



**Groundwater Sample Results,
Level 4 Laboratory Report,
and the Sample Location Report, SDG EML22 (1608156)**

*Naval Air Station Pensacola
Pensacola, Florida*

July 2019

N00204_005866
NAS PENSACOLA, FL
SSIC 5000-33c

LABORATORY DATA PACKAGE, 1608156 (EML22), NAS PENSACOLA FL
08/14/2016
EMPIRICAL LABORATORIES

Approved for public release: distribution unlimited.



ANALYTICAL DATA PACKAGE

SDG # 1608156

PROJECT NAME: NAS Pensacola UST Site 18

SUBMITTAL TO:

Damon DeYoung
Battelle
505 King Avenue
Columbus, OH 43201-2696

SUBMITTAL BY:

Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
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LABORATORY CONTACT PERSON:

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Original Report Date: August 14, 2016

Report Revision #: N/A

Revision Date: N/A

THIS DOCUMENT MEETS DoD QSM 4.2 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Data Review Manager, Ms. Amy Barnett, is responsible for the final data produced and reported. Her signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

L-A-B Accredited - Certificate Number L2226 - Testing

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Sample Delivery Group Case Narrative

Receipt Information:

The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. Samples were subcontracted to Eurofins for PFC .

Changes to the Revision:

This is an original submittal of the final report package.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, the Data Quality Manager, Technical Directors or Project Managers are authorized to sign this Statement of Data Authenticity.



Ms. Amy M. Barnett
Data Review Manager

DoD Type I Data Package

Prepared for:

Empirical Laboratories, LLC

621 Mainstream Drive
Nashville TN 37228

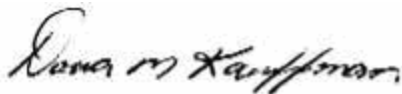
Project: NAS Pensacola UST Site 18
Groundwater and Water Samples
Collected on 08/12/16

SDG# EML22

GROUP	SAMPLE NUMBERS
1694814	8525860-8525872

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: 09/12/2016

Any questions or concerns you might have regarding this data package should be directed to your client representative, Stephen Gordon at (724) 597-2027.

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**Sample Reference List for SDG Number EML22
with a Data Package Type of I-DOD**

19793 - Empirical Laboratories, LLC
Project: NAS Pensacola UST Site 18

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8525860	18GI27-20160812	08/12/2016 09:10	08/13/2016 10:00
8525861	18GS03-20160812	08/12/2016 09:45	08/13/2016 10:00
8525862	18GS03-20160812-MS	08/12/2016 09:45	08/13/2016 10:00
8525863	18GS03-20160812-MSD	08/12/2016 09:45	08/13/2016 10:00
8525864	18GS03-20160812-DUP	08/12/2016 09:45	08/13/2016 10:00
8525865	18MW32S-20160812	08/12/2016 09:55	08/13/2016 10:00
8525866	18GS21-20160812	08/12/2016 10:25	08/13/2016 10:00
8525867	18MW33I-20160812	08/12/2016 10:40	08/13/2016 10:00
8525868	18GS16-20160812	08/12/2016 11:05	08/13/2016 10:00
8525869	18GS30-20160812	08/12/2016 11:05	08/13/2016 10:00
8525870	18GI31-20160812	08/12/2016 11:40	08/13/2016 10:00
8525871	18-SB-20160812	08/12/2016 12:05	08/13/2016 10:00
8525872	18-EB-20160812	08/12/2016 12:10	08/13/2016 10:00

Sample pH Log

SDG: EML22

<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>
8525860	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:24:45AM	8044
8525861	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:22:24AM	8044
8525862	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:24:50AM	8044
8525863	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:25:14AM	8044
8525864	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:24:57AM	8044
8525865	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:25:35AM	8044
8525866	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:24:42AM	8044
8525867	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:25:31AM	8044
8525868	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:24:54AM	8044
8525869	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:22:10AM	8044
8525870	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:25:38AM	8044
8525871	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:22:18AM	8044
8525872	201A	N/A	NA	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/15/2016 8:25:01AM	8044

Check Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = 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:

Prepared for:

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

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Report Date: August 29, 2016

Project: NAS Pensacola UST Site 18

Submittal Date: 08/13/2016

Group Number: 1694814

SDG: EML22

PO Number: 16-0779

State of Sample Origin: FL

Client Sample Description

	Lancaster Labs (LL) #
18GI27-20160812 Grab Groundwater	8525860
18GS03-20160812 Grab Groundwater	8525861
18GS03-20160812-MS Grab Groundwater	8525862
18GS03-20160812-MSD Grab Groundwater	8525863
18GS03-20160812-DUP Grab Groundwater	8525864
18MW32S-20160812 Grab Groundwater	8525865
18GS21-20160812 Grab Groundwater	8525866
18MW33I-20160812 Grab Groundwater	8525867
18GS16-20160812 Grab Groundwater	8525868
18GS30-20160812 Grab Groundwater	8525869
18GI31-20160812 Grab Groundwater	8525870
18-SB-20160812 Grab Water	8525871
18-EB-20160812 Grab Water	8525872

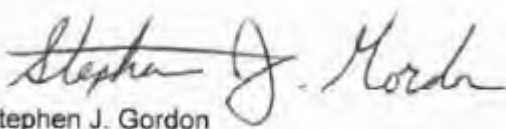
The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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

Electronic Copy To Empirical Laboratories, LLC

Attn: Marianne Walker

Respectfully Submitted,



Stephen J. Gordon
Project Manager

(724) 597-2027

Project Name: NAS Pensacola UST Site 18
LL Group #: 1694814

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if 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.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**EPA 537 Rev. 1.1 modified, Misc. Organics**

Sample #s: 8525860, 8525861, 8525862, 8525863, 8525864, 8525865, 8525866, 8525867, 8525868, 8525869, 8525870, 8525871, 8525872

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16235008 (Sample number(s): 8525860-8525872 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorooctanoic acid, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

Sample Description: 18GI27-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525860
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:10 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GI-27 SDG#: EML22-01

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	6,300	100	200	200	100
10954	Perfluoro-octanesulfonate	1763-23-1	120,000	500	1,000	1,000	1000
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:07	Jason W Knight	100
10954	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:17	Jason W Knight	1000
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS03-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525861
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:45 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-03 SDG#: EML22-02BKG

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	6,800	100	200	200	100
10954	Perfluoro-octanesulfonate	1763-23-1	37,000	500	1,000	1,000	100
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:27	Jason W Knight	100
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS03-20160812-MS Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525862
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:45 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-03 SDG#: EML22-02MS

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	7,000	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	49,000	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 22:00	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS03-20160812-MSD Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525863
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:45 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-03 SDG#: EML22-02MSD

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	6,700	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	32,000	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 22:10	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS03-20160812-DUP Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525864
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:45 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS03D SDG#: EML22-03FD

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	6,500	100	200	200	100
10954	Perfluoro-octanesulfonate	1763-23-1	35,000	500	1,000	1,000	100
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:36	Jason W Knight	100
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18MW32S-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525865
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 09:55 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

1832S SDG#: EML22-04

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	34	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	N.D.	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 22:30	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS21-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525866
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 10:25 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-21 SDG#: EML22-05

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2,800	100	200	200	100
10954	Perfluoro-octanesulfonate	1763-23-1	720	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 22:59	Jason W Knight	10
10954	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:46	Jason W Knight	100
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18MW33I-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525867
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 10:40 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

1833I SDG#: EML22-06

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	11,000	100	200	200	100
10954	Perfluoro-octanesulfonate	1763-23-1	49,000	500	1,000	1,000	100
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/26/2016 05:56	Jason W Knight	100
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS16-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525868
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 11:05 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-16 SDG#: EML22-07

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	14 J	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	86 J	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 23:18	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GS30-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525869
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 11:05 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GS-30 SDG#: EML22-08

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	12 J	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	76 J	50	100	100	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 23:28	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18GI31-20160812 Grab Groundwater
NAS Pensacola UST Site 18

LL Sample # WW 8525870
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 11:40 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

GI-31 SDG#: EML22-09

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	48	10	20	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	88 J	50	100	100	10
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 23:38	Jason W Knight	10
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18-SB-20160812 Grab Water
NAS Pensacola UST Site 18

LL Sample # WW 8525871
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 12:05 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

18-SB SDG#: EML22-10BL

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2 J	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	N.D.	5	10	10	1
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 23:48	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Sample Description: 18-EB-20160812 Grab Water
NAS Pensacola UST Site 18

LL Sample # WW 8525872
LL Group # 1694814
Account # 19793

Project Name: NAS Pensacola UST Site 18

Collected: 08/12/2016 12:10 by DD

Empirical Laboratories, LLC
621 Mainstream Drive
Nashville TN 37228

Submitted: 08/13/2016 10:00

Reported: 08/29/2016 12:22

18-EB SDG#: EML22-11EB

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics		EPA 537 Rev. 1.1 modified	ng/l	ng/l	ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	3	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	N.D.	5	10	10	1
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.							

Sample Comments

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	PFOA/PFOS	EPA 537 Rev. 1.1 modified	1	16235008	08/25/2016 23:57	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16235008	08/23/2016 10:20	Devon M Whooley	1

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

Quality Control Summary

Client Name: Empirical Laboratories, LLC
Reported: 08/29/2016 12:22

Group Number: 1694814

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	DL**	LOD	LOQ
	ng/l	ng/l	ng/l	ng/l
Batch number: 16235008	Sample number(s): 8525860-8525872			
Perfluorooctanoic acid	N.D.	1	2	2
Perfluoro-octanesulfonate	N.D.	5	10	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: 16235008	Sample number(s): 8525860-8525872								
Perfluorooctanoic acid	200	157.38			79		70-130		
Perfluoro-octanesulfonate	191.2	128.1			67*		70-130		

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
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16235008	Sample number(s): 8525860-8525872 UNSPK: 8525861									
Perfluorooctanoic acid	6816.64	200	6989.74	200	6665.46	87 (2)	-75 (2)	70-130	5	30
Perfluoro-octanesulfonate	37332.57	191.2	49474.08	191.2	32147.66	6350 (2)	-2711 (2)	70-130	42*	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.

(3) The surrogate spike amount was less than the LOD.

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: Empirical Laboratories, LLC
Reported: 08/29/2016 12:22

Group Number: 1694814

*- 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.
- (3) The surrogate spike amount was less than the LOD.

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

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 19793 Group # 1694814 Sample # 8525860-72

COC # 506220

Client Information				Matrix			Analysis Requested										For Lab Use Only				
Client: <u>Battelle</u>		Acct. #:		<input type="checkbox"/> Tissue	<input checked="" type="checkbox"/> Ground	<input type="checkbox"/> Surface	Preservation Codes										FSC: _____	SCR#: <u>1919/0</u>			
Project Name/ #: <u>NAS Pensacola UST Site 18</u>		PWSID #:															Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other				
Project Manager: <u>Damon DeLong</u>		P.O. #:		<input type="checkbox"/> Sediment	<input type="checkbox"/> Potable	<input type="checkbox"/> NPDES											Remarks <u>Tri:zma preservative</u>				
Sampler: <u>D. DeLong / S. Moore</u>		Quote #:																			
State where samples were collected: <u>Florida</u>		For Compliance: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		<input type="checkbox"/> Soil	<input type="checkbox"/> Water	<input type="checkbox"/> Other:	Total # of Containers														
Sample Identification		Collected						Grab	Composite	Soil	Water	Other:	Total # of Containers								
Date	Time	Grab	Composite	Soil	Water	Other:	Total # of Containers														
<u>18G127-20160812</u>	<u>08/12/16 0910</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18G503-20160812</u>	<u>08/12/16 0945</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18G503-20160812 - DUP</u>	<u>08/12/16 0945</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18G503-20160812 - MS</u>	<u>08/12/16 0945</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18G503-20160812 - MSD</u>	<u>08/12/16 0945</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18MW325-20160812</u>	<u>08/12/16 0955</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18GS21-20160812</u>	<u>08/12/16 1025</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18MW33I-20160812</u>	<u>08/12/16 1040</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													
<u>18GS16-20160812</u>	<u>08/12/16 1105</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>X</u>													

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Relinquished by: <u>Cynthia A. Montgomery</u>	Date: <u>7/26/16</u>	Time: <u>11:25</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by: <u>Sharon Moore</u>	Date: <u>8/12/16</u>	Time: <u>1600</u>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by: <u>E. Sanchez</u>	Date: <u>8-13-16</u>	Time: <u>1000</u>

Data Package Options (circle if required)

- Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
- Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
- NYSDEC Category A or B MA MCP CT RCP

EDD Required? Yes No

If yes, format: NEDD/NIRIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 1.0 °C

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 19793 Group # 16948111 Sample # 8525860-72

COC # 506221

Client Information				Matrix			Analysis Requested										For Lab Use Only																																																		
Client: <u>Battelle</u>		Acct. #:		<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Tissue	<input checked="" type="checkbox"/> Potable	<input type="checkbox"/> Ground	<input type="checkbox"/> Surface	Preservation Codes										FSC: _____	SCR#: _____																																														
Project Name/ #: <u>NAS Pensacola VST Site 18</u>		PWSID #:								0										Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other																																															
Project Manager: <u>Damon DeYoung</u>		P.O. #:		Total # of Containers: <u>PPQA / PPOS</u>										Remarks <u>Triazine Preservative</u>																																																					
Sampler: <u>D. DeYoung / S. Moore</u>		Quote #:																																																																	
State where samples were collected: <u>Florida</u>		For Compliance: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Sample Identification</th> <th colspan="2">Collected</th> <th rowspan="2">Grab</th> <th rowspan="2">Composite</th> <th rowspan="2">Soil</th> <th rowspan="2">Water</th> <th rowspan="2">Other:</th> <th rowspan="2">Total # of Containers</th> </tr> <tr> <th>Date</th> <th>Time</th> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td><u>18 BS 30 - 20160812</u></td> <td><u>08/12/16</u></td> <td><u>1105</u></td> <td><u>1105</u></td> <td><u>X</u></td> <td></td> <td></td> <td><u>X</u></td> <td></td> <td><u>1</u></td> </tr> <tr> <td><u>18 GL 31 - 20160812</u></td> <td><u>08/12/16</u></td> <td><u>1140</u></td> <td><u>1140</u></td> <td><u>X</u></td> <td></td> <td></td> <td><u>X</u></td> <td></td> <td><u>1</u></td> </tr> <tr> <td><u>18 SB - 20160812</u></td> <td><u>08/12/16</u></td> <td><u>1205</u></td> <td><u>1205</u></td> <td><u>X</u></td> <td></td> <td></td> <td><u>X</u></td> <td></td> <td><u>1</u></td> </tr> <tr> <td><u>18 EB - 20160812</u></td> <td><u>08/12/16</u></td> <td><u>1210</u></td> <td><u>1210</u></td> <td><u>X</u></td> <td></td> <td></td> <td><u>X</u></td> <td></td> <td><u>1</u></td> </tr> </tbody> </table>										Sample Identification		Collected		Grab	Composite	Soil	Water	Other:	Total # of Containers	Date	Time	Date	Time	<u>18 BS 30 - 20160812</u>	<u>08/12/16</u>	<u>1105</u>	<u>1105</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>18 GL 31 - 20160812</u>	<u>08/12/16</u>	<u>1140</u>	<u>1140</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>18 SB - 20160812</u>	<u>08/12/16</u>	<u>1205</u>	<u>1205</u>	<u>X</u>			<u>X</u>		<u>1</u>	<u>18 EB - 20160812</u>	<u>08/12/16</u>	<u>1210</u>	<u>1210</u>	<u>X</u>			<u>X</u>		<u>1</u>
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<u>18 SB - 20160812</u>	<u>08/12/16</u>	<u>1205</u>	<u>1205</u>	<u>X</u>			<u>X</u>		<u>1</u>																																																										
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Turnaround Time (TAT) Requested (please circle) Standard <u>Standard</u> Rush (Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by: <u>S. Moore</u>		Date: <u>08/12/16</u>	Time: <u>1600</u>	Received by:		Date:	Time:																																																								
Date results are needed: _____				Relinquished by:		Date:	Time:	Received by:		Date:	Time:																																																								
E-mail address: _____				Relinquished by:		Date:	Time:	Received by:		Date:	Time:																																																								
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				EDD Required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, format: <u>NEDD / NIRIS</u>				Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____																																																											
				Site-Specific QC (MS/MSD/Dup)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If yes, indicate QC sample and submit triplicate sample volume.)				Temperature upon receipt <u>1.0</u> °C																																																											

Client: Battelle

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 08/13/2016 10:00
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: FL

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
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 Melvin Sanchez (8943) at 13:40 on 08/13/2016

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	1.0	DT	Wet	Y	Loose/Bag	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
18GS30	8/12/2016 11:35	
18GI31	8/12/2016 11:55	

Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	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.		
ppb	parts per billion		
Dry weight basis	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...

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: Empirical Laboratories, LLC
SDG: EML22

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

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
8525860	18GI27-20160812	X		100; 1000	
8525861	18GS03-20160812	X		100	Unspiked
8525862	18GS03-20160812-MS	X		10	Matrix Spike
8525863	18GS03-20160812-MSD	X		10	Matrix Spike Duplicate
8525864	18GS03-20160812-DUP	X		100	Field Duplicate Sample
8525865	18MW32S-20160812	X		10	
8525866	18GS21-20160812	X		10; 100	
8525867	18MW33I-20160812	X		100	
8525868	18GS16-20160812	X		10	
8525869	18GS30-20160812	X		10	
8525870	18GI31-20160812	X		10	
8525871	18-SB-20160812	X		1	Blank
8525872	18-EB-20160812	X		1	Equipment Blank

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.
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:

LCS/LCSD

(Sample number(s): 8525860-8525872: Analysis: 10954)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Case Narrative/Conformance Summary

CLIENT: Empirical Laboratories, LLC
SDG: EML22

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Batch#: 16235008 (Sample number(s): 8525860-8525872, UNSPK: 8525861)
The recovery(ies) for the following analyte(s) in the LCS is below the acceptance window:
Perfluoro-octanesulfonate

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.

(Sample number(s): 8525862: Analysis: 10954)
The internal standard response for PFOS in this sample was less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

Batch#: 16235008 (Sample number(s): 8525860-8525872, UNSPK: 8525861)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MSD is outside the acceptance window: Perfluorooctanoic acid

The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Perfluoro-octanesulfonate

Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

(Sample number(s): 8525860: Analysis: 10954)
The internal standard response for PFOS in this sample was less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

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

Quality Control and Calibration Summary Forms

PFAAs by LC/MS/MS

Quality Control Reference List Specialty Services Group

CLIENT: Empirical Laboratories, LLC
SDG: EML22

Fraction: PFAAs by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFOA/PFOS	16235008	BLK	08/25/2016 21:22:00
		LCS	08/25/2016 21:30:00
		8525860	08/26/2016 05:07:00
		8525860	08/26/2016 05:17:00
		8525861 UNSPK	08/26/2016 05:27:00
		8525862 MS	08/25/2016 22:00:00
		8525863 MSD	08/25/2016 22:10:00
		8525864	08/26/2016 05:36:00
		8525865	08/25/2016 22:30:00
		8525866	08/25/2016 22:59:00
		8525866	08/26/2016 05:46:00
		8525867	08/26/2016 05:56:00
		8525868	08/25/2016 23:18:00
		8525869	08/25/2016 23:28:00
		8525870	08/25/2016 23:38:00
		8525871 BL	08/25/2016 23:48:00
		8525872	08/25/2016 23:57:00

Fraction: PFAAs by LC/MS/MS

16235008 / BLK Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	08/25/16	N.D.	ng/l	1	2	2
Perfluoro-octanesulfonate	08/25/16	N.D.	ng/l	5	10	10

Fraction: PFAAs by LC/MS/MS

16235008	13C-PFOA	13C-PFOS	
	% Recovery	% Recovery	Limits
MB 16235008	113	115	70-130
LCS 16235008	95	112	70-130
8528562DL MS	83	44 *	70-130
8525863DL MSD	93	77	70-130
8525865DL	117	97	70-130
8525866DL	113	129	70-130
8525868DL	110	88	70-130
8525869DL	113	108	70-130
8525870DL	104	94	70-130
8525871	102	105	70-130
8525872	113	102	70-130
8525860DL2	139 *	127	70-130
8525860DL3	111	106	70-130
8525861DL2	106	100	70-130
8525864DL2	128	127	70-130
8525866DL2	119	106	70-130
8525867DL2	120	113	70-130

* Values outside of QC limits.

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

UNSPK: 8525861 MS: 8525862 MSD: 8525863 Analyte	Batch: 16235008 (Sample number(s): 8525860-8525872)								
	Spike Added ng/l	Unspiked Conc ng/l	MS Conc ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	200	6816.64	6989.74	6665.46	87 (2)	-75 (2)	70-130	5	30
Perfluoro-octanesulfonate	191.2	37332.57	49474.08	32147.66	6350 (2)	-2711 (2)	70-130	42 *	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: EML22
Matrix: LIQUID

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

LCS: LCS	Batch: 16235008 (Sample number(s): 8525860-8525872)							
	Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Analyte								
Perfluorooctanoic acid	200	157.38	NA	79	NA	70-130	NA	NA
Perfluoro-octanesulfonate	191.2	128.1	NA	67 *	NA	70-130	NA	NA



Lancaster Laboratories
Environmental

FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG25-86

Calibration Date: 08/25/2016

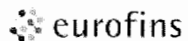
Instrument ID: 18881

Calibration Time: 20:52

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	271553	97.130	100.00	-2.87
PFOS	145429	125561	441.792	400.00	10.45

* Maximum %DRIFT = 25%.



Lancaster Laboratories
Environmental

FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG25-87

Calibration Date: 08/25/2016

Instrument ID: 18881

Calibration Time: 21:02

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	280303	95.477	100.00	-4.52
PFOS	145429	123384	422.968	400.00	5.74

* Maximum %DRIFT = 25%.

Lab File ID: 16AUG25-97

Calibration Date: 08/25/2016

Instrument ID: 18881

Calibration Time: 22:39

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	317694	93.517	100.00	-6.48
PFOS	145429	136045	420.235	400.00	5.06

* Maximum %DRIFT = 25%.



Lancaster Laboratories
Environmental

FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG25-107

Calibration Date: 08/26/2016

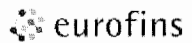
Instrument ID: 18881

Calibration Time: 00:17

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	298154	90.717	100.00	-9.28
PFOS	145429	131735	357.420	400.00	-10.65

* Maximum %DRIFT = 25%.



Lancaster Laboratories
Environmental

FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG26-07

Calibration Date: 08/26/2016

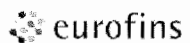
Instrument ID: 18881

Calibration Time: 04:48

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	313786	89.218	100.00	-10.78
PFOS	145429	127463	374.819	400.00	-6.30

* Maximum %DRIFT = 25%.



Lancaster Laboratories
Environmental

FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG26-16

Calibration Date: 08/26/2016

Instrument ID: 18881

Calibration Time: 06:15

Init. Calib. Date(s): 08/25/2016 - 08/25/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	341508	281338	97.222	100.00	-2.78
PFOS	145429	124188	308.515	400.00	-22.87

* Maximum %DRIFT = 25%.

Fraction: PFAAs by LC/MS/MS

16235008	13C-PFOA	13C-PFOS
	Area	Area
Average ICAL Response	99622	12537
Upper Limit	149433	18806
Lower Limit	49811	6269
Sample		
MB 16235008	112825	14439
LCS 16235008	95062	14018
8528562DL MS	83164	5514 *
8525863DL MSD	93013	9686
8525865DL	116149	12192
8525866DL	112774	16230
8525868DL	109805	11029
8525869DL	112898	13591
8525870DL	103112	11788
8525871	101852	13196
8525872	112972	12839
8525860DL2	138051	15933
8525860DL3	110676	13304
8525861DL2	105519	12514
8525864DL2	127546	15867
8525866DL2	118310	13254
8525867DL2	119581	14165

UPPER LIMIT = + 50% of internal standard area.

LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Sample Data

PFAAs by LC/MS/MS

Fraction: PFAAs by LC/MS/MS

10954: PFOA/PFOS Analyte Name	Default DL	Default LOD	Default LOQ	Units
Perfluorooctanoic acid	1	2	2	ng/l
Perfluoro-octanesulfonate	5	10	10	ng/l

LCMSMS ANALYSIS REPORT

Component Name: PFOA

Summary of Quan Results

Sample ID	Data File Name	Area	ISTD Area	Area Ratio	Specified Amount	Calculated Amount	% Diff	Excluded
8525867DL	16AUG25-100	2070899.35	74331.14	27.860	N/A	11335.756336	N/A	N/A
8525868DL	16AUG25-101	1400.87	109804.86	0.013	N/A	14.254164	N/A	N/A
8525869DL	16AUG25-102	733.27	112898.33	0.006	N/A	11.708014	N/A	N/A
8525870DL	16AUG25-103	9807.18	103111.91	0.095	N/A	47.735337	N/A	N/A
8525871	16AUG25-104	1535.05	101851.78	0.015	N/A	1.519478	N/A	N/A
8525872	16AUG25-105	5387.67	112972.42	0.048	N/A	2.845593	N/A	N/A
CCV	16AUG25-106	330784.62	122377.64	2.703	100.000000	110.796705	10.80	N/A
CCV	16AUG25-107	298154.02	134968.26	2.209	100.000000	90.716560	-9.28	N/A
MDL	16AUG25-11	565.96	134561.22	0.004	N/A	1.077743	N/A	N/A
CAL1	16AUG25-12	2450.43	101875.23	0.024	2.000000	1.884633	-5.77	N/A
CAL2	16AUG25-13	8541.62	89612.42	0.095	5.000000	4.781885	-4.36	N/A
CAL3	16AUG25-14	56733.91	98866.24	0.574	25.000000	24.236464	-3.05	N/A
CAL4	16AUG25-15	303792.99	102696.71	2.958	100.000000	121.170836	21.17	N/A
CAL5	16AUG25-16	714626.95	110266.33	6.481	300.000000	264.388919	-11.87	N/A
CAL6	16AUG25-19	962903.13	94413.94	10.199	400.000000	415.537263	3.88	N/A
ICV	16AUG25-22	111658.92	43911.32	2.543	100.000000	104.285599	4.29	N/A
CCV	16AUG25-86	271553.09	114733.25	2.367	100.000000	97.130037	-2.87	N/A
CCV	16AUG25-87	280303.44	120500.22	2.326	100.000000	95.477178	-4.52	N/A
solvent	16AUG25-88	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
MB 16235008	16AUG25-89	N/A	112825.08	N/A	N/A	N/A	N/A	N/A
LCS 16235008	16AUG25-90	365874.88	95062.03	3.849	N/A	157.380059	N/A	N/A
8525860DL	16AUG25-91	1226547.69	62103.04	19.750	N/A	8038.527812	N/A	N/A
8525861DL BKG	16AUG25-92	1283904.14	88561.46	14.497	N/A	5902.965316	N/A	N/A
8525862DL MS	16AUG25-93	1427351.97	83164.04	17.163	N/A	6986.735238	N/A	N/A
8525863DL MSD	16AUG25-94	1522882.88	93012.69	16.373	N/A	6665.461817	N/A	N/A
8525864DL	16AUG25-95	1548876.42	86417.10	17.923	N/A	7295.783790	N/A	N/A
8525865DL	16AUG25-96	7145.24	116149.22	0.062	N/A	34.077574	N/A	N/A
CCV	16AUG25-97	317693.79	139465.18	2.278	100.000000	93.516710	-6.48	N/A
solvent	16AUG25-98	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
8525866DL	16AUG25-99	634516.13	112774.15	5.626	N/A	2296.497697	N/A	N/A
solvent	16AUG26-02	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
ICV	16AUG26-03	279290.67	130602.89	2.138	100.000000	87.846505	-12.15	N/A
CCV	16AUG26-04	306802.15	137622.84	2.229	100.000000	91.538972	-8.46	N/A
CCV	16AUG26-07	313785.57	144454.53	2.172	100.000000	89.218108	-10.78	N/A
LCS 16235008RI	16AUG26-08	475709.33	112375.25	4.233	N/A	173.008682	N/A	N/A
8525860DL2	16AUG26-09	212142.17	138051.14	1.537	N/A	6338.110206	N/A	N/A
8525860DL3	16AUG26-10	16862.98	110676.08	0.152	N/A	7101.092396	N/A	N/A

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LCMSMS ANALYSIS REPORT

Sample ID	Data File Name	Area	ISTD Area	Area Ratio	Specified Amount	Calculated Amount	% Diff	Excluded
8525861DL2 BKG	16AUG26-11	174569.80	105518.71	1.654	N/A	6816.636367	N/A	N/A
8525864DL2	16AUG26-12	200214.17	127545.73	1.570	N/A	6472.481709	N/A	N/A
8525866DL2	16AUG26-13	78182.48	118309.66	0.661	N/A	2777.280828	N/A	N/A
8525867DL2	16AUG26-14	328930.03	119580.79	2.751	N/A	11273.637614	N/A	N/A
CCV	16AUG26-15	269288.45	128640.86	2.093	100.000000	86.011447	-13.99	N/A
CCV	16AUG26-16	281337.85	118753.32	2.369	100.000000	97.222464	-2.78	N/A

LCMSMS ANALYSIS REPORT

Component Name: PFOS

Summary of Quan Results

Sample ID	Data File Name	Area	ISTD Area	Area Ratio	Specified Amount	Calculated Amount	% Diff	Excluded
8525867DL	16AUG25-100	978493.78	9358.39	104.558	N/A	41109.896510	N/A	N/A
8525868DL	16AUG25-101	429.57	11029.15	0.039	N/A	86.052296	N/A	N/A
8525869DL	16AUG25-102	176.89	13591.45	0.013	N/A	75.873215	N/A	N/A
8525870DL	16AUG25-103	510.62	11788.11	0.043	N/A	87.766592	N/A	N/A
8525871	16AUG25-104	N/A	13195.87	N/A	N/A	N/A	N/A	N/A
8525872	16AUG25-105	N/A	12839.03	N/A	N/A	N/A	N/A	N/A
CCV	16AUG25-106	127740.69	17510.82	7.295	400.000000	293.404701	-26.65	N/A
CCV	16AUG25-107	131735.20	14758.75	8.926	400.000000	357.419684	-10.65	N/A
MDL	16AUG25-11	28.55	16237.63	0.002	N/A	7.145510	N/A	N/A
CAL1	16AUG25-12	759.42	15967.27	0.048	8.000000	8.943276	11.79	N/A
CAL2	16AUG25-13	3019.80	14234.14	0.212	20.000000	15.403494	-22.98	N/A
CAL3	16AUG25-14	28168.62	14045.02	2.006	100.000000	85.796432	-14.20	N/A
CAL4	16AUG25-15	124545.23	9911.35	12.566	400.000000	500.290804	25.07	N/A
CAL5	16AUG25-16	325163.59	8767.39	37.088	1200.000000	1462.779535	21.90	N/A
CAL6	16AUG25-19	390914.36	12297.29	31.789	1600.000000	1254.786460	-21.58	N/A
ICV	16AUG25-22	16879.75	6326.87	2.668	100.000000	111.793904	11.79	N/A
CCV	16AUG25-86	125560.83	11336.80	11.076	400.000000	441.791936	10.45	N/A
CCV	16AUG25-87	123384.38	11644.52	10.596	400.000000	422.968071	5.74	N/A
solvent	16AUG25-88	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
MB 16235008	16AUG25-89	N/A	14438.63	N/A	N/A	N/A	N/A	N/A
LCS 16235008	16AUG25-90	43221.50	14017.58	3.083	N/A	128.099564	N/A	N/A
8525860DL	16AUG25-91	1405593.91	1907.01	737.068	N/A	289371.177039	N/A	N/A
8525861DL BKG	16AUG25-92	717531.54	9684.92	74.088	N/A	29150.227674	N/A	N/A
8525862DL MS	16AUG25-93	697929.15	5514.46	126.563	N/A	49747.081600	N/A	N/A
8525863DL MSD	16AUG25-94	791592.66	9686.14	81.724	N/A	32147.659509	N/A	N/A
8525864DL	16AUG25-95	775541.01	8597.09	90.210	N/A	35478.233767	N/A	N/A
8525865DL	16AUG25-96	N/A	12192.46	N/A	N/A	N/A	N/A	N/A
CCV	16AUG25-97	136045.11	12924.33	10.526	400.000000	420.234646	5.06	N/A
solvent	16AUG25-98	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
8525866DL	16AUG25-99	26750.99	16230.19	1.648	N/A	717.695450	N/A	N/A
solvent	16AUG26-02	N/A	Undefined	Undefined	N/A	N/A	N/A	N/A
ICV	16AUG26-03	34387.40	14908.81	2.307	100.000000	97.607592	-2.39	N/A
CCV	16AUG26-04	133023.27	19782.06	6.724	400.000000	271.011782	-32.25	N/A
CCV	16AUG26-07	127462.52	13604.43	9.369	400.000000	374.818650	-6.30	N/A
LCS 16235008RI	16AUG26-08	45727.18	15163.76	3.016	N/A	125.437608	N/A	N/A
8525860DL2	16AUG26-09	327806.02	15932.95	20.574	N/A	81461.285539	N/A	N/A
8525860DL3	16AUG26-10	37522.41	13304.26	2.820	N/A	117774.878040	N/A	N/A

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LCMSMS ANALYSIS REPORT

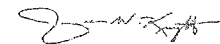
Sample ID	Data File Name	Area	ISTD Area	Area Ratio	Specified Amount	Calculated Amount	% Diff	Excluded
8525861DL2 BKG	16AUG26-11	116766.00	12513.57	9.331	N/A	37332.573655	N/A	N/A
8525864DL2	16AUG26-12	140302.63	15867.04	8.842	N/A	35414.180434	N/A	N/A
8525866DL2	16AUG26-13	491.57	13253.53	0.037	N/A	853.226356	N/A	N/A
8525867DL2	16AUG26-14	173698.72	14164.71	12.263	N/A	48839.249179	N/A	N/A
CCV	16AUG26-15	125154.77	18527.12	6.755	400.000000	272.220012	-31.94	N/A
CCV	16AUG26-16	124188.37	16170.52	7.680	400.000000	308.514802	-22.87	N/A

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Lynn Dodd
Principal Specialist

AUG 26 2016




Jason W. Knight
Senior Chemist

AUG 26 2016

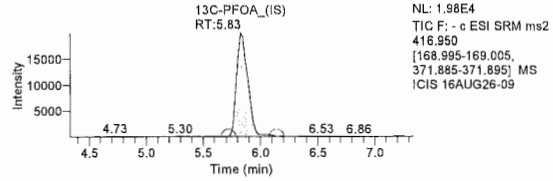
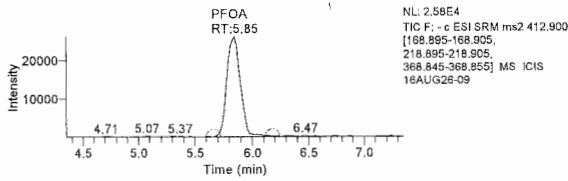
LCMSMS ANALYSIS REPORT

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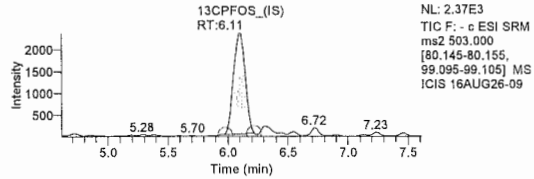
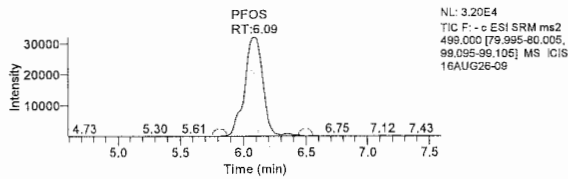
**Extracted Ion Chromatogram
Quan Peak Table**

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.83	138051.14	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.11	15932.95	N/A	N/A	N/A
PFOA	6338.110	5.85	212142.17	138051.14	1.537	ng/L
PFOS	81461.286	6.09	327806.02	15932.95	20.574	ng/L

Component Name: PFOA



Component Name: PFOS



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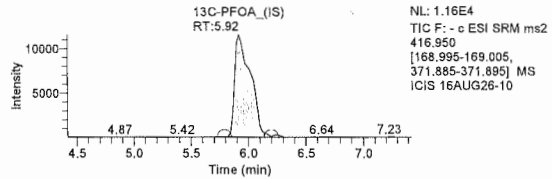
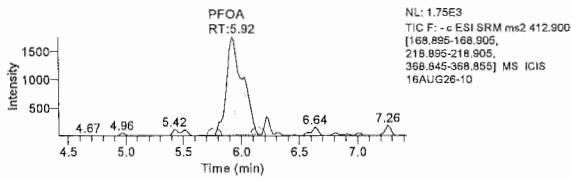
LCMSMS ANALYSIS REPORT

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Vial:	A:17	Instrument Software Version:	2.5.0.1311
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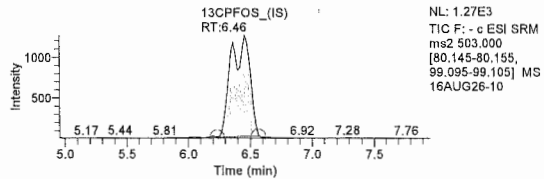
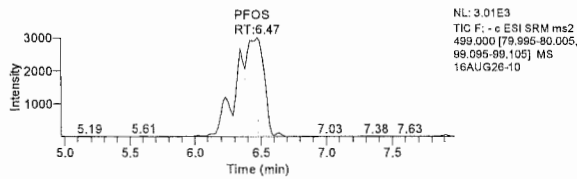
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.92	110676.08	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.46	13304.26	N/A	N/A	N/A
PFOA	7101.092	5.92	16862.98	110676.08	0.152	ng/L
PFOS	117774.878	6.47	37522.41	13304.26	2.820	ng/L

Component Name: PFOA



Component Name: PFOS



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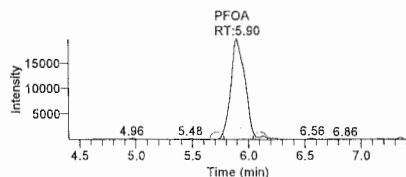
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Vial:	A:18	Instrument Software Version:	2.5.0.1311
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Injection Volume(μl):	10.00	Operator:	US19_USR_INS00022 16235008

Extracted Ion Chromatogram

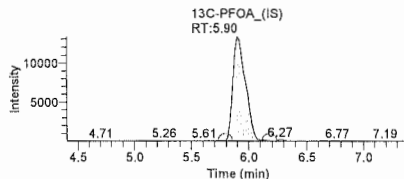
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.90	105518.71	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.20	12513.57	N/A	N/A	N/A
PFOA	6816.636	5.90	174569.80	105518.71	1.654	ng/L
PFOS	37332.574	6.24	116766.00	12513.57	9.331	ng/L

Component Name: PFOA

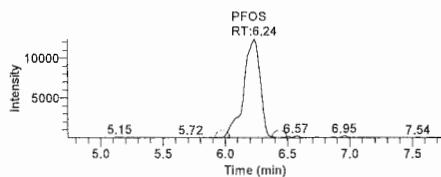


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218.895-218.905,
368.845-368.855] MS ICIS
16AUG26-11

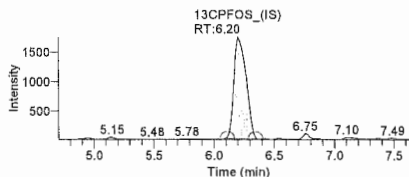


NL: 1.33E4
TIC F: - c ESI SRM ms2
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371.895-371.895] MS
ICIS 16AUG26-11

Component Name: PFOS



NL: 1.24E4
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499.000 [79.995-80.005,
99.095-99.109] MS ICIS
16AUG26-11



NL: 1.76E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.109] MS
ICIS 16AUG26-11

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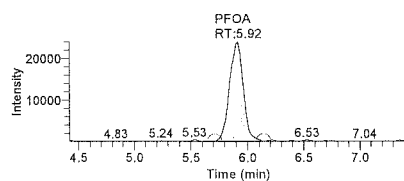
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	16235008

Extracted Ion Chromatogram

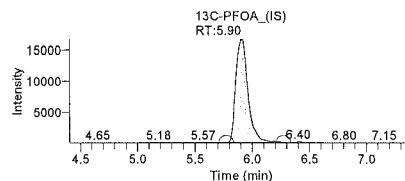
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.90	127545.73	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.20	15867.04	N/A	N/A	N/A
PFOA	6472.482	5.92	200214.17	127545.73	1.570	ng/L
PFOS	35414.180	6.20	140302.63	15867.04	8.842	ng/L

Component Name: PFOA

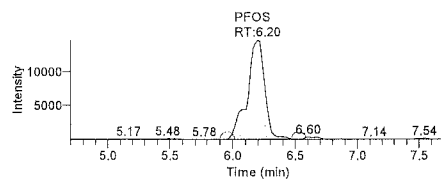


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368.845-368.855] MS ICIS
16AUG26-12

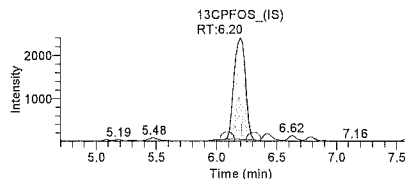


NL: 1.67E4
TIC F: - c ESI SRM ms2
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ICIS 16AUG26-12

Component Name: PFOS



NL: 1.48E4
TIC F: - c ESI SRM ms2
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99.095-99.105] MS ICIS
16AUG26-12



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TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
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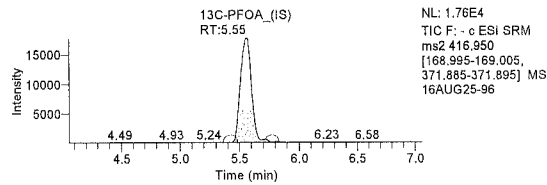
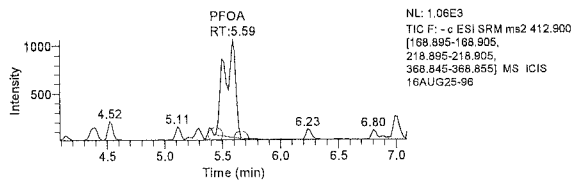
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Vial:	a:8	Instrument Software Version:	2.5.0.1311
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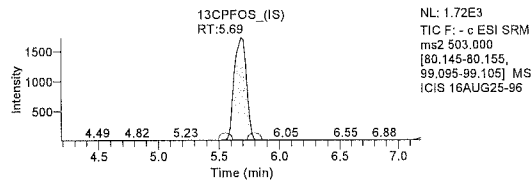
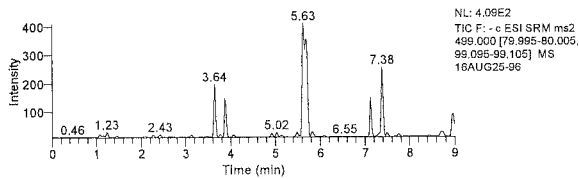
Extracted Ion Chromatogram Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.55	116149.22	N/A	N/A	N/A
13CPFOS_(IS)	N/A	5.69	12192.46	N/A	N/A	N/A
PFOA	34.078	5.59	7145.24	116149.22	0.062	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFOA



Component Name: PFOS



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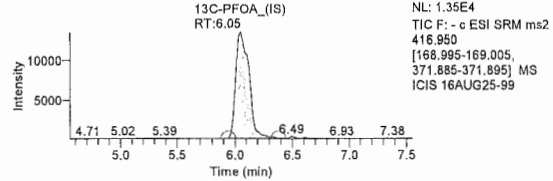
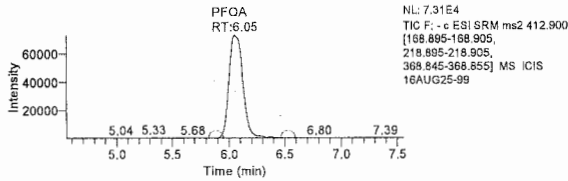
LCMSMS ANALYSIS REPORT

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Vial:	a:9	Instrument Software Version:	2.5.0.1311
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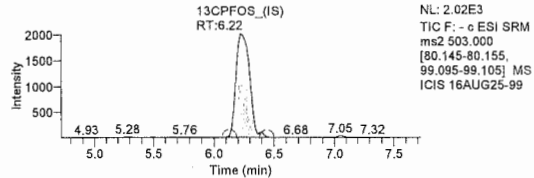
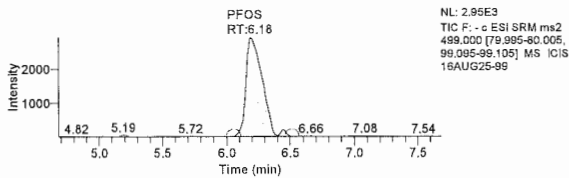
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	6.05	112774.15	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.22	16230.19	N/A	N/A	N/A
PFOA	2296.498	6.05	634516.13	112774.15	5.626	ng/L
PFOS	717.695	6.18	26750.99	16230.19	1.648	ng/L

Component Name: PFOA



Component Name: PFOS



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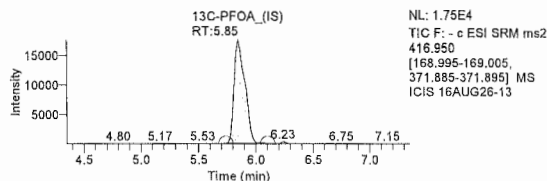
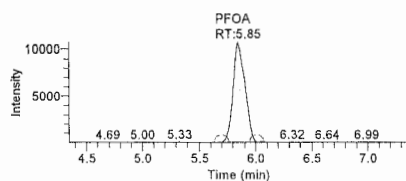
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Extracted Ion Chromatogram

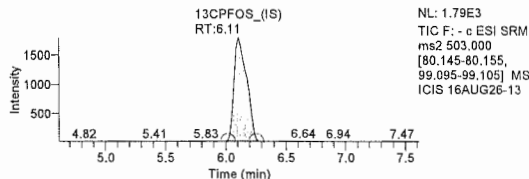
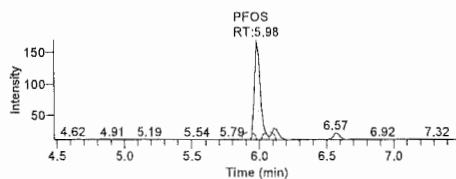
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.85	118309.66	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.11	13253.53	N/A	N/A	N/A
PFOA	2777.281	5.85	78182.48	118309.66	0.661	ng/L
PFOS	853.226	5.98	491.57	13253.53	0.037	ng/L

Component Name: PFOA



Component Name: PFOS



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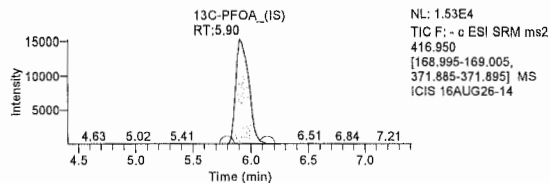
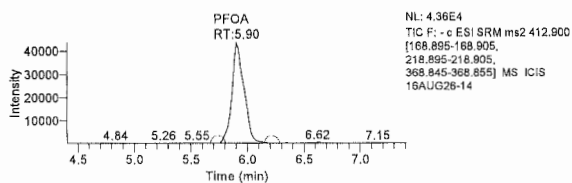
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Vial: A:21	Instrument Software Version: 2.5.0.1311
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Extracted Ion Chromatogram

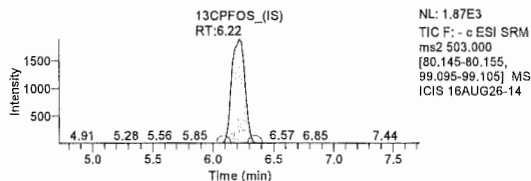
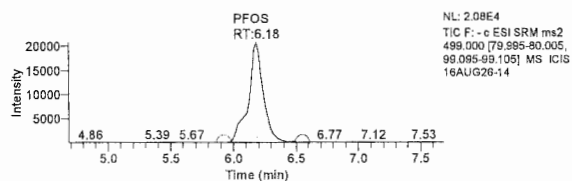
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.90	119580.79	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.22	14164.71	N/A	N/A	N/A
PFOA	11273.638	5.90	328930.03	119580.79	2.751	ng/L
PFOS	48839.249	6.18	173698.72	14164.71	12.263	ng/L

Component Name: PFOA



Component Name: PFOS



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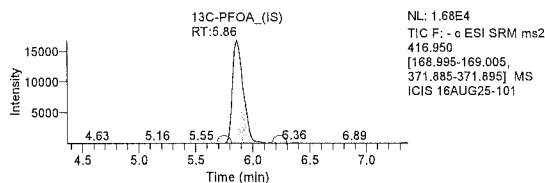
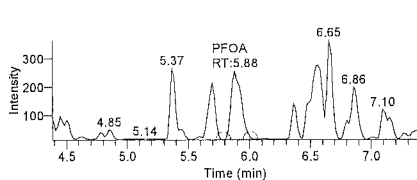
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Vial:	a:11	Instrument Software Version:	2.5.0.1311
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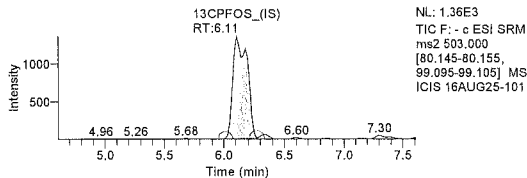
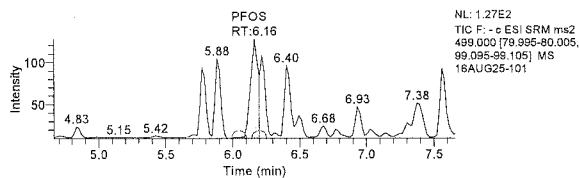
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.86	109804.86	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.11	11029.15	N/A	N/A	N/A
PFOA	14.254	5.88	1400.87	109804.86	0.013	ng/L
PFOS	86.052	6.16	429.57	11029.15	0.039	ng/L

Component Name: PFOA



Component Name: PFOS



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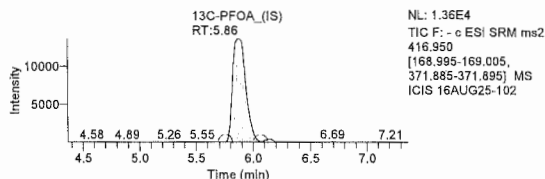
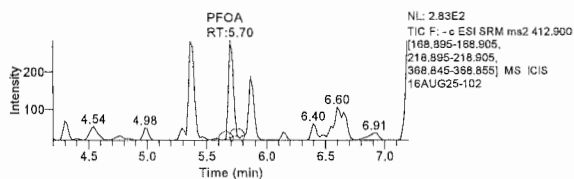
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Vial:	a:12	Instrument Software Version:	2.5.0.1311
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Injection Volume(μl):	10.00	Operator:	US19_USR_INS00022 16235008

Extracted Ion Chromatogram

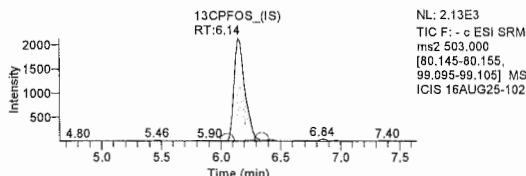
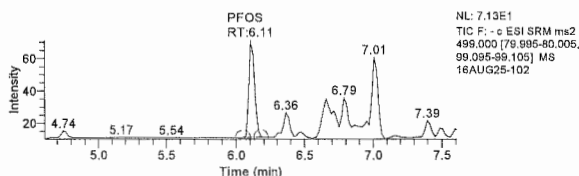
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.86	112898.33	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.14	13591.45	N/A	N/A	N/A
PFOA	11.708	5.70	733.27	112898.33	0.006	ng/L
PFOS	75.873	6.11	176.89	13591.45	0.013	ng/L

Component Name: PFOA



Component Name: PFOS



Lynn Dodd

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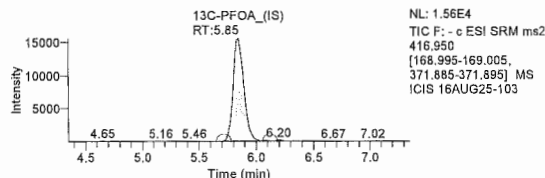
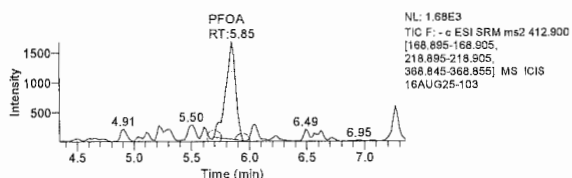
Sample Name: 8525870DL	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: 8525870DL	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-103	M\FULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 11:38:18 PM	Dilution Factor: 10.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:13	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022
	16235008

Extracted Ion Chromatogram

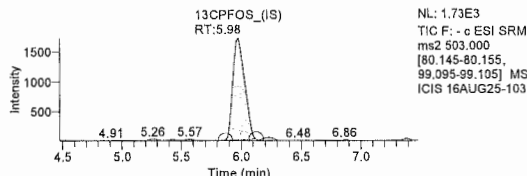
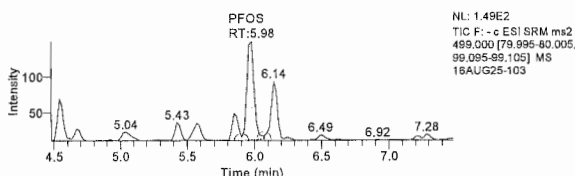
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.85	103111.91	N/A	N/A	N/A
13CPFOS_(IS)	N/A	5.98	11788.11	N/A	N/A	N/A
PFOA	47.735	5.85	9807.18	103111.91	0.095	ng/L
PFOS	87.767	5.98	510.62	11788.11	0.043	ng/L

Component Name: PFOA



Component Name: PFOS



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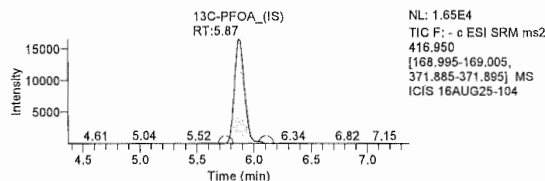
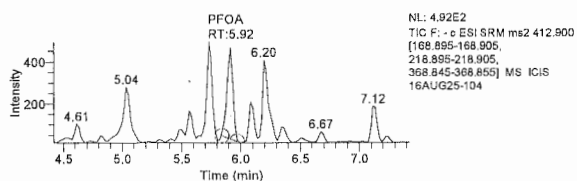
Sample Name: 8525871	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: 8525871	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-104	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 11:48:03 PM	Dilution Factor: 1.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:14	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022
	16235008

Extracted Ion Chromatogram

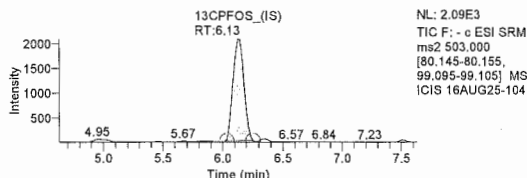
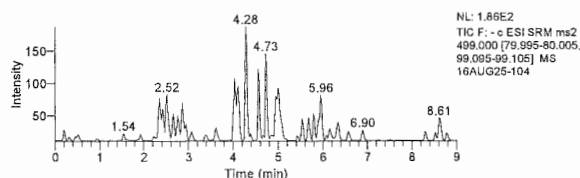
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.87	101851.78	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.13	13195.87	N/A	N/A	N/A
PFOA	1.519	5.92	1535.05	101851.78	0.015	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFOA



Component Name: PFOS



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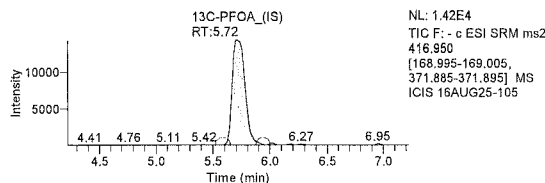
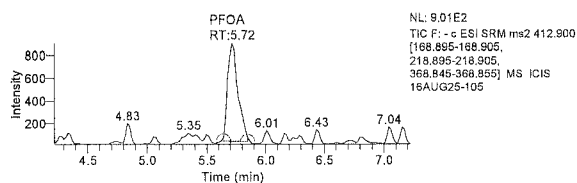
Sample Name: 8525872	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: 8525872	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-105	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 11:57:47 PM	Dilution Factor: 1.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:15	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022
	16235008

Extracted Ion Chromatogram

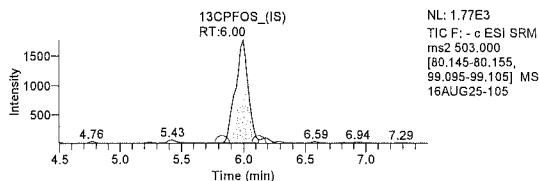
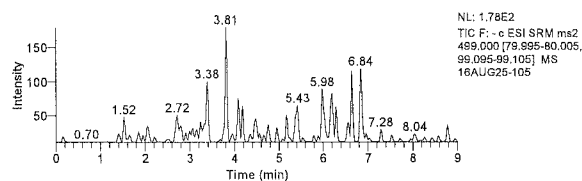
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.72	112972.42	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.00	12839.03	N/A	N/A	N/A
PFOA	2.846	5.72	5387.67	112972.42	0.048	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFOA



Component Name: PFOS



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Standards Data

PFAAs by LC/MS/MS

Sequence Table

File Name	Sample ID	Batch#	Sample Type	Level	Vial	Inj Vol	Dil Factor	Inst Method	Proc Method
16AUG25-11	MDL	N/A	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-12	CAL1	N/A	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-13	CAL2	N/A	N/A	2	C:4	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-14	CAL3	N/A	N/A	3	C:5	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-15	CAL4	N/A	N/A	4	C:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-16	CAL5	N/A	N/A	5	C:7	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-19	CAL6	N/A	N/A	6	C:8	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-22	ICV	N/A	N/A	ICV1	C:9	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-86	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-87	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-88	solvent	N/A	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-89	MB 16235008	16235008	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-90	LCS 16235008	16235008	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-91	8525860DL	16235008	N/A	N/A	a:3	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-92	8525861DL BKG	16235008	N/A	N/A	a:4	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-93	8525862DL MS	16235008	N/A	N/A	a:5	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-94	8525863DL MSD	16235008	N/A	N/A	a:6	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-95	8525864DL	16235008	N/A	N/A	a:7	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-96	8525865DL	16235008	N/A	N/A	a:8	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-97	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-98	solvent	N/A	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-99	8525866DL	16235008	N/A	N/A	a:9	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-100	8525867DL	16235008	N/A	N/A	a:10	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-101	8525868DL	16235008	N/A	N/A	a:11	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-102	8525869DL	16235008	N/A	N/A	a:12	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-103	8525870DL	16235008	N/A	N/A	a:13	10.0	10.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-104	8525871	16235008	N/A	N/A	a:14	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-105	8525872	16235008	N/A	N/A	a:15	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-106	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG25-107	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG26-02	solvent	N/A	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG26-03	ICV	N/A	N/A	ICV1	C:9	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	
16AUG26-04	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU! C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only	

Sequence Table

File Name	Sample ID	Phone	Sample Type	Level	Vial	Inj Vol	Dil Factor	Inst Method	Proc Method
16AUG26-07	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-08	LCS 16235008RI	16235008	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-09	8525860DL2	16235008	N/A	N/A	a:16	10.0	100.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-10	8525860DL3	16235008	N/A	N/A	A:17	10.0	1000.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-11	8525861DL2 BKG	16235008	N/A	N/A	A:18	10.0	100.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-12	8525864DL2	16235008	N/A	N/A	A:19	10.0	100.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-13	8525866DL2	16235008	N/A	N/A	A:20	10.0	100.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-14	8525867DL2	16235008	N/A	N/A	A:21	10.0	100.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-15	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only
16AUG26-16	CCV	N/A	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\Acquistion M\FU	C:\Xcalibur\PFC\Quan M\HWELL_PFOA_PFOS_only

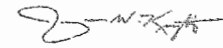
EML22 Page 67 of 93

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Principal Specialist

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Friday, August 26, 2016, 06:44:22



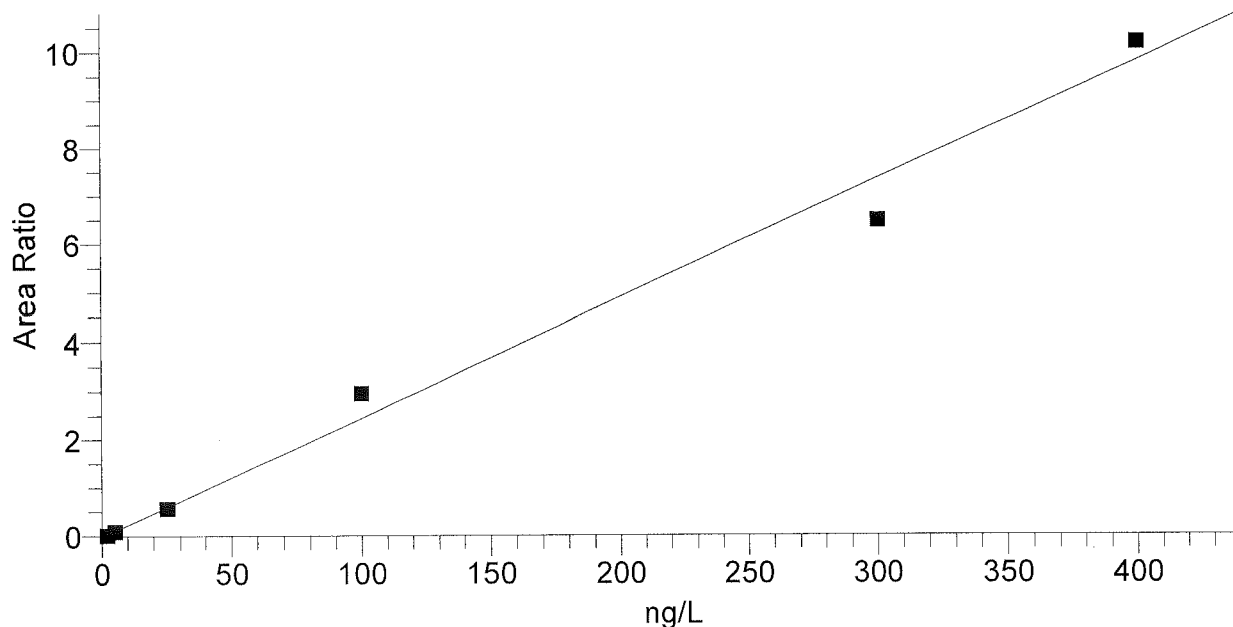
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Senior Chemist

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LCMSMS ANALYSIS REPORT

Component Name: PFOA

PFOA
 $Y = -0.0223034 + 0.0245972 * X$ $R^2 = 0.9882$ $W: 1/X$



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):		Expected RT (min):	5.85000
Retention Time		View Width (min):	3.00000
Window (sec):	50.00000	Adjust Expected RT:	No
RT Reference:	No	Peak Detection Algorithm:	ICIS
Adjust Using:	N/A	ICIS Peak Integration	
Detection Options		Baseline Window:	75
ICIS Smoothing Points:	3	Peak Noise Factor:	15
Area Noise Factor:	5	ICIS Peak Height (%):	N/A
ICIS Constrain Peak Width:	No	ICIS Identify By:	Nearest RT
ICIS Tailing Factor:	N/A	ICIS Ion Ratio Confirmation:	Disabled
ICIS Peak Detection		ICIS Qualifier Ion Coelution (min):	N/A
ICIS Minimum Peak Height (S/N):	5.0	ICIS Spectrum Thresholds	
ICIS Window %:		ICIS Reverse:	0
ICIS Forward:	0	Noise Method:	Incos
ICIS Match:	0	Multiplet Resolution:	10
ICIS Advanced Parameters		Area Scan Window:	0
Minimum Peak Width:	3	Calibration	
Area Tail Extension:	5	%RSD Calculation Method:	Use calculated amounts
Component Type:	Target Compound	Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
ISTD:	13C-PFOA_(IS)	Target Compounds	
Origin:	IgnoreOrigin	Weighting:	OneOverX
Calibration Curve:	Linear	Response:	Area
Number of Cal. Levels:	6	Target Units:	ng/L
Scan Threshold (mAU):	N/A	Number of QC Levels:	5
Limit ScanRange (nm):	N/A	Peak Purity Options	
		Peak Coverage (%):	N/A

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 Senior Chemist

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Component Cal Level Table

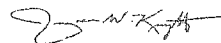
Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CCV	16AUG25-106	110.797	330784.62	122377.64	2.703	10.80
CCV	16AUG25-107	90.717	298154.02	134968.26	2.209	-9.28
CAL1	16AUG25-12	1.885	2450.43	101875.23	0.024	-5.77
CAL2	16AUG25-13	4.782	8541.62	89612.42	0.095	-4.36
CAL3	16AUG25-14	24.236	56733.91	98866.24	0.574	-3.05
CAL4	16AUG25-15	121.171	303792.99	102696.71	2.958	21.17
CAL5	16AUG25-16	264.389	714626.95	110266.33	6.481	-11.87
CAL6	16AUG25-19	415.537	962903.13	94413.94	10.199	3.88
ICV	16AUG25-22	104.286	111658.92	43911.32	2.543	4.29
CCV	16AUG25-86	97.130	271553.09	114733.25	2.367	-2.87
CCV	16AUG25-87	95.477	280303.44	120500.22	2.326	-4.52
CCV	16AUG25-97	93.517	317693.79	139465.18	2.278	-6.48
ICV	16AUG26-03	87.847	279290.67	130602.89	2.138	-12.15
CCV	16AUG26-04	91.539	306802.15	137622.84	2.229	-8.46
CCV	16AUG26-07	89.218	313785.57	144454.53	2.172	-10.78
CCV	16AUG26-15	86.011	269288.45	128640.86	2.093	-13.99
CCV	16AUG26-16	97.222	281337.85	118753.32	2.369	-2.78

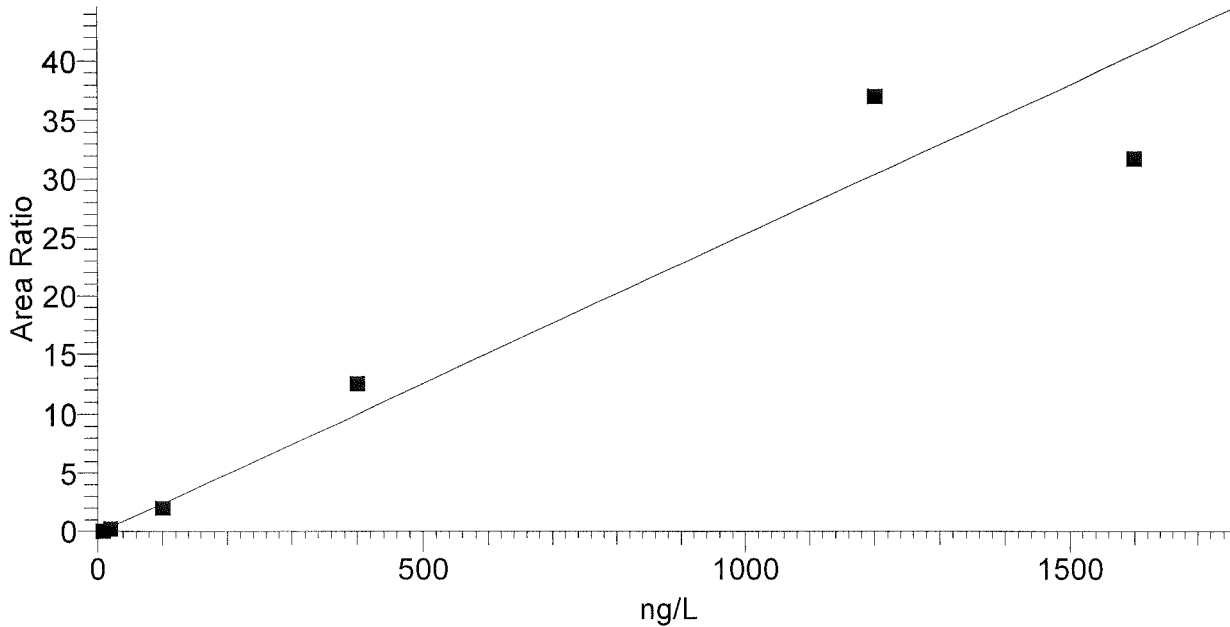

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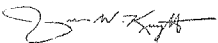
Component Name: PFOS

PFOS
 $Y = -0.180292 + 0.0254776 * X$ $R^2 = 0.9514$ $W: 1/X$



Identification Filter: - c ESI SRM ms2 499.00
 [80.00-80.00, 99.09-99.11]
2nd Trace Type: N/A
Mass Range 2 (m/z): N/A
Base Peak(BP): N/A
Retention Time Window (sec): 50.00000
RT Reference: No
Adjust Using: N/A
Detection Options
ICIS Smoothing Points: 3
Area Noise Factor: 2
ICIS Constrain Peak Width: No
ICIS Tailing Factor: N/A
ICIS Peak Detection
ICIS Minimum Peak Height (S/N): 10.0
ICIS Window %: N/A
ICIS Forward: 0
ICIS Match: 0
ICIS Advanced Parameters
Minimum Peak Width: 3
Area Tail Extension: 5
Component Type: Target Compound
ISTD Amount: N/A
ISTD: 13CPFOS_(IS)
Origin: IgnoreOrigin
Calibration Curve: Linear
Number of Cal. Levels: 6
Scan Threshold (mAU): N/A
Limit ScanRange (nm): N/A

Component Name: PFOS
1st Trace Type: TIC
Mass Range 1 (m/z): N/A
Wavelength Range 2 (nm): N/A
Expected RT (min): 6.07000
View Width (min): 3.00000
Adjust Expected RT: No
Peak Detection Algorithm: ICIS
ICIS Peak Integration
Baseline Window: 100
Peak Noise Factor: 25
ICIS Peak Height (%): N/A
ICIS Identify By: Nearest RT
ICIS Ion Ratio Confirmation: Disabled
ICIS Qualifier Ion Coelution (min): N/A
ICIS Spectrum Thresholds
ICIS Reverse: 0
Noise Method: Incos
Multiplet Resolution: 10
Area Scan Window: 0
Calibration
%RSD Calculation Method: Use calculated amounts
Internal Standard
ISTD Units: N/A
Target Compounds
Weighting: OneOverX
Response: Area
Target Units: ng/L
Number of QC Levels: 5
Peak Purity Options
Peak Coverage (%): N/A


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Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	100.000
2	400.000
3	1200.000

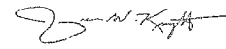
ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CCV	16AUG25-106	293.405	127740.69	17510.82	7.295	-26.65
CCV	16AUG25-107	357.420	131735.20	14758.75	8.926	-10.65
CAL1	16AUG25-12	8.943	759.42	15967.27	0.048	11.79
CAL2	16AUG25-13	15.403	3019.80	14234.14	0.212	-22.98
CAL3	16AUG25-14	85.796	28168.62	14045.02	2.006	-14.20
CAL4	16AUG25-15	500.291	124545.23	9911.35	12.566	25.07
CAL5	16AUG25-16	1462.780	325163.59	8767.39	37.088	21.90
CAL6	16AUG25-19	1254.786	390914.36	12297.29	31.789	-21.58
ICV	16AUG25-22	111.794	16879.75	6326.87	2.668	11.79
CCV	16AUG25-86	441.792	125560.83	11336.80	11.076	10.45
CCV	16AUG25-87	422.968	123384.38	11644.52	10.596	5.74
CCV	16AUG25-97	420.235	136045.11	12924.33	10.526	5.06
ICV	16AUG26-03	97.608	34387.40	14908.81	2.307	-2.39
CCV	16AUG26-04	271.012	133023.27	19782.06	6.724	-32.25
CCV	16AUG26-07	374.819	127462.52	13604.43	9.369	-6.30
CCV	16AUG26-15	272.220	125154.77	18527.12	6.755	-31.94
CCV	16AUG26-16	308.515	124188.37	16170.52	7.680	-22.87



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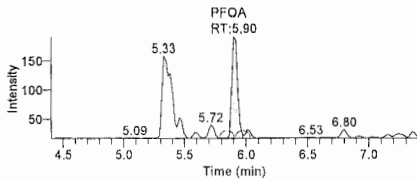
LCMSMS ANALYSIS REPORT

Sample Name:	MDL	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG25-11		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/25/16 07:01:51 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

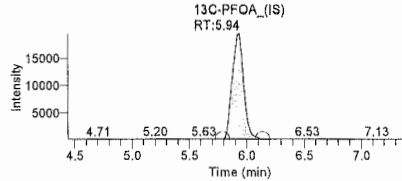
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.94	134561.22	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.20	16237.63	N/A	N/A	N/A
PFOA	1.078	5.90	565.96	134561.22	0.004	ng/L
PFOS	7.146	6.22	28.55	16237.63	0.002	ng/L

Component Name: PFOA

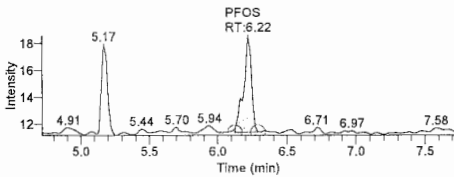


NL: 1.88E2
TIC F: - c ESI SRM ms2
412.900 [168.895-168.905,
218.895-218.905,
368.845-368.855] MS
16AUG25-11

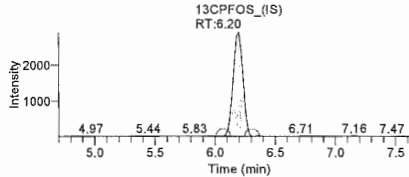


NL: 1.92E4
TIC F: - c ESI SRM ms2
416.950
[168.895-169.005,
371.885-371.895] MS
ICIS 16AUG25-11

Component Name: PFOS



NL: 1.86E1
TIC F: - c ESI SRM ms2
498.000 [79.995-80.005,
98.095-98.105] MS
16AUG25-11



NL: 2.90E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-11

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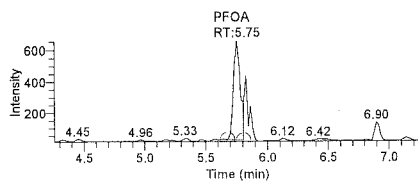
Sample Name: CAL1	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CAL1	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-12	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 07:11:36 AM	Dilution Factor: 1.00
Sample Type: Std Bracket	Instrument Model: TSQ Quantum Access
Vial: c:3	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

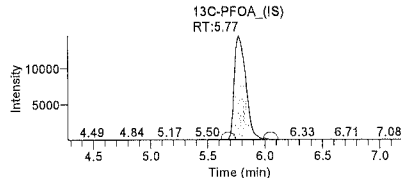
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.77	101875.23	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.05	15967.27	N/A	N/A	N/A
PFOA	1.885	5.75	2450.43	101875.23	0.024	ng/L
PFOS	8.943	6.09	759.42	15967.27	0.048	ng/L

Component Name: PFOA

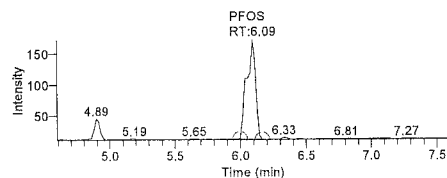


NL: 6.56E2
TIC F: - c ESI SRM ms2
412.900 [168.895-168.905,
218.895-218.905,
368.845-368.855] MS
16AUG25-12

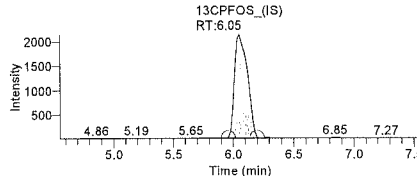


NL: 1.45E4
TIC F: - c ESI SRM ms2
416.950
[168.895-168.905,
371.885-371.895] MS
ICIS 16AUG25-12

Component Name: PFOS



NL: 1.72E2
TIC F: - c ESI SRM ms2
499.000 [79.995-80.005,
99.095-99.105] MS ICIS
16AUG25-12



NL: 2.14E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-12

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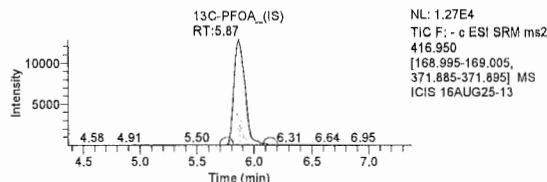
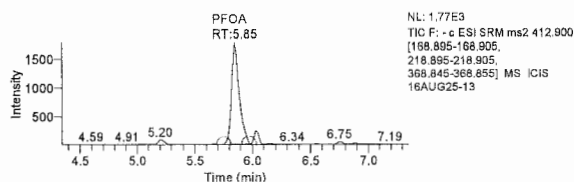
LCMSMS ANALYSIS REPORT

Sample Name: CAL2	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CAL2	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-13	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 07:21:20 AM	Dilution Factor: 1.00
Sample Type: Std Bracket	Instrument Model: TSQ Quantum Access
Vial: C:4	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(μl): 10.00	Operator: US19_USR_INS00022

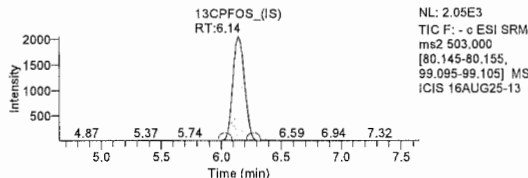
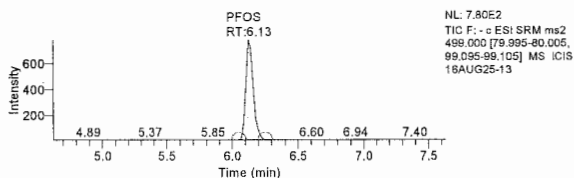
Extracted Ion Chromatogram Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.87	89612.42	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.14	14234.14	N/A	N/A	N/A
PFOA	4.782	5.85	8541.62	89612.42	0.095	ng/L
PFOS	15.403	6.13	3019.80	14234.14	0.212	ng/L

Component Name: PFOA



Component Name: PFOS



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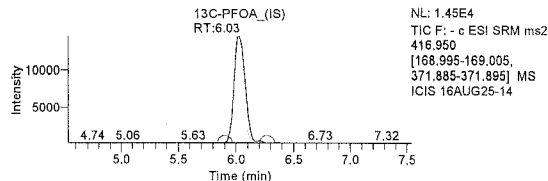
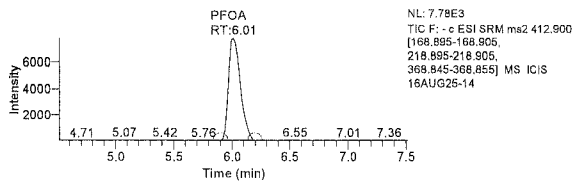
Sample Name: CAL3	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CAL3	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-14	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 07:31:01 AM	Dilution Factor: 1.00
Sample Type: Std Bracket	Instrument Model: TSQ Quantum Access
Vial: C:5	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

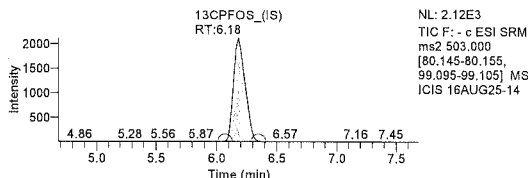
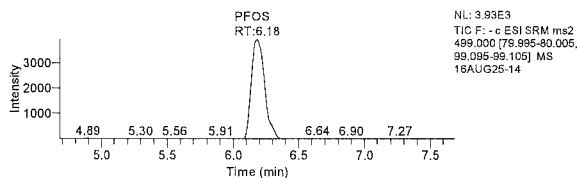
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	6.03	98866.24	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.18	14045.02	N/A	N/A	N/A
PFOA	24.236	6.01	56733.91	98866.24	0.574	ng/L
PFOS	85.796	6.18	28168.62	14045.02	2.006	ng/L

Component Name: PFOA



Component Name: PFOS



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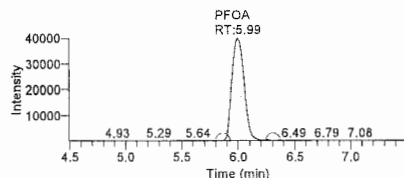
Sample Name:	CAL4	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	CAL4	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG25-15		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/25/16 07:40:45 AM	Dilution Factor:	1.00
Sample Type:	Std Bracket	Instrument Model:	TSQ Quantum Access
Vial:	C:6	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQU01408
Injection Volume(μl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram

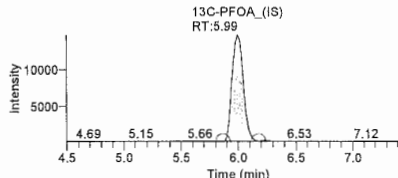
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.99	102696.71	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.13	9911.35	N/A	N/A	N/A
PFOA	121.171	5.99	303792.99	102696.71	2.958	ng/L
PFOS	500.291	6.14	124545.23	9911.35	12.566	ng/L

Component Name: PFOA

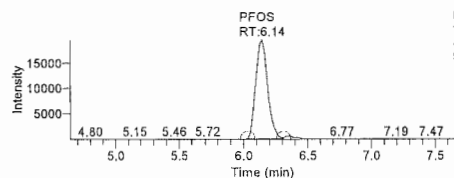


NL: 4.01E4
TIC F: -e ESI SRM ms2 412.900
[168.895-168.905,
218.895-218.905,
368.845-368.855] MS IC: IS
16AUG25-15

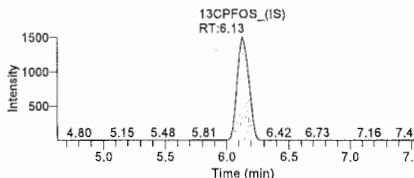


NL: 1.48E4
TIC F: -e ESI SRM ms2
416.950
[168.895-168.905,
371.885-371.895] MS
IC: IS 16AUG25-15

Component Name: PFOS



NL: 1.96E4
TIC F: -e ESI SRM ms2
499.000 [79.895-80.005,
99.095-99.105] MS
16AUG25-15



NL: 1.51E3
TIC F: -e ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
16AUG25-15

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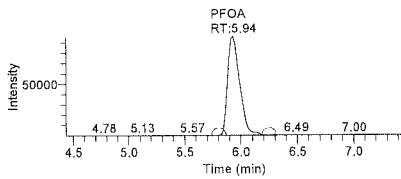
LCMSMS ANALYSIS REPORT

Sample Name:	CAL5	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	CAL5	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG25-16		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/25/16 07:50:26 AM	Dilution Factor:	1.00
Sample Type:	Std Bracket	Instrument Model:	TSQ Quantum Access
Vial:	C:7	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQ001408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

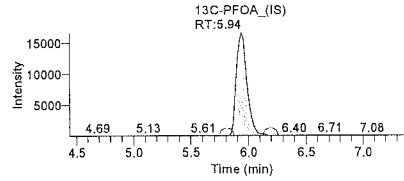
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.94	110266.33	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.22	8767.39	N/A	N/A	N/A
PFOA	264.389	5.94	714626.95	110266.33	6.481	ng/L
PFOS	1462.780	6.20	325163.59	8767.39	37.088	ng/L

Component Name: PFOA

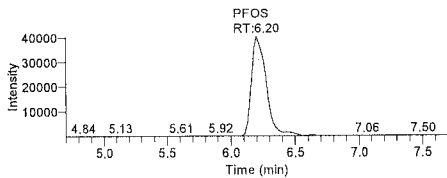


NL: 9.57E4
TIC F: - c ESI SRM ms2 412.900
[168.895-169.905,
218.895-218.905,
368.845-368.855] MS ICIS
16AUG25-16

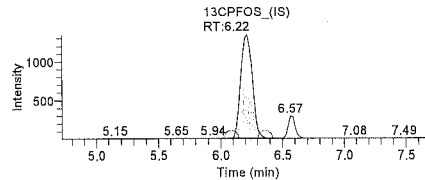


NL: 1.66E4
TIC F: - c ESI SRM ms2
416.950
[168.995-169.005,
371.885-371.895] MS
ICIS 16AUG25-16

Component Name: PFOS



NL: 4.04E4
TIC F: - c ESI SRM ms2
499.000 [79.995-80.005,
99.095-99.105] MS
16AUG25-16



NL: 1.34E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
16AUG25-16

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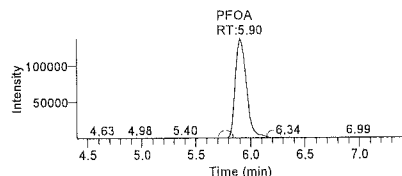
Sample Name: CAL6	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CAL6	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-19	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 08:29:15 AM	Dilution Factor: 1.00
Sample Type: Std Bracket	Instrument Model: TSQ Quantum Access
Vial: C:8	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

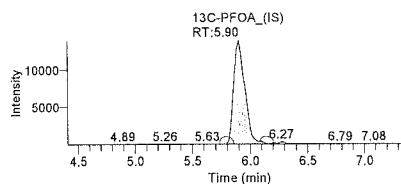
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.90	94413.94	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.15	12297.29	N/A	N/A	N/A
PFOA	415.537	5.90	962903.13	94413.94	10.199	ng/L
PFOS	1254.786	6.18	390914.36	12297.29	31.789	ng/L

Component Name: PFOA

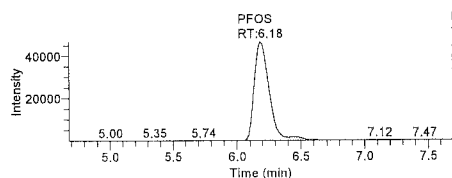


NL: 1.37E5
TIC F: - c ESI SRM ms2 412.900
[168.895-169.905,
218.895-218.905,
368.845-368.855] MS ICIS
16AUG25-19

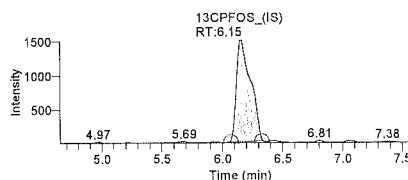


NL: 1.38E4
TIC F: - c ESI SRM ms2
416.950
[168.995-169.005,
371.885-371.895] MS
ICIS 16AUG25-19

Component Name: PFOS



NL: 4.66E4
TIC F: - c ESI SRM ms2
489.000 [79.995-80.005,
99.095-99.105] MS
16AUG25-19



NL: 1.52E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-19

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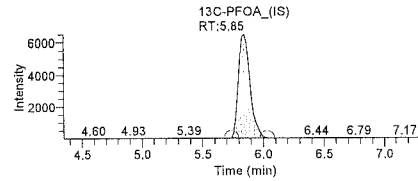
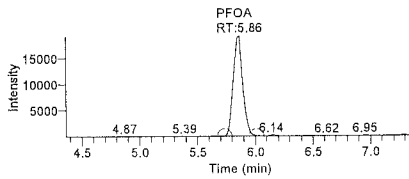
LCMSMS ANALYSIS REPORT

Sample Name:	ICV	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	ICV	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG25-22		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/25/16 08:58:19 AM	Dilution Factor:	1.00
Sample Type:	QC	Instrument Model:	TSQ Quantum Access
Vial:	C:9	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

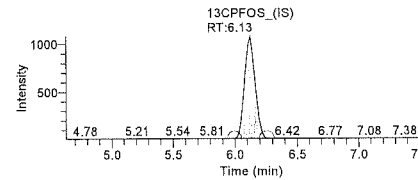
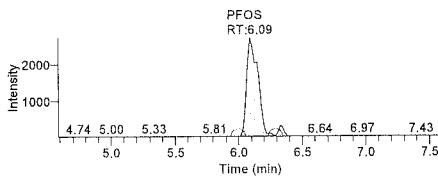
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.85	43911.32	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.13	6326.87	N/A	N/A	N/A
PFOA	104.286	5.86	111658.92	43911.32	2.543	ng/L
PFOS	111.794	6.09	16879.75	6326.87	2.668	ng/L

Component Name: PFOA



Component Name: PFOS



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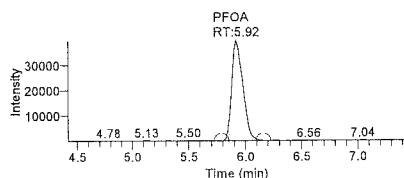
Sample Name: CCV	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CCV	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-86	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 08:52:58 PM	Dilution Factor: 1.00
Sample Type: QC	Instrument Model: TSQ Quantum Access
Vial: c:6	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

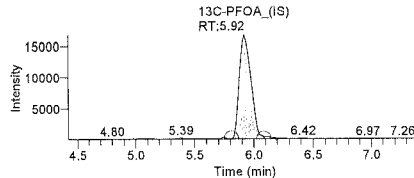
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.92	114733.25	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.18	11336.80	N/A	N/A	N/A
PFOA	97.130	5.92	271553.09	114733.25	2.367	ng/L
PFOS	441.792	6.20	125560.83	11336.80	11.076	ng/L

Component Name: PFOA

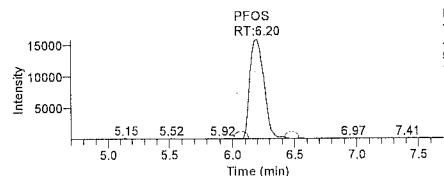


NL: 3.94E4
TIC F: - e ESI SRM ms2 412.900
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218.895-219.905,
368.845-368.855] MS ICIS
16AUG25-86

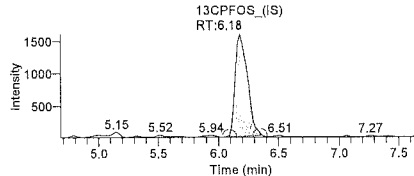


NL: 1.67E4
TIC F: - e ESI SRM
ms2 416.950
[168.995-169.005,
371.885-371.895] MS
16AUG25-86

Component Name: PFOS



NL: 1.58E4
TIC F: - e ESI SRM ms2
499.000 [79.895-80.005,
99.095-99.105] MS ICIS
16AUG25-86



NL: 1.60E3
TIC F: - e ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-86

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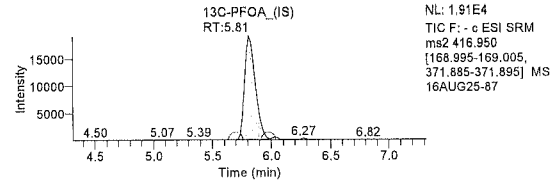
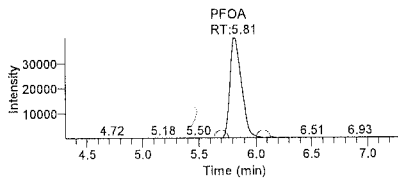
LCMSMS ANALYSIS REPORT

Sample Name: CCV	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: CCV	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-87	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 09:02:42 PM	Dilution Factor: 1.00
Sample Type: QC	Instrument Model: TSQ Quantum Access
Vial: c:6	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

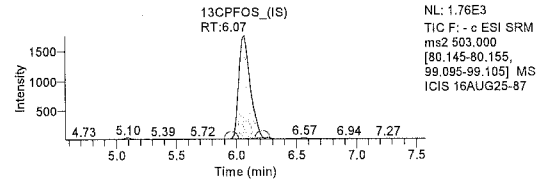
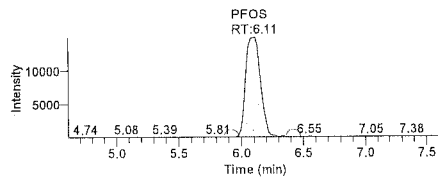
Extracted Ion Chromatogram Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.81	120500.22	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.07	11644.52	N/A	N/A	N/A
PFOA	95.477	5.81	280303.44	120500.22	2.326	ng/L
PFOS	422.968	6.11	123384.38	11644.52	10.596	ng/L

Component Name: PFOA



Component Name: PFOS



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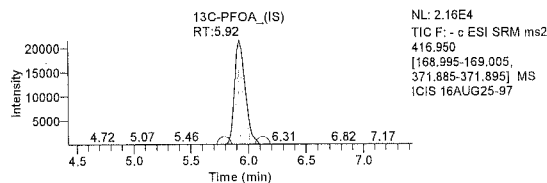
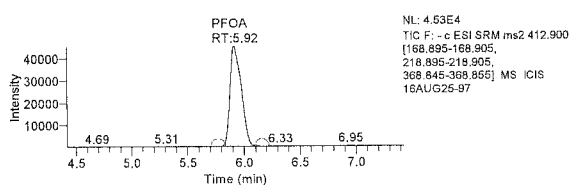
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Sample ID: CCV	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-97	M\FULLPFC_9.0minutes_08172016
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Sample Type: QC	Instrument Model: TSQ Quantum Access
Vial: c:6	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

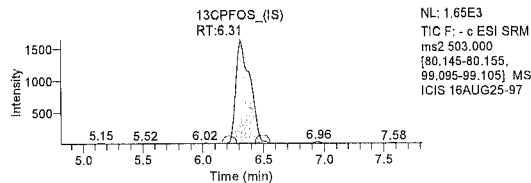
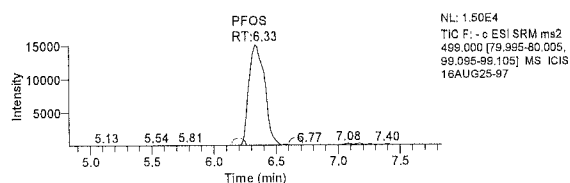
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.92	139465.18	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.31	12924.33	N/A	N/A	N/A
PFOA	93.517	5.92	317693.79	139465.18	2.278	ng/L
PFOS	420.235	6.33	136045.11	12924.33	10.526	ng/L

Component Name: PFOA



Component Name: PFOS



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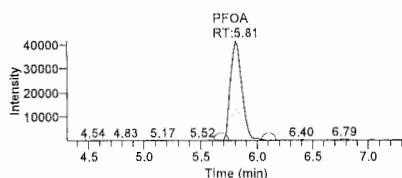
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Sample ID: CCV	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-107	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/26/16 12:17:12 AM	Dilution Factor: 1.00
Sample Type: QC	Instrument Model: TSQ Quantum Access
Vial: c:6	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(μl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

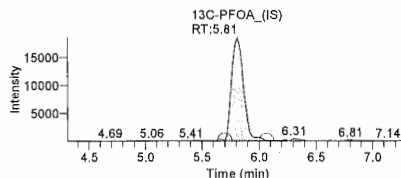
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.81	134968.26	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.04	14758.75	N/A	N/A	N/A
PFOA	90.717	5.81	298154.02	134968.26	2.209	ng/L
PFOS	357.420	6.02	131735.20	14758.75	8.926	ng/L

Component Name: PFOA

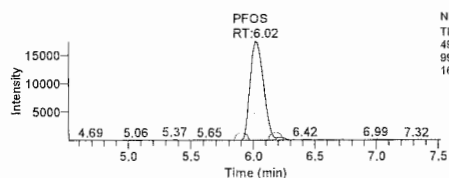


NL: 4.16E4
TIC F: - c ESI SRM ms2 412.900
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218.895-218.905,
368.845-368.855] MS ICIS
16AUG25-107

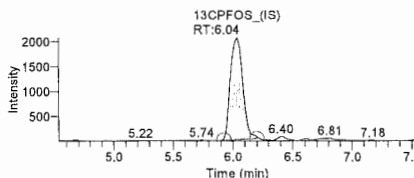


NL: 1.86E4
TIC F: - c ESI SRM ms2
416.950
[168.995-169.005,
371.885-371.895] MS
ICIS 16AUG25-107

Component Name: PFOS



NL: 1.74E4
TIC F: - c ESI SRM ms2
499.000 [99.995-99.005,
99.095-99.105] MS ICIS
16AUG25-107



NL: 2.07E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-107

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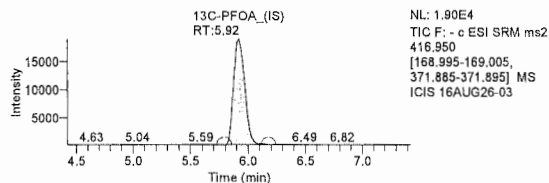
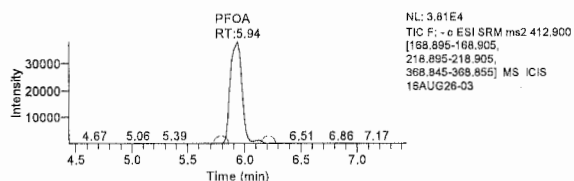
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Sample ID: ICV	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG26-03	M\FULLPFC_9.0minutes_08172016
Acquisition Date: 08/26/16 04:09:15 AM	Dilution Factor: 1.00
Sample Type: QC	Instrument Model: TSQ Quantum Access
Vial: C:9	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022

Extracted Ion Chromatogram

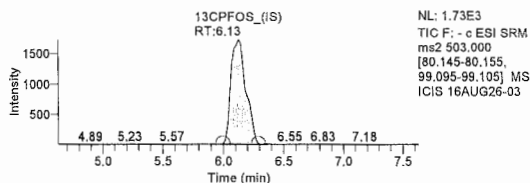
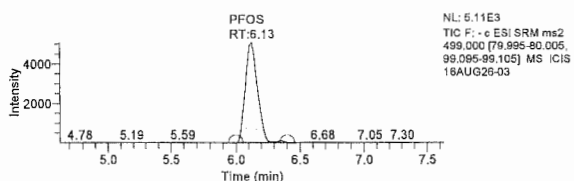
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.92	130602.89	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.13	14908.81	N/A	N/A	N/A
PFOA	87.847	5.94	279290.67	130602.89	2.138	ng/L
PFOS	97.608	6.13	34387.40	14908.81	2.307	ng/L

Component Name: PFOA



Component Name: PFOS



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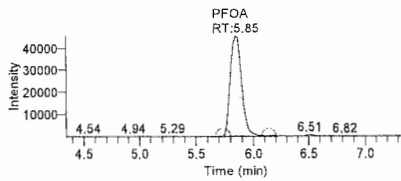
LCMSMS ANALYSIS REPORT

Sample Name:	CCV	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	CCV	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG26-07		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/26/16 04:48:14 AM	Dilution Factor:	1.00
Sample Type:	QC	Instrument Model:	TSQ Quantum Access
Vial:	c:6	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

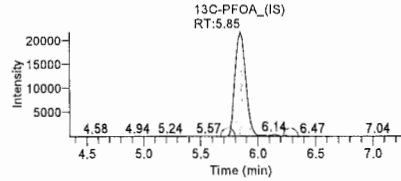
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.85	144454.53	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.02	13604.43	N/A	N/A	N/A
PFOA	89.218	5.85	313785.57	144454.53	2.172	ng/L
PFOS	374.819	6.03	127462.52	13604.43	9.369	ng/L

Component Name: PFOA

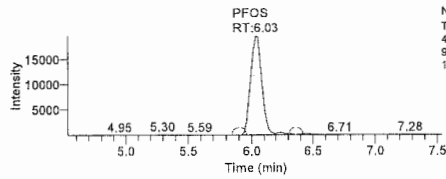


NL: 4.55E4
TIC F: - c ESI SRM ms2 412.800
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16AUG26-07

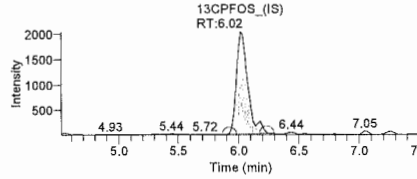


NL: 2.18E4
TIC F: - c ESI SRM ms2
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371.885-371.895] MS
ICIS 16AUG26-07

Component Name: PFOS



NL: 1.96E4
TIC F: - c ESI SRM ms2
499.000 [79.995-80.005,
99.095-99.105] MS ICIS
16AUG26-07



NL: 2.04E3
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG26-07

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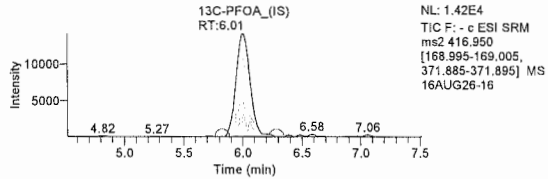
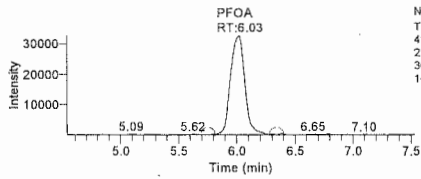
LCMSMS ANALYSIS REPORT

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Sample ID:	CCV	Instrument Method:	C:\Xcalibur\PFC\Acquisition
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Acquisition Date:	08/26/16 06:15:56 AM	Dilution Factor:	1.00
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Vial:	c:6	Instrument Software Version:	2.5.0.1311
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Injection Volume(μl):	10.00	Operator:	US19_USR_INS00022

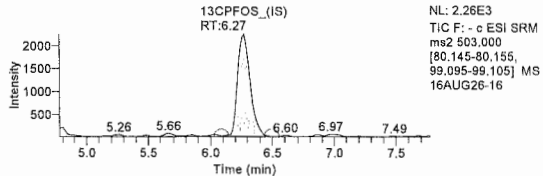
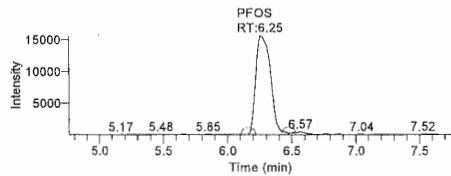
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	6.01	118753.32	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.27	16170.52	N/A	N/A	N/A
PFOA	97.222	6.03	281337.85	118753.32	2.369	ng/L
PFOS	308.515	6.25	124188.37	16170.52	7.680	ng/L

Component Name: PFOA



Component Name: PFOS



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Raw QC Data

PFAAs by LC/MS/MS

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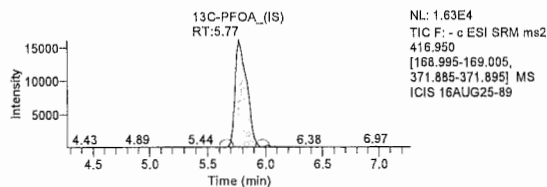
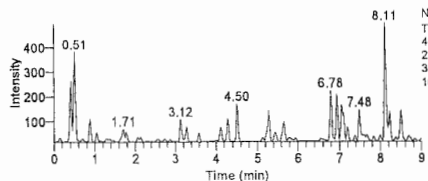
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Sample ID: MB 16235008	Instrument Method: C:\Xcalibur\PFC\Acquisition
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Acquisition Date: 08/25/16 09:22:03 PM	Dilution Factor: 1.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:1	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(μl): 10.00	Operator: US19_USR_INS00022
	16235008

Extracted Ion Chromatogram

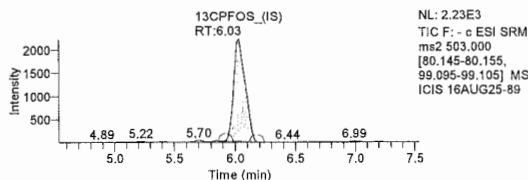
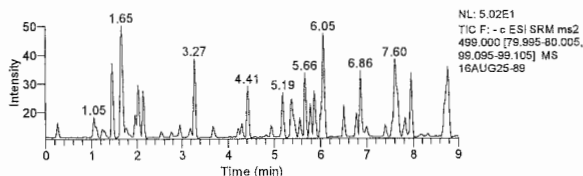
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.77	112825.08	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.03	14438.63	N/A	N/A	N/A
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFOA



Component Name: PFOS



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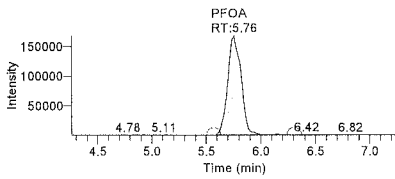
LCMSMS ANALYSIS REPORT

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Sample ID: 8525862DL MS	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-93	M\FULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 10:00:59 PM	Dilution Factor: 10.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:5	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(µl): 10.00	Operator: US19_USR_INS00022
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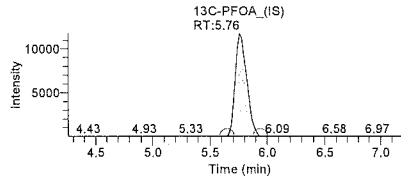
Extracted Ion Chromatogram Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.76	83164.04	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.00	5514.46	N/A	N/A	N/A
PFOA	6986.735	5.76	1427351.97	83164.04	17.163	ng/L
PFOS	49747.082	6.00	697929.15	5514.46	126.563	ng/L

Component Name: PFOA

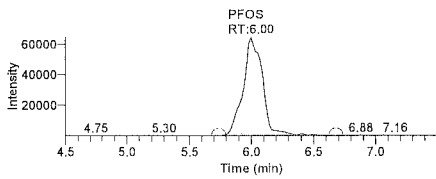


NL: 1.68E5
TIC F: - c ESI SRM ms2 412.900
[168.895-168.905,
218.895-218.905,
368.845-368.855] MS ICIS
16AUG25-93

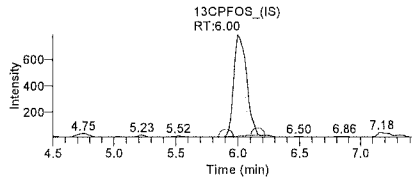


NL: 1.18E4
TIC F: - c ESI SRM ms2
416.950
[168.995-169.005,
371.885-371.895] MS
ICIS 16AUG25-93

Component Name: PFOS



NL: 6.46E4
TIC F: - c ESI SRM ms2
498.000 [78.885-80.005,
99.095-99.105] MS ICIS
16AUG25-93



NL: 7.90E2
TIC F: - c ESI SRM
ms2 503.000
[80.145-80.155,
99.095-99.105] MS
ICIS 16AUG25-93

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Senior Chemist

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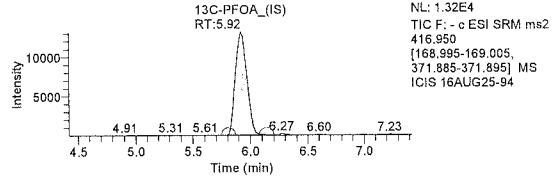
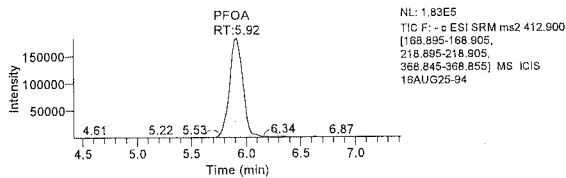
LCMSMS ANALYSIS REPORT

Sample Name: 8525863DL MSD	Original Data Path: C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID: 8525863DL MSD	Instrument Method: C:\Xcalibur\PFC\Acquisition
Data File: 16AUG25-94	MFULLPFC_9.0minutes_08172016
Acquisition Date: 08/25/16 10:10:45 PM	Dilution Factor: 10.00
Sample Type: Unknown	Instrument Model: TSQ Quantum Access
Vial: a:6	Instrument Software Version: 2.5.0.1311
Run Time(min): 9.00	Instrument Serial Number: TQU01408
Injection Volume(μl): 10.00	Operator: US19_USR_INS00022
	16235008

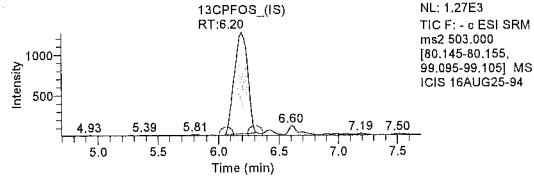
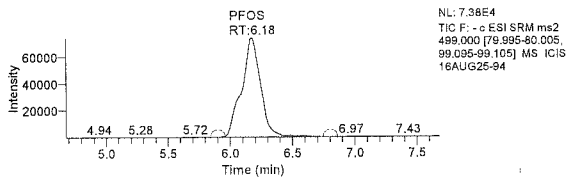
Extracted Ion Chromatogram Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.92	93012.69	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.20	9686.14	N/A	N/A	N/A
PFOA	6665.462	5.92	1522882.88	93012.69	16.373	ng/L
PFOS	32147.660	6.18	791592.66	9686.14	81.724	ng/L

Component Name: PFOA



Component Name: PFOS



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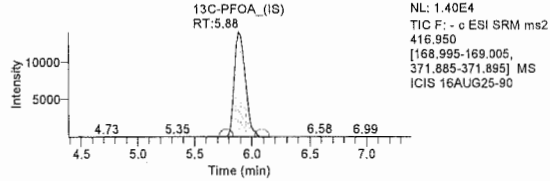
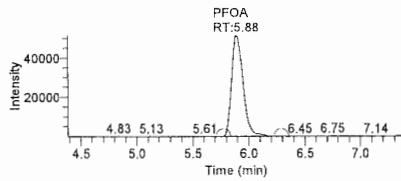
LCMSMS ANALYSIS REPORT

Sample Name:	LCS 16235008	Original Data Path:	C:\XCALIBUR\PFC\2016\Raw PFC DATA
Sample ID:	LCS 16235008	Instrument Method:	C:\Xcalibur\PFC\Acquisition
Data File:	16AUG25-90		MFULLPFC_9.0minutes_08172016
Acquisition Date:	08/25/16 09:31:49 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	9.00	Instrument Serial Number:	TQ001408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022 16235008

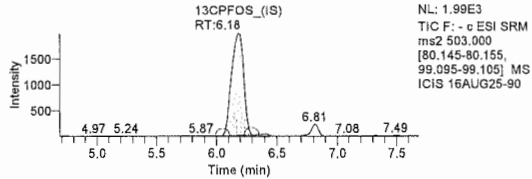
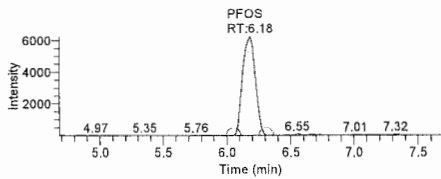
**Extracted Ion Chromatogram
Quan Peak Table**

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFOA_(IS)	N/A	5.88	95062.03	N/A	N/A	N/A
13CPFOS_(IS)	N/A	6.18	14017.58	N/A	N/A	N/A
PFOA	157.380	5.88	365874.88	95062.03	3.849	ng/L
PFOS	128.100	6.18	43221.50	14017.58	3.083	ng/L

Component Name: PFOA



Component Name: PFOS



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Preparation Logs

PFAAs by LC/MS/MS

Organic Extraction Batchlog

Assigned to: 10262 Devon Whooley

Reviewed by: dd1415

Start Date: 8/23/16

Start time: 10:20

16235008

Tech 1: DW 16262

Tech 2: _____

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

Dept: 37 Prep Analysis: 14091 PFAA Water Prep										
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
8525862MS	GS-03	99.84	SS1623537A	.025	LCSPFCX1637F	.04	1		201a	
8525863MSD	GS-03	100.61		.025	↓	.04	1		201a	
BLANKA	BLK235008	100.00		.025	N/A	N/A	1			
LCSA	OPR235008	100.00	↓	.025	LCSPFCX1637F	.04	1			

Reagent/Material	Lot No.
96% MeOH:H2O	154749
Methanol	162531
Milli-Q H2O	House 8/31
SPE Cartridge	040936180C
Sodium Thiosulfate	_____
Trizma	SLBF6037V

Spike Solutions:

Witness: AW 82/2

Instrument: 18881

Sequence: 16AUG25-16235008

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1	8525860	99.72	SS1623537A	.025	1		201a		10954	08/29/2016	N
2	8525861	100.26		.025	1		201a		10954	08/29/2016	N
3	8525864	99.81		.025	1		201a		10954	08/29/2016	N
4	8525865	99.79		.025	1		201a		10954	08/29/2016	N
5	8525866	99.93		.025	1		201a		10954	08/29/2016	N
6	8525867	99.75		.025	1		201a		10954	08/29/2016	N
7	8525868	100.08		.025	1		201a		10954	08/29/2016	N
8	8525869	99.60		.025	1		201a		10954	08/29/2016	N
9	8525870	99.91		.025	1		201a		10954	08/29/2016	N
10	8525871	99.72		.025	1		201a		10954	08/29/2016	N
11	8525872	99.86	↓	.025	1		201a		10954	08/29/2016	N

Balance # B629764122

SPE Manifold 2/4 Vacuum Port _____ N-evap _____ C _____

16235008



DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC	RES_META_ID
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GS03	Monitoring well	1078132.986	500362.0934	N6258311D0515	101		18GS03-20160812-DUP	Ground water	Field duplicate	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GI31	Monitoring well	1078167.405	499501.9658	N6258311D0515	101		18GI31-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GS03	Monitoring well	1078132.986	500362.0934	N6258311D0515	101		18GS03-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GS21	Monitoring well	1078231.626	499863.2132	N6258311D0515	101		18GS21-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GI27	Monitoring well	1078246.914	500979.596	N6258311D0515	101		18GI27-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	NASP18MW32S	Monitoring well	1078860.912	500394.2501	N6258311D0515	101		18MW32S-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GS16	Monitoring well	1078080.484	499096.5166	N6258311D0515	101		18GS16-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	NASP18MW33I	Monitoring well	1078861.722	500399.4292	N6258311D0515	101		18MW33I-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00
SOUTHEAST	PENSACOLA_NAS	EML22	UST 000018	UST 000018	18GS30	Monitoring well	1078164.167	499500.8918	N6258311D0515	101		18GS30-20160812	Ground water	Normal (Regular)	12-Aug-16	537_MOD	Perfluoroalkyl Compounds	20180503054404.00