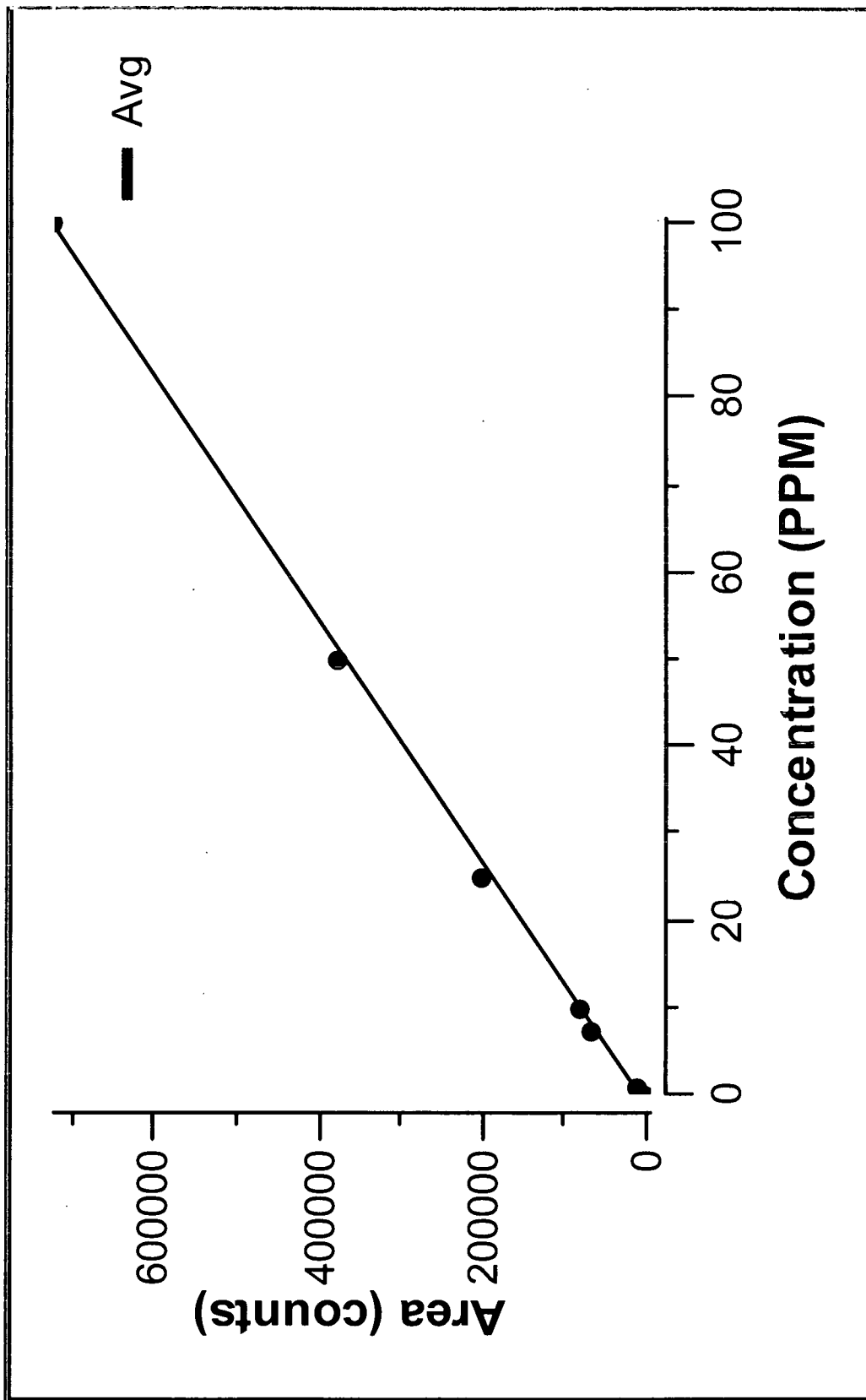
Standby Settings:  
 Chamber 1 (C): 70  
 Chamber 2 (C): 70  
 Pressure (psi): 20.00  
 Flowrate (mL/min): 30.00

Enable User Notices: Y  
 A-Factor Linearization Used: Y

Sequence Summary

Sequence: 16323CAL Last Modified: 2016/11/18; 09:53:09AM

Seq#	Vial	Sample ID	Reps	Method	Type	Dil	Priority
1	-	Clean Up	2	DefaultCleanUpMethod	Clean Up	1	N
2	1	RINSE	2	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Sample		1	N
3	2	METHOD BLANK	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1QC Blank		1	N
4	3	TOC-RW	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
5	4	TOC-Std#1-1.000 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
6	5	TOC-Std#2-7.500 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
7	6	TOC-Std#3-10.000 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
8	7	TOC-Std#4-25.000 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
9	8	TOC-Std#5-50.000 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
10	9	TOC-Std#6-100.000 PPM	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Std		1	N
11	10	RINSE	2	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Sample		1	N
12	11	ICV	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Sample		1	N
13	12	ICB/RB	1	LLTOC JUNE 13 2016 - Jun 13, 2016; 05-43-1Sample		1	N



Run Name: 1632701G04  
 Data File Name: 16327G04.G04  
 Run Start Date/Time: 11/22/2016 11:42  
 Instrument Number: 12177  
 Instrument Name: O.I. Analytical Aurora 1030  
 Analyst: Drew M Gerhart 6676

Book ID                      Page Number  
 242920                              42

**Initial Calibration Summary**

<u>Standards</u>	<u>Area Counts</u>	<u>True (mg/L)</u>
S0	953	0
S1.0	11479	1.0
S7.5	63902	7.5
S10.0	80798	10.0
S25.0	198612	25.0
S50.0	376878	50.0
S100.0	722183	100.0

File Name: 16323CAL.G04  
Calibration Date/Time: 11/18/2016 11:32:03AM  
Correlation Coefficient: 0.99965  
Y Intercept: 8831.77483  
Slope: 7198.87636

**QC Values**

<u>Type</u>	<u>Description</u>	<u>True (mg/L)</u>	<u>Lower Window (mg/L)</u>	<u>Upper Window (mg/L)</u>
LCS	25 mg/l	25.0	22.63	28.35
PB		0.0	-1.00	1.00

Reviewed By: Drew M Gerhart                      Reviewed Date 11/26/2016 15:31

Verified By: Joseph E McKenzie                      Verified Date 11/27/2016 20:31

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection # Date/Time: 11/22/2016 11:42

<b>0</b> <b>CLEANUP</b>	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	0.00000		3923

Comments:

Injection # Date/Time: 11/22/2016 11:52

<b>1</b> <b>RINSE</b>	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	0.00000		1870

Comments:

Injection # Date/Time: 11/22/2016 12:05

<b>2</b> <b>25 TIC</b>	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	24.10100		182332

Comments:

Injection # Date/Time: 11/22/2016 12:12

<b>3</b> <b>CCV2</b>	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	26.42400		199056

% Recovery = 106

Comments:

Injection # Date/Time: 11/22/2016 12:18

<b>4</b> <b>CCB</b>	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	0.00000		1381

Comments:

Injection #	<u>Date/Time:</u>	<u>Batch:</u>	<u>Class:</u>	<u>Element:</u>	<u>Verified</u>
<b>5</b> <b>LCS</b>	11/22/2016 12:26	16327667602A	*****	TOC	<input type="checkbox"/>
	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u> <u>Area Count 2</u>
	1.0	26.38900	25.88800	26.13850	198801   195199

Comments:

Injection #	<u>Date/Time:</u>	<u>Batch:</u>	<u>Class:</u>	<u>Element:</u>	<u>Verified</u>
<b>6</b> <b>PB</b>	11/22/2016 12:38	16327667602A	*****	TOC	<input type="checkbox"/>
	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u> <u>Area Count 2</u>
	1.0	0.00000	0.00000	0.00000	858   936

Comments:

Injection #	<u>Date/Time:</u>	<u>Batch:</u>	<u>Class:</u>	<u>SDG:</u>	<u>Element:</u>	<u>Verified</u>
<b>7</b> <b>8705237</b>	11/22/2016 12:51	16327667602A	U*****	ROD88	TOC	<input checked="" type="checkbox"/>
	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u> <u>Area Count 2</u>	
	1.0	0.00000	0.00000	0.00000	5269   5282	

Comments:



**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>8</b>	11/22/2016 13:04	16327667602A	R*****	ROD88	TOC	<input checked="" type="checkbox"/>
<b>8705238</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	10.67600	10.47700	10.57650	85685	84253

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>9</b>	11/22/2016 13:17	16327667602A	D*****	ROD88	TOC	<input checked="" type="checkbox"/>
<b>8705240</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	0.00000	0.00000	0.00000	4983	4528

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>10</b>	11/22/2016 13:30	16327667602A	*****		TOC	<input checked="" type="checkbox"/>
<b>8705122</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	2.69000	2.66900	2.67950	28200	28043

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>11</b>	11/22/2016 13:43	16327667602A	*****		TOC	<input checked="" type="checkbox"/>
<b>8705123</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	2.64600	2.62500	2.63550	27877	27725

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>12</b>	11/22/2016 13:56	16327667602A	*****	ROD88	TOC	<input checked="" type="checkbox"/>
<b>8705231</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	0.00000	0.00000	0.00000	3188	3332

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>13</b>	11/22/2016 14:08	16327667602A	*****	ROD88	TOC	<input checked="" type="checkbox"/>
<b>8705233</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	0.00000	0.00000	0.00000	2279	3072

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>14</b>	11/22/2016 14:21	16327667602A	*****	ROD88	TOC	<input checked="" type="checkbox"/>
<b>8705235</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
	1.0	0.00000	0.00000	0.00000	1086	1225

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
<b>15</b>	11/22/2016 14:34					
<b>CCV2</b>	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)		Area Count	
	1.0	26.51400			199701	

% Recovery = 106

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection # Date/Time: 11/22/2016 14:40

<b>16</b> CCB	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	0.00000		802

Comments:

Injection # Date/Time: 11/22/2016 14:48 Batch: 16327667602A Class: \*\*\*\*\* SDG: ROD88 Element: TOC Verified

<b>17</b> 8705245	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	2903	3552	

Comments:

Injection # Date/Time: 11/22/2016 15:00 Batch: 16327667602A Class: \*\*\*\*\* SDG: ROD88 Element: TOC Verified

<b>18</b> 8705247	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	3293	4079	

Comments:

Injection # Date/Time: 11/22/2016 15:13 Batch: 16327667602A Class: \*\*\*\*\* SDG: ROD88 Element: TOC Verified

<b>19</b> 8705249	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	5180	5913	

Comments:

Injection # Date/Time: 11/22/2016 15:25 Batch: 16327667602A Class: \*\*\*\*\* SDG: ROD88 Element: TOC Verified

<b>20</b> 8705251	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	5468	6042	

Comments:

Injection # Date/Time: 11/22/2016 15:39 Batch: 16327667602B Class: U\*\*\*\*\* SDG: ROD89 Element: TOC Verified

<b>21</b> 8705253	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.36900	0.37900	0.37400	11486	11564	

Comments:

Injection # Date/Time: 11/22/2016 15:52 Batch: 16327667602B Class: R\*\*\*\*\* SDG: ROD89 Element: TOC Verified

<b>22</b> 8705254	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	11.54100	11.36400	11.45250	91911	90640	

Comments:

Injection # Date/Time: 11/22/2016 16:05 Batch: 16327667602B Class: D\*\*\*\*\* SDG: ROD89 Element: TOC Verified

<b>23</b> 8705256	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.05900	0.02950	8671	9256	

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>24</b>	11/22/2016 16:18	16327667602B	*****	ROD89	TOC		<input checked="" type="checkbox"/>
<b>8705261</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	0.00000	0.03200	0.01600	8829	9066	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>25</b>	11/22/2016 16:31	16327667602B	*****	ROD89	TOC		<input checked="" type="checkbox"/>
<b>8705263</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	0.00000	0.00000	0.00000	4378	4810	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>26</b>	11/22/2016 16:44	16327667602B	*****	ROD89	TOC		<input checked="" type="checkbox"/>
<b>8705265</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	0.00000	0.00000	0.00000	4375	4674	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>27</b>	11/22/2016 16:57						
<b>CCV2</b>							
	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)		Area Count		
	1.0	26.52800			199811		
			% Recovery = 106				

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>28</b>	11/22/2016 17:03						
<b>CCB</b>							
	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)		Area Count		
	1.0	0.00000			850		

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>29</b>	11/22/2016 17:10	16327667602B	*****	ROD89	TOC		<input checked="" type="checkbox"/>
<b>8705268</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	0.00000	0.00000	0.00000	1310	1083	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>30</b>	11/22/2016 17:24	16327667602B	*****		TOC		<input checked="" type="checkbox"/>
<b>8705327</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	5.71000	5.39300	5.55150	49935	47657	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>31</b>	11/22/2016 17:37	16327667602B	*****		TOC		<input checked="" type="checkbox"/>
<b>8705330</b>							
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	
	1.0	1.00700	0.92200	0.96450	16079	15471	

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>32</b>	11/22/2016 17:50	16327667602B	*****	Area	Count 1	Count 2
<b>8705332</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	3868	3911
	1.0	0.00000	0.00000	0.00000		

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>33</b>	11/22/2016 18:03	16327667602B	*****	Area	Count 1	Count 2
<b>8705335</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	44636	42699
	1.0	4.97400	4.70500	4.83950		

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>34</b>	11/22/2016 18:15	16327667602B	*****	Area	Count 1	Count 2
<b>8705336</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	3992	4324
	1.0	0.00000	0.00000	0.00000		

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>35</b>	11/22/2016 18:29	16327667603A	*****	Area	Count 1	Count 2
<b>LCS</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	200122	196115
	1.0	26.57200	26.01600	26.29400		

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>36</b>	11/22/2016 18:42	16327667603A	*****	Area	Count 1	Count 2
<b>PB</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	1070	1310
	1.0	0.00000	0.00000	0.00000		

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>37</b>	11/22/2016 18:55	16327667603A	*****	Area	Count 1	Count 2
<b>8707096</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	342703	337232
	5.0	46.37800	45.61800	229.99000		

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>38</b>	11/22/2016 19:08	16327667603A	*****	CQ447	Area	Count 1	Count 2
<b>8707713</b>	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	3829	2459	
	1.0	0.00000	0.00000	0.00000			

Comments:

Injection #	Date/Time	Raw Result	Calculated Result	Area
<b>39</b>	11/22/2016 19:21	(mg/L)	(mg/L)	Count
<b>CCV2</b>	Dil Factor	26.34800		198511
	1.0			

% Recovery = 105

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection # Date/Time: 11/22/2016 19:28

<b>40</b> CCB	<u>Dil Factor</u>	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	1.0	0.00000		1133

Comments:

Injection # Date/Time: 11/22/2016 19:35 Batch: 16327667603A Class: U\*\*\*\*\* SDG:PFO92 Element: TOC Verified

<b>41</b> 8707416	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	1.12100	1.14600	1.13350	16899	17079	

Comments:

Injection # Date/Time: 11/22/2016 19:49 Batch: 16327667603A Class: R\*\*\*\*\* SDG:PFO92 Element: TOC Verified

<b>42</b> 8707417	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	12.12700	11.57700	11.85200	96130	92172	

Comments:

Injection # Date/Time: 11/22/2016 20:02 Batch: 16327667603A Class: M\*\*\*\*\* SDG:PFO92 Element: TOC Verified

<b>43</b> 8707418	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	11.95900	11.64300	11.80100	94921	92647	

Comments:

Injection # Date/Time: 11/22/2016 20:15 Batch: 16327667603A Class: \*\*\*\*\* SDG:PFO92 Element: TOC Verified

<b>44</b> 8707419	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.50200	0.55400	0.52800	12443	12821	

Comments:

Injection # Date/Time: 11/22/2016 20:28 Batch: 16327667603A Class: \*\*\*\*\* Element: TOC Verified

<b>45</b> 8707759	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.01200	0.00600	8116	8919	

Comments:

Injection # Date/Time: 11/22/2016 20:41 Batch: 16327667603A Class: \*\*\*\*\* Element: TOC Verified

<b>46</b> 8707761	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	6748	7377	

Comments:

Injection # Date/Time: 11/22/2016 20:54 Batch: 16327667603A Class: \*\*\*\*\* Element: TOC Verified

<b>47</b> 8707763	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u>	<u>Area Count 2</u>	<input checked="" type="checkbox"/>
	1.0	0.00000	0.00000	0.00000	6240	6654	

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>48</b>	11/22/2016 21:07	16327667603A	*****	Area	Area	<input checked="" type="checkbox"/>
<b>8704608</b>				Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)		
	1.0	0.00000	0.00000	0.00000	1241	1183

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>49</b>	11/22/2016 21:20	16327667603A	*****	Area	Area	<input checked="" type="checkbox"/>
<b>8704610</b>				Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)		
	1.0	0.00000	0.00000	0.00000	1412	1231

Comments:

Injection #	Date/Time	Batch	Class	Element	TOC	Verified
<b>50</b>	11/22/2016 21:33	16327667603A	*****	Area	Area	<input checked="" type="checkbox"/>
<b>8704612</b>				Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)		
	1.0	0.00000	0.00000	0.00000	1757	1192

Comments:

Injection #	Date/Time	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>51</b>	11/22/2016 21:46			
<b>CCV2</b>	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	26.70200		201059
			% Recovery = 107	

Comments:

Injection #	Date/Time	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>52</b>	11/22/2016 21:53			
<b>CCB</b>	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	0.00000		773

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>53</b>	11/22/2016 22:01	16327667603B	U*****	PFO92	Area	Area	<input checked="" type="checkbox"/>
<b>8707415</b>					Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)			
	1.0	0.38400	0.48400	0.43400	11593	12315	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>54</b>	11/22/2016 22:14	16327667603B	D*****	PFO92	Area	Area	<input checked="" type="checkbox"/>
<b>8707415</b>					Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)			
	1.0	0.43200	0.46000	0.44600	11942	12144	

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	TOC	Verified
<b>55</b>	11/22/2016 22:27	16327667603B	R*****	PFO92	Area	Area	<input type="checkbox"/>
<b>8707415</b>					Count 1	Count 2	
	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)			
	1.0	11.61400	11.11200	11.36300	92447	88825	

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 1632701G04

Instrument Number: 12177

Analyst ID: 6676

Injection #	Date/Time	Batch	Class	Element	Verified
<b>56</b> 8704614	11/22/2016 22:40	16327667603B	*****	TOC	<input checked="" type="checkbox"/>
	<u>Dil Factor</u>	<u>Raw Result 1 (mg/L)</u>	<u>Raw Result 2 (mg/L)</u>	<u>Calculated Average Result (mg/L)</u>	<u>Area Count 1</u> <u>Area Count 2</u>
	1.0	0.00000	0.00000	0.00000	3022    2878

Comments:

Injection #	Date/Time	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>57</b> CCV2	11/22/2016 22:53	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	<u>Dil Factor</u>	26.52000		199744
	1.0		% Recovery = 106	

Comments:

Injection #	Date/Time	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
<b>58</b> CCB	11/22/2016 23:00	<u>Raw Result (mg/L)</u>	<u>Calculated Result (mg/L)</u>	<u>Area Count</u>
	<u>Dil Factor</u>	0.00000		570
	1.0			

Comments:

# **Wet Chemistry Data**



# **Case Narrative/Conformance Summary**

## **Wet Chemistry**

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO92**

### Water Quality

Fraction: Wet Chemistry

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
8707415	MS-MW-8(11182016)	X		1	
8707416	MS-MW-4(11182016)	X		1	
8707419	MS-DUP-001(11182016)	X		1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

#### MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

### SAMPLE ANALYSIS:

pH, Temperature of pH are measured directly and therefore no calculations are needed.

No problems were encountered with the analysis of the samples.

## Case Narrative/Conformance Summary

**CLIENT: Honeywell International, Inc.**  
**SDG: PFO92**

### Water Quality

Fraction: Wet Chemistry

#### Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

# **QC Summary**

## **Wet Chemistry**

**Quality Control Reference List  
Water Quality**

**CLIENT: Honeywell International, Inc.  
SDG: PFO92**

**Fraction: Wet Chemistry**

<b>Batch Number</b>	<b>Sample Number</b>	<b>Analysis Date</b>	<b>pH</b>	<b>Temperature of pH</b>
16334003103A	8707415	11/29/2016 21:42:00	X	X
	8707416 UNSPK	11/29/2016 21:32:00	X	X
	8707419	11/29/2016 21:46:00	X	X
	P003103Q	11/29/2016 20:38:00	X	
	P710188D DUP	11/29/2016 20:47:00	X	X
	P710188U BKG	11/29/2016 20:42:00	X	X

**Water Quality**

Fraction: Wet Chemistry

BKG: P710188U DUP: P710188D	Batch: <b>16334003103A</b> (Sample number(s): 8707415-8707416, 8707419 )				
<b>Parameter</b>	<b>ME</b>	<b>Unspiked Conc Std. Units</b>	<b>DUP Conc Std. Units</b>	<b>%RPD</b>	<b>%RPD Limits</b>
pH	MTR	7.35	7.5	2	3

BKG: P710188U DUP: P710188D	Batch: <b>16334003103A</b> (Sample number(s): 8707415-8707416, 8707419 )				
<b>Parameter</b>	<b>ME</b>	<b>Unspiked Conc Degrees C</b>	<b>DUP Conc Degrees C</b>	<b>%RPD</b>	<b>%RPD Limits</b>
Temperature of pH	MTR	21.93	22.08	1	5

Comments:

(1) The sample and/or duplicate result is less than five times the LOQ.

\* = Out of Specification

Results are being reported on an as received basis.

SDG: PFO92  
Matrix: LIQUID

**Water Quality**  
Fraction: Wet Chemistry

LCS: P003103Q	Batch: <b>16334003103A</b> (Sample number(s): 8707415-8707416, 8707419 )								
<b>Parameter</b>	<b>ME</b>	<b>Spike Added Std. Units</b>	<b>LCS Conc Std. Units</b>	<b>LCSD Conc Std. Units</b>	<b>LCS %Rec</b>	<b>LCSD %Rec</b>	<b>%Rec Limits</b>	<b>%RPD</b>	<b>%RPD Limits</b>
pH	MTR	7.00	6.99	NA	100	NA	95-105	NA	NA

**Raw Data**

**Wet Chemistry**



Fraction: Wet Chemistry

<b>12152: pH</b> <b>Analyte Name</b>	<b>Default MDL</b>	<b>Default LOQ</b>	<b>Units</b>
pH	0.010	0.010	Std. Units

<b>12151: Temperature of pH</b> <b>Analyte Name</b>	<b>Default MDL</b>	<b>Default LOQ</b>	<b>Units</b>
Temperature of pH	0.010	0.010	Degrees C

## Water Quality Run Report

**Run Name: 20161129-31**

**Instrument: 19074**

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Analysis Name</u>	<u>Units</u>
Bicarbonate	mg/l as CaCO3
Carbonate	mg/l as CaCO3
Phenolphthalein Alkalinity	mg/l as CaCO3
Specific Conductance	umhos/cm
Temperature of pH	Degrees C
Total Alkalinity	mg/l as CaCO3
pH	Std. Units

<u>Analysis Name</u>	<u>QC Check</u>	<u>True Value</u>	<u>Acceptance Range</u>
Specific Conductance	CCVSC1	147.00	132.30 - 161.70
Specific Conductance	CCVSC2	1413.00	1271.70 - 1554.30
Specific Conductance	CCVSC3	12900.00	11610.00 - 14190.00
pH	CCVPH2	7.00	6.27 - 7.73
pH	CCVPH8	8.00	7.20 - 8.80

<u>Analysis Name</u>	<u>QC Check</u>	<u>Acceptance Range</u>
Specific Conductance	CCB	< 5.00
Specific Conductance	PBW	< 5.00
Total Alkalinity	CCB	< 5.00
Total Alkalinity	PBW	< 5.00

<u>Analysis Name</u>	<u>Reagent Name</u>	<u>Lot Info</u>
Total Alkalinity	188 MG/L LCS	244519p9
Total Alkalinity	0.02N H2SO4	244519p1
pH	PH7	2607916
pH	PH4	2607B39
pH	PH10	2607B88

<u>Analysis Name</u>	<u>LCS</u>	<u>True Value</u>	<u>Acceptance Range</u>	<u>Lot Information</u>
Specific Conductance	LCSSC	147.00	140.39 - 153.47	244519p6
Total Alkalinity	LCSAK	188.00	157.92 - 206.80	244519p9
pH	LCSPH	7.00	6.62 - 7.38	F168-05

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
Tap	105277			1.00	11/29/2016 16:48		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Bicarbonate	15.12	15.12					
Carbonate	0.00	0.00					
Hydroxide	0.00	0.00					
Phenolphthalein Alkalinity	0.00	0.00					
pH	5.42	5.42					
Total Alkalinity	15.12	15.12					
Temperature of pH	22.61	22.61					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
CCVSC1	105278	CCV		1.00	11/29/2016 16:51		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	148.20	148.20					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
CCVPH2	105279	CCV		1.00	11/29/2016 16:53		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
pH	7.00	7.00					
Temperature of pH	21.69	21.69					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
CCB	105280	CCB		1.00	11/29/2016 16:59		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	0.17	0.17					
pH	6.06	6.06					
Temperature of pH	21.66	21.66					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
PBW	105281	B	16334003101A	1.00	11/29/2016 17:03		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	0.07	0.07	Y	Y			
pH	5.68	5.68					
Temperature of pH	21.79	21.79					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
LCSSC	105282	Q	16334003101A	1.00	11/29/2016 17:04		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	148.90	148.90	Y	Y			
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Run Date:</b>		
LCSPH	105283	Q	16334003101A	1.00	11/29/2016 17:07		
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
pH	6.99	6.99	Y	Y			
Temperature of pH	21.73	21.73					
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Bottle</b>	<b>Run Date:</b>	
8704379	105284	U	16334003101A	1.00	070A	11/29/2016 17:12	
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	1.44	1.44	Y	Y			
pH	5.78	5.78	Y	Y			
Temperature of pH	21.90	21.90	Y	Y			
<b>Sample</b>	<b>Index</b>	<b>QC Type</b>	<b>Batch</b>	<b>Dilution</b>	<b>Bottle</b>	<b>Run Date:</b>	
8704379	105285	D	16334003101A	1.00	070A	11/29/2016 17:16	
<b>Analysis Name</b>	<b>Raw Result</b>	<b>CalcResult</b>	<b>Uploaded?</b>	<b>Verified</b>	<b>QC Review Notes</b>	<b>Selection Reason</b>	
Specific Conductance	1.20	1.20	Y	Y			
pH	5.48	5.48	Y	Y			
Temperature of pH	21.85	21.85	Y	Y			

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8709189	105286	U	16334003101B	1.00	070A	11/29/2016 17:20
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.23	1.23	Y	Y		
pH	5.44	5.44	Y	Y		
Temperature of pH	21.57	21.57	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8709189	105287	D	16334003101B	1.00	070A	11/29/2016 17:23
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.21	1.21	Y	Y		
pH	5.44	5.44	Y	Y		
Temperature of pH	21.43	21.43	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8684040	105288		16334003101A	1.00	070A	11/29/2016 17:27
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.09	1.09	Y	Y		
pH	5.45	5.45	Y	Y		
Temperature of pH	21.34	21.34	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8679347	105289		16334003101A	1.00	070A	11/29/2016 17:31
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.10	1.10	Y	Y		
pH	5.45	5.45				
Temperature of pH	21.34	21.34				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8709190	105290		16334003101A	1.00	070A	11/29/2016 17:35
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.16	1.16	Y	Y		
pH	5.46	5.46	Y	Y		
Temperature of pH	21.40	21.40	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
CCVSC2	105291	CCV		1.00		11/29/2016 17:36
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Specific Conductance	1401.00	1,401.00				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
CCVPH2	105292	CCV		1.00		11/29/2016 17:39
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
pH	7.00	7.00				
Temperature of pH	21.69	21.69				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
CCB	105293	CCB		1.00		11/29/2016 17:44
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Specific Conductance	0.21	0.21				
pH	6.07	6.07				
Temperature of pH	21.74	21.74				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8709191	105294		16334003101A	1.00	070A	11/29/2016 17:48
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.36	1.36	Y	Y		
pH	5.55	5.55	Y	Y		
Temperature of pH	21.79	21.79	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8684041	105295		16334003101A	1.00	070A	11/29/2016 17:52
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Specific Conductance	1.14	1.14	Y	Y
pH	5.47	5.47		
Temperature of pH	22.17	22.17		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8691901	105296		16334003101A	1.00	070A	11/29/2016 17:56
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.07	1.07	Y	Y		
pH	5.43	5.43	Y	Y		
Temperature of pH	21.92	21.92	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8712696	105297		16334003101A	1.00	070A	11/29/2016 18:00
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.13	1.13	Y	Y		
pH	5.42	5.42	Y	Y		
Temperature of pH	21.71	21.71	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8696868	105298		16334003101A	1.00	070A	11/29/2016 18:03
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.18	1.18	Y	Y		
pH	5.44	5.44	Y	Y		
Temperature of pH	21.63	21.63	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8696869	105299		16334003101A	1.00	070A	11/29/2016 18:07
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1.15	1.15	Y	Y		
pH	5.45	5.45	Y	Y		
Temperature of pH	21.53	21.53	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8711383	105300		16334003101A	1.00	070A	11/29/2016 18:11
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	0.57	0.57	Y	Y		
pH	5.37	5.37				
Temperature of pH	21.48	21.48				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8711384	105301		16334003101A	1.00	070A	11/29/2016 18:15
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	0.80	0.80	Y	Y		
pH	5.33	5.33				
Temperature of pH	21.53	21.53				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8698815	105302		16334003101A	1.00	070A	11/29/2016 18:19
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	0.53	0.53	Y	Y		
pH	5.37	5.37				
Temperature of pH	21.70	21.70				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8715430	105303		16334003101A	1.00	070A	11/29/2016 18:23
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	4.21	4.21	Y	Y		
pH	6.02	6.02	Y	Y		
Temperature of pH	22.35	22.35	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
CCVSC3	105304	CCV		1.00		11/29/2016 18:24
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Specific Conductance	12410.00	12,410.00				

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Run Date:</u>	
CCVPH2	105305	CCV		1.00	11/29/2016 18:27	
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
pH	7.00	7.00				
Temperature of pH	22.10	22.10				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Run Date:</u>	
CCB	105306	CCB		1.00	11/29/2016 18:34	
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Bicarbonate	3.92	3.92				
Carbonate	0.00	0.00				
Specific Conductance	0.24	0.24				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	6.04	6.04				
Total Alkalinity	3.92	3.92				
Temperature of pH	21.77	21.77				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8698611	105307		16334003101A	1.00	070A	11/29/2016 18:37
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	368.00	368.00	Y	Y		
pH	7.50	7.50				
Temperature of pH	21.76	21.76				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8708615	105308		16334003101A	1.00	005A	11/29/2016 18:41
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	283.00	283.00	Y	Y		
pH	7.73	7.73	Y	Y		
Temperature of pH	21.64	21.64	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8698609	105309		16334003101A	1.00	070A	11/29/2016 18:45
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	339.00	339.00	Y	Y		
pH	7.49	7.49				
Temperature of pH	21.67	21.67				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8704886	105310		16334003101A	1.00	070A	11/29/2016 18:49
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	474.00	474.00	Y	Y		
pH	7.53	7.53	Y	Y		
Temperature of pH	21.64	21.64	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8699786	105311		16334003101A	1.00	070A	11/29/2016 18:53
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	665.00	665.00	Y	Y		
pH	6.83	6.83				
Temperature of pH	22.11	22.11				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Run Date:</u>	
PBW	105312	B	16334003102A	1.00	11/29/2016 18:58	
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	2.38	2.38				
Carbonate	0.00	0.00				
Specific Conductance	2.28	2.28	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	6.60	6.60				
Total Alkalinity	2.38	2.38				

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
LCSSC	105313	Q	16334003102A	1.00		11/29/2016 19:00
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	148.60	148.60	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
LCSAK	105314	Q	16334003102A	1.00		11/29/2016 19:08
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	20.77	20.77				
Carbonate	164.50	164.50				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	82.25	82.25				
pH	10.26	10.26		Y		
Total Alkalinity	185.27	185.27	Y	Y		
Temperature of pH	22.45	22.45				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
LCSPH	105315	Q	16334003102A	1.00		11/29/2016 19:12
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99	Y	Y		
Temperature of pH	21.93	21.93				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8712531	105316	U	16334003102A	1.00	070A	11/29/2016 19:20
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	307.55	307.55	Y			
Carbonate	0.00	0.00	Y			
Specific Conductance	719.00	719.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.36	7.36	Y	Y		
Total Alkalinity	307.55	307.55	Y	Y		
Temperature of pH	21.73	21.73	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
CCVSC2	105317	CCV		1.00		11/29/2016 19:22
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1406.00	1,406.00				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
CCVPH2	105318	CCV		1.00		11/29/2016 19:25
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99				
Temperature of pH	21.79	21.79				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
CCB	105319	CCB		1.00		11/29/2016 19:32
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	0.70	0.70				
Carbonate	0.00	0.00				
Specific Conductance	0.97	0.97				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	6.03	6.03				
Total Alkalinity	0.70	0.70				
Temperature of pH	22.08	22.08				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8712531	105320	R	16334003102A	1.00	070A	11/29/2016 19:39
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	397.55	397.55	Y			
Carbonate	45.39	45.39	Y			



# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Specific Conductance	900.00	900.00	Y	
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	22.69	22.69		
pH	8.64	8.64	Y	
Total Alkalinity	442.93	442.93	Y	Y
Temperature of pH	22.25	22.25	Y	

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8712531	105321	D	16334003102A	1.00	070A	11/29/2016 19:46
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	308.06	308.06	Y			
Carbonate	0.00	0.00	Y			
Specific Conductance	715.00	715.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.47	7.47	Y	Y		
Total Alkalinity	308.06	308.06	Y	Y		
Temperature of pH	22.23	22.23	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8712546	105322	U	16334003102B	1.00	070A	11/29/2016 19:53
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	313.07	313.07	Y			
Carbonate	0.00	0.00	Y			
Specific Conductance	763.00	763.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.35	7.35	Y	Y		
Total Alkalinity	313.07	313.07	Y	Y		
Temperature of pH	22.10	22.10	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8712546	105323	D	16334003102B	1.00	070A	11/29/2016 20:00
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	314.73	314.73	Y			
Carbonate	0.00	0.00	Y			
Specific Conductance	766.00	766.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.38	7.38	Y	Y		
Total Alkalinity	314.73	314.73	Y	Y		
Temperature of pH	22.54	22.54	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8712540	105324		16334003102A	1.00	070A	11/29/2016 20:08
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	296.81	296.81	Y	Y		
Carbonate	0.00	0.00	Y	Y		
Specific Conductance	673.00	673.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.42	7.42	Y	Y		
Total Alkalinity	296.81	296.81	Y	Y		
Temperature of pH	22.70	22.70	Y	Y		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8705383	105325		16334003102A	1.00	005A	11/29/2016 20:11
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance	1721.00	1,721.00				
pH	6.85	6.85	Y	Y		
Temperature of pH	22.35	22.35	Y	Y		



# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
8700522	105326		16334003102A	1.00	004A	11/29/2016 20:15	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance		359.00	359.00	Y			
pH		7.66	7.66	Y			
Temperature of pH		22.10	22.10	Y			
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
8710917	105327		16334003102A	1.00	005A	11/29/2016 20:19	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance		1313.00	1,313.00				
pH		6.96	6.96	Y	Y		
Temperature of pH		21.86	21.86	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
8698814	105328		16334003102A	1.00	070A	11/29/2016 20:23	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Specific Conductance		0.60	0.60	Y	Y		
pH		7.09	7.09				
Temperature of pH		21.86	21.86				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
CCVSC1	105329	CCV		1.00		11/29/2016 20:24	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Specific Conductance		148.10	148.10				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
CCVPH2	105330	CCV		1.00		11/29/2016 20:27	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
pH		7.00	7.00				
Temperature of pH		22.20	22.20				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
CCB	105331	CCB		1.00		11/29/2016 20:35	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
Bicarbonate		1.35	1.35				
Carbonate		0.00	0.00				
Specific Conductance		0.28	0.28				
Hydroxide		0.00	0.00				
Phenolphthalein Alkalinity		0.00	0.00				
pH		6.25	6.25				
Total Alkalinity		1.35	1.35				
Temperature of pH		22.05	22.05				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
LCSPH	105332	Q	16334003103A	1.00		11/29/2016 20:38	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH		6.99	6.99	Y	Y		
Temperature of pH		22.17	22.17				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
8710188	105333	U	16334003103A	1.00	070A	11/29/2016 20:42	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH		7.35	7.35	Y	Y		
Temperature of pH		21.93	21.93	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>	
8710188	105334	D	16334003103A	1.00	070A	11/29/2016 20:47	
<u>Analysis Name</u>		<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH		7.50	7.50	Y	Y		
Temperature of pH		22.08	22.08	Y	Y		

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8709821	105335	U	16334003103B	1.00	070A	11/29/2016 20:52
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.12	7.12	Y	Y		
Temperature of pH	21.96	21.96	Y	Y		
8709821	105336	D	16334003103B	1.00	070A	11/29/2016 20:56
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.09	7.09	Y	Y		
Temperature of pH	22.37	22.37	Y	Y		
8705087	105337		16334003103A	1.00	070A	11/29/2016 21:01
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.16	6.16	Y	Y		
Temperature of pH	22.16	22.16	Y	Y		
8709822	105338		16334003103A	1.00	070A	11/29/2016 21:06
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.03	7.03	Y	Y		
Temperature of pH	22.07	22.07	Y	Y		
8710191	105339		16334003103A	1.00	070A	11/29/2016 21:10
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.63	7.63	Y	Y		
Temperature of pH	21.90	21.90	Y	Y		
8707506	105340		16334003103A	1.00	070A	11/29/2016 21:14
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.18	8.18	Y	Y		
Temperature of pH	21.74	21.74	Y	Y		
8705088	105341		16334003103A	1.00	070A	11/29/2016 21:19
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	5.91	5.91	Y	Y		
Temperature of pH	22.28	22.28	Y	Y		
CCVPH2	105342	CCV		1.00		11/29/2016 21:23
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.00	7.00				
Temperature of pH	22.26	22.26				
8704120	105343		16334003103A	1.00	070A	11/29/2016 21:28
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.29	6.29	Y	Y		
Temperature of pH	22.20	22.20	Y	Y		
8707416	105344		16334003103A	1.00	070A	11/29/2016 21:32
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.11	7.11	Y	Y		
Temperature of pH	22.29	22.29	Y	Y		
8711003	105345		16334003103A	1.00	085A	11/29/2016 21:37
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.36	7.36	Y	Y		

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8707415	105346		16334003103A	1.00	070A	11/29/2016 21:42
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.40	7.40	Y	Y		
Temperature of pH	22.45	22.45	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8707419	105347		16334003103A	1.00	070A	11/29/2016 21:46
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.43	7.43	Y	Y		
Temperature of pH	22.42	22.42	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8704121	105348		16334003103A	1.00	070A	11/29/2016 21:51
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	5.51	5.51	Y	Y		
Temperature of pH	22.17	22.17	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8707506	105349		16334003103A	1.00	004A	11/29/2016 21:55
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.07	8.07	Y	Y		
Temperature of pH	21.98	21.98	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8705211	105350		16334003103A	1.00	070A	11/29/2016 21:59
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.08	8.08	Y	Y		
Temperature of pH	21.92	21.92	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8707895	105351		16334003103A	1.00	070A	11/29/2016 22:03
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.09	7.09	Y	Y		
Temperature of pH	22.43	22.43	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8704496	105352		16334003103A	1.00	004A	11/29/2016 22:08
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.69	6.69	Y	Y		
Temperature of pH	22.39	22.39	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
CCVPH2	105353	CCV		1.00		11/29/2016 22:12
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.00	7.00				
Temperature of pH	22.20	22.20				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8709820	105354		16334003103A	1.00	070A	11/29/2016 22:17
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.97	6.97	Y	Y		
Temperature of pH	22.40	22.40	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8698326	105355		16334003103A	1.00	005B	11/29/2016 22:21
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.02	7.02	Y	Y		
Temperature of pH	22.31	22.31	Y	Y		

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8705858	105356		16334003103A	1.00	005A	11/29/2016 22:26
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99	Y	Y		
Temperature of pH	22.52	22.52	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
LCSPH	105357	Q	16334003104A	1.00		11/29/2016 22:30
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99	Y	Y		
Temperature of pH	22.51	22.51				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8708110	105358	U	16334003104A	1.00	005A	11/29/2016 22:35
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.69	6.69	Y	Y		
Temperature of pH	22.31	22.31	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8708110	105359	D	16334003104A	1.00	005A	11/29/2016 22:39
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.73	6.73	Y	Y		
Temperature of pH	22.22	22.22	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8708111	105360	U	16334003104B	1.00	005A	11/29/2016 22:44
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.74	6.74	Y	Y		
Temperature of pH	22.14	22.14	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8708111	105361	D	16334003104B	1.00	005A	11/29/2016 22:49
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.86	6.86	Y	Y		
Temperature of pH	22.78	22.78	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8711224	105362		16334003104A	1.00	070A	11/29/2016 22:53
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.34	7.34	Y	Y		
Temperature of pH	22.51	22.51	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8704981	105363		16334003104A	1.00	004A	11/29/2016 22:57
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.56	6.56	Y	Y		
Temperature of pH	22.22	22.22	Y	Y		
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
CCVPH2	105364	CCV		1.00		11/29/2016 23:01
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99				
Temperature of pH	22.35	22.35				
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8703454	105365		16334003104A	1.00	005A	11/29/2016 23:06
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.44	7.44	Y			
Temperature of pH	22.28	22.28	Y			
<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8704081	105366		16334003104A	1.00	005A	11/29/2016 23:10
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.04	8.04	Y	Y		

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703454	105367		16334003104A	1.00	070A	11/29/2016 23:15
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.80	7.80	Y	Y		
Temperature of pH	22.64	22.64	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703269	105368		16334003104A	1.00	005A	11/29/2016 23:20
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.00	7.00	Y	Y		
Temperature of pH	22.42	22.42	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703255	105369		16334003104A	1.00	005A	11/29/2016 23:24
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.96	7.96	Y	Y		
Temperature of pH	22.13	22.13	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703257	105370		16334003104A	1.00	005A	11/29/2016 23:28
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.57	7.57	Y	Y		
Temperature of pH	22.16	22.16	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703801	105371		16334003104A	1.00	070A	11/29/2016 23:32
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.78	6.78	Y	Y		
Temperature of pH	22.46	22.46	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703917	105372		16334003104A	1.00	070A	11/29/2016 23:36
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.10	8.10	Y	Y		
Temperature of pH	22.61	22.61	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703800	105373		16334003104A	1.00	070A	11/29/2016 23:41
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.38	7.38	Y	Y		
Temperature of pH	22.42	22.42	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703591	105374		16334003104A	1.00	070A	11/29/2016 23:46
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.84	7.84	Y	Y		
Temperature of pH	22.49	22.49	Y	Y		
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
CCVPH2	105375	CCV		1.00		11/29/2016 23:50
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99				
Temperature of pH	22.28	22.28				
Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8702757	105376		16334003104A	1.00	070A	11/29/2016 23:54
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.06	8.06	Y	Y		
Temperature of pH	22.66	22.66	Y	Y		

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8704119	105377		16334003104A	1.00	070A	11/29/2016 23:59
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.04	6.04	Y	Y		
Temperature of pH	22.61	22.61	Y	Y		
8712083	105378		16334003104A	1.00	085A	11/30/2016 0:02
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.64	8.64				
Temperature of pH	22.26	22.26				
LCSPH	105379	Q	16334003105A	1.00		11/30/2016 0:07
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.99	6.99	Y	Y		
Temperature of pH	22.14	22.14				
8712082	105380	U	16334003105A	1.00	085A	11/30/2016 0:11
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.80	7.80	Y	Y		
Temperature of pH	22.22	22.22	Y	Y		
8712082	105381	D	16334003105A	1.00	085A	11/30/2016 0:16
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.89	7.89	Y	Y		
Temperature of pH	22.61	22.61	Y	Y		
8704109	105382	U	16334003105B	1.00	070A	11/30/2016 0:21
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.22	6.22				
Temperature of pH	22.55	22.55				
8704109	105383	D	16334003105B	1.00	070A	11/30/2016 0:25
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.26	6.26				
Temperature of pH	22.49	22.49				
8702618	105384		16334003105A	1.00	070A	11/30/2016 0:30
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.09	7.09				
Temperature of pH	22.45	22.45				
8710182	105385		16334003105A	1.00	070A	11/30/2016 0:35
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.02	7.02				
Temperature of pH	22.28	22.28				
CCVPH2	105386	CCV		1.00		11/30/2016 0:39
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
pH	6.99	6.99				
Temperature of pH	22.72	22.72				
8702574	105387		16334003105A	1.00	070A	11/30/2016 0:43
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.39	6.39				



# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8703038	105388		16334003105A	1.00	070A	11/30/2016 0:48
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.63	7.63				
Temperature of pH	22.42	22.42				
8702484	105389		16334003105A	1.00	070A	11/30/2016 0:52
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	8.07	8.07				
Temperature of pH	22.14	22.14				
8704106	105390		16334003105A	1.00	070A	11/30/2016 0:57
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.21	7.21				
Temperature of pH	22.23	22.23				
8710180	105391		16334003105A	1.00	070A	11/30/2016 1:01
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	9.05	9.05				
Temperature of pH	22.67	22.67				
8710183	105392		16334003105A	1.00	070A	11/30/2016 1:05
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.49	7.49				
Temperature of pH	22.58	22.58				
8704105	105393		16334003105A	1.00	070A	11/30/2016 1:10
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	6.30	6.30				
Temperature of pH	22.43	22.43				
8710184	105394		16334003105A	1.00	070A	11/30/2016 1:15
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.22	7.22				
Temperature of pH	22.46	22.46				
8698326	105395		16334003105A	1.00	005A	11/30/2016 1:19
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.19	7.19	Y			
Temperature of pH	22.42	22.42	Y			
8712604	105396		16334003105A	1.00	005A	11/30/2016 1:24
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
pH	7.13	7.13				
Temperature of pH	22.54	22.54				
CCVPH2	105397	CCV		1.00		11/30/2016 1:28
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>		
pH	6.99	6.99				
Temperature of pH	22.66	22.66				

# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8700959	105398		16334003105A	1.00	005A	11/30/2016 1:33

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.12	7.12	Y	Y		
Temperature of pH	22.45	22.45	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Run Date:
CCVPH2	105399	CCV		1.00	11/30/2016 1:44

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
Bicarbonate	1413.45	1,413.45		
Carbonate	0.00	0.00		
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00		
pH	6.99	6.99		
Total Alkalinity	1413.45	1,413.45		
Temperature of pH	22.31	22.31		

Sample	Index	QC Type	Batch	Dilution	Run Date:
CCB	105400	CCB		1.00	11/30/2016 1:52

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
Bicarbonate	1.80	1.80		
Carbonate	0.00	0.00		
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00		
pH	6.56	6.56		
Total Alkalinity	1.80	1.80		
Temperature of pH	22.87	22.87		

Sample	Index	QC Type	Batch	Dilution	Run Date:
PBW	105401	B	16334003106A	1.00	11/30/2016 1:59

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	0.62	0.62				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	5.44	5.44				
Total Alkalinity	0.62	0.62	Y	Y		
Temperature of pH	22.67	22.67				

Sample	Index	QC Type	Batch	Dilution	Run Date:
LCSAK	105402	Q	16334003106A	1.00	11/30/2016 2:07

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	36.88	36.88				
Carbonate	146.22	146.22				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	73.11	73.11				
pH	10.06	10.06				
Total Alkalinity	183.10	183.10	Y	Y		
Temperature of pH	22.26	22.26				

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
8700597	105403	U	16334003106A	1.00	005A	11/30/2016 2:15

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	228.43	228.43				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.20	7.20				
Total Alkalinity	228.43	228.43	Y	Y		
Temperature of pH	22.87	22.87				



# Water Quality Run Report

Run Name: 20161129-31

Instrument: 19074

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8700597	105404	R	16334003106A	1.00	005A	11/30/2016 2:23
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	394.81	394.81				
Carbonate	0.31	0.31				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.15	0.15				
pH	8.30	8.30				
Total Alkalinity	395.11	395.11	Y	Y		
Temperature of pH	22.58	22.58				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8700597	105405	D	16334003106A	1.00	005A	11/30/2016 2:31
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	230.44	230.44				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.25	7.25				
Total Alkalinity	230.44	230.44	Y	Y		
Temperature of pH	22.42	22.42				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8700596	105406		16334003106A	1.00	005A	11/30/2016 2:40
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	7.72	7.72				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	6.27	6.27				
Total Alkalinity	7.72	7.72	Y	Y		
Temperature of pH	22.77	22.77				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8700594	105407		16334003106A	1.00	005A	11/30/2016 2:47
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	35.33	35.33				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.00	7.00				
Total Alkalinity	35.33	35.33	Y	Y		
Temperature of pH	22.35	22.35				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8701884	105408		16334003106A	1.00	070A	11/30/2016 2:55
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	82.00	82.00				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.27	7.27				
Total Alkalinity	82.00	82.00	Y	Y		
Temperature of pH	22.77	22.77				

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Bottle</u>	<u>Run Date:</u>
8704108	105409		16334003106A	1.00	070A	11/30/2016 3:02
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Uploaded?</u>	<u>Verified</u>	<u>QC Review Notes</u>	<u>Selection Reason</u>
Bicarbonate	129.02	129.02				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				

## Water Quality Run Report

**Run Name: 20161129-31**

**Instrument: 19074**

Analyst : 7940 - Nathan T. Morgan

Verifier : 1124 - Michele L. Graham

pH	6.62	6.62		
Total Alkalinity	129.02	129.02	Y	Y
Temperature of pH	22.45	22.45		

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Run Date:</u>
CCVPH2	105410	CCV		1.00	11/30/2016 3:06
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>	
pH	7.00	7.00			
Temperature of pH	22.07	22.07			

<u>Sample</u>	<u>Index</u>	<u>QC Type</u>	<u>Batch</u>	<u>Dilution</u>	<u>Run Date:</u>
CCB	105411	CCB		1.00	11/30/2016 3:15
<u>Analysis Name</u>	<u>Raw Result</u>	<u>CalcResult</u>	<u>Verified</u>	<u>QC Review Notes</u>	
Bicarbonate	2.46	2.46			
Carbonate	0.00	0.00			
Hydroxide	0.00	0.00			
Phenolphthalein Alkalinity	0.00	0.00			
pH	6.88	6.88			
Total Alkalinity	2.46	2.46			
Temperature of pH	22.61	22.61			

# *Data Validation Report*

**DATA USABILITY SUMMARY REPORT (DUSR)**

Site: Arnold & Porter, Hoosick, New York

SDG / Group Number: PFO91 & PFO92 / 1735634 & 1735637

Laboratory: Eurofins Lancaster Laboratories

Date: December 20, 2016

EDS Sample ID	Client Sample ID	Laboratory Sample Numbers	Matrix
01	MS-MW-8(11182016)	8707403	Water
02	MS-MW-4(11182016)	8707404	Water
02MS	MS-MW-4(11182016)-MS	8707405MS	Water
02MSD	MS-MW-4(11182016)-MSD	8707406MSD	Water
03	MS-DUP-001(11182016)	8707407	Water
04*	MS-EB-001(11182016)	8707408	QC

\* - PFC Only

Note (s): The laboratory reports positively identified results between the reporting limit (RL) and the method detection limit (MDL) with a J. These results are considered estimated, however still valid and useable for project objectives.

**PERFLUORINATED COMPOUNDS (PFCs)**

USEPA Method 537, Rev. 1.1 Mod

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Data Review (August 2014), and the reviewer's professional judgment were used in evaluating the data in this summary report.

Holding Times (HT) - All HT criteria were met.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - A MS/MSD sample was selected by the client and analyzed on EDS ID 02. All %Rs and RPDs met QC criteria except for the following.

MS/MSD Sample ID	Compound	MS %R/MSD %R/RPD	Qualifier	Affected Samples
02	Perfluorooctanoic acid	OK/21%/OK	None	4X Rule Applies 02
	Perfluorononanoic acid	OK/65%/OK	UJ	
	Perfluoroundecanoic acid	OK/65%/OK	UJ	
	Perfluorotridecanoic acid	OK/68%/OK	UJ	
	Perfluorotetradecanoic acid	OK/60%/OK	UJ	

MS/MSD Sample ID	Compound	MS %R/MSD %R/RPD	Qualifier	Affected Samples
02	Perfluorohexanoic acid	OK/68%/OK	J	02
	Perfluoroheptanoic acid	OK/65%/OK	J	

Laboratory Control Sample (LCS) - All %R values met QC criteria.

Method Blank (MB) - The method blanks applicable to the samples exhibited no target compounds.

Equipment Blank (EB) - The equipment blank sample MS-EB-001(11182016) exhibited no target compounds.

Initial Calibration (ICAL) - The ICAL exhibited acceptable %D and/or coefficient of determination criteria.

Continuing Calibration (CCV) - The CCVs exhibited acceptable percent deviation (%D) values (<40%).

Internal Standard (IS) Area Performance - All internal standards met area response and retention time (RT) criteria except for the following.

EDS Sample ID	Internal Standard	Area Count	Qualifier	Affected Samples
01	13C4-PFOA	Low	None	Dilution Result Reported
02	13C4-PFOA	Low	None	Dilution Result Reported
03	13C4-PFOA	Low	None	Dilution Result Reported

Field Duplicate - Field duplicate sample results are summarized below. The precision was acceptable.

Compound	MS-MW-8 ng/L	MS-DUP-001 ng/L	RPD	Qualifier
Perfluorooctanoic acid	2300	2000	14%	None
Perfluorohexanoic acid	44	36	20%	
Perfluoroheptanoic acid	81	65	22%	

Sample Analysis - EDS Sample ID #s 01, 02 and 03 were analyzed at a 10X dilution due to high concentrations of perfluorooctanoic acid. The reporting limits were adjusted accordingly. No action was required.

**TOTAL ORGANIC CARBON (TOC) & pH**  
STANDARD METHODS 5310 & 4500

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Data Review (August 2014), and the reviewer's professional judgment were used in evaluating the data in this summary report.

Holding Times (HT) - All HT criteria were met.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - A MS/MSD sample was selected by the client and analyzed on EDS ID 02 for TOC. All %Rs and RPDs met QC criteria.

A MS sample was selected by the laboratory and analyzed on EDS ID 01 for TOC. The %R was high at 114%, however, the sample result is nondetect and no qualifications were required.

Laboratory Control Sample (LCS) - All %R values met QC criteria.

Method Blank (MB) - The method blanks applicable to the samples exhibited no target compounds.

Equipment Blank (EB) - The equipment blank sample was not analyzed for TOC or pH.

Initial Calibration (ICAL) - The ICAL exhibited acceptable %D and/or coefficient of determination criteria.

Continuing Calibration (CCV) - The CCVs exhibited acceptable percent recoveries (%R).

Field Duplicate - Field duplicate sample results are summarized below. The precision was acceptable.

Compound	MS-MW-8 mg/L	MS-DUP-001 mg/L	RPD	Qualifier
TOC	0.50U	0.53	NC	None
pH	7.4 units	7.4 units	0%	

Sample Analysis - All criteria were met.

<b>Data Qualifier</b>	<b>Definition</b>
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limits is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.





Sample Description: MS-MW-8(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707403  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:45 by TD

Honeywell International, Inc.

Submitted: 11/19/2016 10:00

6100 Philadelphia Pike

Reported: 11/30/2016 12:07

Claymont DE 19703

MSM08 SDG#: PFO91-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	2,300	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	44	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	81	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 15:29	Atulbhai Patel	1
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 19:35	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

2

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Sample Description: MS-MW-4(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707404  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSM04 SDG#: PFO91-02BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>			<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	890	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 <i>UJ</i>	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 <i>UJ</i>	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 <i>UJ</i>	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 <i>UJ</i>	3	5	1
10954	Perfluorohexanoic acid	307-24-4	32 <i>J</i>	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	34 <i>J</i>	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

**Sample Comments**

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

**Laboratory Sample Analysis Record**

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 14:40	Atulbhai Patel	1
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 19:18	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

*MW1215116*

Sample Description: MS-DUP-001(11182016) Grab  
Groundwater  
Hoosick

LL Sample # WW 8707407  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:00 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 12:07

MSMFD SDG#: PFO91-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	2,000	10	20	10
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	36	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	65	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

**Sample Comments**

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

**Laboratory Sample Analysis Record**

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 15:45	Atulbhai Patel	1
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 19:51	Atulbhai Patel	10
14091	PFAA Water Prep	EPA 537 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result

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Sample Description: MS-EB-001(11182016) Grab  
Water  
Hoosick

LL Sample # WW 8707408  
LL Group # 1735634  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:30 by TD

Honeywell International, Inc.

Submitted: 11/19/2016 10:00

6100 Philadelphia Pike

Reported: 11/30/2016 12:07

Claymont DE 19703

MSMEB SDG#: PFO91-04EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Misc. Organics</b>		<b>EPA 537 Rev. 1.1 modified</b>	<b>ng/l</b>	<b>ng/l</b>	<b>ng/l</b>	
10954	Perfluorooctanoic acid	335-67-1	1 U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1 U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2 U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2 U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1 U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1 U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4 U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5 U	5	10	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	12 PFCCs Water	EPA 537 modified	1	16330002	11/29/2016 16:02	Atulbhai Patel	1
14091	PFAA Water Prep	EPA 537 modified	1	16330002	11/28/2016 07:50	Robert Brown	1

\*=This limit was used in the evaluation of the final result



Sample Description: MS-MW-8(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707415  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 09:45 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-8 SDG#: PFO92-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
<b>Wet Chemistry</b>						
00273	Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 0.50 U	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.5	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.4	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603B	11/22/2016 22:01	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:42	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:42	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result

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Sample Description: MS-MW-4(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707416  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:30 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-4 SDG#: PFO92-02BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
00273	Wet Chemistry Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 1.1	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.3	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.1	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 19:35	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:32	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:32	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result

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Sample Description: MS-DUP-001(11182016) Grab Groundwater  
Hoosick

LL Sample # WW 8707419  
LL Group # 1735637  
Account # 10651

Project Name: Hoosick

Collected: 11/18/2016 12:00 by TD

Honeywell International, Inc.  
6100 Philadelphia Pike  
Claymont DE 19703

Submitted: 11/19/2016 10:00

Reported: 11/30/2016 09:51

MSM-D SDG#: PFO92-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
00273	Wet Chemistry Total Organic Carbon	SM 5310 C-2000 n.a.	mg/l 0.53 J	mg/l 0.50	mg/l 1.0	1
12151	Temperature of pH	EPA 170.1 n.a.	Degrees C 22.4	Degrees C 0.010	Degrees C 0.010	1
12152	pH	SM 4500-H+ B-2000 n.a.	Std. Units 7.4	Std. Units 0.010	Std. Units 0.010	1

### Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00273	Total Organic Carbon	SM 5310 C-2000	1	16327667603A	11/22/2016 20:15	Drew M Gerhart	1
12151	Temperature of pH	EPA 170.1	1	16334003103A	11/29/2016 21:46	Nathan T Morgan	1
12152	pH	SM 4500-H+ B-2000	1	16334003103A	11/29/2016 21:46	Nathan T Morgan	1

\*=This limit was used in the evaluation of the final result