NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 2 Laboratory Report, Level 4 Laboratory Report, and Data Validation Report, SDG B6G7486

Marine Corps Ballistics Base Barstow
Barstow, California

November 2019

Your Project #: PFC Barstow
Your C.O.C. #: 572491-01-01, na

Attention:Orval Osborne

Oneida Total Integrated Enterprises
317 E. Main Street
Ventura, CA
USA 93001

Report Date: 2016/08/12
Report #: R4106816
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6G7486
Received: 2016/08/09, 14:45

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PFOS and PFOA in water	12	2016/08/10	2016/08/11	CAM SOP-00894	EPA 537 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Melissa DiGrazia, Project Manager - ATUT
Email: MDiGrazia@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

RESULTS OF ANALYSES OF WATER

Maxxam ID		CVV953	CVV954	CVV955	CVV956	CVV957			
Sampling Date		2016/08/04 08:05	2016/08/04 16:00	2016/08/04 14:15	2016/08/04 07:10	2016/08/04 10:55			
COC Number		572491-01-01	572491-01-01	572491-01-01	572491-01-01	572491-01-01			
	UNITS	2014188-616	2014188-617	2014188-618	2014188-619	2014188-620	RDL	MDL	QC Batch
Miscellaneous Parameters									
Perfluorobutane Sulfonate (PFBS)	ug/L	0.015 J	0.016 J	0.015 J	0.028	0.014 J	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.0053 U	0.037	0.037	0.037	0.032	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.020	0.083	0.10	0.087	0.067	0.020	0.0033	4613413
Surrogate Recovery (%)									
13C4-Perfluorooctanesulfonate	%	94	88	88	95	87	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	99	91	89	100	99	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CVV958	CVV959	CVV960	CVV961	CVV962			
Sampling Date		2016/08/04 09:00	2016/08/04 09:05	2016/08/05 09:15	2016/08/04 17:00	2016/08/05 13:00			
COC Number		572491-01-01	572491-01-01	572491-01-01	572491-01-01	572491-01-01			
	UNITS	2014188-621	2014188-622	2014188-624	2014188-625	2014188-626	RDL	MDL	QC Batch
Miscellaneous Parameters									
Perfluorobutane Sulfonate (PFBS)	ug/L	0.030	0.028	0.025	0.0019 U	0.0019 U	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.038	0.039	0.030	0.0053 U	0.0053 U	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.098	0.099	0.050	0.0033 U	0.0033 U	0.020	0.0033	4613413
Surrogate Recovery (%)									
13C4-Perfluorooctanesulfonate	%	93	94	88	91	88	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	96	97	98	96	92	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

RESULTS OF ANALYSES OF WATER

Maxxam ID		CVV964	CVV965			
Sampling Date		2016/08/05 10:00	2016/08/04 07:00			
COC Number		na	na			
	UNITS	**2014188-623**	**2014188-627**	**RDL**	**MDL**	**QC Batch**
Miscellaneous Parameters						
Perfluorobutane Sulfonate (PFBS)	ug/L	0.021	0.0019 U	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.025	0.0053 U	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.056	0.0033 U	0.020	0.0033	4613413
Surrogate Recovery (%)						
13C4-Perfluorooctanesulfonate	%	88	84	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	97	89	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

TEST SUMMARY

Maxxam ID: CVV953 **Collected:** 2016/08/04
Sample ID: 2014188-616 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV954 **Collected:** 2016/08/04
Sample ID: 2014188-617 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV955 **Collected:** 2016/08/04
Sample ID: 2014188-618 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV956 **Collected:** 2016/08/04
Sample ID: 2014188-619 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV957 **Collected:** 2016/08/04
Sample ID: 2014188-620 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV958 **Collected:** 2016/08/04
Sample ID: 2014188-621 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV959 **Collected:** 2016/08/04
Sample ID: 2014188-622 **Shipped:**
Matrix: Water **Received:** 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

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Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

TEST SUMMARY

Maxxam ID: CVV960
Sample ID: 2014188-624
Matrix: Water

Collected: 2016/08/05
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV961
Sample ID: 2014188-625
Matrix: Water

Collected: 2016/08/04
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV962
Sample ID: 2014188-626
Matrix: Water

Collected: 2016/08/05
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV964
Sample ID: 2014188-623
Matrix: Water

Collected: 2016/08/05
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV965
Sample ID: 2014188-627
Matrix: Water

Collected: 2016/08/04
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.8°C

Results relate only to the items tested.

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Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4613413	CM5	Matrix Spike	13C4-Perfluorooctanesulfonate	2016/08/11		91	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		100	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		92	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		94	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		NC	%	70 - 130
4613413	CM5	Matrix Spike DUP	13C4-Perfluorooctanesulfonate	2016/08/11		87	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		91	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		89	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		103	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		NC	%	70 - 130
4613413	CM5	MS/MSD RPD	Perfluorobutane Sulfonate (PFBS)	2016/08/11	3.1		%	30
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11	9.5		%	30
			Perfluorooctane Sulfonate (PFOS)	2016/08/11	NC		%	30
4613413	CM5	Spiked Blank	13C4-Perfluorooctanesulfonate	2016/08/11		100	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		101	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		90	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		97	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		92	%	70 - 130
4613413	CM5	Method Blank	13C4-Perfluorooctanesulfonate	2016/08/11		100	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		103	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11	0.0019 U, MDL=0.0019		ug/L	
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11	0.0053 U, MDL=0.0053		ug/L	
			Perfluorooctane Sulfonate (PFOS)	2016/08/11	0.0033 U, MDL=0.0033		ug/L	

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

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Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Sin Chii Chia, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Prepared for: Oneida Total Integrated Enterprises

Project: PFC BARSTOW

Analytical Data Package
(Level IV)

Analysis: PFOS and PFOA in water (Method 537)

Maxxam Job #: B6G7486

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Table of Contents

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Maxxam Analytics International
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Glossary of Terms

- ***Detection Limit (DL)*** this can also be called ***Method Detection Limit (MDL***): The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.

- ***Limit of Detection (LOD*)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

- ***Limits of Quantitation (LOQ)*** this can also be called ***Reporting Detection Limit (RDL)***: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.

- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.

- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.

- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.

- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid

- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.

- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.

- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.

- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.

- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.

- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.

- ***RSD*** is the relative standard deviation.

- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.

- ***Window Defining Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.

- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.

- ***EMPC/NDR –*** Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

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Maxxam Job: B6G7486

Sample Analysis

The following samples were initially screened using a higher calibration range (high level analysis) on QC batch 4612909 (2016/08/10) to identify samples containing high concentrations of target analytes.

CVV953 *2014188-616*
CVV964 *2014188-623*

Both samples were subsequently re-extracted and re-analyzed on QC batch 4613413 (2016/08/11) so as to obtain a lower detection limit for all analytes.

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: PFC Barstow

Client: Oneida Total Integrated Enterprises
Client Project: PFC Barstow

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in water						
CVV953	2014188-616	2016/08/04	2016/08/09	2016/08/10	2016/08/11	2016/08/11
CVV964	2014188-623	2016/08/05	2016/08/09	2016/08/10	2016/08/11	2016/08/11

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

2016/08/15
Date

2. Sample Management Records

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2.1 Sample Custody

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CHAIN OF CUSTODY RECORD

Page 1 of 2

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#30756 Oneida Total Integrated Enterprises	Company Name:	OTIE	Quotation #:		Maxxam Job #:	Bottle Order #:
Attention:	Orval Osborne	Attention:	Orval Osborne	P.O. #:			572491
Address:	317 E. Main Street Ventura CA 93001	Address:	317 E. main st. Ventura CA 93001	Project:	PFC Barstow	COC #:	Project Manager:
Tel:	(805) 585-4313 x	Tel:	805 585-4313	Project Name:		C#572491-01-01	Melissa DiGrazia
Email:	oosborne@otie.com	Email:	oosborne@OTIE.com	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ___ ☐ PWQO ☐ Other ___	Level III Data Package unless otherwise noted

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified).
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	PFOS, PFOA, PFBS EPA 537	# of Bottles	Comments
1		20141188-616	8/4/16	805	W	NA	X		Level IV Data Package
2		20141188-617		1600			X		
3		20141188-618		1415			X		
4		20141188-619		710			X		
5		20141188-620		1055			X		
6		20141188-621		900			X		
7		20141188-622	↓	905			X		
8		20141188-624	8/5/16	915			X		
9		20141188-625	8/4/16	1700			X		
10		20141188-626	8/5/16	1300	↓	↓	X		

09-Aug-16 14:45
Melissa DiGrazia
B6G7486
TSP ENV-1142

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
	8/8/16	1600	DANY MARCASP	16/08/09	~~11:30~~ 14:45	

IM2 20161608109

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	4.6 / 4.4 / 5.3	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

344655

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A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

CHAIN OF CUSTODY RECORD

Page 2 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information	Turnaround Time (TAT) Required
Company :	Company:	Quotation #:	☐ 5 - 7 Days Regular (Most analyses)
Contact Name: see page 1	Contact Name: see page 1	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: see page 1	Address: see page 1	Project #:	Rush TAT (Surcharges will be applied)
Phone:	Phone:	Site Location:	☐ Same Day ☐ 2 Days
Email:	Email:	Site #:	☐ 1 Day ☐ 3-4 Days
Copies:	Copies:	Sampled By:	Date Required:
			Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present	✓		Temp	4.6	4.4	5.3
Seal Intact	✓					
Cooling Media	✓					
	YES	NO	Cooler ID			
Seal Present			Temp			
Seal Intact						
Cooling Media						
	YES	NO	Cooler ID			
Seal Present			Temp			
Seal Intact						
Cooling Media						

Depot Reception: see page 1

Analysis Requested

	Sample Identification	Depth (Unit)	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	# of containers	BTEX F1 ☐ VOC ☐	BTEX F1-F2	BTEX F1-F4	Routine Water	Regulated Metals Tot ☐ Diss ☐	Mercury Total ☐ Dissolved ☐	Salinity 4	Sieve (75 micron)	Texture (% Sand, Silt, Clay)	Basic Class II Landfill	PFOS, PFOA, PFCs by SPE/LC	HOLD - DO NOT ANALYZE
1	2014188-623	NA	8/5/16	1000	W												X	
2	2014188-627	NA	8/4/16	700	W												X	
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Please indicate Filtered, Preserved or Both (F, P, F/P) →

Regulatory Criteria

☐ AT1/CCME
☐ Drinking Water
☐ Saskatchewan
☐ D50 (Drilling Waste)
☐ Other:

Special Instructions

level ☑ Data Package on sample 2014188-623

Relinquished by: (Signature/ Print)	DATE (YYYY/MM/DD)	Time (HH:MM)	Received by: (Signature/ Print)	DATE (YYYY/MM/DD)	Time (HH:MM)	Maxxam Job #
Emmanuel Desloges	8/8/2016	1600	DAMY MARCOUX	2016/08/09	14:45	

AB FCD-00331/6

#34465

3. Analytical Results

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

3.1 Summary Report

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam
A Bureau Veritas Group Company

Your Project #: PFC Barstow
Your C.O.C. #: 572491-01-01, na

Attention:Orval Osborne

Oneida Total Integrated Enterprises
317 E. Main Street
Ventura, CA
USA 93001

Report Date: 2016/08/15
Report #: R4114062
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6G7486
Received: 2016/08/09, 14:45

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PFOS and PFOA in water	2	2016/08/10	2016/08/11	CAM SOP-00894	EPA 537 m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Stephanie Pollen
Project Manager Assistant
15 Aug 2016 10:16:55 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Melissa DiGrazia, Project Manager - ATUT
Email: MDiGrazia@maxxam.ca
Phone# (905) 817-5700

cosign

==========

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Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6G7486
Report Date: 2016/08/15

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

RESULTS OF ANALYSES OF WATER

Maxxam ID		CVV953	CVV964			
Sampling Date		2016/08/04 08:05	2016/08/05 10:00			
COC Number		572491-01-01	na			
	UNITS	2014188-616	2014188-623	RDL	MDL	QC Batch
Miscellaneous Parameters						
Perfluorobutane Sulfonate (PFBS)	ug/L	0.015 J	0.021	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.0053 U	0.025	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.020	0.056	0.020	0.0033	4613413
Surrogate Recovery (%)						
13C4-Perfluorooctanesulfonate	%	94	88	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	99	97	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Job #: B6G7486
Report Date: 2016/08/15

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

TEST SUMMARY

Maxxam ID: CVV953
Sample ID: 2014188-616
Matrix: Water

Collected: 2016/08/04
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

Maxxam ID: CVV964
Sample ID: 2014188-623
Matrix: Water

Collected: 2016/08/05
Shipped:
Received: 2016/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4613413	2016/08/10	2016/08/11	Colm McNamara

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.8°C

Revised Report (2016/08/15): Including only samples 2014188-616 and 2014188-623.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6G7486
Report Date: 2016/08/15

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4613413	CM5	Matrix Spike	13C4-Perfluorooctanesulfonate	2016/08/11		91	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		100	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		92	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		94	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		NC	%	70 - 130
4613413	CM5	Matrix Spike DUP	13C4-Perfluorooctanesulfonate	2016/08/11		87	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		91	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		89	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		103	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		NC	%	70 - 130
4613413	CM5	MS/MSD RPD	Perfluorobutane Sulfonate (PFBS)	2016/08/11	3.1		%	30
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11	9.5		%	30
			Perfluorooctane Sulfonate (PFOS)	2016/08/11	NC		%	30
4613413	CM5	Spiked Blank	13C4-Perfluorooctanesulfonate	2016/08/11		100	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		101	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11		90	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11		97	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2016/08/11		92	%	70 - 130
4613413	CM5	Method Blank	13C4-Perfluorooctanesulfonate	2016/08/11		100	%	70 - 130
			13C4-Perfluorooctanoic acid	2016/08/11		103	%	70 - 130
			Perfluorobutane Sulfonate (PFBS)	2016/08/11	0.0019 U, MDL=0.0019		ug/L	
			Perfluoro-n-Octanoic Acid (PFOA)	2016/08/11	0.0053 U, MDL=0.0053		ug/L	
			Perfluorooctane Sulfonate (PFOS)	2016/08/11	0.0033 U, MDL=0.0033		ug/L	

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6G7486
Report Date: 2016/08/15

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Sin Chii Chia, Scientific Services

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METHOD 537

DETERMINATION OF SELECTED PERFLUORINATED ALKYL ACIDS IN DRINKING WATER BY SOLID PHASE EXTRACTION AND LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC/MS/MS)

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

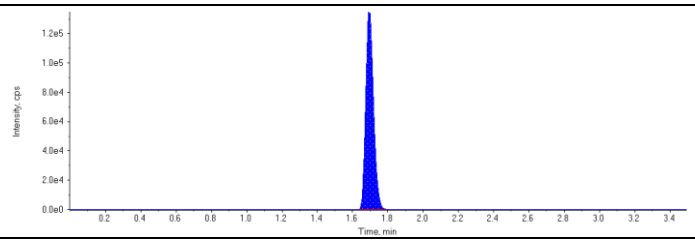
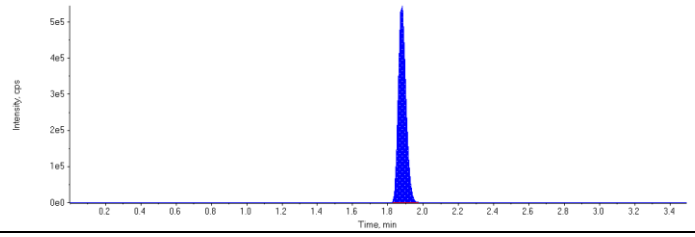
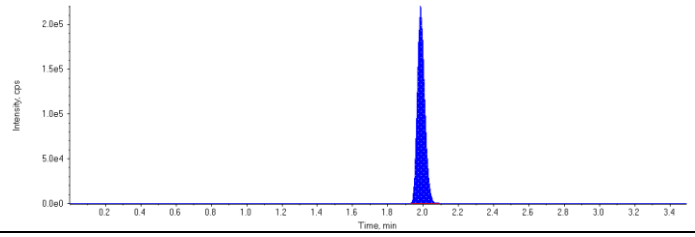
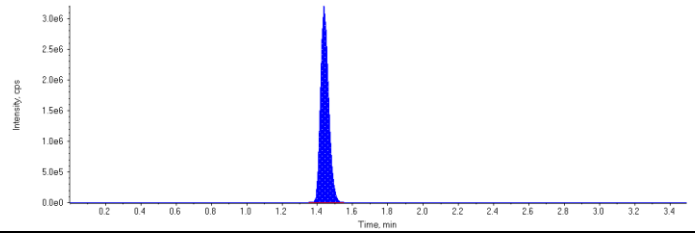
3.2 Sample Chromatograms

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Sample ID	4612909~CVV953-01	**Injection Volume (µL)**	3
Sample Type	Unknown	**Injection Vial**	15
Acquisition Date	2016/08/10 8:45:51 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	Re-analyzed		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	416000.	1.69	1.00	-
MPFOA	1650000.	1.88	1.00	-
MPFOS	636000.	1.99	1.00	-
13C6-PFHxA IS	10200000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	0	0.00	N/A	N/A	N/A
PFOA 1	6580	1.88	N/A	0.00146	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
13C4-PFOA	1650000	1.88	N/A	114.	N/A
13C4-PFOS	636000	1.99	N/A	105.	N/A
13C6-PFHxA	10200000	1.44	N/A	91.9	N/A

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)	This image is not available

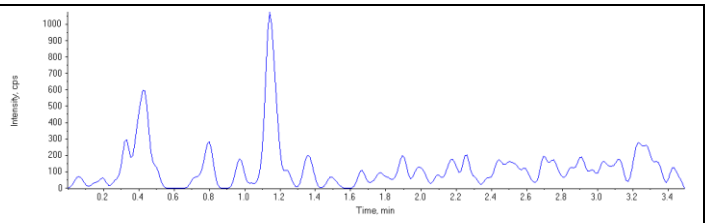
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 0.00 (1.15) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



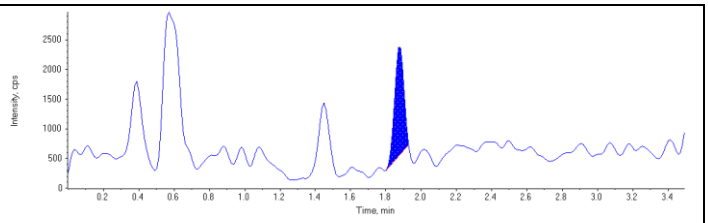
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 0.00146 µg/L

Area Ratio: 0.00399

Sample Type: (Unknown)



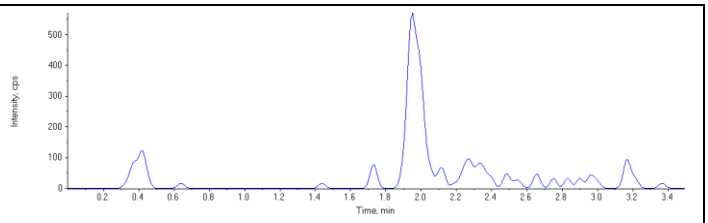
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 0.00 (1.97) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



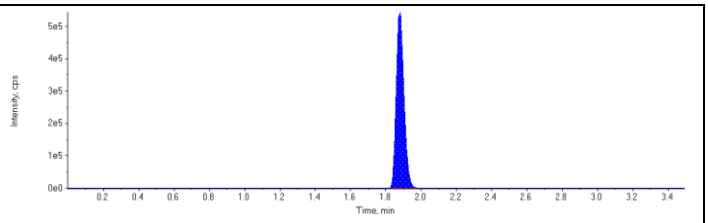
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 114. µg/L

Area Ratio: 0.161

Sample Type: (Unknown)



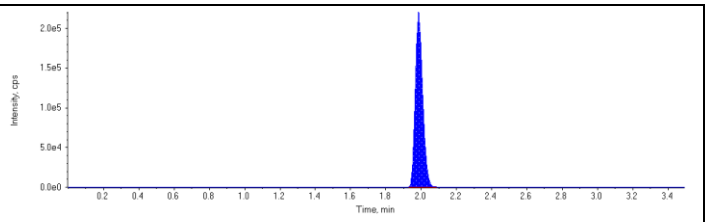
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 105. µg/L

Area Ratio: 0.0622

Sample Type: (Unknown)



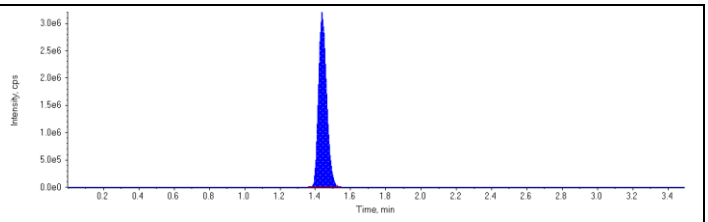
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 91.9 µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



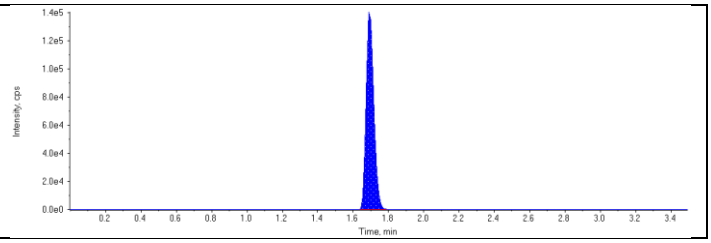
Sample ID	4612909~CVV964-01	**Injection Volume (µL)**	3
Sample Type	Unknown	**Injection Vial**	25
Acquisition Date	2016/08/10 9:41:54 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	Re-analyzed		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	422000.	1.69	1.00	-
MPFOA	1710000.	1.88	1.00	-
MPFOS	672000.	1.99	1.00	-
13C6-PFHxA IS	11600000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	0	0.00	N/A	N/A	N/A
PFOA 1	10600	1.88	N/A	0.0166	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
13C4-PFOA	1710000	1.88	N/A	104.	N/A
13C4-PFOS	672000	1.99	N/A	97.6	N/A
13C6-PFHxA	11600000	1.44	N/A	104.	N/A

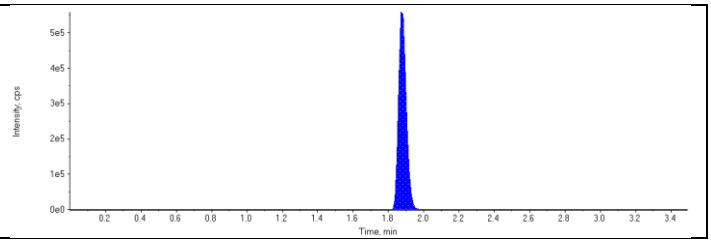
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.75) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



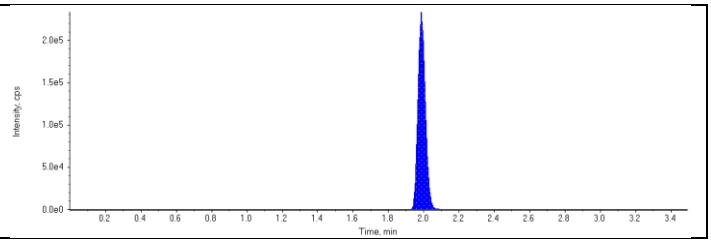
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.94) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



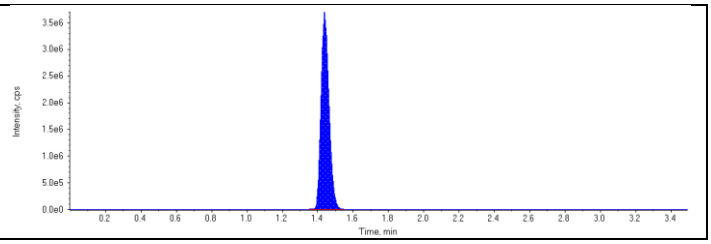
MPFOS (Internal Standard)

RT (Exp. RT): 1.99(1.97) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.44(1.45) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Unknown)

This image is not available

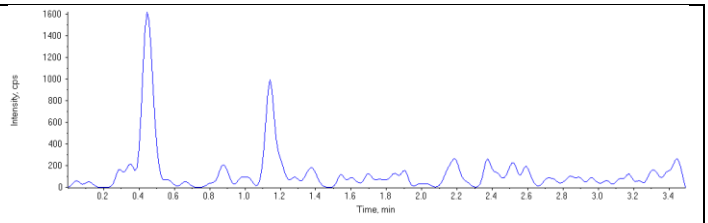
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 0.00 (1.15) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



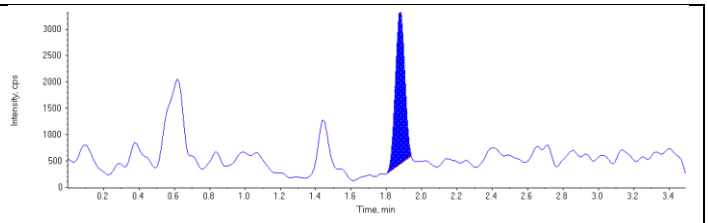
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 0.0166 µg/L

Area Ratio: 0.00619

Sample Type: (Unknown)



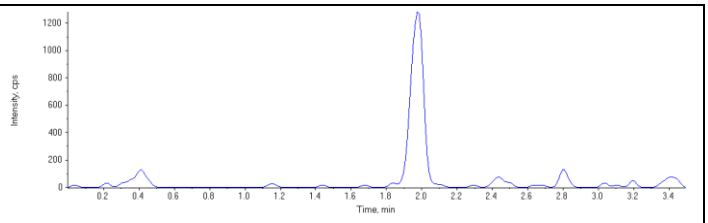
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 0.00 (1.97) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



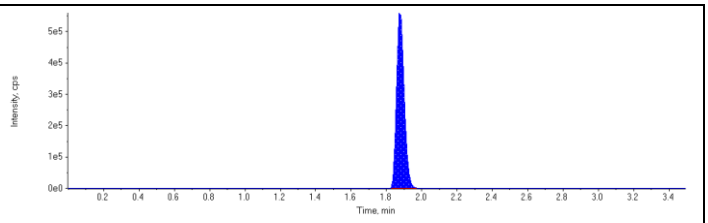
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 104. µg/L

Area Ratio: 0.147

Sample Type: (Unknown)



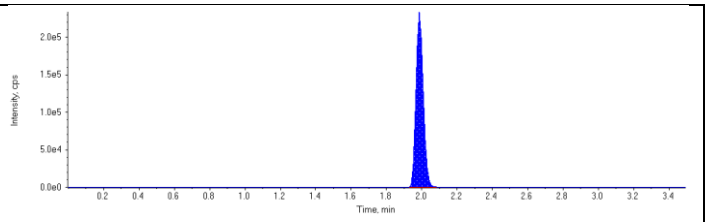
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 97.6 µg/L

Area Ratio: 0.0579

Sample Type: (Unknown)



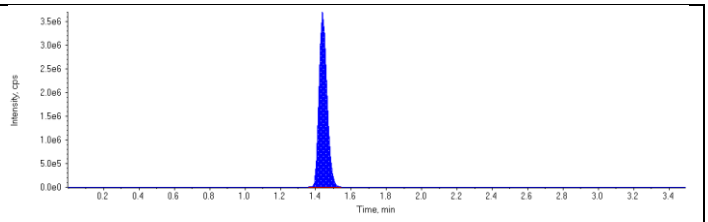
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 104. µg/L

Area Ratio: 0.00

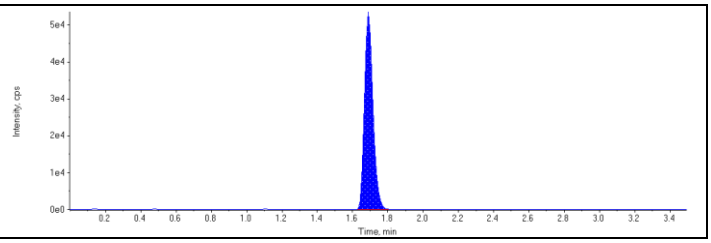
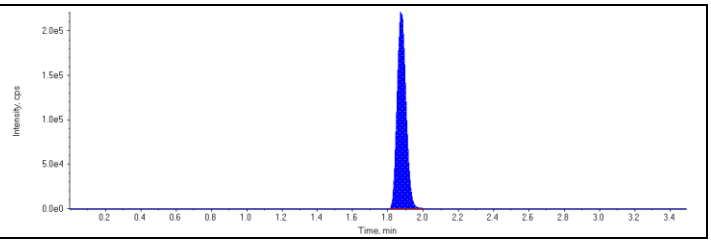
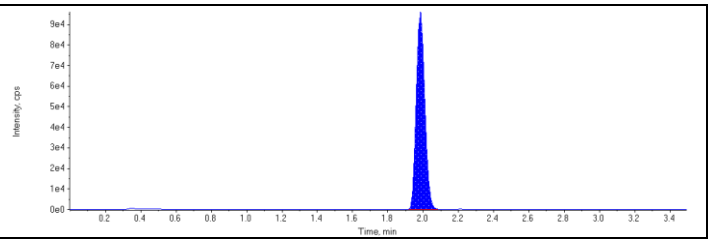
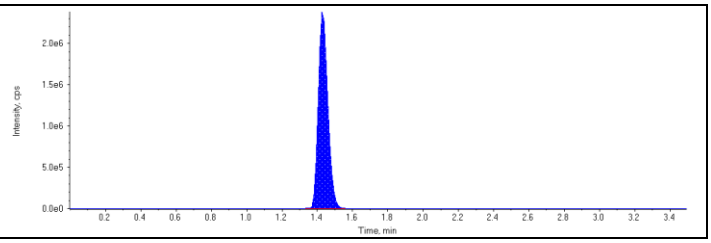
Sample Type: (Unknown)



Sample ID	4613413~CVV953-01	**Injection Volume (µL)**	2
Sample Type	Unknown	**Injection Vial**	15
Acquisition Date	2016/08/11 9:43:28 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	Re-analysis, reported		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	177000.	1.69	1.00	-
MPFOA	772000.	1.88	1.00	-
MPFOS	320000.	1.98	1.00	-
13C6-PFHxA IS	8960000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	103000	1.13	N/A	0.0152	N/A
PFOA 1	32200	1.88	N/A	0.00398	N/A
PFOS 1	117000	1.96	N/A	0.0200	N/A
13C4-PFOA	772000	1.88	N/A	98.8	N/A
13C4-PFOS	320000	1.98	N/A	94.3	N/A
13C6-PFHxA	8960000	1.43	N/A	107.	N/A

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.92) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)	This image is not available

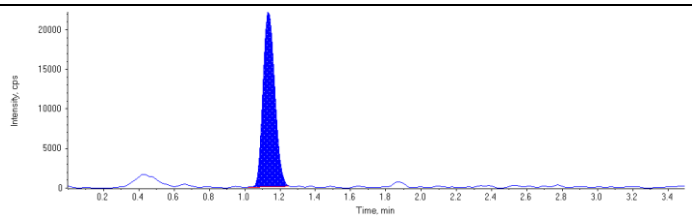
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.13 (1.20) min

Calculated Conc: 0.0152 µg/L

Area Ratio: 0.579

Sample Type: (Unknown)



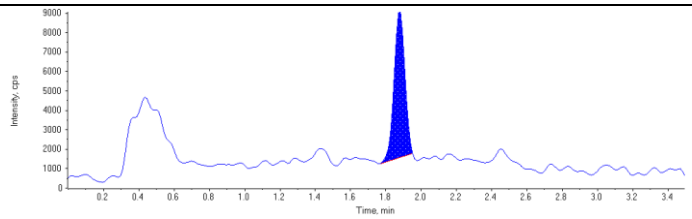
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.00398 µg/L

Area Ratio: 0.0417

Sample Type: (Unknown)



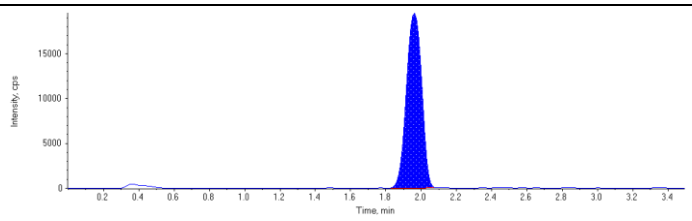
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.96 (1.97) min

Calculated Conc: 0.0200 µg/L

Area Ratio: 0.365

Sample Type: (Unknown)



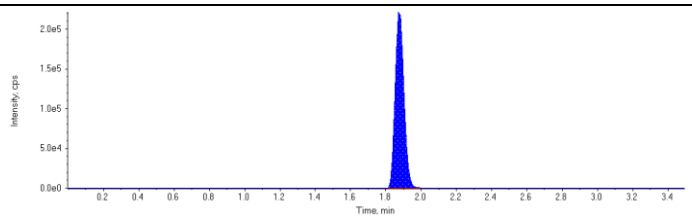
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 98.8 µg/L

Area Ratio: 0.0862

Sample Type: (Unknown)



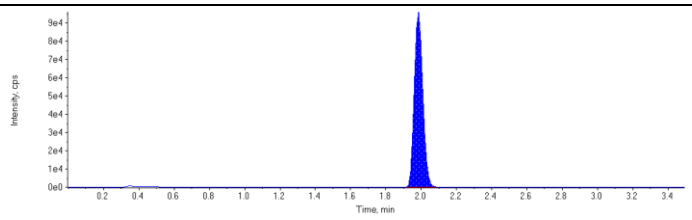
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 94.3 µg/L

Area Ratio: 0.0358

Sample Type: (Unknown)



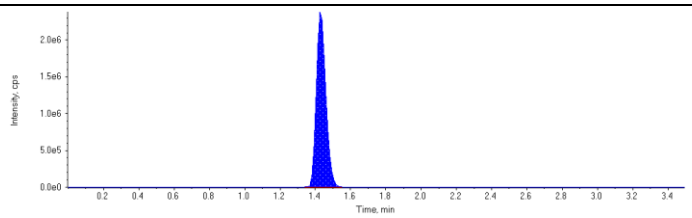
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 107. µg/L

Area Ratio: 0.00

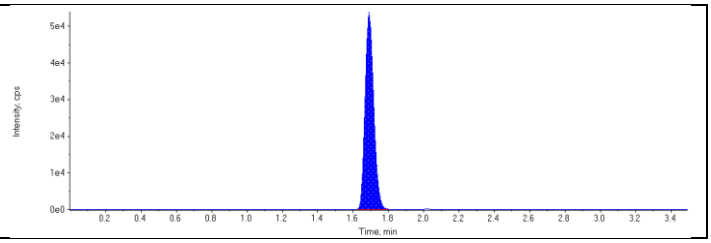
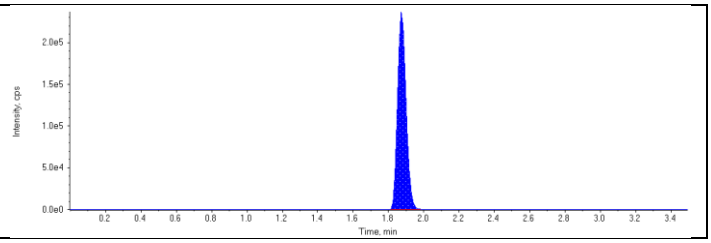
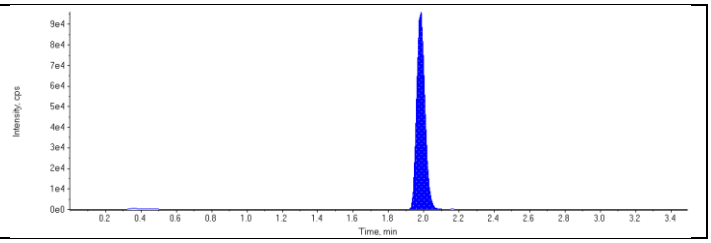
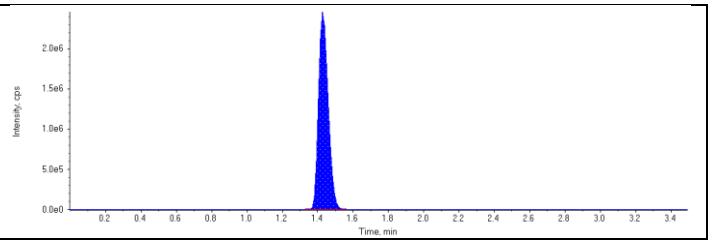
Sample Type: (Unknown)



Sample ID	4613413~CVV964-01	**Injection Volume (µL)**	2
Sample Type	Unknown	**Injection Vial**	25
Acquisition Date	2016/08/11 10:39:22 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	Re-analysis, reported		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	181000.	1.69	1.00	-
MPFOA	785000.	1.87	1.00	-
MPFOS	311000.	1.98	1.00	-
13C6-PFHxA IS	9310000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	156000	1.13	N/A	0.0209	N/A
PFOA 1	287000	1.87	N/A	0.0247	N/A
PFOS 1	314000	1.97	N/A	0.0564	N/A
13C4-PFOA	785000	1.87	N/A	96.7	N/A
13C4-PFOS	311000	1.98	N/A	88.1	N/A
13C6-PFHxA	9310000	1.43	N/A	111.	N/A

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Unknown)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)	This image is not available

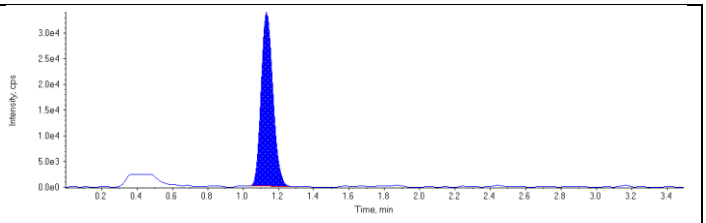
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.13 (1.20) min

Calculated Conc: 0.0209 µg/L

Area Ratio: 0.863

Sample Type: (Unknown)



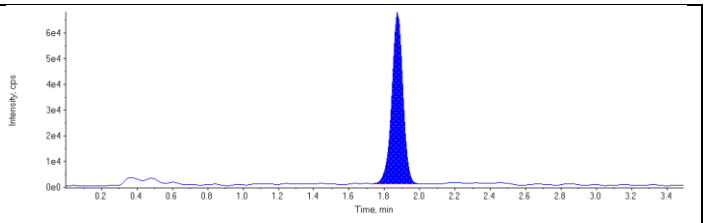
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.87 (1.88) min

Calculated Conc: 0.0247 µg/L

Area Ratio: 0.366

Sample Type: (Unknown)



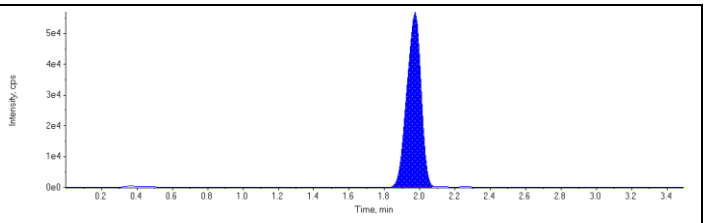
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.97 (1.97) min

Calculated Conc: 0.0564 µg/L

Area Ratio: 1.01

Sample Type: (Unknown)



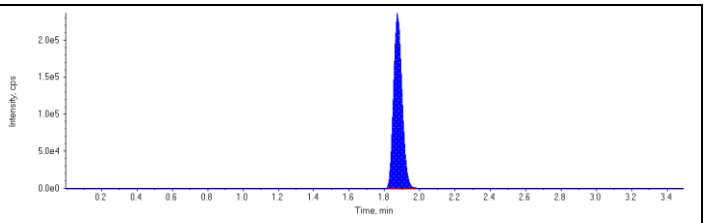
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 96.7 µg/L

Area Ratio: 0.0843

Sample Type: (Unknown)



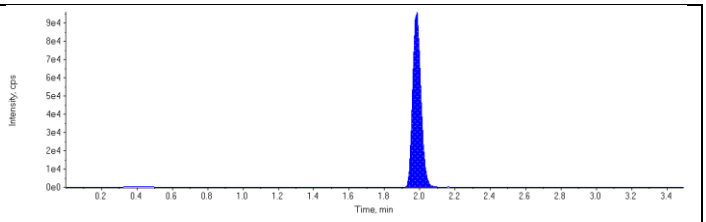
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 88.1 µg/L

Area Ratio: 0.0334

Sample Type: (Unknown)



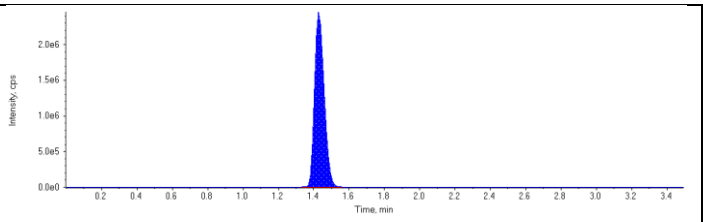
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 111. µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



4. QA/QC Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

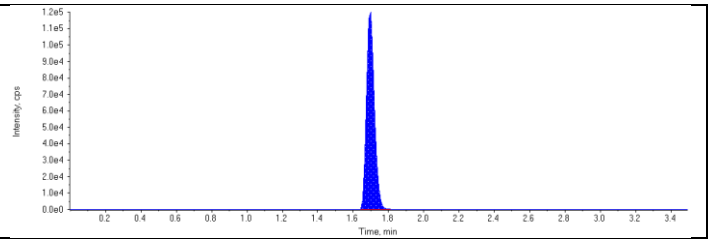
Sample ID	4612909~BLANK	**Injection Volume (µL)**	3
Sample Type	Unknown	**Injection Vial**	2
Acquisition Date	2016/08/10 7:34:32 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	372000.	1.70	1.00	-
MPFOA	1570000.	1.88	1.00	-
MPFOS	626000.	1.99	1.00	-
13C6-PFHxA IS	12100000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	0	0.00	N/A	N/A	N/A
PFOA 1	4930	1.88	N/A	N/A	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
13C4-PFOA	1570000	1.88	N/A	91.3	N/A
13C4-PFOS	626000	1.99	N/A	87.1	N/A
13C6-PFHxA	12100000	1.44	N/A	109.	N/A

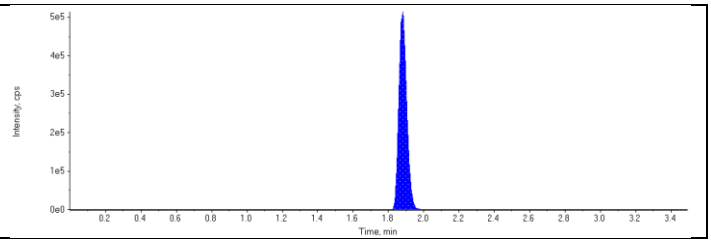
MPFHxS (Internal Standard)

RT (Exp. RT): 1.70(1.75) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



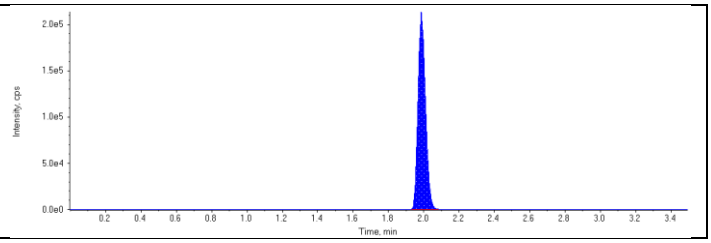
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.94) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



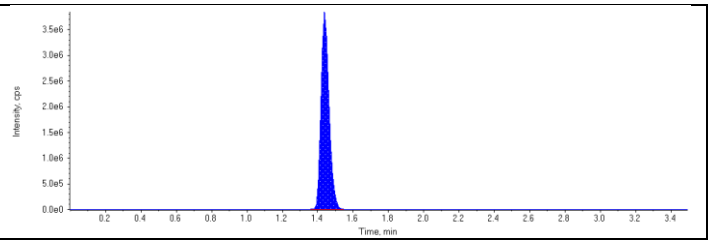
MPFOS (Internal Standard)

RT (Exp. RT): 1.99(1.97) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.44(1.45) min
Concentration: 1.00 ug/L
Sample Type: (Unknown)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Unknown)

This image is not available

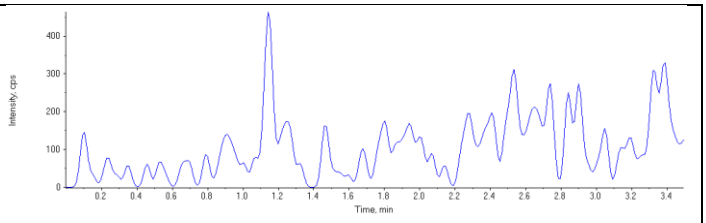
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 0.00 (1.15) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



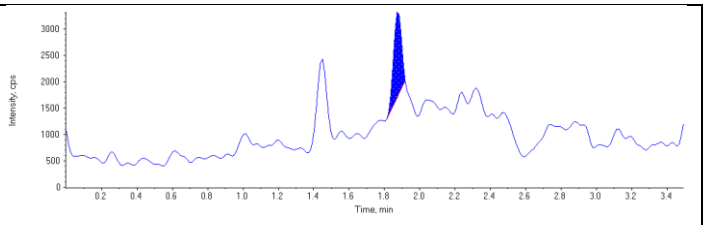
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00314

Sample Type: (Unknown)



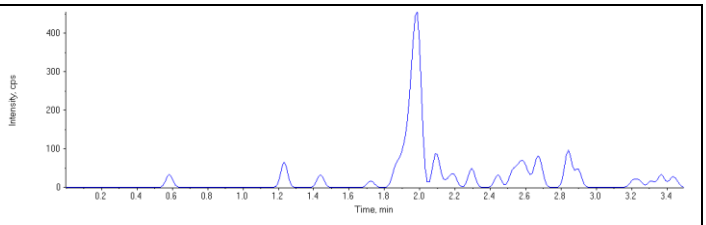
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 0.00 (1.97) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Unknown)



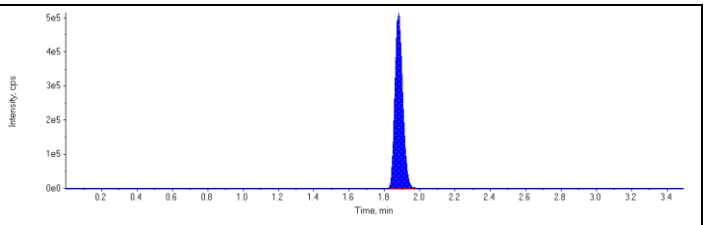
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 91.3 µg/L

Area Ratio: 0.129

Sample Type: (Unknown)



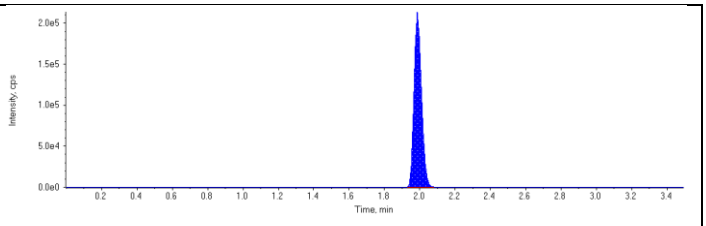
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 87.1 µg/L

Area Ratio: 0.0517

Sample Type: (Unknown)



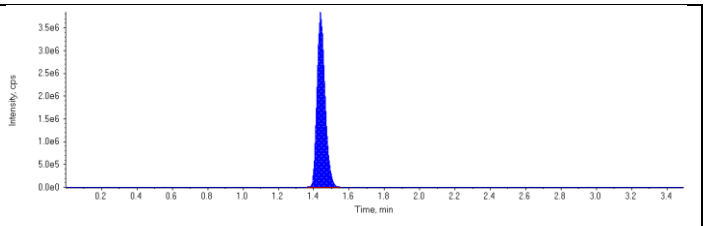
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 109. µg/L

Area Ratio: 0.00

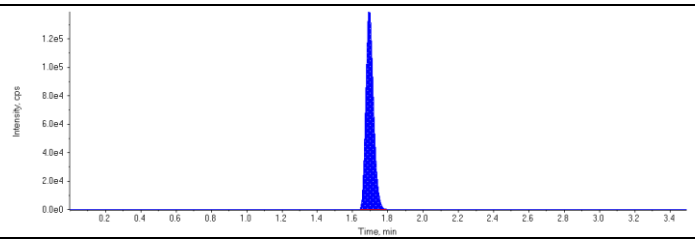
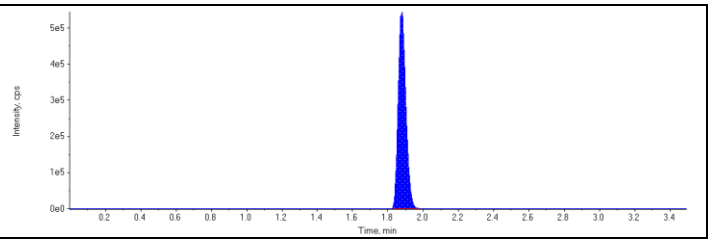
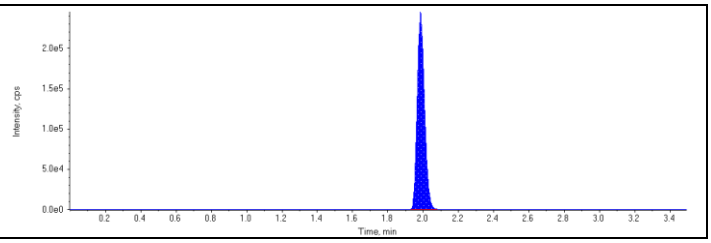
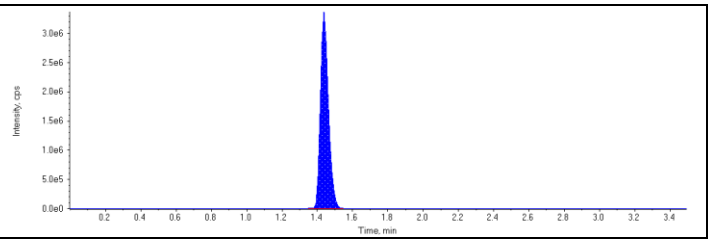
Sample Type: (Unknown)



Sample ID	4612909~MTRX SPK (CVV953)	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	10
Acquisition Date	2016/08/10 8:20:22 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	429000.	1.69	1.00	-
MPFOA	1650000.	1.88	1.00	-
MPFOS	695000.	1.99	1.00	-
13C6-PFHxA IS	10600000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4690000	1.15	28.0	23.7	84.8
PFOA 1	6040000	1.88	28.0	25.2	89.9
PFOS 1	2860000	1.98	28.0	25.7	91.8
13C4-PFOA	1650000	1.88	100.	109.	109.0
13C4-PFOS	695000	1.99	100.	110.	110.0
13C6-PFHxA	10600000	1.44	100.	95.8	95.8

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

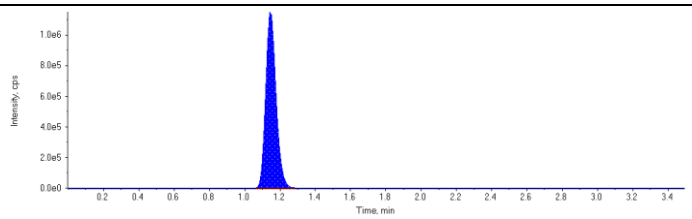
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.15 (1.15) min

Calculated Conc: 23.7 µg/L

Area Ratio: 10.9

Sample Type: (Quality Control)



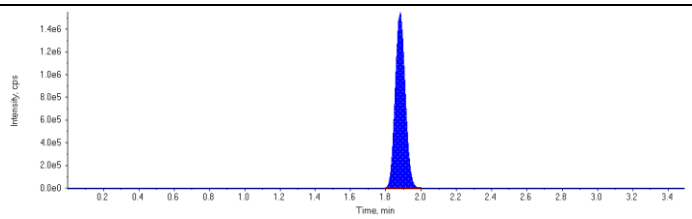
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 25.2 µg/L

Area Ratio: 3.67

Sample Type: (Quality Control)



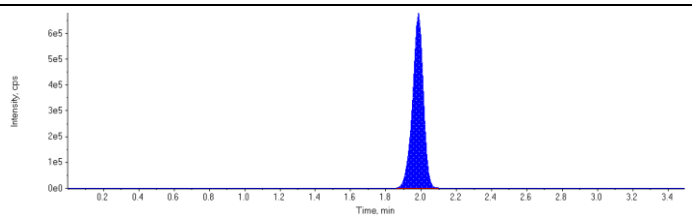
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 25.7 µg/L

Area Ratio: 4.12

Sample Type: (Quality Control)



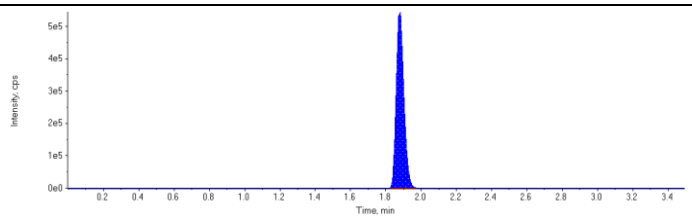
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 109. µg/L

Area Ratio: 0.155

Sample Type: (Quality Control)



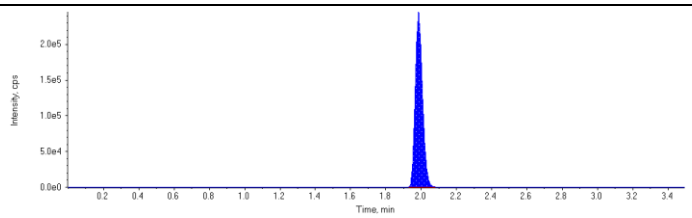
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 110. µg/L

Area Ratio: 0.0653

Sample Type: (Quality Control)



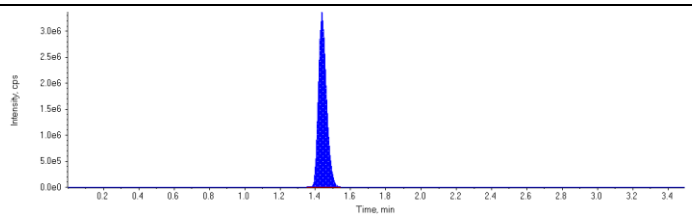
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 95.8 µg/L

Area Ratio: 0.00

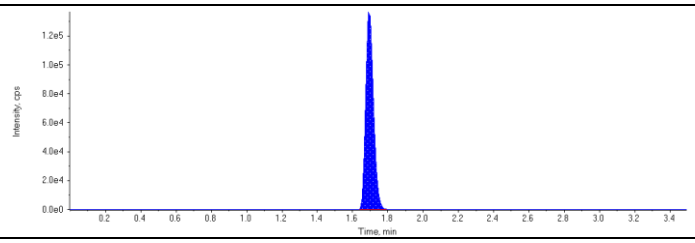
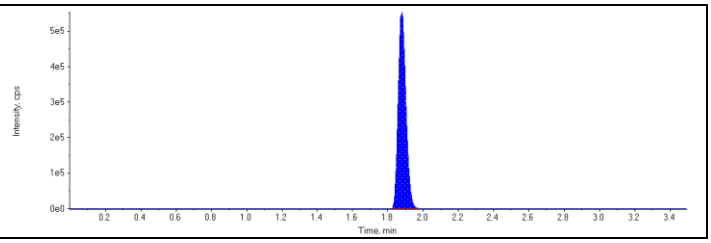
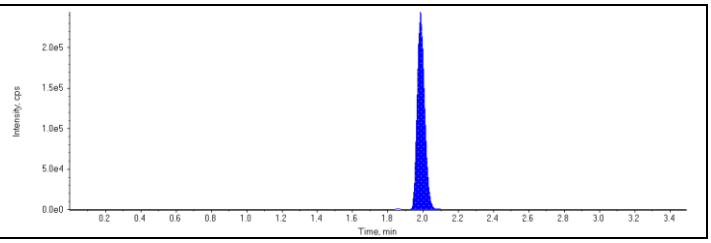
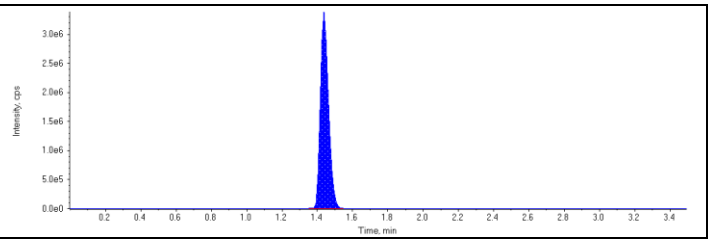
Sample Type: (Quality Control)

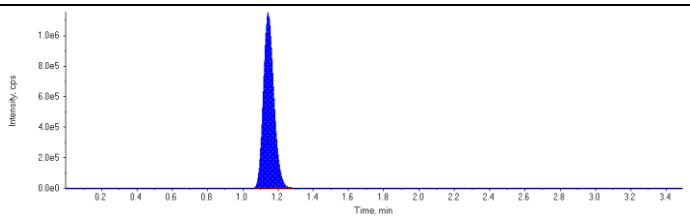
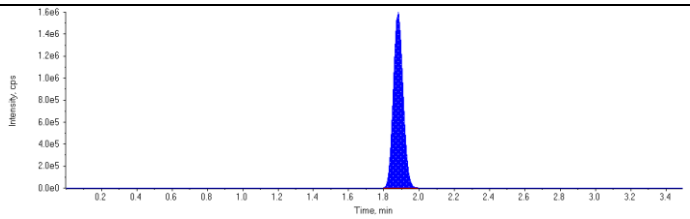
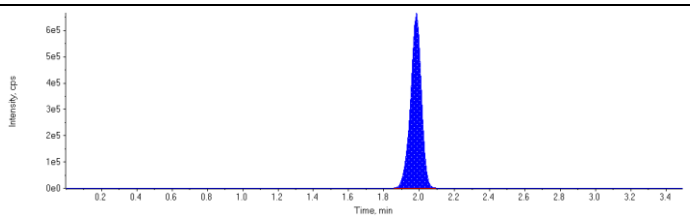
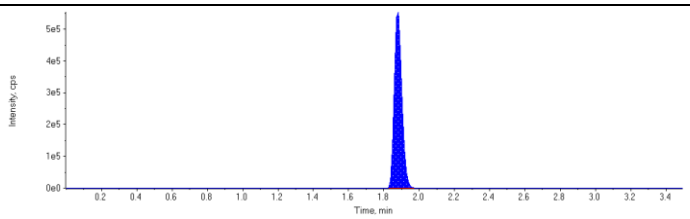
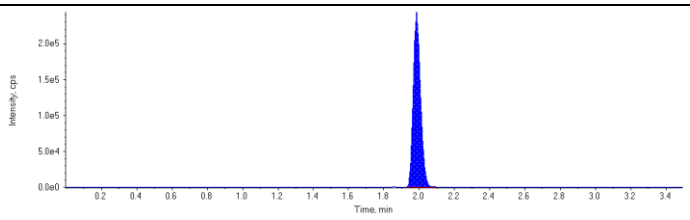
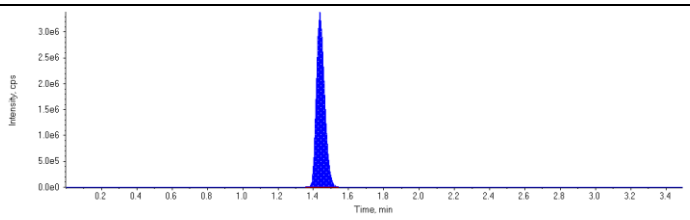


Sample ID	4612909~MTRX SPK:D1 (CVV953)	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	11
Acquisition Date	2016/08/10 8:25:28 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	422000.	1.69	1.00	-
MPFOA	1670000.	1.88	1.00	-
MPFOS	700000.	1.99	1.00	-
13C6-PFHxA IS	10900000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4720000	1.14	28.0	24.3	86.8
PFOA 1	6140000	1.88	28.0	25.2	90.1
PFOS 1	2820000	1.98	28.0	25.2	90.1
13C4-PFOA	1670000	1.88	100.	108.	108.0
13C4-PFOS	700000	1.99	100.	108.	108.0
13C6-PFHxA	10900000	1.44	100.	98.2	98.2

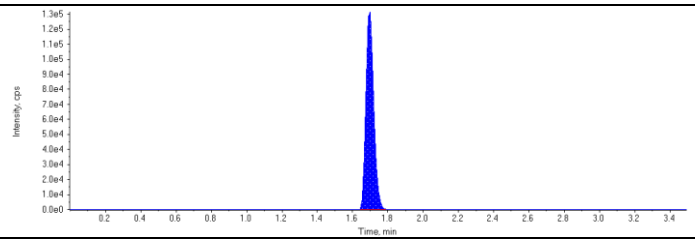
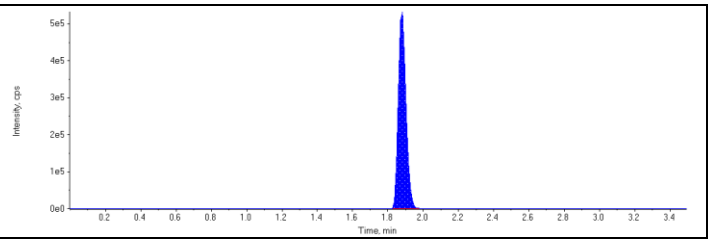
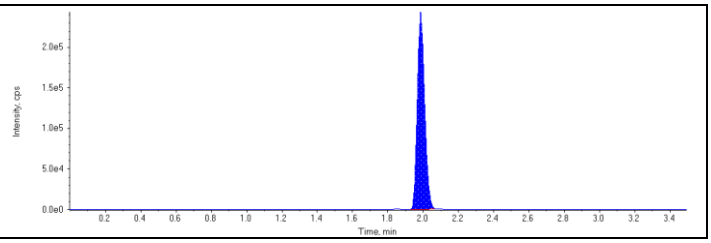
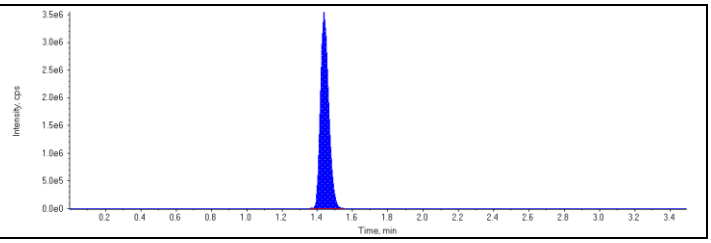
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

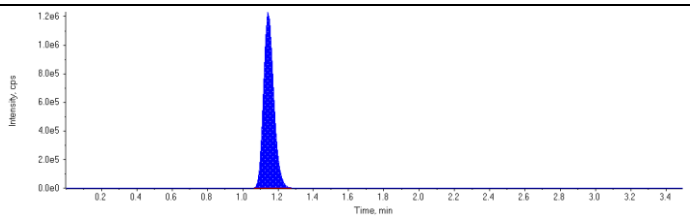
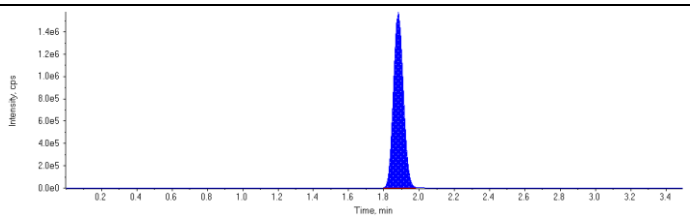
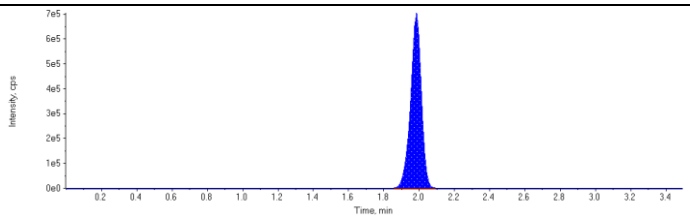
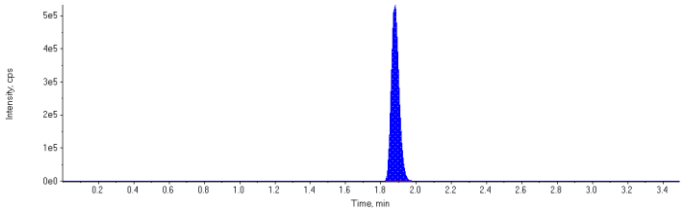
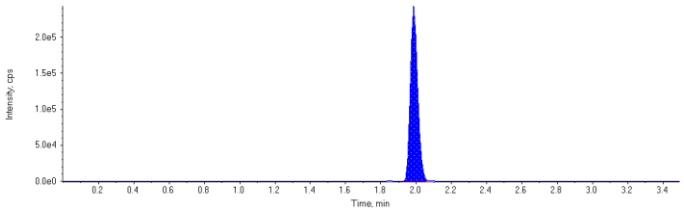
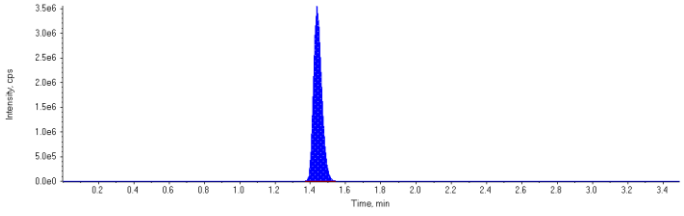
PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.14 (1.15) min Calculated Conc: 24.3 µg/L Area Ratio: 11.2 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 25.2 µg/L Area Ratio: 3.67 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 25.2 µg/L Area Ratio: 4.04 Sample Type: (Quality Control)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 108. µg/L Area Ratio: 0.153 Sample Type: (Quality Control)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 108. µg/L Area Ratio: 0.0641 Sample Type: (Quality Control)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.44 (1.45) min Calculated Conc: 98.2 µg/L Area Ratio: 0.00 Sample Type: (Quality Control)	

Sample ID	4612909~SPIKE	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	12
Acquisition Date	2016/08/10 8:30:34 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	407000.	1.70	1.00	-
MPFOA	1610000.	1.88	1.00	-
MPFOS	697000.	1.99	1.00	-
13C6-PFHxA IS	11500000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4950000	1.14	28.0	26.4	94.1
PFOA 1	6120000	1.88	28.0	26.1	93.1
PFOS 1	2960000	1.98	28.0	26.5	94.7
13C4-PFOA	1610000	1.88	100.	99.2	99.2
13C4-PFOS	697000	1.99	100.	102.	102.0
13C6-PFHxA	11500000	1.44	100.	103.	103.0

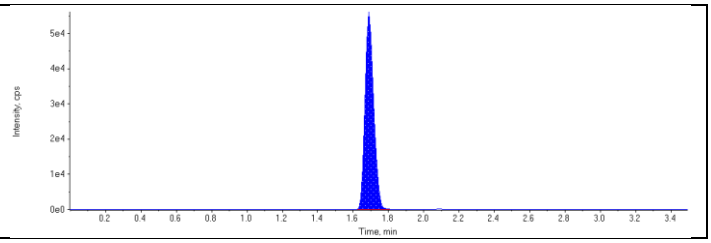
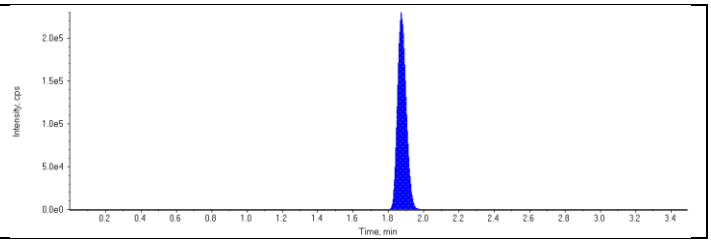
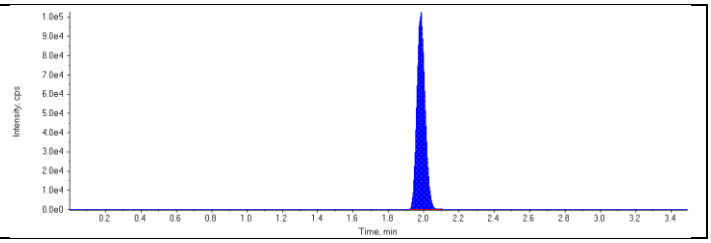
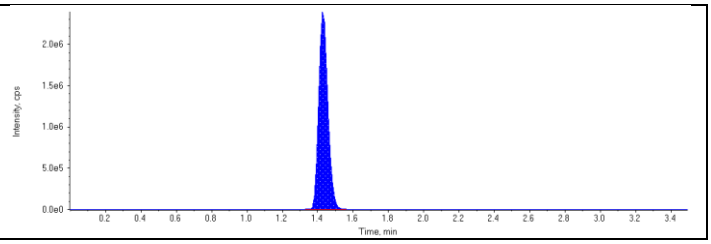
MPFHxS (Internal Standard) RT (Exp. RT): 1.70(1.75) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.14 (1.15) min Calculated Conc: 26.4 µg/L Area Ratio: 12.1 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 26.1 µg/L Area Ratio: 3.80 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 26.5 µg/L Area Ratio: 4.24 Sample Type: (Quality Control)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 99.2 µg/L Area Ratio: 0.141 Sample Type: (Quality Control)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 102. µg/L Area Ratio: 0.0608 Sample Type: (Quality Control)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.44 (1.45) min Calculated Conc: 103. µg/L Area Ratio: 0.00 Sample Type: (Quality Control)	

Sample ID	4613413~BLANK	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	2
Acquisition Date	2016/08/11 8:22:11 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	189000.	1.69	1.00	-
MPFOA	773000.	1.87	1.00	-
MPFOS	329000.	1.98	1.00	-
13C6-PFHxA IS	8630000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	0	0.00	0.00	N/A	0.0
PFOA 1	0	0.00	0.00	N/A	0.0
PFOS 1	0	0.00	0.00	N/A	0.0
13C4-PFOA	773000	1.87	100.	103.	103.0
13C4-PFOS	329000	1.98	100.	100.	100.0
13C6-PFHxA	8630000	1.43	100.	103.	103.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

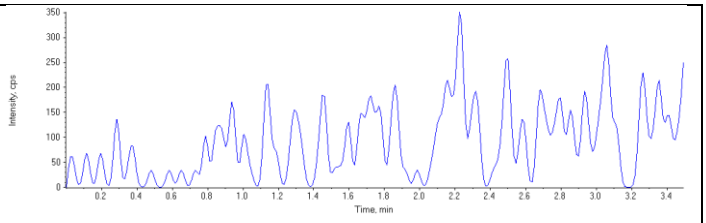
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 0.00 (1.20) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



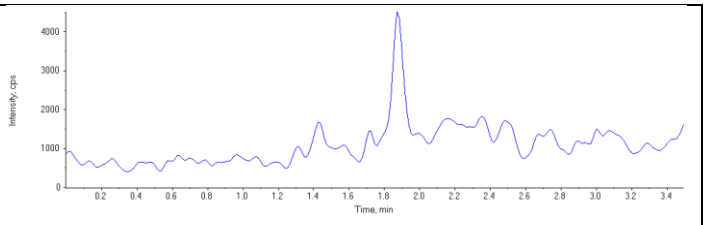
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 0.00 (1.88) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



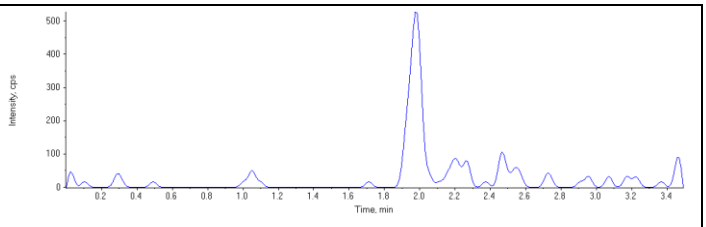
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 0.00 (1.97) min

Calculated Conc: N/A µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



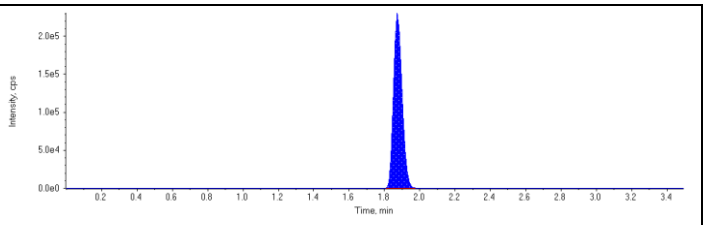
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 103. µg/L

Area Ratio: 0.0895

Sample Type: (Quality Control)



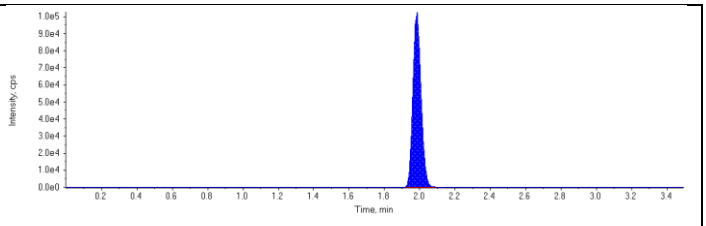
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 100. µg/L

Area Ratio: 0.0381

Sample Type: (Quality Control)



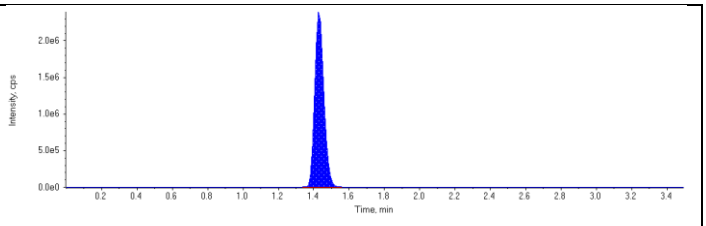
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 103. µg/L

Area Ratio: 0.00

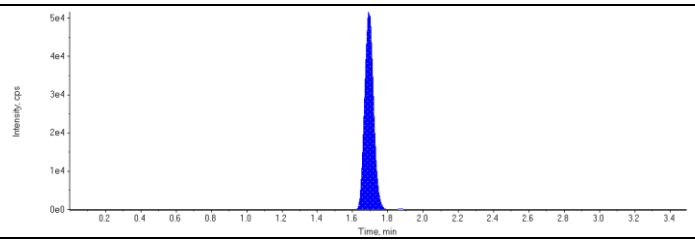
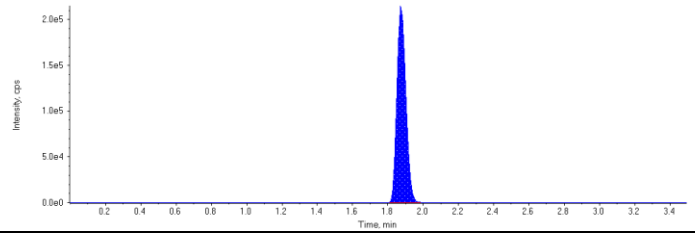
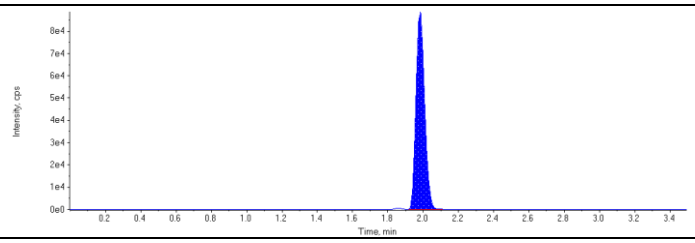
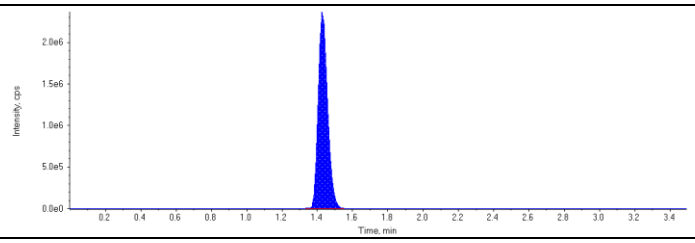
Sample Type: (Quality Control)



Sample ID	4613413~MTRX SPK (CUT533)	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	10
Acquisition Date	2016/08/11 9:18:04 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	181000.	1.69	1.00	-
MPFOA	759000.	1.87	1.00	-
MPFOS	301000.	1.98	1.00	-
13C6-PFHxA IS	8700000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4350000	1.13	0.500	0.485	97.1
PFOA 1	5700000	1.88	0.500	0.482	96.4
PFOS 1	2920000	1.98	0.500	0.548	110.0
13C4-PFOA	759000	1.87	100.	100.	100.0
13C4-PFOS	301000	1.98	100.	91.3	91.3
13C6-PFHxA	8700000	1.43	100.	104.	104.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

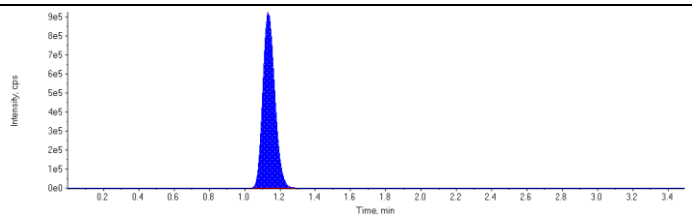
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.13 (1.20) min

Calculated Conc: 0.485 µg/L

Area Ratio: 24.1

Sample Type: (Quality Control)



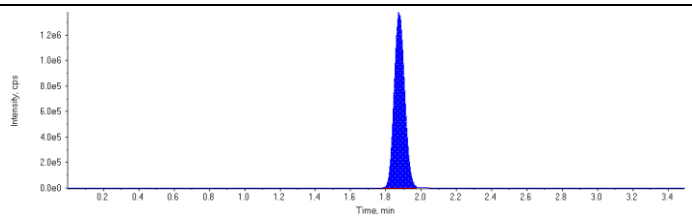
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.482 µg/L

Area Ratio: 7.51

Sample Type: (Quality Control)



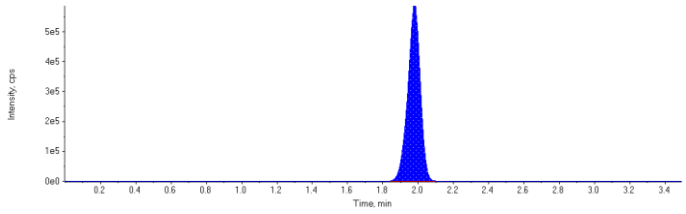
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.548 µg/L

Area Ratio: 9.70

Sample Type: (Quality Control)



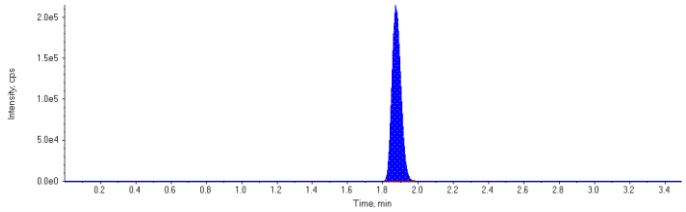
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 100. µg/L

Area Ratio: 0.0873

Sample Type: (Quality Control)



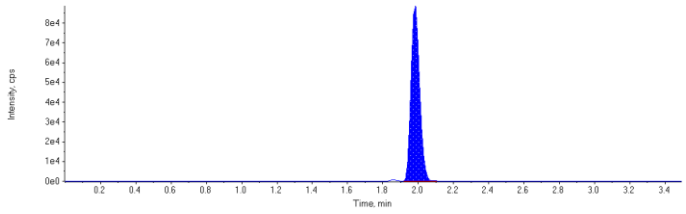
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 91.3 µg/L

Area Ratio: 0.0346

Sample Type: (Quality Control)



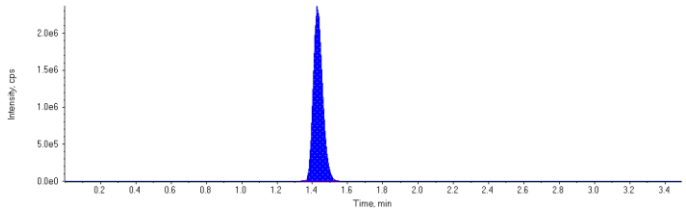
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 104. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



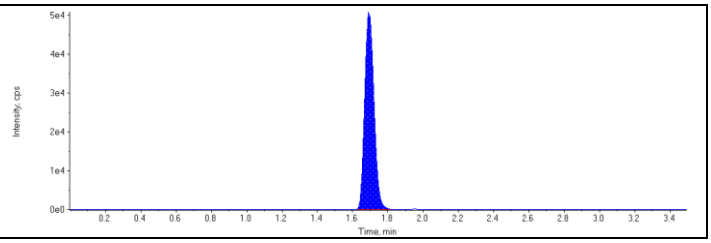
Sample ID	4613413~MTRX SPK:D1 (CUT533)	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	11
Acquisition Date	2016/08/11 9:23:09 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	186000.	1.69	1.00	-
MPFOA	706000.	1.88	1.00	-
MPFOS	293000.	1.98	1.00	-
13C6-PFHxA IS	8870000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4330000	1.14	0.500	0.471	94.2
PFOA 1	5820000	1.88	0.500	0.529	106.0
PFOS 1	3000000	1.98	0.500	0.579	116.0
13C4-PFOA	706000	1.88	100.	91.2	91.2
13C4-PFOS	293000	1.98	100.	87.0	87.0
13C6-PFHxA	8870000	1.43	100.	106.	106.0

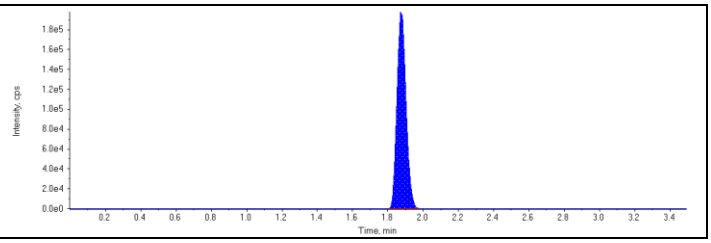
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.73) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



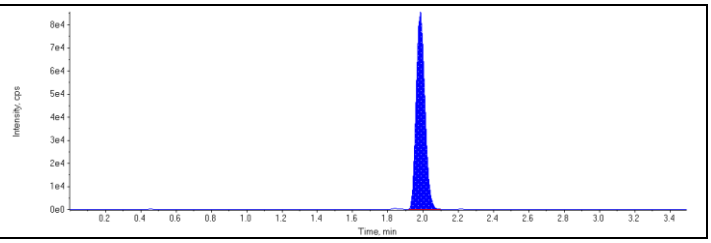
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.92) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



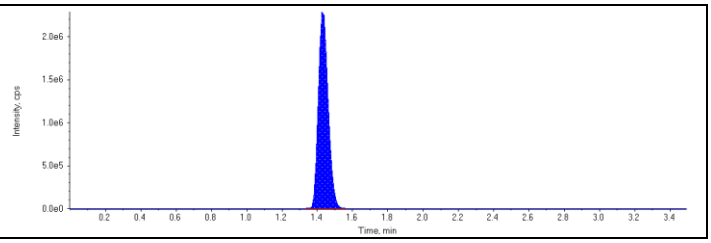
MPFOS (Internal Standard)

RT (Exp. RT): 1.98(2.02) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.43(1.43) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

This image is not available

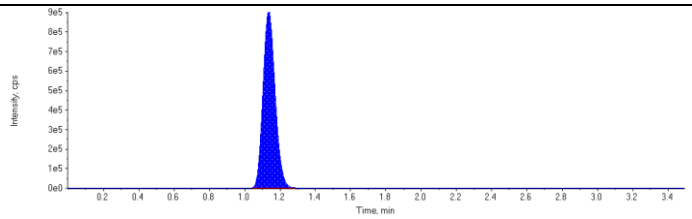
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.20) min

Calculated Conc: 0.471 µg/L

Area Ratio: 23.4

Sample Type: (Quality Control)



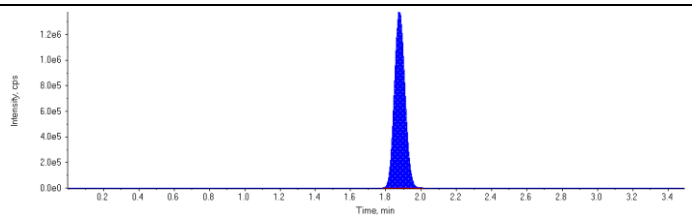
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.529 µg/L

Area Ratio: 8.24

Sample Type: (Quality Control)



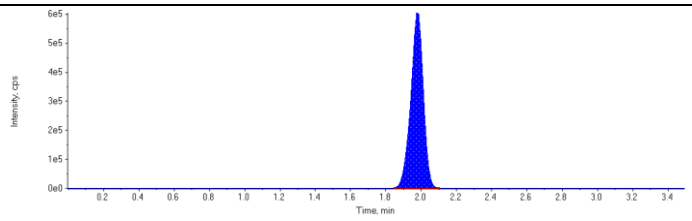
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.579 µg/L

Area Ratio: 10.3

Sample Type: (Quality Control)



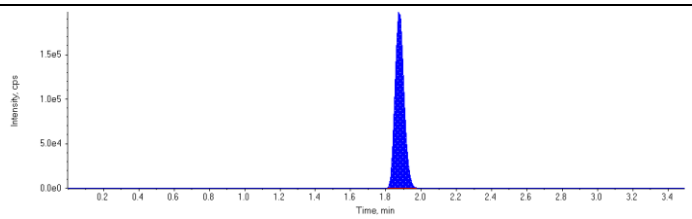
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 91.2 µg/L

Area Ratio: 0.0796

Sample Type: (Quality Control)



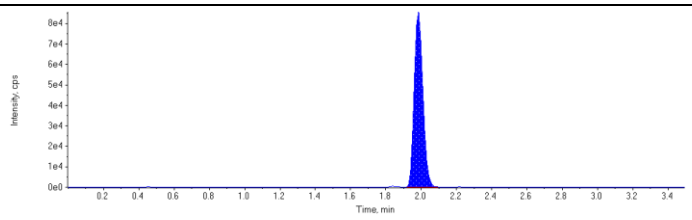
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 87.0 µg/L

Area Ratio: 0.0330

Sample Type: (Quality Control)



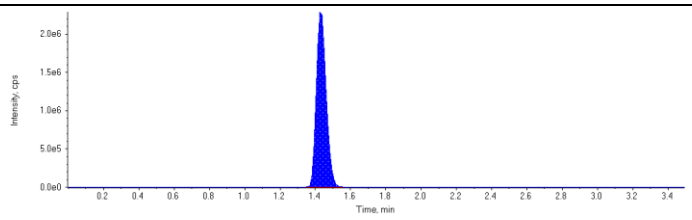
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 106. µg/L

Area Ratio: 0.00

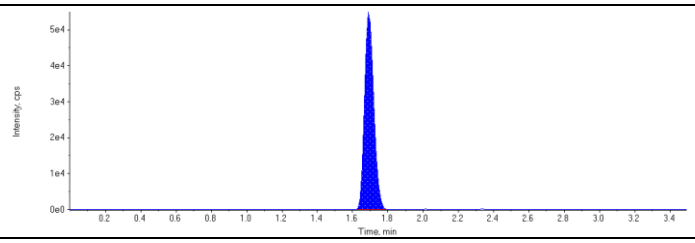
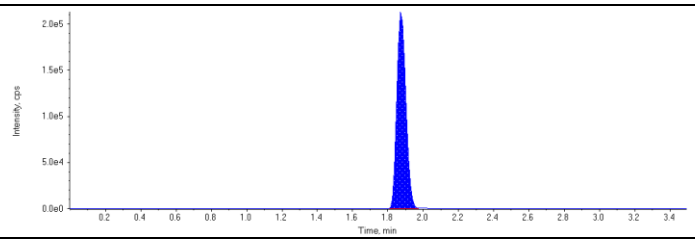
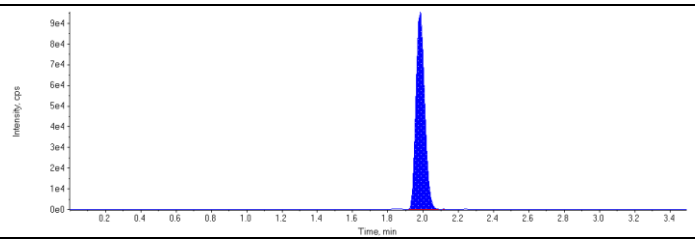
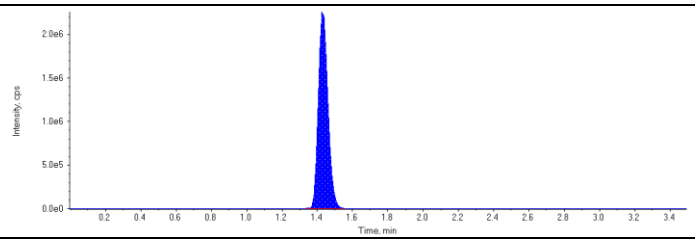
Sample Type: (Quality Control)



Sample ID	4613413~SPIKE	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	12
Acquisition Date	2016/08/11 9:28:13 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	198000.	1.69	1.00	-
MPFOA	755000.	1.87	1.00	-
MPFOS	324000.	1.98	1.00	-
13C6-PFHxA IS	8550000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4420000	1.13	0.500	0.451	90.2
PFOA 1	5710000	1.88	0.500	0.486	97.1
PFOS 1	2650000	1.98	0.500	0.461	92.1
13C4-PFOA	755000	1.87	100.	101.	101.0
13C4-PFOS	324000	1.98	100.	100.	100.0
13C6-PFHxA	8550000	1.43	100.	102.	102.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

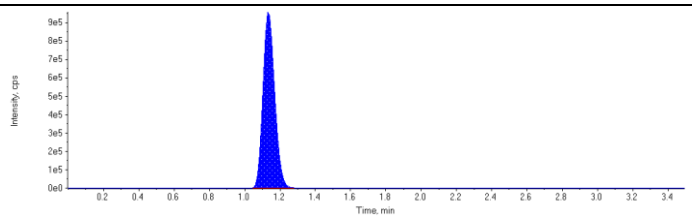
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.13 (1.20) min

Calculated Conc: 0.451 µg/L

Area Ratio: 22.4

Sample Type: (Quality Control)



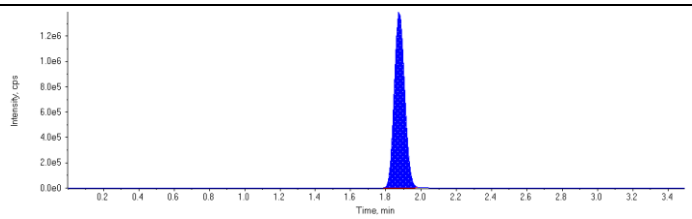
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.486 µg/L

Area Ratio: 7.56

Sample Type: (Quality Control)



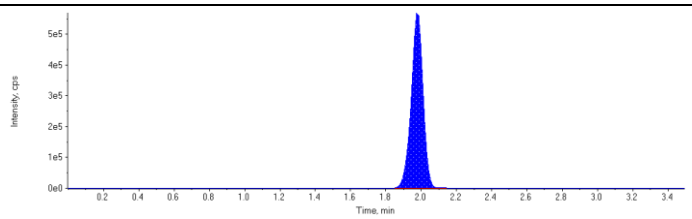
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.461 µg/L

Area Ratio: 8.16

Sample Type: (Quality Control)



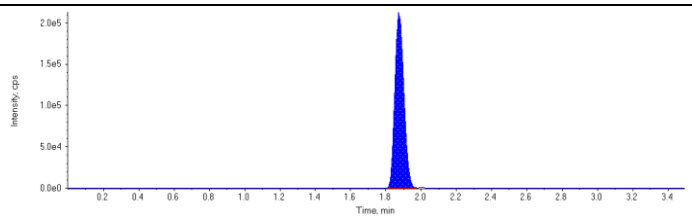
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 101. µg/L

Area Ratio: 0.0883

Sample Type: (Quality Control)



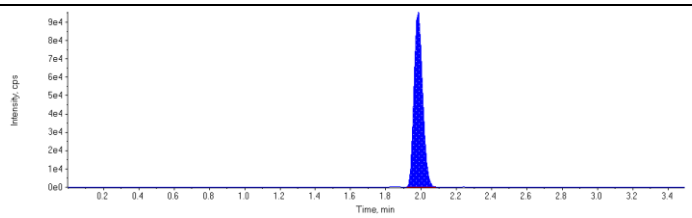
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 100. µg/L

Area Ratio: 0.0379

Sample Type: (Quality Control)



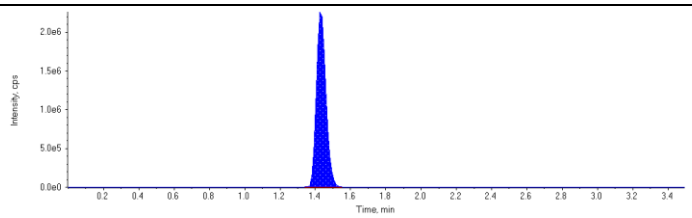
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 102. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



DoD Projects - Internal Data Validation Checklist

Run date: 20160811.0

Worksheet # (s): 4612909

Analysis: PFOSALCM_W

	Primary review by the analyst - 1st 100 % analysis review	1st 100% review yes	no	n/a	*2nd 100% review
1	Sample analyses meet hold time criteria	—			✓
2	Analysis set-up meets method criteria	—			✓
3	Tuning and correct calibration used - criteria meets method criteria	—			✓
4	SQC/Control Charts updated, analysis in statistical/method control	—			✓
5	Internal area counts checked (if applicable)	—			✓
6	LCS, SRM are within acceptance criteria	—			✓
7	Surrogate Recovery(s) is within acceptance criteria	—			✓
8	Method Blank meets acceptance criteria	—			✓
9	Matrix Spike recovery(s) meets acceptance criteria	—			✓
10	Duplicate precision meets acceptance criteria	—			✓
11	QC is documented on the run logs	—			✓
12	Runs checked for carryover	—			✓
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	—			✓
14	Initial weights, splits, impringer volumes (where applicable) are documented	—			✓
15	Standards and reagents traceable to Certificates of Analysis	—			✓
16	Samples above calibration range diluted and reanalyzed			—	✓
17	Dilution factors (where justified) have been checked for correctness and entered	—			✓
18.	Analytical observations/anomalies documented in LIMS	—			✓
19	Random calculation checked and in correct units	—			✓
20	If corrective actions were applied they are documented, initialed & dated			—	✓
21	Manual integration – before & after data with a reason included, initialed & dated			—	✓
22	Transferred data is validated in LIMS for correctness	—			✓
23	Data package assembled (where required)	—			✓

Reviewed by: CM Date: 20160811

Comments:

	Secondary Supervisor/Qualified Data Review Staff - 2nd 100% verification review	yes	no	n/a
1	Repeats documented and referenced	✓		
2	Method and sample deviations noted, anomalies described (if applicable)			✓
3	Data and QC validated in LIMS	✓		
4	Random calculation checked	✓		
5	Benchsheet (s) signed and dated	✓		
6	Data Package (if required) checked for completeness	✓		

Reviewed by: SM Date: 20160812 SM 20160812

Comments: All samples to be re-extracted & re-analyzed by low level analysis to achieve lower RDLs.

*Note: 2nd 100% verification review documented by secondary qualified data review
Primary and Secondary Internal Data Review Check must be performed by a different person

Worksheet Data Validation Checklist - Extractable Organics

Worksheet # 4612909 | Testcode: PFOS4LCM-W

Sample Preparation		yes	no	n/a
1	Samples extracted within hold time	✓		
2	Client sample ID verified against Lab ID (waters & oils)	✓		
3	Parameter list and Client comments reviewed, (Spiking solutions matched to parameter list)	✓		
4	Height of sediment or if sample was decanted, recorded on worksheet	✓		
5	Method required QC processed with samples, maximum batch size = 20 client samples.	✓		
6	Sample, duplicate, matrix spike appear similar, initial sample as well as final extract	✓		
7	Sample weight or initial volume and extract final volume, aliquot factor clearly recorded.	✓		
8	If performed any additional dilution clearly recorded			✓
9	Matrix spike / Duplicate performed on IOL samples if present			✓
10	Spiking solutions valid (haven't expired), ID and volume used clearly identified on worksheet	✓		
11	Spiking process witnessed and signed off	✓		
12	Extraction type recorded (N3A2B = neutral, 3 x acidic, 2 x basic)			✓
13	Sample prep deviations documented within CompliantPro as a Policy Deviation			✓
14	Job Remarks reviewed on 2nd page of worksheet.	✓		
15	Worksheet and reagent tracking record completed and authorized.	✓		

Reviewed by: JMW | Date: 2016 NOV 09

Comments:

Worksheet Approval		yes	no	n/a
1	Verified the position of the vials in autosampler against sequence list; signed off sequence list			
2	Calibration and CCV standards valid (haven't expired)			
3	Initial calibration curve and DFTPP tune (if applicable) acceptable			
4	Continuing and Final CCV and DFTPP tune (if applicable) acceptable			
5	System performance check acceptable (if applicable)			
6	Internal standard responses acceptable			
7	Method blank meets acceptance criteria			
8	Lab Control Samples recoveries meets acceptance criteria			
9	Duplicate RPD meets acceptance criteria			
10	Matrix spike recoveries meets acceptance criteria			
11	Surrogate recoveries meets acceptance criteria			
12	Appropriate control charts updated			
13	Samples above calibration range diluted and reanalyzed			
14	Dilutions clearly documented on tracking record, inst file and verified during data upload			
15	Samples following high level samples checked for carryover.			
16	Mass spectra ion ratios acceptable for positive results, hardcopy in file.			
17	Analytical observations / anomalies documented			
18	DQW comments entered in LIMS, hardcopy in file			
19	Sample Prep section (above) reviewed and verified.			
20	WS Approval performed in LIMS			

Reviewed by: | Date:

Comments: See DRL FCD0002 on 2016/11/11

Worksheet Validation		yes	no	n/a
1	Calibration, QC and sample results reviewed and determined acceptable			
2	Manual integrations verified			
3	Random calculation checked			
4	Data and QC validated in LIMS			
5	Comments reviewed for appropriateness			
6	Reworks / relogs documented in file			
7	Worksheet signed and dated,			
8	Worksheet approved and validated within LIMS			

Reviewed by: | Date:

Comments:

WS# : 4612909

RUSH

Report Name : Worksheet - (Liquids and Solids)

Assignment Date : Tuesday, August 09, 2016

Assigned to : Melinda Molina

Test Code : PFOSALCM-W

Instrument Id:

Test Description : PFOS and PFOA in water by LC-MS/MS

Job Number	Sample Number	D	Sample ID	F	(Dry) % Moisture	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test DeadLine	Criteria	Extract Date
	MTRX SPK	0	PFOS CVV953-01		0	0.25	1.25	1X					2016/08/09
	MTRX SPK	1	PFOS CVV953-01		0	0.25	1.25	1X					2016/08/09
	SPIKE		PFOS#4		0	0.25	1.25	1X					2016/08/09
	BLANK				0	0.25	1.25	1X					2016/08/09
B6G7126*	CVT909-01R		[redacted]		10.1	0.25	1.25	1X	1	2016/08/16	2016/08/11 17:00		2016/08/09
B6G7126*	CVT910-01R		[redacted]		10.1	0.25	1.25	1X	1	2016/08/16	2016/08/11 17:00		2016/08/09
B6G7486*	*CVV953-01R		2014188-616		0	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV954-01R		2014188-617		10.1	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV955-01R		2014188-618		10.1	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV956-01R		2014188-619		10.1	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV957-01R		2014188-620		0	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV958-01R		2014188-621		10.1	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV959-01R		2014188-622		10.1	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV960-01R		2014188-624		0	0.25	1.25	1X	2	2016/08/19	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV961-01R		2014188-625		0	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV962-01R		2014188-626		0	0.25	1.25	1X	2	2016/08/19	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV964-01R		2014188-623		0	0.25	1.25	1X	2	2016/08/19	2016/08/11 23:00		2016/08/09
B6G7486*	*CVV965-01R		2014188-627		0	0.25	1.25	1X	2	2016/08/18	2016/08/11 23:00		2016/08/09

Melinda Molina 2016/08/09

Remarks: High level analysis

Samples extracted by: Melinda Molina 2016/08/09

Instrumentation performed by: Date: 2016/08/11

Calculations performed by: Date: 2016/08/11

Validated by: Date: 2016/08/12

Job No.	Rep / Client Name / Remarks	Contact	Client Tier	National
MB6G7126	[redacted]		[redacted]	[redacted]
GB6G7486	MDG Oneida Total Integrated Enterp	Orval Osborne		

PFOSALCM-W Level IV Data Package Required nreg Project #: PFC Barstow

Surrogates/Spikes	Method Spike	Spikes	Samples

mm 2016 08/09

Sample	Preparation Remarks			
	Vol (mL)	Amt. Spiked (mL)	Conc.	Std. ID#
1	0.5	20	30 ng/mL	SK6381
2	0.5	37.5		
3	0.5	15	300 ng/mL	SK6380
4	0.5	37.5		
5	0.5	22.5	1 ng/mL	I4746
6	0.5	37.5		
IW	0.5	21	1 ng/mL	I4747 4773

mm 2016 08/09

Sample	Instrumentation Remarks
	Results for job B6G7486 saved with STIC
	72 extension - mm 2016/08/12

Worksheet Number: **4612909**

PFOS and PFOA in water - Water
ug/L

Parameter Name	Units	MTRX SPK	MTRX SPK Dup1	SPIKE	BLANK	B6G7126 CVT909	B6G7126 CVT910
6:2 Fluorotelomer sulfonate	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
8:2 Fluorotelomer sulfonate	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethylperfluorooctane sulfonamide	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
EtFOSAA	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethylperfluorooctane sulfonamidoe	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methylperfluorooctane sulfonamide	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
MeFOSAA	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methylperfluorooctanesulfonamidol	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
Perfluorobutanoic acid	ug/L	90.35714	95.35714	90.71429	0	0	0
Perfluorobutane Sulfonate (PFBS)	ug/L	84.64286	86.78571	94.28571	0	0	0
Perfluorodecane Sulfonate	ug/L	90.71429	96.07143	93.57143	0	0	0
Perfluoroheptanoic Acid (PFHpA)	ug/L	88.92857	87.14286	93.21429	0	0	0
Perfluoroheptane sulfonate	ug/L	86.42857	91.78571	94.64286	0	0	0
Perfluorohexanoic Acid (PFHxA)	ug/L	95.71429	93.57143	97.14286	0	0	0
Perfluorohexane Sulfonate (PFHxS)	ug/L	82.50000	88.21429	91.07143	0	0	0
Perfluorononanoic Acid (PFNA)	ug/L	90.71429	89.28571	98.57143	0	0	0
Perfluorooctane Sulfonamide (PFOSA)	ug/L	91.29250	88.43536	96.42857	0.04370	0.07610	0.03630
Perfluoropentanoic Acid (PFPeA)	ug/L	92.14286	86.42857	90.35714	0	0	0
Perfluorotetradecanoic Acid	ug/L	89.02929	89.02929	93.92857	0.03740	0.12100	0.06950
Perfluorotridecanoic Acid	ug/L	126.45680	128.95680	102.50000	0	0.09100	0.07470
Perfluoroundecanoic Acid (PFUnA)	ug/L	88.57143	91.78571	89.28571	0	0	0
Perfluorodecanoic Acid (PFDA)	ug/L	94.28571	90.00000	99.28571	0.00854	0	0
Perfluorododecanoic Acid (PFDoA)	ug/L	85.55607	83.77036	98.57143	0.02590	0.06100	0.04030
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	89.99479	89.99479	93.21429	0	0.00229	0
Perfluorooctane Sulfonate (PFOS)	ug/L	91.78571	90.00000	94.64286	0	0	0
13C2-6:2 Fluorotelomer sulfonate	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-8:2 Fluorotelomer sulfonate	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-perfluorotetradecanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluorobutanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C6-Perfluorohexanoic Acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C9-Perfluorodecanoic Acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methyl-d3-perfluorooctane sulfona	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethyl-d5-perfluorooctane sulfonam	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorodecanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorododecanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorohexanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluoroundecanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluoroheptanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C5-Perfluorononanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluorooctanoic acid	ug/L	109.	108.	99.2	91.3	115.	115.
13C4-Perfluorooctanesulfonate	ug/L	110.	108.	102.	87.1	115.	111.
13C5-Perfluoropentanoic acid	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C8-Perfluorooctanesulfonamide	ug/L	107.	113.	100.	91.4	110.	112.
18O2-Perfluorohexanesulfonate	ug/L	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******

PFOS and PFOA in water - Water
ug/L

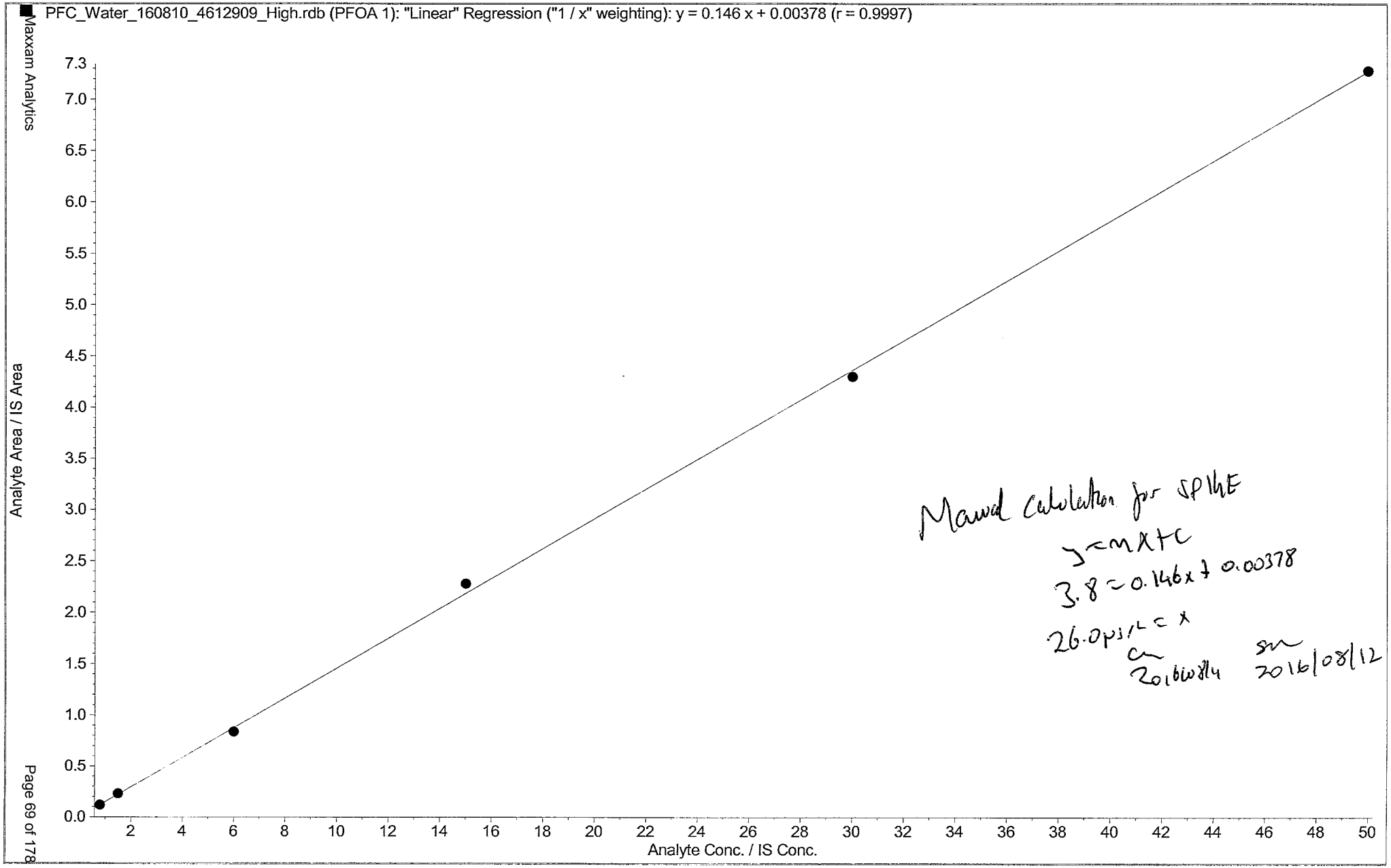
Parameter Name	B6G7486 CVV953	B6G7486 CVV954	B6G7486 CVV955	B6G7486 CVV956	B6G7486 CVV957	B6G7486 CVV958	B6G7486 CVV959
6:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
8:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethylperfluorooctane sulfonamide	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
EtFOSAA	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethylperfluorooctane sulfonamidoe	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methylperfluorooctane sulfonamide	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
MeFOSAA	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methylperfluorooctanesulfonamidoi	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
Perfluorobutanoic acid	0	0	0	0	0	0	0.31100
Perfluorobutane Sulfonate (PFBS)	0	0	0	0	0	0	0.08280
Perfluorodecane Sulfonate	0	0	0	0	0	0	0
Perfluoroheptanoic Acid (PFHpA)	0	0	0	0.02130	0	0	0
Perfluoroheptane sulfonate	0	0	0	0	0	0	0
Perfluorohexanoic Acid (PFHxA)	0	0	0	0	0	0	0
Perfluorohexane Sulfonate (PFHxS)	0	0	0	0	0	0	0
Perfluorononanoic Acid (PFNA)	0	0	0	0	0	0	0
Perfluorooctane Sulfonamide (PFOSA)	0.03810	0.04760	0.03590	0.04470	0.04100	0.03510	0.03900
Perfluoropentanoic Acid (PFPeA)	0	0	0	0	0	0.09720	0.09920
Perfluorotetradecanoic Acid	0.07180	0.11700	0.09310	0.08280	0.07610	0.09290	0.08770
Perfluorotridecanoic Acid	0.09210	0.08720	0.12500	0.09700	0.00357	0.12600	0.09510
Perfluoroundecanoic Acid (PFUnA)	0	0	0	0	0	0	0
Perfluorodecanoic Acid (PFDA)	0	0	0	0	0	0.00248	0
Perfluorododecanoic Acid (PFDoA)	0.04430	0.04150	0.04400	0.04910	0.04710	0.05750	0.05270
Perfluoro-n-Octanoic Acid (PFOA)	0.00146	0.02580	0.03100	0.03730	0.01450	0.02190	0.03540
Perfluorooctane Sulfonate (PFOS)	0	0	0.20500	0.18400	0	0.17200	0.21000
13C2-6:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-8:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-perfluorotetradecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluorobutanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C6-Perfluorohexanoic Acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C9-Perfluorodecanoic Acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-methyl-d3-perfluorooctane sulfona	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
N-ethyl-d5-perfluorooctane sulfonam	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorodecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorododecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluorohexanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C2-Perfluoroundecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluoroheptanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C5-Perfluorononanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C4-Perfluorooctanoic acid	114.	115.	112.	113.	118.	107.	106.
13C4-Perfluorooctanesulfonate	105.	110.	111.	104.	111.	103.	102.
13C5-Perfluoropentanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******
13C8-Perfluorooctanesulfonamide	101.	113.	109.	106.	106.	103.	100.
18O2-Perfluorohexanesulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******

PFOS and PFOA in water - Water
ug/L

Parameter Name	B6G7486 CVV960	B6G7486 CVV961	B6G7486 CVV962	B6G7486 CVV964	B6G7486 CVV965	DL	RDL
6:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
8:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
N-ethylperfluorooctane sulfonamide	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
EtFOSAA	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
N-ethylperfluorooctane sulfonamidoe	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
N-methylperfluorooctane sulfonamide	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
MeFOSAA	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
N-methylperfluorooctanesulfonamidol	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******	0.8	0.02
Perfluorobutanoic acid	0	0	0	0	0	0.8	0.02
Perfluorobutane Sulfonate (PFBS)	0.07610	0	0	0	0	0.8	0.02
Perfluorodecane Sulfonate	0	0	0	0	0	0.8	0.02
Perfluoroheptanoic Acid (PFHpA)	0	0	0	0	0	0.8	0.02
Perfluoroheptane sulfonate	0	0	0	0	0	0.8	0.02
Perfluorohexanoic Acid (PFHxA)	0	0	0	0	0	0.8	0.02
Perfluorohexane Sulfonate (PFHxS)	0	0	0	0	0	0.8	0.02
Perfluorononanoic Acid (PFNA)	0	0	0	0	0	0.8	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.04210	0.03760	0.04980	0.04430	0.03610	0.8	0.02
Perfluoropentanoic Acid (PFPeA)	0	0	0	0	0	0.8	0.02
Perfluorotetradecanoic Acid	0.12300	0.09260	0.04760	0.08530	0.07090	0.8	0.02
Perfluorotridecanoic Acid	0.12900	0.07310	0.05120	0.10700	0.05210	0.8	0.02
Perfluoroundecanoic Acid (PFUnA)	0	0	0	0	0	0.8	0.02
Perfluorodecanoic Acid (PFDA)	0	0.00622	0.00303	0.00104	0	0.8	0.02
Perfluorododecanoic Acid (PFDoA)	0.05190	0.06410	0.03340	0.03470	0.03210	0.8	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02660	0	0	0.01660	0	0.8	0.02
Perfluorooctane Sulfonate (PFOS)	0	0	0	0	0	0.8	0.02
13C2-6:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-8:2 Fluorotelomer sulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-perfluorotetradecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C4-Perfluorobutanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C6-Perfluorohexanoic Acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C9-Perfluorodecanoic Acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
N-methyl-d3-perfluorooctane sulfona	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
N-ethyl-d5-perfluorooctane sulfonam	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-Perfluorodecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-Perfluorododecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-Perfluorohexanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C2-Perfluoroundecanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C4-Perfluoroheptanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C5-Perfluorononanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C4-Perfluorooctanoic acid	108.	107.	105.	104.	103.		
13C4-Perfluorooctanesulfonate	104.	95.4	102.	97.6	102.		
13C5-Perfluoropentanoic acid	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		
13C8-Perfluorooctanesulfonamide	107.	99.4	100.	107.	114.		
18O2-Perfluorohexanesulfonate	N/A*******	N/A*******	N/A*******	N/A*******	N/A*******		

PFOS and PFOA in water - Water
ug/L

Parameter Name	MDL	IDL					
6:2 Fluorotelomer sulfonate	0.0065	0					
8:2 Fluorotelomer sulfonate	0.0055	0					
N-ethylperfluorooctane sulfonamide	0.0053	0					
EtFOSAA	0.004	0					
N-ethylperfluorooctane sulfonamidoe	0.0049	0					
N-methylperfluorooctane sulfonamide	0.004	0					
MeFOSAA	0.0043	0					
N-methylperfluorooctanesulfonamidol	0.0061	0					
Perfluorobutanoic acid	0.0066	0					
Perfluorobutane Sulfonate (PFBS)	0.0019	0					
Perfluorodecane Sulfonate	0.0043	0					
Perfluoroheptanoic Acid (PFHpA)	0.0047	0					
Perfluoroheptane sulfonate	0.0036	0					
Perfluorohexanoic Acid (PFHxA)	0.0046	0					
Perfluorohexane Sulfonate (PFHxS)	0.004	0					
Perfluorononanoic Acid (PFNA)	0.0046	0					
Perfluorooctane Sulfonamide (PFOSA)	0.0058	0					
Perfluoropentanoic Acid (PFPeA)	0.0036	0					
Perfluorotetradecanoic Acid	0.0052	0					
Perfluorotridecanoic Acid	0.0032	0					
Perfluoroundecanoic Acid (PFUnA)	0.0037	0					
Perfluorodecanoic Acid (PFDA)	0.0066	0					
Perfluorododecanoic Acid (PFDoA)	0.0057	0					
Perfluoro-n-Octanoic Acid (PFOA)	0.0053	0					
Perfluorooctane Sulfonate (PFOS)	0.0033	0					
13C2-6:2 Fluorotelomer sulfonate							
13C2-8:2 Fluorotelomer sulfonate							
13C2-perfluorotetradecanoic acid							
13C4-Perfluorobutanoic acid							
13C6-Perfluorohexanoic Acid							
13C9-Perfluorodecanoic Acid							
N-methyl-d3-perfluorooctane sulfona							
N-ethyl-d5-perfluorooctane sulfonam							
13C2-Perfluorodecanoic acid							
13C2-Perfluorododecanoic acid							
13C2-Perfluorohexanoic acid							
13C2-Perfluoroundecanoic acid							
13C4-Perfluoroheptanoic acid							
13C5-Perfluorononanoic acid							
13C4-Perfluorooctanoic acid							
13C4-Perfluorooctanesulfonate							
13C5-Perfluoropentanoic acid							
13C8-Perfluorooctanesulfonamide							
18O2-Perfluorohexanesulfonate							



Manual calculation for SPIKE

$y = mx + c$

$3.8 = 0.146x + 0.00378$

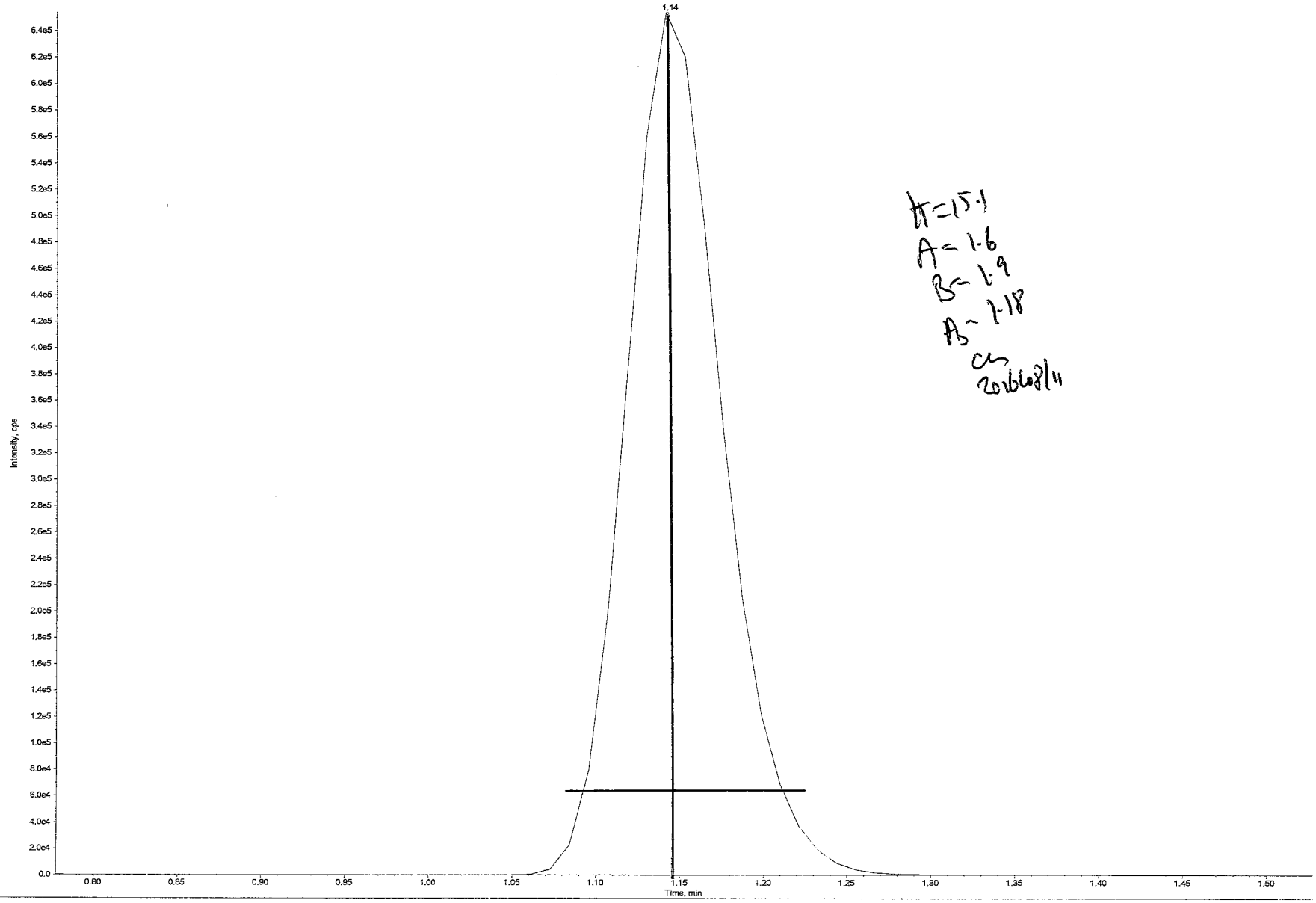
$26.0 \text{ pg/L} = x$

2016/08/14

2016/08/12

Sample Name: "STD 4" Sample ID: "" File: "WS#4612909.wiff"
Peak Name: "PFBS 1" Mass(es): "298.900/79. 900 Da"
Comment: "" Annotation: "-"

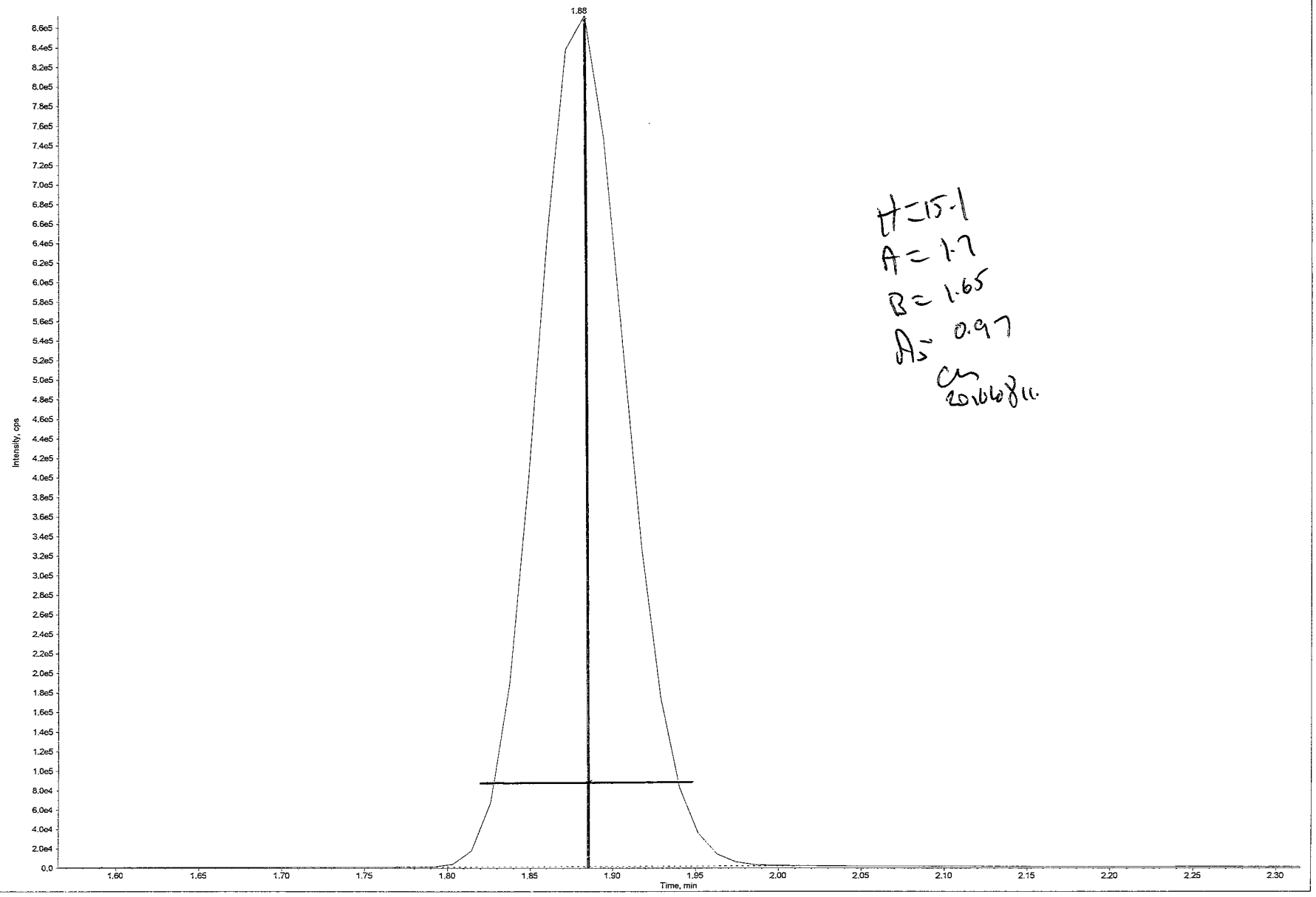
Sample Index:	6
Sample Type:	Standard
Concentration:	15.0 ug/L
Calculated Conc:	14.5 ug/L
Acq. Date:	8/10/2016
Acq. Time:	7:54:53 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Smoothing Factor:	1
Noise Threshold:	200.00 cps
Area Threshold:	2000.00 cps
Num. Smooths:	5
Sep. Width:	0.00
Sep. Height:	0.00
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	1.15 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	1.14 min
Area:	2620000. counts
Height:	6.57e+005 cps
Start Time:	1.02 min
End Time:	1.31 min



RT=15.1
A= 1.6
B= 1.9
AB= 1.18
CM
2016/08/11

Sample Name: "STD 4" Sample ID: "" File: "WS#4612909.wiff"
Peak Name: "PFOA 1" Mass(es): "413.100/369 .000 Da"
Comment: "" Annotation: "-"

Sample Index:	6
Sample Type:	Standard
Concentration:	15.0 ug/L
Calculated Conc:	15.6 ug/L
Acq. Date:	8/10/2016
Acq. Time:	7:54:53 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	500.00 cps
Area Threshold:	200.00 cps
Num. Smooths:	6
Sep. Width:	0.00
Sep. Height:	0.00
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	1.94 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	1.88 min
Area:	3380000. counts
Height:	8.77e+005 cps
Start Time:	1.77 min
End Time:	2.02 min



H=15.1
A=1.7
B=1.65
A:B = 0.97
CM 20160811

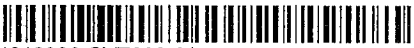
Report Name: Worksheet - Parameter Lists

Report Date: 2016/08/09

Test Code: **PFOSALCM-W**

Worksheet Number: **4612909**

Sample Number	Parameter
CVT909-01	Perfluorobutanoic acid
CVT910-01	Perfluorobutane Sulfonate (PFBS)
	Perfluorodecanoic Acid (PFDA)
	Perfluorododecanoic Acid (PFDoA)
	Perfluorodecane Sulfonate
	Perfluoroheptanoic Acid (PFHpA)
	Perfluoroheptane sulfonate
	Perfluorohexanoic Acid (PFHxA)
	Perfluorohexane Sulfonate (PFHxS)
	Perfluorononanoic Acid (PFNA)
	Perfluoro-n-Octanoic Acid (PFOA)
	Perfluorooctane Sulfonate (PFOS)
	Perfluorooctane Sulfonamide (PFOSA)
	Perfluoropentanoic Acid (PFPeA)
	Perfluorotetradecanoic Acid
	Perfluorotridecanoic Acid
	Perfluoroundecanoic Acid (PFUnA)
CVV953-01	Perfluorobutane Sulfonate (PFBS)
CVV954-01	Perfluoro-n-Octanoic Acid (PFOA)
CVV955-01	Perfluorooctane Sulfonate (PFOS)
CVV956-01	
CVV957-01	
CVV958-01	
CVV959-01	
CVV960-01	
CVV961-01	
CVV962-01	
CVV964-01	
CVV965-01	

1.	 4612909:MTRX SPK	MTRX SPK
2.	 4612909:MTRX SPK:D1	MTRX SPK :D1
3.	 4612909:SPIKE	SPIKE
4.	 4612909:BLANK	BLANK
5.	 4612909:CVT909-01	[redacted]
6.	 4612909:CVT910-01	[redacted]
7.	 4612909:CVV953-01	2014188-616
8.	 4612909:CVV954-01	2014188-617
9.	 4612909:CVV955-01	2014188-618
10.	 4612909:CVV956-01	2014188-619
11.	 4612909:CVV957-01	2014188-620
12.	 4612909:CVV958-01	2014188-621
13.	 4612909:CVV959-01	2014188-622
14.	 4612909:CVV960-01	2014188-624
15.	 4612909:CVV961-01	2014188-625
16.	 4612909:CVV962-01	2014188-626
17.	 4612909:CVV964-01	2014188-623
18.	 4612909:CVV965-01	2014188-627

Worksheet Reagent Tracking Record Worksheet # 6/12 909

Surrogate/Spike solutions	√	Solution ID #	Conc.	Volume (µL) Blk-Spk Solid	Blk-Spk Liquid	MS Solid	MS Liquid	Samples Solid	Samples Liquid
DGT Spike			100 ug/mL	60	30	60	30	NA	NA
Diquat Dibromide			50 ug/mL	NA	350	NA	350	NA	NA
Explosives Spiking solution A			20 ug/mL	250	100	250	100	NA	NA
Explosives Spiking solution B			20/80 ug/mL	250	100	250	100	NA	NA
Formaldehyde Spike			100 ug/mL	25	25	25	25	NA	NA
Glyphosate Spike			25 ug/mL	500	20	500	20	NA	NA
Nonylphenol Ethoxylate Spike			100 ug/mL	100	100	100	100	NA	NA
Nonylphenol Spike			10 ug/mL	100	100	100	100	NA	NA
Paraquat Cl Tetrahydrate			20 ug/mL	NA	125	NA	125	NA	NA
Perchlorate Standard Spike			10 ng/mL	NA	100	NA	100	NA	NA
Perchlorate Standard Spike			500 ng/mL	40	NA	40	NA	NA	NA
Perchlorate O-18 Internal Standard			0.10 ng/uL	20	20	20	20	20	20
Morpholine Second Source Working Std			2500 ug/L	NA	80	NA	80	NA	NA
Morpholine-D8 Internal Standard			10 ug/mL	NA	50	NA	50	NA	50
Steril Second Source Spiking Solution			NA	20	NA	20	NA	NA	NA
Sterilants Comp. IS Working Solution			3 ug/mL	50	NA	50	NA	50	NA
Comp. PFC Working Solution A	✓	I 4773	1ug/mL	75	(21) 62.5	75	(21) 62.5	NA	NA
PFC Internal Standard Solution	—	SI 6164 (7/4)	50/125 ng/mL	200	(100) 150	200	(100) 150	200	(100) 150
PFC Injection IS	—	SI 6121	400 ng/mL	20	(20)	20	(20)	20	(20)
ICV	—	I 4773	1ug/mL		21				

Solvent/Reagent	√	Lot No.	Date Opened	Solvent/Reagent	√	Lot No.	Date Opened/ Prepared
DCM				50% NaOH			
Ottawa Sand				o-Phosphoric Acid			
Methanol	✓	SHBH0531	V 2016/08/08	Borax			
2-Propanol (IPA)				Calcium Chloride			
Acetonitrile				EDTA			
Sodium Sulfate				Phosphate Buffer			
70:30 Methanol: Water				Sodium Thiosulphate			
60:40 Water: Methanol				DNPH			
DCM:Ethyl Ether (75:25)				FMOC			
Hexane:IPA (98:2)				5M Acetate Buffer			
2% Formic Acid				0.2% NH_4OH			
0.2% Formic Acid				Leachate Fluid			
0.05M KOH				Reagent Water	✓	5530	2016/08/08
0.05M HCl							

*Spiked by:

Spike Date: 2016/08/09

Spike Syringe/Pipette ID#: 0365 (0)

Int. Std Syringe/Pipette ID#: 0365 (0)

*Spiking Witnessed by:

Final pH

Equipment & ID	√	Equipment	ID#	√	Equipment	Lot #	Bottle Tracking
Pipettor 1mL - P297060	✓	SPE Cartridge			QC Balance ID		Bottle#
200 uL - M174856	✓	Filter			Thermometer ID &Temp		Cap#
Dispenser		Centrifuge					Systems plus Lot#
		Sonicator					

Comments:

* - SPIKING OF QC's & SAMPLES MUST BE WITNESSED AT ALL TIMES.

Project: D:\Analyst Data\Projects\Enviro\PFOS Batch:PFC_160810 Tab:Sample Set:SET1 AcqMethod:PFC_Water_High.dam
Sample

	Sample Name	Rack Code	Rack Position	Plate Code	Plate Position	Vial Position	Data File	Inj.Volume (µl)
1	RINSE	2 Well Plates	1	*54VialPlate*	1	1	PFC_160810\WS#4612909	3.000
2	4612909~BLANK	2 Well Plates	1	*54VialPlate*	1	2	PFC_160810\WS#4612909	3.000
3	STD 1	2 Well Plates	1	*54VialPlate*	1	3	PFC_160810\WS#4612909	3.000
4	STD 2	2 Well Plates	1	*54VialPlate*	1	4	PFC_160810\WS#4612909	3.000
5	STD 3	2 Well Plates	1	*54VialPlate*	1	5	PFC_160810\WS#4612909	3.000
6	STD 4	2 Well Plates	1	*54VialPlate*	1	6	PFC_160810\WS#4612909	3.000
7	STD 5	2 Well Plates	1	*54VialPlate*	1	7	PFC_160810\WS#4612909	3.000
8	STD 6	2 Well Plates	1	*54VialPlate*	1	8	PFC_160810\WS#4612909	3.000
9	ICV	2 Well Plates	1	*54VialPlate*	1	9	PFC_160810\WS#4612909	3.000
10	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160810\WS#4612909	3.000
11	4612909~MTRX SPK	2 Well Plates	1	*54VialPlate*	1	10	PFC_160810\WS#4612909	3.000
12	4612909~MTRX SPK:D1	2 Well Plates	1	*54VialPlate*	1	11	PFC_160810\WS#4612909	3.000
13	4612909~SPIKE	2 Well Plates	1	*54VialPlate*	1	12	PFC_160810\WS#4612909	3.000
14	4612909~CVT909-01	2 Well Plates	1	*54VialPlate*	1	13	PFC_160810\WS#4612909	3.000
15	4612909~CVT910-01	2 Well Plates	1	*54VialPlate*	1	14	PFC_160810\WS#4612909	3.000
16	4612909~CVV953-01	2 Well Plates	1	*54VialPlate*	1	15	PFC_160810\WS#4612909	3.000
17	4612909~CVV954-01	2 Well Plates	1	*54VialPlate*	1	16	PFC_160810\WS#4612909	3.000
18	4612909~CVV955-01	2 Well Plates	1	*54VialPlate*	1	17	PFC_160810\WS#4612909	3.000
19	4612909~CVV956-01	2 Well Plates	1	*54VialPlate*	1	18	PFC_160810\WS#4612909	3.000
20	4612909~CVV957-01	2 Well Plates	1	*54VialPlate*	1	19	PFC_160810\WS#4612909	3.000
21	4612909~CVV958-01	2 Well Plates	1	*54VialPlate*	1	20	PFC_160810\WS#4612909	3.000
22	4612909~CVV959-01	2 Well Plates	1	*54VialPlate*	1	21	PFC_160810\WS#4612909	3.000
23	4612909~CVV960-01	2 Well Plates	1	*54VialPlate*	1	22	PFC_160810\WS#4612909	3.000
24	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160810\WS#4612909	3.000
25	4612909~CVV961-01	2 Well Plates	1	*54VialPlate*	1	23	PFC_160810\WS#4612909	3.000
26	4612909~CVV962-01	2 Well Plates	1	*54VialPlate*	1	24	PFC_160810\WS#4612909	3.000
27	4612909~CVV964-01	2 Well Plates	1	*54VialPlate*	1	25	PFC_160810\WS#4612909	3.000
28	4612909~CVV965-01	2 Well Plates	1	*54VialPlate*	1	26	PFC_160810\WS#4612909	3.000
29	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160810\WS#4612909	3.000

Colum #131
MPA = Sol # 663, FISHER17
MPB = MeOH, Sigma Lot # SHBH0531V
CV
20160810

Maxxam Analytics

	Sample ID	Sample Annotation	Acquisition Date	Acquisition Method	File Name	Rack Type	Rack Position	Vial Position	Plate Type	Plate Position
1	4612909~BLANK	-	2016/08/10 7:34:32 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	2	*54VialPlate*	1
2	STD 1	-	2016/08/10 7:39:37 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	3	*54VialPlate*	1
3	STD 2	-	2016/08/10 7:44:43 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	4	*54VialPlate*	1
4	STD 3	-	2016/08/10 7:49:48 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	5	*54VialPlate*	1
5	STD 4	-	2016/08/10 7:54:53 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	6	*54VialPlate*	1
6	STD 5	-	2016/08/10 7:59:58 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	7	*54VialPlate*	1
7	STD 6	-	2016/08/10 8:05:04 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	8	*54VialPlate*	1
8	ICV	-	2016/08/10 8:10:11 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	9	*54VialPlate*	1
9	CCV	-	2016/08/10 8:15:17 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	6	*54VialPlate*	1
10	4612909~MTRX SPK (CVV953)	-	2016/08/10 8:20:22 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	10	*54VialPlate*	1
11	4612909~MTRX SPK:D1 (CVV953)	-	2016/08/10 8:25:28 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	11	*54VialPlate*	1
12	4612909~SPIKE	-	2016/08/10 8:30:34 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	12	*54VialPlate*	1
13	4612909~CVT909-01	Re-analyzed	2016/08/10 8:35:39 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	13	*54VialPlate*	1
14	4612909~CVT910-01	Re-analyzed	2016/08/10 8:40:46 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	14	*54VialPlate*	1
15	4612909~CVV953-01	Re-analyzed	2016/08/10 8:45:51 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	15	*54VialPlate*	1
16	4612909~CVV954-01	Re-analyzed	2016/08/10 8:50:57 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	16	*54VialPlate*	1
17	4612909~CVV955-01	Re-analyzed	2016/08/10 8:56:03 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	17	*54VialPlate*	1
18	4612909~CVV956-01	Re-analyzed	2016/08/10 9:01:09 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	18	*54VialPlate*	1
19	4612909~CVV957-01	Re-analyzed	2016/08/10 9:06:14 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	19	*54VialPlate*	1
20	4612909~CVV958-01	Re-analyzed	2016/08/10 9:11:20 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	20	*54VialPlate*	1
21	4612909~CVV959-01	Re-analyzed	2016/08/10 9:16:25 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	21	*54VialPlate*	1
22	4612909~CVV960-01	Re-analyzed	2016/08/10 9:21:31 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	22	*54VialPlate*	1
23	CCV	-	2016/08/10 9:26:37 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	6	*54VialPlate*	1
24	4612909~CVV961-01	Re-analyzed	2016/08/10 9:31:43 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	23	*54VialPlate*	1
25	4612909~CVV962-01	Re-analyzed	2016/08/10 9:36:49 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	24	*54VialPlate*	1
26	4612909~CVV964-01	Re-analyzed	2016/08/10 9:41:54 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	25	*54VialPlate*	1
27	4612909~CVV965-01	Re-analyzed	2016/08/10 9:47:00 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	26	*54VialPlate*	1
28	CCV	-	2016/08/10 9:52:06 AM	PFC_Water_High.dam	PFC_160810\WS#4612909.wiff	2 Well Plates	1	6	*54VialPlate*	1

DoD Projects - Internal Data Validation Checklist

Run date: 20160811

Worksheet # (s): 4613413

Analysis: PFOSALCM-W

	Primary review by the analyst - 1st 100 % analysis review	1st 100% review yes	no	n/a	*2nd 100% review
1	Sample analyses meet hold time criteria	—			✓
2	Analysis set-up meets method criteria	—			✓
3	Tuning and correct calibration used - criteria meets method criteria	—			✓
4	SQC/Control Charts updated, analysis in statistical/method control	—			✓
5	Internal area counts checked (if applicable)	—			✓
6	LCS, SRM are within acceptance criteria	—			✓
7	Surrogate Recovery(s) is within acceptance criteria	—			✓
8	Method Blank meets acceptance criteria	—			✓
9	Matrix Spike recovery(s) meets acceptance criteria	—			✓
10	Duplicate precision meets acceptance criteria	—			✓
11	QC is documented on the run logs	✓			✓
12	Runs checked for carryover	—			✓
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	—			✓
14	Initial weights, splits, impringer volumes (where applicable) are documented	—			✓
15	Standards and reagents traceable to Certificates of Analysis	—			✓
16	Samples above calibration range diluted and reanalyzed			—	✓
17	Dilution factors (where justified) have been checked for correctness and entered	—			✓
18.	Analytical observations/anomalies documented in LIMS	—			✓
19	Random calculation checked and in correct units	✓			✓
20	If corrective actions were applied they are documented, initialed & dated			—	✓
21	Manual Integration – before & after data with a reason included, initialed & dated			—	✓
22	Transferred data is validated in LIMS for correctness	—			✓
23	Data package assembled (where required)	—			✓

Reviewed by: [signature] Date: 20160811

Comments:

	Secondary Supervisor/Qualified Data Review Staff - 2nd 100% verification review	yes	no	n/a
1	Repeats documented and referenced	✓		
2	Method and sample deviations noted, anomalies described (if applicable)			✓
3	Data and QC validated in LIMS	✓		
4	Random calculation checked	✓		
5	Benchsheet (s) signed and dated	✓		
6	Data Package (if required) checked for completeness	✓		

Reviewed by: [signature] Date: 20160812

Comments: CUTS33 to be re-extracted for confirmation of results.

*Note: 2nd 100% verification review documented by secondary qualified data review
Primary and Secondary Internal Data Review Check must be performed by a different person

Worksheet Data Validation Checklist - Extractable Organics

Worksheet # 4613413 | Testcode: PFOSACCM-W

Sample Preparation		yes	no	n/a
1	Samples extracted within hold time	✓		
2	Client sample ID verified against Lab ID (waters & oils)	✓		
3	Parameter list and Client comments reviewed, (Spiking solutions matched to parameter list)	✓		
4	Height of sediment or if sample was decanted, recorded on worksheet	✓		
5	Method required QC processed with samples, maximum batch size = 20 client samples.	✓		
6	Sample, duplicate, matrix spike appear similar, initial sample as well as final extract	✓		
7	Sample weight or initial volume and extract final volume, aliquot factor clearly recorded.	✓		
8	If performed any additional dilution clearly recorded	✓		
9	Matrix spike / Duplicate performed on IOL samples if present			✓
10	Spiking solutions valid (haven't expired), ID and volume used clearly identified on worksheet	✓		
11	Spiking process witnessed and signed off	✓		
12	Extraction type recorded (N3A2B = neutral, 3 x acidic, 2 x basic)			✓
13	Sample prep deviations documented within CompliantPro as a Policy Deviation			✓
14	Job Remarks reviewed on 2nd page of worksheet.	✓		
15	Worksheet and reagent tracking record completed and authorized.	✓		

Reviewed by: MMJ | Date: 2016 05 10

Comments:

Worksheet Approval		yes	no	n/a
1	Verified the position of the vials in autosampler against sequence list; signed off sequence list	✓		
2	Calibration and CCV standards valid (haven't expired)	✓		
3	Initial calibration curve and DFTPP tune (if applicable) acceptable	✓		
4	Continuing and Final CCV and DFTPP tune (if applicable) acceptable	✓		
5	System performance check acceptable (if applicable)	✓		
6	Internal standard responses acceptable	✓		
7	Method blank meets acceptance criteria	✓		
8	Lab Control Samples recoveries meets acceptance criteria	✓		
9	Duplicate RPD meets acceptance criteria	✓		
10	Matrix spike recoveries meets acceptance criteria	✓		
11	Surrogate recoveries meets acceptance criteria	✓		
12	Appropriate control charts updated	✓		
13	Samples above calibration range diluted and reanalyzed			✓
14	Dilutions clearly documented on tracking record, inst file and verified during data upload	✓		
15	Samples following high level samples checked for carryover.	✓		
16	Mass spectra ion ratios acceptable for positive results, hardcopy in file.			✓
17	Analytical observations / anomalies documented			✓
18	DQW comments entered in LIMS, hardcopy in file			✓
19	Sample Prep section (above) reviewed and verified.	✓		
20	WS Approval performed in LIMS	✓		

Reviewed by: [illegible] | Date: 20160811

Comments:

Worksheet Validation		yes	no	n/a
1	Calibration, QC and sample results reviewed and determined acceptable	✓		
2	Manual integrations verified			✓
3	Random calculation checked	✓		
4	Data and QC validated in LIMS	✓		
5	Comments reviewed for appropriateness	✓		
6	Reworks / relogs documented in file			✓
7	Worksheet signed and dated,	✓		
8	Worksheet approved and validated within LIMS	✓		

Reviewed by: [illegible] | Date: 2016/08/12

Comments: For jobs B661448 & B667486, refer to BRL FD-0002

WS# : 4613413

Page #: 1/2

RUSH

Report Name : Worksheet - (Liquids and Solids)

Assignment Date : Wednesday, August 10, 2016

Assigned to : Melinda Molina

Test Code : PFOSALCM-W

Instrument Id:

Test Description : PFOS and PFOA in water by LC-MS/MS

Sediment

Job Number	Sample Number	D	Sample ID	F	% Moisture	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test DeadLine	Criteria	Extract Date
	SPIKE		PFOS			125	3	1X					2016/08/10
	BLANK					125	3	1X					2016/08/10
B6G7126	CVT909-01R		[redacted](1)	✓	0.1	125	3	1X	1	2016/08/16	2016/08/11 17:00		2016/08/10
B6G7126	CVT910-01R		[redacted]	-	<0.1	125	3	1X	1	2016/08/16	2016/08/11 17:00		2016/08/10
B6G7486*	*CVV953-01R		2014188-616	-	0	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV954-01R		2014188-617	-	<0.1	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV955-01R		2014188-618	-	<0.1	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV956-01R		2014188-619	-	<0.1	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV957-01R		2014188-620	-	0	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV958-01R		2014188-621	-	<0.1	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV959-01R		2014188-622	-	<0.1	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV960-01R		2014188-624	-	0	125	3	1X	2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV961-01R		2014188-625	-	0	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV962-01R		2014188-626	-	0	125	3	1X	2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV964-01R		2014188-623	-	0	125	3	1X	2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV965-01R		2014188-627	-	6	125	3	1X	2	2016/08/18	2016/08/11 23:00		2016/08/10
	MTRX SPK 0		CVT 533-01R		0	25	3	1X					
	MTRX SPK 1		CVT 533-01R		0	25	3	1X					
B6G1448	CVT 533-01				0	25	3	1X					
B6G1448	CVT 528-01				<0.1	25	3	1X					
B6G1448	CVT 529-01				<0.1	125	3	1X					
B6G1448	CVT 530-01				<0.1	125	3	1X					
B6G1448	CVT 532-01				<0.1	125	3	1X					
B6G1448	CVY 302-01				<0.1	125	3	1X					

melinda.molina@... 2016 10/10

Remarks: Low level analysis

CVT 533-01R, MS/MSD, CVT 528. Reworked samples from high level analysis, required 5X dilution prior to extraction

Samples extracted by: Melinda Molina 2016 10/10

Instrumentation performed by: Date: 20160811

Calculations performed by: Date: 20160811

Validated by: Date: 2016/08/12

Job No.	Rep / Client Name / Remarks	Contact	Client Tier	National
MB6G7126	[redacted] Wheeler Environ — Lori Wiseman [redacted] analysis cancelled by L. Wiseman 2016/08/10 MFL Project #: [redacted]			[redacted] extract
GB6G7486	MDG Oneida Total Integrated Enterp Orval Osborne PFOSALCM-W Level IV Data Package Required nreg Project #: PFC Barstow			

Surrogates/Spikes	Method Spike	Spikes	Samples

2016/08/10

Sample	Preparation Remarks			
	vol (mL)	Amt. Spiked (mL)	Conc.	Batch Init
S1	282	25		
S2	280	50	100 ng/mL —	SK6379
S3	270	150		
S4	283	37.5		
S5	277	75	1 ng/mL —	T4776
S6	272	125		
ICV	278	625 —	1 ng/mL —	T4773

Sample	Instrumentation Remarks
	For job B6G 7486, results saved with _OTIE3 for extension sm 2016/08/12
	For job B6G 1446, results saved with _OTIE18 for extension. sm 2016/08/12

WS# : 4613413

RUSH

Report Name : Worksheet - (Liquids and Solids)

Assignment Date : Wednesday, August 10, 2016

Assigned to : Melinda Molina

Test Code : PFOSALCM-W

Instrument Id:

Test Description : PFOS and PFOA in water by LC-MS/MS

Job Number	Sample Number	D	Sample ID	F	% Moisture	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test DeadLine	Criteria	Extract Date
	MTRX SPK	0	PFOS CUT533-01										2016/08/10
	MTRX SPK	1	PFOS CUT533-01										2016/08/11
	SPIKE		PFOS										2016/08/10
	BLANK												2016/08/10
B6G1448*	*CUT528-01R		B558 TW002						2	2016/08/14	2016/08/11 17:00	DOD	2016/08/11
B6G1448*	*CUT529-01R		B558 TW003						2	2016/08/14	2016/08/11 17:00	DOD	2016/08/11
B6G1448*	*CUT530-01R		B558 TW004						2	2016/08/14	2016/08/11 17:00	DOD	2016/08/11
B6G1448*	*CUT532-01R		B433 TW002						2	2016/08/13	2016/08/11 17:00	DOD	2016/08/11
B6G1448*	*CUT533-01R		B433 TW003						2	2016/08/13	2016/08/11 17:00	DOD	2016/08/11
B6G1448*	*CUY302-01R		FT3 SW001						2	2016/08/12	2016/08/11 17:00	DOD	2016/08/11
B6G7126	CVT909-01R		[redacted]						1	2016/08/16	2016/08/11 17:00		2016/08/10
B6G7126	CVT910-01R		[redacted]						1	2016/08/16	2016/08/11 17:00		2016/08/10
B6G7486*	*CVV953-01R		2014188-616						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV954-01R		2014188-617						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV955-01R		2014188-618						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV956-01R		2014188-619						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV957-01R		2014188-620						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV958-01R		2014188-621						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV959-01R		2014188-622						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV960-01R		2014188-624						2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV961-01R		2014188-625						2	2016/08/18	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV962-01R		2014188-626						2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV964-01R		2014188-623						2	2016/08/19	2016/08/11 23:00		2016/08/10
B6G7486*	*CVV965-01R		2014188-627						2	2016/08/18	2016/08/11 23:00		2016/08/10

Remarks: Low level analysis

Samples extracted by: Melinda Molina

Instrumentation performed by: Colm McNamara Date:

Calculations performed by: Colm McNamara Date: 2016/08/11

Validated by: Date:

For additional info only
sm 2016/08/11

Job No.	Rep / Client Name / Remarks	Contact	Client Tier	National
GB6G1448	MDG Oneida Total Integrated Enterp ***MISSING SAMPLES ON COC RECEIVED; ** MDG 16/08/03 NREG PFOSALCM-S/W Level IV Data Package Required MS/MSD required on sample CUT517, CUT500 Rush 5-7 TAT 50% surcharge No physical sample for CUY287-01 Project #: 2015341	Oscar Martinez		
MB6G7126	[redacted]			
GB6G7486	MDG Oneida Total Integrated Enterp PFOSALCM-W Level IV Data Package Required nreg Project #: PFC Barstow	Orval Osborne		

Surrogates/Spikes	Method Spike	Spikes	Samples

Sample	Preparation Remarks

Sample	Instrumentation Remarks

for additional info only.

2016/08/12

Worksheet Number: **4613413**

PFOS and PFOA in water - Water
ug/L

Parameter Name	Units	MTRX SPK	DL	MTRX SPK Dup1	DL	SPIKE	DL
6:2 Fluorotelomer sulfonate	ug/L	95.60000NC	0.02	90.60000NC	0.02	101.40000	0.02
8:2 Fluorotelomer sulfonate	ug/L	89.60000	0.02	97.40000	0.02	96.60000	0.02
N-ethylperfluorooctane sulfonamide	ug/L	N/A*******		N/A*******		N/A*******	
EtFOSAA	ug/L	N/A*******		N/A*******		N/A*******	
N-ethylperfluorooctane sulfonamidoe	ug/L	N/A*******		N/A*******		N/A*******	
N-methylperfluorooctane sulfonamide	ug/L	N/A*******		N/A*******		N/A*******	
MeFOSAA	ug/L	N/A*******		N/A*******		N/A*******	
N-methylperfluorooctanesulfonamidol	ug/L	N/A*******		N/A*******		N/A*******	
Perfluorobutanoic acid	ug/L	95.00800	0.02	94.80800	0.02	101.00000	0.02
Perfluorobutane Sulfonate (PFBS)	ug/L	92.26000	0.02	89.46000	0.02	90.20000	0.02
Perfluorodecane Sulfonate	ug/L	90.60000	0.02	86.20000	0.02	92.60000	0.02
Perfluoroheptanoic Acid (PFHpA)	ug/L	98.38000	0.02	98.78000	0.02	99.80000	0.02
Perfluoroheptane sulfonate	ug/L	95.14000	0.02	92.34000	0.02	92.60000	0.02
Perfluorohexanoic Acid (PFHxA)	ug/L	99.04000	0.02	98.24000	0.02	97.00000	0.02
Perfluorohexane Sulfonate (PFHxS)	ug/L	92.20000NC	0.02	92.40000NC	0.02	85.60000	0.02
Perfluorononanoic Acid (PFNA)	ug/L	94.40000	0.02	95.20000	0.02	92.60000	0.02
Perfluorooctane Sulfonamide (PFOSA)	ug/L	92.80000	0.02	103.20000	0.02	104.20000	0.02
Perfluoropentanoic Acid (PFPeA)	ug/L	89.64000	0.02	92.84000	0.02	96.00000	0.02
Perfluorotetradecanoic Acid	ug/L	96.40000	0.02	99.80000	0.02	98.80000	0.02
Perfluorotridecanoic Acid	ug/L	102.20000	0.02	105.60000	0.02	97.40000	0.02
Perfluoroundecanoic Acid (PFUnA)	ug/L	94.40000	0.02	97.00000	0.02	99.60000	0.02
Perfluorodecanoic Acid (PFDA)	ug/L	98.80000	0.02	99.20000	0.02	101.80000	0.02
Perfluorododecanoic Acid (PFDoA)	ug/L	94.60000	0.02	99.20000	0.02	100.40000	0.02
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	94.08000	0.02	103.48000	0.02	97.20000	0.02
Perfluorooctane Sulfonate (PFOS)	ug/L	93.08000NC	0.02	99.28000NC	0.02	92.20000	0.02
13C2-6:2 Fluorotelomer sulfonate	ug/L	N/A*******		N/A*******		N/A*******	
13C2-8:2 Fluorotelomer sulfonate	ug/L	N/A*******		N/A*******		N/A*******	
13C2-perfluorotetradecanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C4-Perfluorobutanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C6-Perfluorohexanoic Acid	ug/L	N/A*******		N/A*******		N/A*******	
13C9-Perfluorodecanoic Acid	ug/L	N/A*******		N/A*******		N/A*******	
N-methyl-d3-perfluorooctane sulfona	ug/L	N/A*******		N/A*******		N/A*******	
N-ethyl-d5-perfluorooctane sulfonam	ug/L	N/A*******		N/A*******		N/A*******	
13C2-Perfluorodecanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C2-Perfluorododecanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C2-Perfluorohexanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C2-Perfluoroundecanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C4-Perfluoroheptanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C5-Perfluorononanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C4-Perfluorooctanoic acid	ug/L	100.		91.2		101.	
13C4-Perfluorooctanesulfonate	ug/L	91.3		87.0		100.	
13C5-Perfluoropentanoic acid	ug/L	N/A*******		N/A*******		N/A*******	
13C8-Perfluorooctanesulfonamide	ug/L	83.8		81.5		84.7	
18O2-Perfluorohexanesulfonate	ug/L	N/A*******		N/A*******		N/A*******	

PFOS and PFOA in water - Water
ug/L

Parameter Name	BLANK	DL	B6G1448 CUT528 ReWork	DL	B6G1448 CUT529 ReWork	DL	B6G1448 CUT530 ReWork
6:2 Fluorotelomer sulfonate	0	0.02	0.17700	0.1	0.17300	0.02	0.00310
8:2 Fluorotelomer sulfonate	0	0.02	0	0.1	0.01160	0.02	0
N-ethylperfluorooctane sulfonamide	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
EtFOSAA	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
N-ethylperfluorooctane sulfonamidoe	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
N-methylperfluorooctane sulfonamide	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
MeFOSAA	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
N-methylperfluorooctanesulfonamidol	N/A*******		N/A*******	0.1	N/A*******	0.02	N/A*******
Perfluorobutanoic acid	0	0.02	0.71000	0.1	0.34000	0.02	0.09740
Perfluorobutane Sulfonate (PFBS)	0	0.02	1.97000	0.1	0.27800	0.02	0.58400
Perfluorodecane Sulfonate	0	0.02	0	0.1	0	0.02	0
Perfluoroheptanoic Acid (PFHpA)	0	0.02	0.63500	0.1	0.44300	0.02	0.05120
Perfluoroheptane sulfonate	0	0.02	N/A*******	0.1	N/A*******	0.02	N/A*******
Perfluorohexanoic Acid (PFHxA)	0	0.02	4.25000	0.1	1.24000	0.02	0.36900
Perfluorohexane Sulfonate (PFHxS)	0	0.02	13.00000	0.1	4.57000	0.02	1.88000
Perfluorononanoic Acid (PFNA)	0	0.02	0.02180	0.1	0.02900	0.02	0.00446
Perfluorooctane Sulfonamide (PFOSA)	0	0.02	0	0.1	0.00338	0.02	0
Perfluoropentanoic Acid (PFPeA)	0	0.02	1.92000	0.1	1.05000	0.02	0.14500
Perfluorotetradecanoic Acid	0	0.02	0	0.1	0	0.02	0
Perfluorotridecanoic Acid	0	0.02	0	0.1	0	0.02	0
Perfluoroundecanoic Acid (PFUnA)	0	0.02	0.00111	0.1	0.000203	0.02	0
Perfluorodecanoic Acid (PFDA)	0	0.02	0.00236	0.1	0.01230	0.02	0.000366
Perfluorododecanoic Acid (PFDoA)	0	0.02	0	0.1	0	0.02	0
Perfluoro-n-Octanoic Acid (PFOA)	0	0.02	0.86100	0.1	0.16900	0.02	0.03140
Perfluorooctane Sulfonate (PFOS)	0	0.02	4.11000	0.1	3.59000	0.02	0.36900
13C2-6:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-8:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-perfluorotetradecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorobutanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C6-Perfluorohexanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
13C9-Perfluorodecanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
N-methyl-d3-perfluorooctane sulfona	N/A*******		N/A*******		N/A*******		N/A*******
N-ethyl-d5-perfluorooctane sulfonam	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorodecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorododecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorohexanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluoroundecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluoroheptanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C5-Perfluorononanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorooctanoic acid	103.		114.		98.1		92.5
13C4-Perfluorooctanesulfonate	100.		109.		89.1		79.2
13C5-Perfluoropentanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C8-Perfluorooctanesulfonamide	90.0		90.7		83.0		70.5
18O2-Perfluorohexanesulfonate	N/A*******		N/A*******		N/A*******		N/A*******

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B6G1448 CUT532 ReWork	DL	B6G1448 CUT533 ReWork	DL	B6G1448 CUY302 ReWork	DL
6:2 Fluorotelomer sulfonate	0.02	0.21400	0.02	0.60300	0.1	0	0.02
8:2 Fluorotelomer sulfonate	0.02	0	0.02	0	0.1	0	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
EtFOSAA	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
N-ethylperfluorooctane sulfonamidoe	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
N-methylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
MeFOSAA	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
N-methylperfluorooctanesulfonamidol	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
Perfluorobutanoic acid	0.02	0.01830	0.02	0.03480	0.1	0	0.02
Perfluorobutane Sulfonate (PFBS)	0.02	0.03320	0.02	0.11900	0.1	0.00406	0.02
Perfluorodecane Sulfonate	0.02	0	0.02	0	0.1	0	0.02
Perfluoroheptanoic Acid (PFHpA)	0.02	0.01230	0.02	0.02550	0.1	0	0.02
Perfluoroheptane sulfonate	0.02	N/A*******	0.02	N/A*******	0.1	N/A*******	0.02
Perfluorohexanoic Acid (PFHxA)	0.02	0.07620	0.02	0.17900	0.1	0	0.02
Perfluorohexane Sulfonate (PFHxS)	0.02	0.22300	0.02	0.68900	0.1	0.00253	0.02
Perfluorononanoic Acid (PFNA)	0.02	0.00851	0.02	0	0.1	0	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.02	0	0.02	0	0.1	0	0.02
Perfluoropentanoic Acid (PFPeA)	0.02	0.05930	0.02	0.08920	0.1	0	0.02
Perfluorotetradecanoic Acid	0.02	0	0.02	0	0.1	0	0.02
Perfluorotridecanoic Acid	0.02	0	0.02	0	0.1	0	0.02
Perfluoroundecanoic Acid (PFUnA)	0.02	0.000430	0.02	0	0.1	0	0.02
Perfluorodecanoic Acid (PFDA)	0.02	0.00111	0.02	0	0.1	0	0.02
Perfluorododecanoic Acid (PFDoA)	0.02	0	0.02	0	0.1	0	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02	0.02710	0.02	0.05810	0.1	0	0.02
Perfluorooctane Sulfonate (PFOS)	0.02	0.66100	0.02	0.41300	0.1	0.000803	0.02
13C2-6:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-8:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-perfluorotetradecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorobutanoic acid		N/A*******		N/A*******		N/A*******	
13C6-Perfluorohexanoic Acid		N/A*******		N/A*******		N/A*******	
13C9-Perfluorodecanoic Acid		N/A*******		N/A*******		N/A*******	
N-methyl-d3-perfluorooctane sulfona		N/A*******		N/A*******		N/A*******	
N-ethyl-d5-perfluorooctane sulfonam		N/A*******		N/A*******		N/A*******	
13C2-Perfluorodecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorododecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorohexanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluoroundecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluoroheptanoic acid		N/A*******		N/A*******		N/A*******	
13C5-Perfluorononanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorooctanoic acid		98.7		111.		99.6	
13C4-Perfluorooctanesulfonate		96.7		113.		91.8	
13C5-Perfluoropentanoic acid		N/A*******		N/A*******		N/A*******	
13C8-Perfluorooctanesulfonamide		80.2		96.3		78.7	
18O2-Perfluorohexanesulfonate		N/A*******		N/A*******		N/A*******	

PFOS and PFOA in water - Water
ug/L

Parameter Name	B6G7126 CVT909 ReWork	DL	B6G7126 CVT910 ReWork	DL	B6G7486 CVV953 ReWork	DL	B6G7486 CVV954 ReWork
6:2 Fluorotelomer sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
8:2 Fluorotelomer sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-ethylperfluorooctane sulfonamide	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
EtFOSAA	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-ethylperfluorooctane sulfonamidoe	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-methylperfluorooctane sulfonamide	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
MeFOSAA	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-methylperfluorooctanesulfonamidol	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorobutanoic acid	0	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorobutane Sulfonate (PFBS)	0.00452	0.02	0	0.02	0.01520	0.02	0.01620
Perfluorodecane Sulfonate	0	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluoroheptanoic Acid (PFHpA)	0	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluoroheptane sulfonate	0.00543	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorohexanoic Acid (PFHxA)	0	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorohexane Sulfonate (PFHxS)	0.00228	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorononanoic Acid (PFNA)	0.00249	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorooctane Sulfonamide (PFOSA)	0.00311	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluoropentanoic Acid (PFPeA)	0	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorotetradecanoic Acid	0.00385	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorotridecanoic Acid	0.00208	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluoroundecanoic Acid (PFUnA)	0.00143	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorodecanoic Acid (PFDA)	0.000820	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluorododecanoic Acid (PFDoA)	0.00183	0.02	0	0.02	N/A*******	0.02	N/A*******
Perfluoro-n-Octanoic Acid (PFOA)	0.00314	0.02	0	0.02	0.00398	0.02	0.03650
Perfluorooctane Sulfonate (PFOS)	0.000807	0.02	0	0.02	0.02000	0.02	0.08270
13C2-6:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-8:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-perfluorotetradecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorobutanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C6-Perfluorohexanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
13C9-Perfluorodecanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
N-methyl-d3-perfluorooctane sulfona	N/A*******		N/A*******		N/A*******		N/A*******
N-ethyl-d5-perfluorooctane sulfonam	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorodecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorododecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorohexanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluoroundecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluoroheptanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C5-Perfluorononanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorooctanoic acid	98.6		96.1		98.8		90.8
13C4-Perfluorooctanesulfonate	87.9		91.7		94.3		87.9
13C5-Perfluoropentanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C8-Perfluorooctanesulfonamide	74.7		85.9		81.3		82.4
18O2-Perfluorohexanesulfonate	N/A*******		N/A*******		N/A*******		N/A*******

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B6G7486 CVV955 ReWork	DL	B6G7486 CVV956 ReWork	DL	B6G7486 CVV957 ReWork	DL
6:2 Fluorotelomer sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
8:2 Fluorotelomer sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
EtFOSAA	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-ethylperfluorooctane sulfonamidoe	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-methylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
MeFOSAA	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-methylperfluorooctanesulfonamidol	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorobutanoic acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorobutane Sulfonate (PFBS)	0.02	0.01500	0.02	0.02790	0.02	0.01390	0.02
Perfluorodecane Sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroheptanoic Acid (PFHpA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroheptane sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorohexanoic Acid (PFHxA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorohexane Sulfonate (PFHxS)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorononanoic Acid (PFNA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoropentanoic Acid (PFPeA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorotetradecanoic Acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorotridecanoic Acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroundecanoic Acid (PFUnA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorodecanoic Acid (PFDA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorododecanoic Acid (PFDoA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02	0.03710	0.02	0.03690	0.02	0.03150	0.02
Perfluorooctane Sulfonate (PFOS)	0.02	0.10400	0.02	0.08710	0.02	0.06650	0.02
13C2-6:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-8:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-perfluorotetradecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorobutanoic acid		N/A*******		N/A*******		N/A*******	
13C6-Perfluorohexanoic Acid		N/A*******		N/A*******		N/A*******	
13C9-Perfluorodecanoic Acid		N/A*******		N/A*******		N/A*******	
N-methyl-d3-perfluorooctane sulfona		N/A*******		N/A*******		N/A*******	
N-ethyl-d5-perfluorooctane sulfonam		N/A*******		N/A*******		N/A*******	
13C2-Perfluorodecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorododecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorohexanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluoroundecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluoroheptanoic acid		N/A*******		N/A*******		N/A*******	
13C5-Perfluorononanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorooctanoic acid		88.7		100.		98.6	
13C4-Perfluorooctanesulfonate		88.0		94.9		87.1	
13C5-Perfluoropentanoic acid		N/A*******		N/A*******		N/A*******	
13C8-Perfluorooctanesulfonamide		77.5		84.6		81.3	
18O2-Perfluorohexanesulfonate		N/A*******		N/A*******		N/A*******	

PFOS and PFOA in water - Water
ug/L

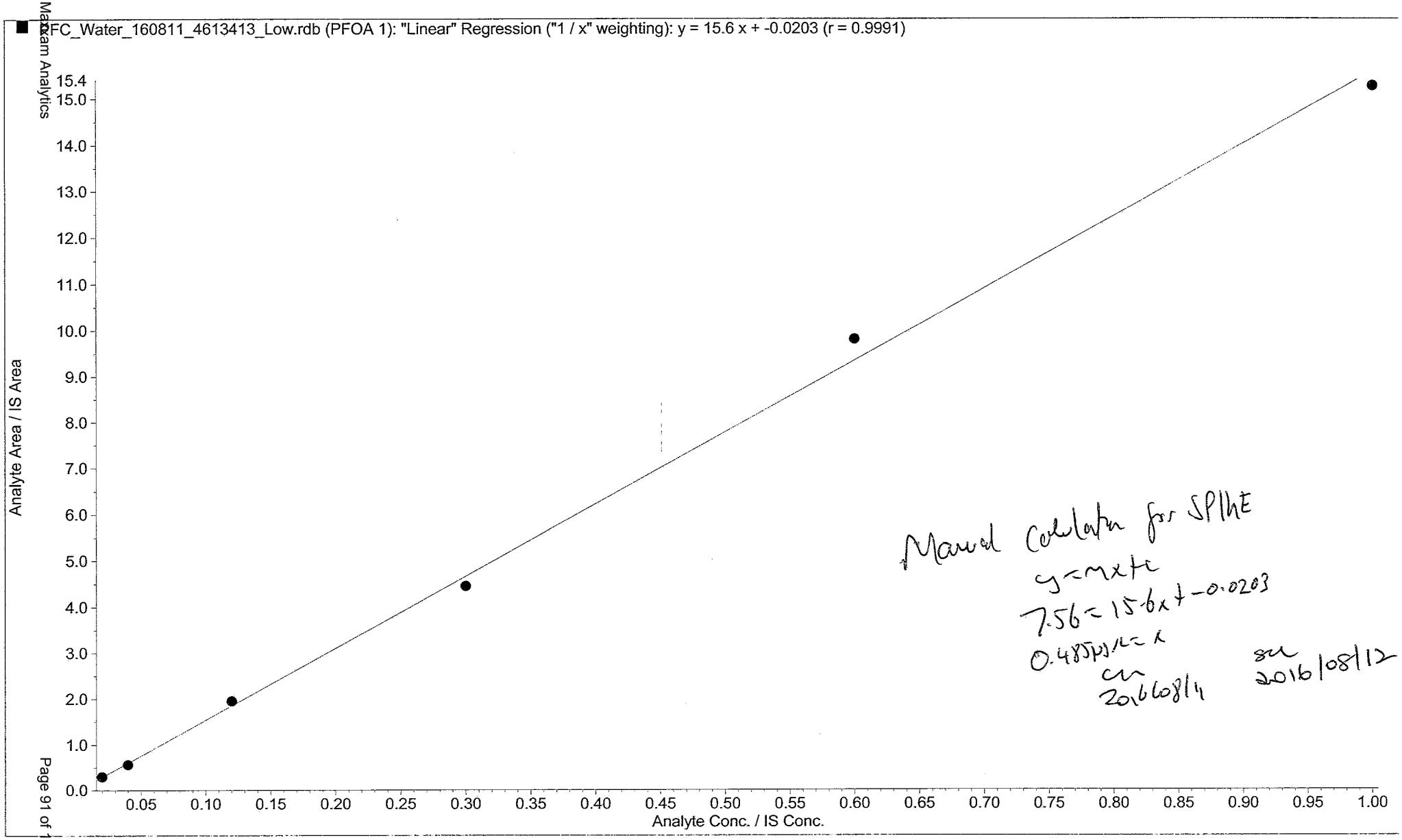
Parameter Name	B6G7486 CVV958 ReWork	DL	B6G7486 CVV959 ReWork	DL	B6G7486 CVV960 ReWork	DL	B6G7486 CVV961 ReWork
6:2 Fluorotelomer sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
8:2 Fluorotelomer sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-ethylperfluorooctane sulfonamide	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
EtFOSAA	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-ethylperfluorooctane sulfonamidoe	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-methylperfluorooctane sulfonamide	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
MeFOSAA	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
N-methylperfluorooctanesulfonamidol	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorobutanoic acid	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorobutane Sulfonate (PFBS)	0.02970	0.02	0.02760	0.02	0.02530	0.02	0
Perfluorodecane Sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluoroheptanoic Acid (PFHpA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluoroheptane sulfonate	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorohexanoic Acid (PFHxA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorohexane Sulfonate (PFHxS)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorononanoic Acid (PFNA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorooctane Sulfonamide (PFOSA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluoropentanoic Acid (PFPeA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorotetradecanoic Acid	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorotridecanoic Acid	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluoroundecanoic Acid (PFUnA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorodecanoic Acid (PFDA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluorododecanoic Acid (PFDoA)	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******
Perfluoro-n-Octanoic Acid (PFOA)	0.03830	0.02	0.03940	0.02	0.03020	0.02	0
Perfluorooctane Sulfonate (PFOS)	0.09810	0.02	0.09900	0.02	0.04970	0.02	0.000342
13C2-6:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-8:2 Fluorotelomer sulfonate	N/A*******		N/A*******		N/A*******		N/A*******
13C2-perfluorotetradecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorobutanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C6-Perfluorohexanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
13C9-Perfluorodecanoic Acid	N/A*******		N/A*******		N/A*******		N/A*******
N-methyl-d3-perfluorooctane sulfona	N/A*******		N/A*******		N/A*******		N/A*******
N-ethyl-d5-perfluorooctane sulfonam	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorodecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorododecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluorohexanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C2-Perfluoroundecanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluoroheptanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C5-Perfluorononanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C4-Perfluorooctanoic acid	96.3		96.9		98.3		95.7
13C4-Perfluorooctanesulfonate	93.2		93.7		88.4		90.7
13C5-Perfluoropentanoic acid	N/A*******		N/A*******		N/A*******		N/A*******
13C8-Perfluorooctanesulfonamide	82.0		87.3		79.1		73.6
18O2-Perfluorohexanesulfonate	N/A*******		N/A*******		N/A*******		N/A*******

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B6G7486 CVV962 ReWork	DL	B6G7486 CVV964 ReWork	DL	B6G7486 CVV965 ReWork	DL
6:2 Fluorotelomer sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
8:2 Fluorotelomer sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
EtFOSAA	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-ethylperfluorooctane sulfonamidoe	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-methylperfluorooctane sulfonamide	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
MeFOSAA	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
N-methylperfluorooctanesulfonamidol	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorobutanoic acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorobutane Sulfonate (PFBS)	0.02	0	0.02	0.02090	0.02	0	0.02
Perfluorodecane Sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroheptanoic Acid (PFHpA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroheptane sulfonate	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorohexanoic Acid (PFHxA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorohexane Sulfonate (PFHxS)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorononanoic Acid (PFNA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoropentanoic Acid (PFPeA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorotetradecanoic Acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorotridecanoic Acid	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoroundecanoic Acid (PFUnA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorodecanoic Acid (PFDA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluorododecanoic Acid (PFDoA)	0.02	N/A*******	0.02	N/A*******	0.02	N/A*******	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02	0	0.02	0.02470	0.02	0	0.02
Perfluorooctane Sulfonate (PFOS)	0.02	0.000640	0.02	0.05640	0.02	0.00103	0.02
13C2-6:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-8:2 Fluorotelomer sulfonate		N/A*******		N/A*******		N/A*******	
13C2-perfluorotetradecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorobutanoic acid		N/A*******		N/A*******		N/A*******	
13C6-Perfluorohexanoic Acid		N/A*******		N/A*******		N/A*******	
13C9-Perfluorodecanoic Acid		N/A*******		N/A*******		N/A*******	
N-methyl-d3-perfluorooctane sulfona		N/A*******		N/A*******		N/A*******	
N-ethyl-d5-perfluorooctane sulfonam		N/A*******		N/A*******		N/A*******	
13C2-Perfluorodecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorododecanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluorohexanoic acid		N/A*******		N/A*******		N/A*******	
13C2-Perfluoroundecanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluoroheptanoic acid		N/A*******		N/A*******		N/A*******	
13C5-Perfluorononanoic acid		N/A*******		N/A*******		N/A*******	
13C4-Perfluorooctanoic acid		92.3		96.7		89.3	
13C4-Perfluorooctanesulfonate		87.6		88.1		83.7	
13C5-Perfluoropentanoic acid		N/A*******		N/A*******		N/A*******	
13C8-Perfluorooctanesulfonamide		74.2		77.8		78.2	
18O2-Perfluorohexanesulfonate		N/A*******		N/A*******		N/A*******	

PFOS and PFOA in water - Water
ug/L

Parameter Name	RDL	MDL	IDL				
6:2 Fluorotelomer sulfonate	0.02	0.0065	0				
8:2 Fluorotelomer sulfonate	0.02	0.0055	0				
N-ethylperfluorooctane sulfonamide	0.02	0.0053	0				
EtFOSAA	0.02	0.004	0				
N-ethylperfluorooctane sulfonamidoe	0.02	0.0049	0				
N-methylperfluorooctane sulfonamide	0.02	0.004	0				
MeFOSAA	0.02	0.0043	0				
N-methylperfluorooctanesulfonamidol	0.02	0.0061	0				
Perfluorobutanoic acid	0.02	0.0066	0				
Perfluorobutane Sulfonate (PFBS)	0.02	0.0019	0				
Perfluorodecane Sulfonate	0.02	0.0043	0				
Perfluoroheptanoic Acid (PFHpA)	0.02	0.0047	0				
Perfluoroheptane sulfonate	0.02	0.0036	0				
Perfluorohexanoic Acid (PFHxA)	0.02	0.0046	0				
Perfluorohexane Sulfonate (PFHxS)	0.02	0.004	0				
Perfluorononanoic Acid (PFNA)	0.02	0.0046	0				
Perfluorooctane Sulfonamide (PFOSA)	0.02	0.0058	0				
Perfluoropentanoic Acid (PFPeA)	0.02	0.0036	0				
Perfluorotetradecanoic Acid	0.02	0.0052	0				
Perfluorotridecanoic Acid	0.02	0.0032	0				
Perfluoroundecanoic Acid (PFUnA)	0.02	0.0037	0				
Perfluorodecanoic Acid (PFDA)	0.02	0.0066	0				
Perfluorododecanoic Acid (PFDoA)	0.02	0.0057	0				
Perfluoro-n-Octanoic Acid (PFOA)	0.02	0.0053	0				
Perfluorooctane Sulfonate (PFOS)	0.02	0.0033	0				
13C2-6:2 Fluorotelomer sulfonate							
13C2-8:2 Fluorotelomer sulfonate							
13C2-perfluorotetradecanoic acid							
13C4-Perfluorobutanoic acid							
13C6-Perfluorohexanoic Acid							
13C9-Perfluorodecanoic Acid							
N-methyl-d3-perfluorooctane sulfona							
N-ethyl-d5-perfluorooctane sulfonam							
13C2-Perfluorodecanoic acid							
13C2-Perfluorododecanoic acid							
13C2-Perfluorohexanoic acid							
13C2-Perfluoroundecanoic acid							
13C4-Perfluoroheptanoic acid							
13C5-Perfluorononanoic acid							
13C4-Perfluorooctanoic acid							
13C4-Perfluorooctanesulfonate							
13C5-Perfluoropentanoic acid							
13C8-Perfluorooctanesulfonamide							
18O2-Perfluorohexanesulfonate							



Manual Calculation for SPIKE

$y = mx + c$

$7.56 = 15.6x + -0.0203$

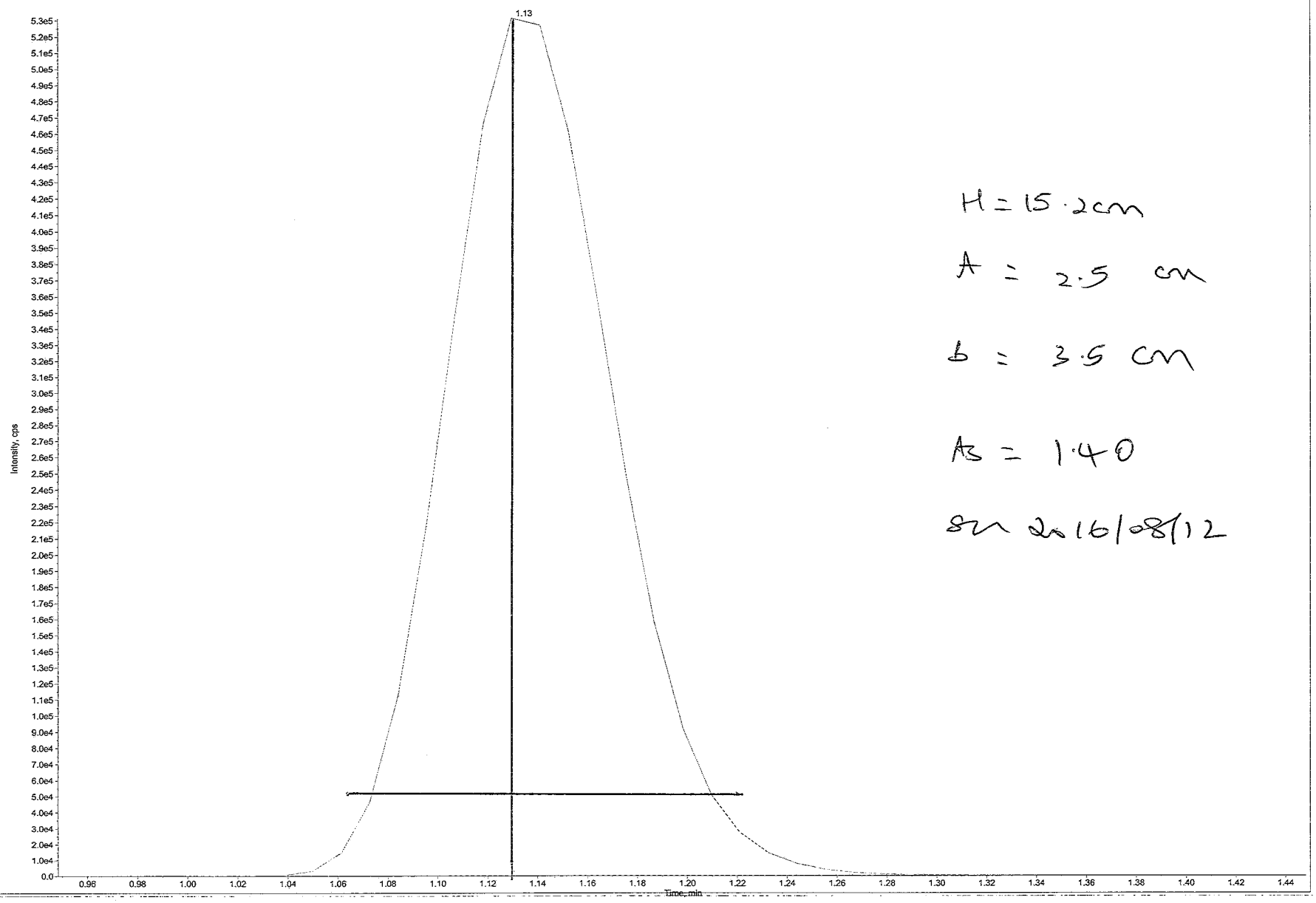
$0.485 \mu g/L = x$

CM 2016/08/14

SM 2016/08/12

Sample Name: "STD 4" Sample ID: "" File: "WS#4613413.wiff"
Peak Name: "PFBS 1" Mass(es): "298.900/79.900 Da"
Comment: "" Annotation: "-"

Sample Index:	6
Sample Type:	Standard
Concentration:	0.300 ug/L
Calculated Conc:	0.266 ug/L
Acq. Date:	2016/08/11
Acq. Time:	8:52:40 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	1
Noise Threshold:	300.00 cps
Area Threshold:	1000.00 cps
Num. Smooths:	4
Sep. Width:	0.00
Sep. Height:	0.00
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.0 sec
Expected RT:	1.20 min
Use Relative RT:	No
Int. Type:	Base To Base
Retention Time:	1.13 min
Area:	2530000. counts
Height:	5.38e+005 cps
Start Time:	1.02 min
End Time:	1.31 min



H = 15.2cm

A = 2.5 cm

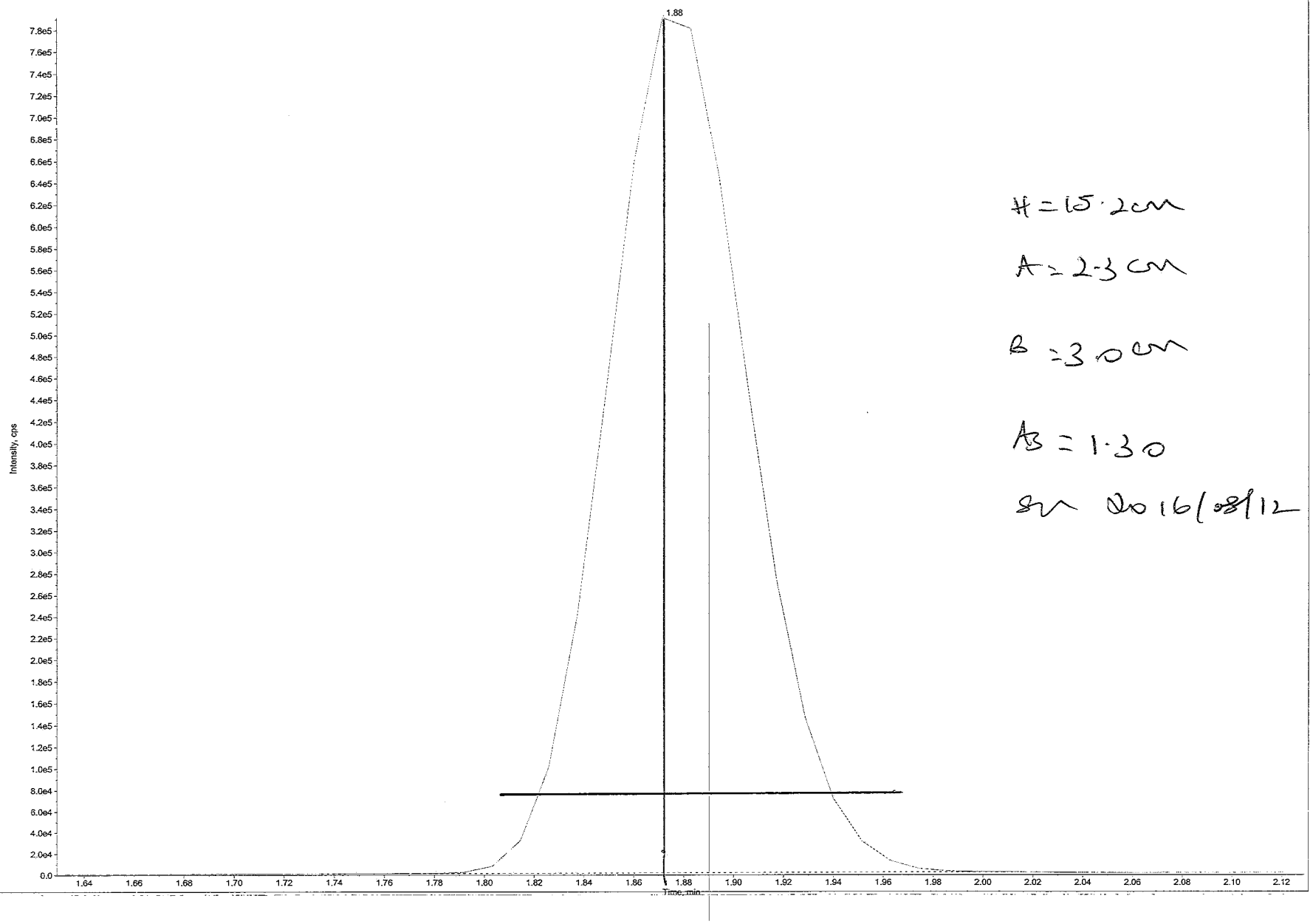
b = 3.5 cm

As = 1.40

Sm 2016/08/12

Sample Name: "STD 4" Sample ID: "" File: "WS#4613413.wiff"
Peak Name: "PFOA 1" Mass(es): "413.100/369.000 Da"
Component: "" Annotation: "-"

Sample Index:	6	
Sample Type:	Standard	
Concentration:	0.300	ug/L
Calculated Conc:	0.286	ug/L
Acq. Date:	2016/08/11	
Acq. Time:	8:52:40 AM	
Modified:	No	
Proc. Algorithm:	Analyst Classic	
Bunching Factor:	1	
Noise Threshold:	1000.00	cps
Area Threshold:	4000.00	cps
,Num. Smooths:	5	
Sep. Width:	0.00	
Sep. Height:	0.00	
Exp. Peak Ratio:	5.00	
Exp. Adj. Ratio:	4.00	
Exp. Val. Ratio:	3.00	
RT Window:	30.0	sec
Expected RT:	1.88	min
Use Relative RT:	No	
Int. Type:	Base To Base	
Retention Time:	1.88	min
Area:	3200000.	counts
Height:	8.03e+005	cps
Start Time:	1.73	min
End Time:	2.01	min



H = 15.2cm

A = 2.3 cm

B = 3.0 cm

A/B = 1.30

SM 2016/08/12

Report Name: Worksheet - Parameter Lists

Report Date: 2016/08/12

Test Code: **PFOSALCM-W**

Worksheet Number: **4613413**

Sample Number	Parameter	
CUT528-01	6:2 Fluorotelomer sulfonate	*
	8:2 Fluorotelomer sulfonate	*
	Perfluorobutanoic acid	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	
	Perfluorodecane Sulfonate	
	Perfluoroheptanoic Acid (PFHpA)	
	Perfluorononanoic Acid (PFNA)	
	Perfluoro-n-Octanoic Acid (PFOA)	
	Perfluorooctane Sulfonamide (PFOSA)	
	Perfluorotetradecanoic Acid	
	Perfluorotridecanoic Acid	
	Perfluoroundecanoic Acid (PFUnA)	
CUT529-01	6:2 Fluorotelomer sulfonate	*
	8:2 Fluorotelomer sulfonate	*
	Perfluorobutanoic acid	
	Perfluorobutane Sulfonate (PFBS)	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	
	Perfluorodecane Sulfonate	
	Perfluoroheptanoic Acid (PFHpA)	
	Perfluorononanoic Acid (PFNA)	
	Perfluoro-n-Octanoic Acid (PFOA)	
	Perfluorooctane Sulfonamide (PFOSA)	
	Perfluorotetradecanoic Acid	
	Perfluorotridecanoic Acid	
	Perfluoroundecanoic Acid (PFUnA)	
CUT530-01	6:2 Fluorotelomer sulfonate	*
	8:2 Fluorotelomer sulfonate	*
	Perfluorobutanoic acid	
	Perfluorobutane Sulfonate (PFBS)	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	
	Perfluorodecane Sulfonate	
	Perfluoroheptanoic Acid (PFHpA)	
	Perfluorohexanoic Acid (PFHxA)	
	Perfluorononanoic Acid (PFNA)	
	Perfluoro-n-Octanoic Acid (PFOA)	
	Perfluorooctane Sulfonate (PFOS)	

* - This parameter is usually off, but will be reported for this group of samples!

Report Name: Worksheet - Parameter Lists
Report Date: 2016/08/12

Test Code: **PFOSALCM-W**
Worksheet Number: **4613413**

Sample Number	Parameter	
	Perfluorooctane Sulfonamide (PFOSA)	
	Perfluoropentanoic Acid (PFPeA)	
	Perfluorotetradecanoic Acid	
	Perfluorotridecanoic Acid	
	Perfluoroundecanoic Acid (PFUnA)	
CUT532-01	6:2 Fluorotelomer sulfonate	*
CUY302-01	8:2 Fluorotelomer sulfonate	*
	Perfluorobutanoic acid	
	Perfluorobutane Sulfonate (PFBS)	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	
	Perfluorodecane Sulfonate	
	Perfluoroheptanoic Acid (PFHpA)	
	Perfluorohexanoic Acid (PFHxA)	
	Perfluorohexane Sulfonate (PFHxS)	
	Perfluorononanoic Acid (PFNA)	
	Perfluoro-n-Octanoic Acid (PFOA)	
	Perfluorooctane Sulfonate (PFOS)	
	Perfluorooctane Sulfonamide (PFOSA)	
	Perfluoropentanoic Acid (PFPeA)	
	Perfluorotetradecanoic Acid	
	Perfluorotridecanoic Acid	
	Perfluoroundecanoic Acid (PFUnA)	
CUT533-01	8:2 Fluorotelomer sulfonate	*
	Perfluorobutanoic acid	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	
	Perfluorodecane Sulfonate	
	Perfluoroheptanoic Acid (PFHpA)	
	Perfluorononanoic Acid (PFNA)	
	Perfluoro-n-Octanoic Acid (PFOA)	
	Perfluorooctane Sulfonamide (PFOSA)	
	Perfluorotetradecanoic Acid	
	Perfluorotridecanoic Acid	
	Perfluoroundecanoic Acid (PFUnA)	
CVT909-01	Perfluorobutanoic acid	
CVT910-01	Perfluorobutane Sulfonate (PFBS)	
	Perfluorodecanoic Acid (PFDA)	
	Perfluorododecanoic Acid (PFDoA)	

* - This parameter is usually off, but will be reported for this group of samples!

Report Name: Worksheet - Parameter Lists

Report Date: 2016/08/12

Test Code: **PFOSALCM-W**

Worksheet Number: **4613413**

Sample Number	Parameter
	Perfluorodecane Sulfonate
	Perfluoroheptanoic Acid (PFHpA)
	Perfluoroheptane sulfonate
	Perfluorohexanoic Acid (PFHxA)
	Perfluorohexane Sulfonate (PFHxS)
	Perfluorononanoic Acid (PFNA)
	Perfluoro-n-Octanoic Acid (PFOA)
	Perfluorooctane Sulfonate (PFOS)
	Perfluorooctane Sulfonamide (PFOSA)
	Perfluoropentanoic Acid (PFPeA)
	Perfluorotetradecanoic Acid
	Perfluorotridecanoic Acid
	Perfluoroundecanoic Acid (PFUnA)
CVV953-01	Perfluorobutane Sulfonate (PFBS)
CVV954-01	Perfluoro-n-Octanoic Acid (PFOA)
CVV955-01	Perfluorooctane Sulfonate (PFOS)
CVV956-01	
CVV957-01	
CVV958-01	
CVV959-01	
CVV960-01	
CVV961-01	
CVV962-01	
CVV964-01	
CVV965-01	

* - This parameter is usually off, but will be reported for this group of samples!

WorkSheet 4613413 Instrument Sequences

1.	4613413:MTRX SPK	MTRX SPK
2.	4613413:MTRX SPK:D1	MTRX SPK :D1
3.	4613413:SPIKE	SPIKE
4.	4613413:BLANK	BLANK
5.	4613413:CUT528-01	B558 TW002
6.	4613413:CUT529-01	B558 TW003
7.	4613413:CUT530-01	B558 TW004
8.	4613413:CUT532-01	B433 TW002
9.	4613413:CUT533-01	B433 TW003
10.	4613413:CUY302-01	FT3 SW001
11.	4613413:CVT909-01	[redacted]
12.	4613413:CVT910-01	[redacted]
13.	4613413:CVV953-01	2014188-616
14.	4613413:CVV954-01	2014188-617
15.	4613413:CVV955-01	2014188-618
16.	4613413:CVV956-01	2014188-619
17.	4613413:CVV957-01	2014188-620
18.	4613413:CVV958-01	2014188-621
19.	4613413:CVV959-01	2014188-622
20.	4613413:CVV960-01	2014188-624
21.	4613413:CVV961-01	2014188-625
22.	4613413:CVV962-01	2014188-626
23.	4613413:CVV964-01	2014188-623
24.	4613413:CVV965-01	2014188-627

Worksheet Reagent Tracking Record Worksheet # 4/6/13/4/13

Surrogate/Spike solutions	√	Solution ID #	Conc.	Blk-Spk Volume (µL)		MS Volume (µL)		Samples Volume (µL)	
				Solid	Liquid	Solid	Liquid	Solid	Liquid
DGT Spike			100 ug/mL	60	30	60	30	NA	NA
Diquat Dibromide			50 ug/mL	NA	350	NA	350	NA	NA
Explosives Spiking solution A			20 ug/mL	250	100	250	100	NA	NA
Explosives Spiking solution B			20/80 ug/mL	250	100	250	100	NA	NA
Formaldehyde Spike			100 ug/mL	25	25	25	25	NA	NA
Glyphosate Spike			25 ug/mL	500	20	500	20	NA	NA
Nonylphenol Ethoxylate Spike			100 ug/mL	100	100	100	100	NA	NA
Nonylphenol Spike			10 ug/mL	100	100	100	100	NA	NA
Paraquat Cl Tetrahydrate			20 ug/mL	NA	125	NA	125	NA	NA
Perchlorate Standard Spike			10 ng/mL	NA	100	NA	100	NA	NA
Perchlorate Standard Spike			500 ng/mL	40	NA	40	NA	NA	NA
Perchlorate O-18 Internal Standard			0.10 ng/uL	20	20	20	20	20	20
Morpholine Second Source Working Std			2500 ug/L	NA	80	NA	80	NA	NA
Morpholine-D8 Internal Standard			10 ug/mL	NA	50	NA	50	NA	50
Steril Second Source Spiking Solution			NA	20	NA	20	NA	NA	NA
Sterilants Comp. IS Working Solution			3 ug/mL	50	NA	50	NA	50	NA
Comp. PFC Working Solution A	—	L4773	1ug/mL	75	21 62.5	75	21 62.5	NA	NA
PFC Internal Standard Solution	—	SI 6164 (4/4)	50/125 ng/mL	200	100 150	200	100 150	200	100 150
PFC Injection IS	—	SI 6121	400 ng/mL	20	20	20	20	20	20
ICV	—	L4773	1mg/mL		62.5				

Solvent/Reagent	√	Lot No.	Date Opened	Solvent/Reagent	√	Lot No.	Date Opened/ Prepared
DCM				50% NaOH			
Ottawa Sand				o-Phosphoric Acid			
Methanol	—	SHBH0531V	2016/08/09	Borax			
2-Propanol (IPA)				Calcium Chloride			
Acetonitrile				EDTA			
Sodium Sulfate				Phosphate Buffer			
70:30 Methanol: Water				Sodium Thiosulphate			
60:40 Water: Methanol	—	PR-LRTS87	-920	DNPH			
DCM:Ethyl Ether (75:25)				FMOC			
Hexane:IPA (98:2)				5M Acetate Buffer			
2% Formic Acid	—	PR-LRTS87	-921	0.2% NH_4OH	—	PR-LRT92-08	
0.2% Formic Acid	—	PR-LRTS87	-922	Leachate Fluid			
0.05M KOH				Reagent Water	—	SS308	2016/08/09
0.05M HCl							

*Spiked by: MW
Spike Date 2016/08/10
Spike Syringe/Pipette ID# 036588
Int. Std Syringe/Pipette ID# M17485E
*Spiking Witnessed by: SSV
Final pH

Equipment & ID	√	Equipment	ID#	√	Equipment	Lot #
Pipettor 5mL - M15344C 2mL - M17485E 1mL - 036588	—	SPE Cartridge	0027361194	—	QC Balance ID	
	—	Filter			Thermometer ID &Temp	
Dispenser		Centrifuge				
		Sonicator				

Bottle Tracking
Bottle# 16334
Cap# 16218
Systems plus Lot# 16-07-29

Comments:

* - SPIKING OF QC's & SAMPLES MUST BE WITNESSED AT ALL TIMES.

Project: D:\Analyst Data\Projects\Enviro\PFOS Batch:PFC_160811 Tab:Sample Set:SET1 AcqMethod:PFC_Water_Low.dam
Sample

	Sample Name	Rack Code	Rack Position	Plate Code	Plate Position	Vial Position	Data File	Inj.Volume (µl)
1	RINSE	2 Well Plates	1	*54VialPlate*	1	1	PFC_160811\WS#4613413	2.000
2	4613413~BLANK	2 Well Plates	1	*54VialPlate*	1	2	PFC_160811\WS#4613413	2.000
3	STD 1	2 Well Plates	1	*54VialPlate*	1	3	PFC_160811\WS#4613413	2.000
4	STD 2	2 Well Plates	1	*54VialPlate*	1	4	PFC_160811\WS#4613413	2.000
5	STD 3	2 Well Plates	1	*54VialPlate*	1	5	PFC_160811\WS#4613413	2.000
6	STD 4	2 Well Plates	1	*54VialPlate*	1	6	PFC_160811\WS#4613413	2.000
7	STD 5	2 Well Plates	1	*54VialPlate*	1	7	PFC_160811\WS#4613413	2.000
8	STD 6	2 Well Plates	1	*54VialPlate*	1	8	PFC_160811\WS#4613413	2.000
9	ICV	2 Well Plates	1	*54VialPlate*	1	9	PFC_160811\WS#4613413	2.000
10	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160811\WS#4613413	2.000
11	4613413~MTRX SPK	2 Well Plates	1	*54VialPlate*	1	10	PFC_160811\WS#4613413	2.000
12	4613413~MTRX SPK:D1	2 Well Plates	1	*54VialPlate*	1	11	PFC_160811\WS#4613413	2.000
13	4613413~SPIKE	2 Well Plates	1	*54VialPlate*	1	12	PFC_160811\WS#4613413	2.000
14	4613413~CVT909-01	2 Well Plates	1	*54VialPlate*	1	13	PFC_160811\WS#4613413	2.000
15	4613413~CVT910-01	2 Well Plates	1	*54VialPlate*	1	14	PFC_160811\WS#4613413	2.000
16	4613413~CVV953-01	2 Well Plates	1	*54VialPlate*	1	15	PFC_160811\WS#4613413	2.000
17	4613413~CVV954-01	2 Well Plates	1	*54VialPlate*	1	16	PFC_160811\WS#4613413	2.000
18	4613413~CVV955-01	2 Well Plates	1	*54VialPlate*	1	17	PFC_160811\WS#4613413	2.000
19	4613413~CVV956-01	2 Well Plates	1	*54VialPlate*	1	18	PFC_160811\WS#4613413	2.000
20	4613413~CVV957-01	2 Well Plates	1	*54VialPlate*	1	19	PFC_160811\WS#4613413	2.000
21	4613413~CVV958-01	2 Well Plates	1	*54VialPlate*	1	20	PFC_160811\WS#4613413	2.000
22	4613413~CVV959-01	2 Well Plates	1	*54VialPlate*	1	21	PFC_160811\WS#4613413	2.000
23	4613413~CVV960-01	2 Well Plates	1	*54VialPlate*	1	22	PFC_160811\WS#4613413	2.000
24	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160811\WS#4613413	2.000
25	4613413~CVV961-01	2 Well Plates	1	*54VialPlate*	1	23	PFC_160811\WS#4613413	2.000
26	4613413~CVV962-01	2 Well Plates	1	*54VialPlate*	1	24	PFC_160811\WS#4613413	2.000
27	4613413~CVV964-01	2 Well Plates	1	*54VialPlate*	1	25	PFC_160811\WS#4613413	2.000
28	4613413~CVV965-01	2 Well Plates	1	*54VialPlate*	1	26	PFC_160811\WS#4613413	2.000
29	4613413~CUT528-01 (5x)	2 Well Plates	1	*54VialPlate*	1	27	PFC_160811\WS#4613413	2.000
30	4613413~CUT529-01	2 Well Plates	1	*54VialPlate*	1	28	PFC_160811\WS#4613413	2.000
31	4613413~CUT530-01	2 Well Plates	1	*54VialPlate*	1	29	PFC_160811\WS#4613413	2.000
32	4613413~CUT532-01	2 Well Plates	1	*54VialPlate*	1	30	PFC_160811\WS#4613413	2.000
33	4613413~CUT533-01 (5x)	2 Well Plates	1	*54VialPlate*	1	31	PFC_160811\WS#4613413	2.000
34	4613413~CUY302-01	2 Well Plates	1	*54VialPlate*	1	32	PFC_160811\WS#4613413	2.000
35	CCV	2 Well Plates	1	*54VialPlate*	1	6	PFC_160811\WS#4613413	2.000

Column #138
MPA=Sch# 663, FSRE17
MPB=MeOH, Sigma Lot# SHBH0531V
CV
2016Aug11

	Sample ID	Sample Annotation	Acquisition Date	Acquisition Method	File Name	Rack Type	Rack Position	Vial Position	Plate Type	Plate Position
1	4613413~BLANK	-	2016/08/11 8:22:11 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	2	*54VialPlate*	1
2	STD 1	-	2016/08/11 8:37:27 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	3	*54VialPlate*	1
3	STD 2	-	2016/08/11 8:42:31 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	4	*54VialPlate*	1
4	STD 3	-	2016/08/11 8:47:36 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	5	*54VialPlate*	1
5	STD 4	-	2016/08/11 8:52:40 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	6	*54VialPlate*	1
6	STD 5	-	2016/08/11 8:57:45 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	7	*54VialPlate*	1
7	STD 6	-	2016/08/11 9:02:49 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	8	*54VialPlate*	1
8	ICV	-	2016/08/11 9:07:54 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	9	*54VialPlate*	1
9	CCV	-	2016/08/11 9:13:00 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	6	*54VialPlate*	1
10	4613413~MTRX SPK (CUT533)	-	2016/08/11 9:18:04 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	10	*54VialPlate*	1
11	4613413~MTRX SPK:D1 (CUT533)	-	2016/08/11 9:23:09 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	11	*54VialPlate*	1
12	4613413~SPIKE	-	2016/08/11 9:28:13 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	12	*54VialPlate*	1
13	4613413~CVT909-01	Re-analysis, reported	2016/08/11 9:33:17 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	13	*54VialPlate*	1
14	4613413~CVT910-01	Re-analysis, reported	2016/08/11 9:38:23 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	14	*54VialPlate*	1
15	4613413~CVV953-01	Re-analysis, reported	2016/08/11 9:43:28 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	15	*54VialPlate*	1
16	4613413~CVV954-01	Re-analysis, reported	2016/08/11 9:48:33 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	16	*54VialPlate*	1
17	4613413~CVV955-01	Re-analysis, reported	2016/08/11 9:53:38 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	17	*54VialPlate*	1
18	4613413~CVV956-01	Re-analysis, reported	2016/08/11 9:58:43 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	18	*54VialPlate*	1
19	4613413~CVV957-01	Re-analysis, reported	2016/08/11 10:03:48 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	19	*54VialPlate*	1
20	4613413~CVV958-01	Re-analysis, reported	2016/08/11 10:08:53 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	20	*54VialPlate*	1
21	4613413~CVV959-01	Re-analysis, reported	2016/08/11 10:13:58 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	21	*54VialPlate*	1
22	4613413~CVV960-01	Re-analysis, reported	2016/08/11 10:19:03 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	22	*54VialPlate*	1
23	CCV	-	2016/08/11 10:24:08 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	6	*54VialPlate*	1
24	4613413~CVV961-01	Re-analysis, reported	2016/08/11 10:29:12 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	23	*54VialPlate*	1
25	4613413~CVV962-01	Re-analysis, reported	2016/08/11 10:34:17 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	24	*54VialPlate*	1
26	4613413~CVV964-01	Re-analysis, reported	2016/08/11 10:39:22 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	25	*54VialPlate*	1
27	4613413~CVV965-01	Re-analysis, reported	2016/08/11 10:44:28 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	26	*54VialPlate*	1
28	4613413~CUT528-01 (5x)	Re-analysis, reported for all parameters except PFBS, PFPeA, PFHxA, PFHxS & PFOS	2016/08/11 10:49:33 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	27	*54VialPlate*	1
29	4613413~CUT529-01	Re-analysis, reported for all parameters except PFPeA, PFHxA, PFHxS & PFOS	2016/08/11 10:54:38 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	28	*54VialPlate*	1
30	4613413~CUT530-01	Re-injected for carry-over check	2016/08/11 10:59:44 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	29	*54VialPlate*	1
31	4613413~CUT532-01	Re-injected for carry-over check	2016/08/11 11:04:49 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	30	*54VialPlate*	1
32	4613413~CUT533-01 (5x)	Re-analysis, re-analyzed for confirmation of results	2016/08/11 11:09:54 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	31	*54VialPlate*	1
33	4613413~CUY302-01	Re-analysis, reported	2016/08/11 11:14:59 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	32	*54VialPlate*	1
34	CCV	-	2016/08/11 11:20:05 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	6	*54VialPlate*	1
35	4613413~CUT532-01	Re-injection, re-analysis, reported	2016/08/11 11:37:53 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	30	*54VialPlate*	1
36	4613413~CUT530-01	Re-injection, re-analysis, reported for all parameters except PFHxS	2016/08/11 11:42:58 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	29	*54VialPlate*	1
37	CCV	-	2016/08/11 11:48:03 AM	PFC_Water_Low.dam	PFC_160811\WS#4613413.wiff	2 Well Plates	1	6	*54VialPlate*	1

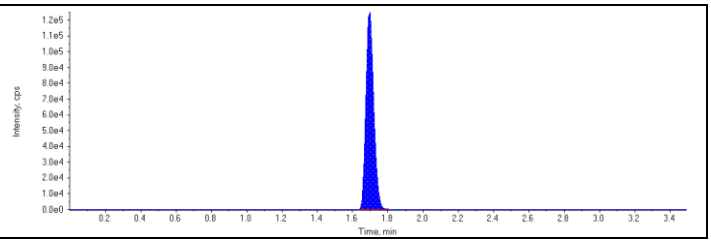
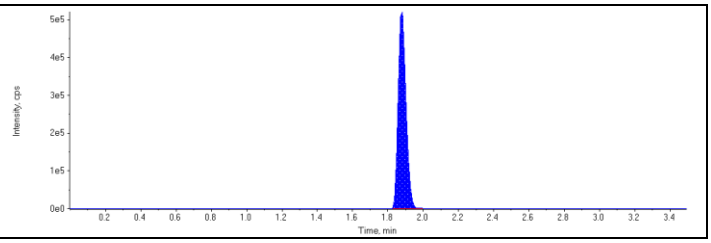
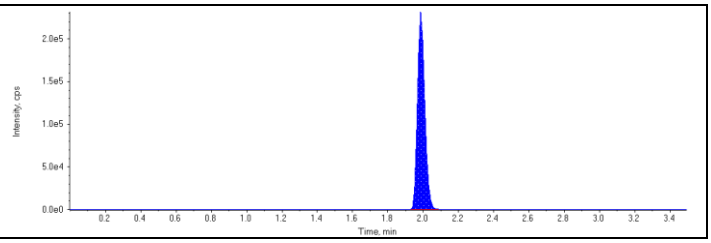
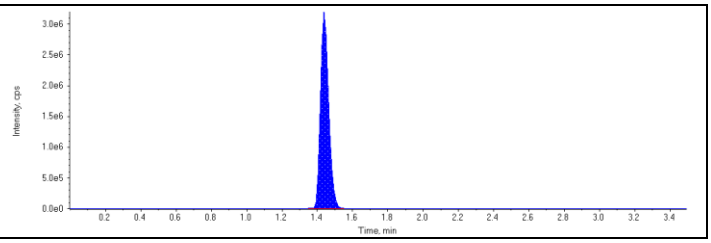
5. Initial Calibration

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Sample ID	STD 1	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	3
Acquisition Date	2016/08/10 7:39:37 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	386000.	1.70	1.00	-
MPFOA	1610000.	1.88	1.00	-
MPFOS	665000.	1.99	1.00	-
13C6-PFHxA IS	10400000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	147000	1.15	0.800	0.869	109.0
PFOA 1	190000	1.88	0.800	0.786	98.3
PFOS 1	77300	1.99	0.800	0.822	103.0
13C4-PFOA	1610000	1.88	100.	110.	110.0
13C4-PFOS	665000	1.99	100.	108.	108.0
13C6-PFHxA	10400000	1.44	100.	93.2	93.2

MPFHxS (Internal Standard) RT (Exp. RT): 1.70(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

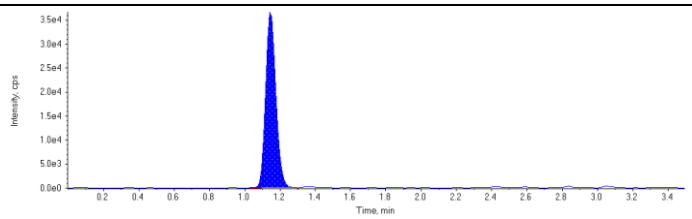
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.15 (1.15) min

Calculated Conc: 0.869 µg/L

Area Ratio: 0.380

Sample Type: (Standard)



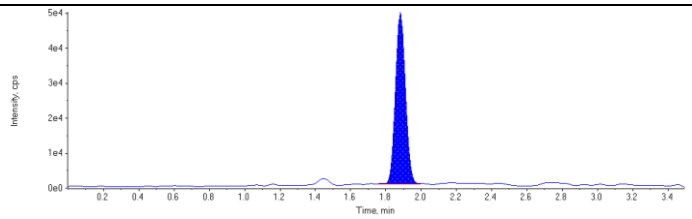
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 0.786 µg/L

Area Ratio: 0.118

Sample Type: (Standard)



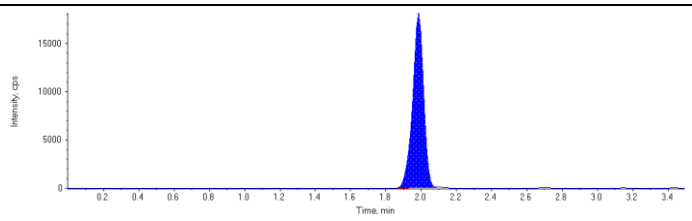
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 0.822 µg/L

Area Ratio: 0.116

Sample Type: (Standard)



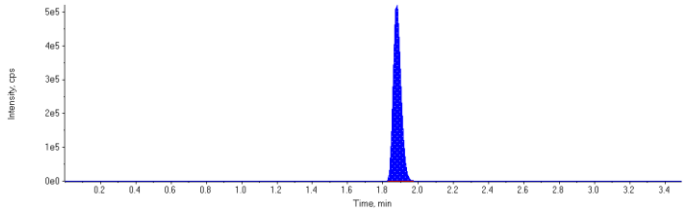
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 110. µg/L

Area Ratio: 0.156

Sample Type: (Standard)



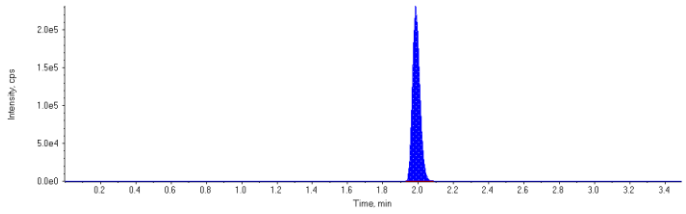
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 108. µg/L

Area Ratio: 0.0642

Sample Type: (Standard)



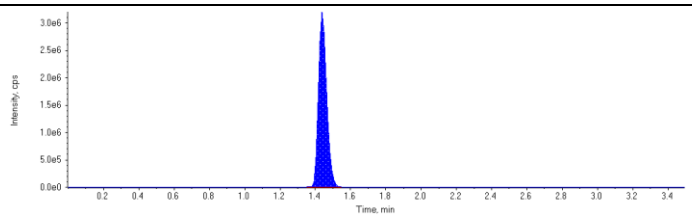
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 93.2 µg/L

Area Ratio: 0.00

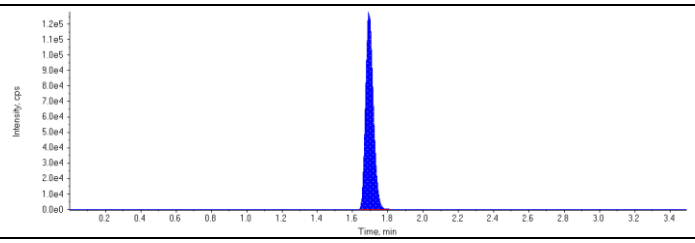
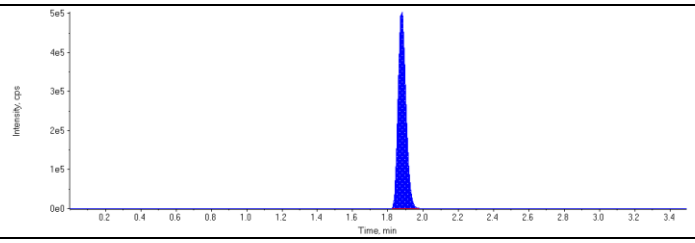
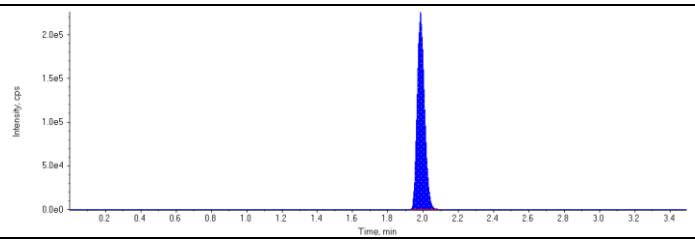
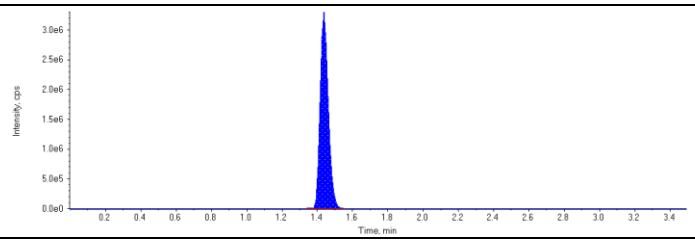
Sample Type: (Standard)



Sample ID	STD 2	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	4
Acquisition Date	2016/08/10 7:44:43 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	386000.	1.69	1.00	-
MPFOA	1570000.	1.88	1.00	-
MPFOS	646000.	1.99	1.00	-
13C6-PFHxA IS	10600000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	265000	1.14	1.50	1.53	102.0
PFOA 1	359000	1.88	1.50	1.55	103.0
PFOS 1	152000	1.98	1.50	1.56	104.0
13C4-PFOA	1570000	1.88	100.	104.	104.0
13C4-PFOS	646000	1.99	100.	103.	103.0
13C6-PFHxA	10600000	1.44	100.	95.5	95.5

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

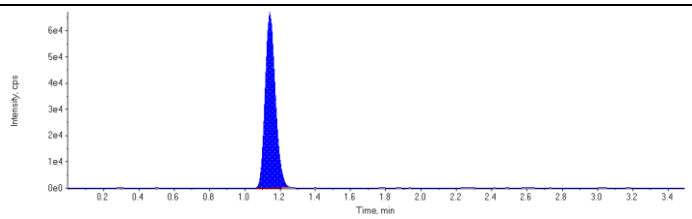
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.15) min

Calculated Conc: 1.53 µg/L

Area Ratio: 0.686

Sample Type: (Standard)



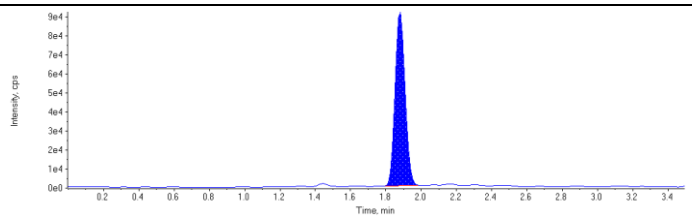
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 1.55 µg/L

Area Ratio: 0.229

Sample Type: (Standard)



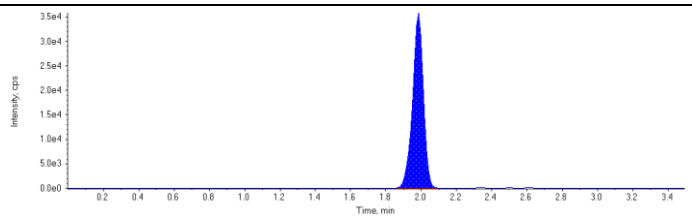
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 1.56 µg/L

Area Ratio: 0.235

Sample Type: (Standard)



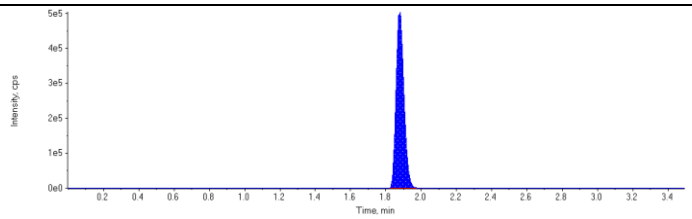
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 104. µg/L

Area Ratio: 0.148

Sample Type: (Standard)



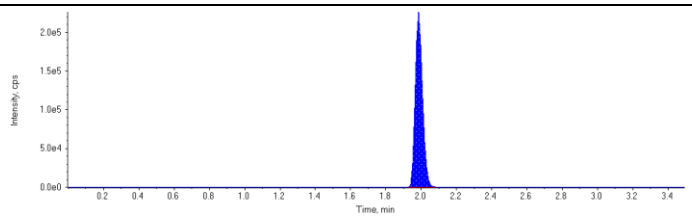
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 103. µg/L

Area Ratio: 0.0609

Sample Type: (Standard)



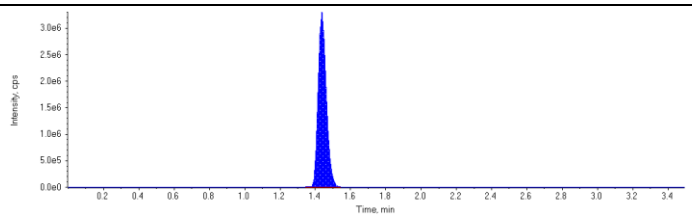
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 95.5 µg/L

Area Ratio: 0.00

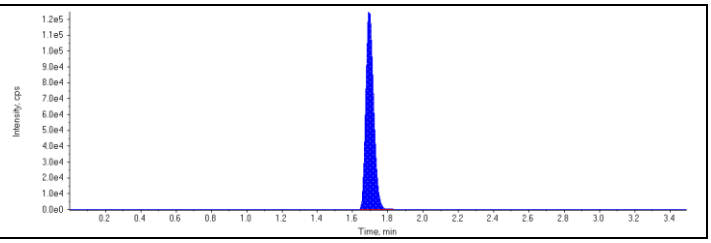
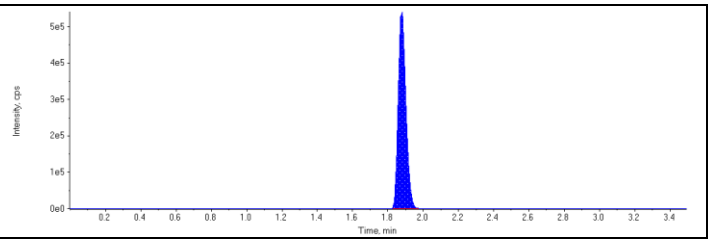
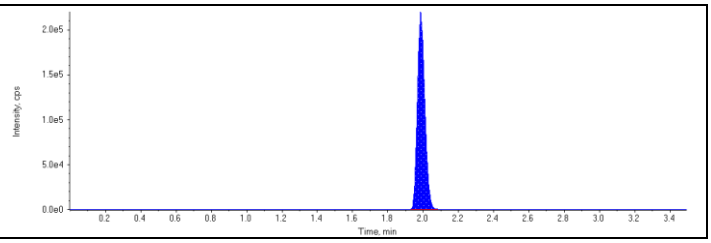
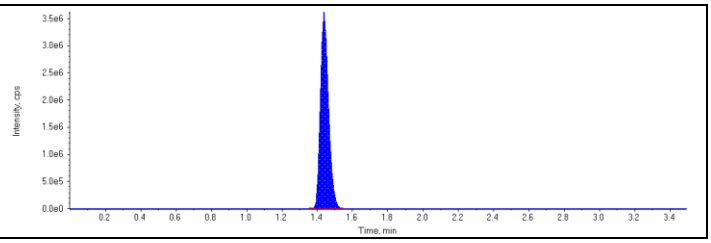
Sample Type: (Standard)

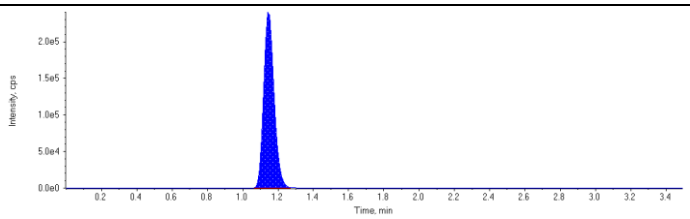
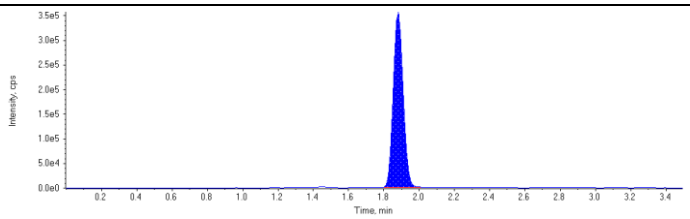
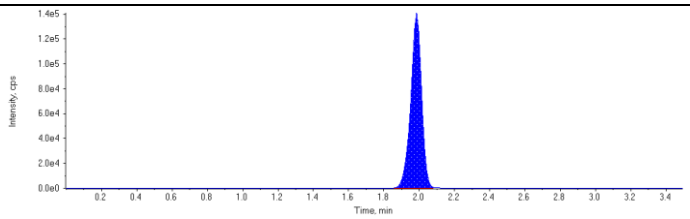
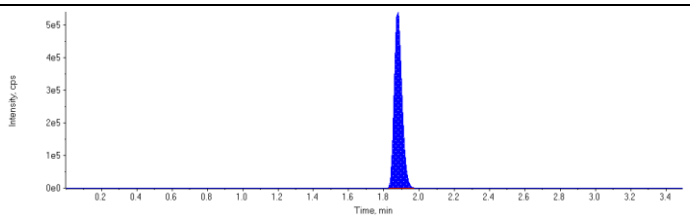
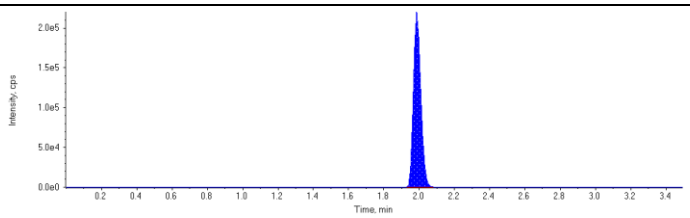
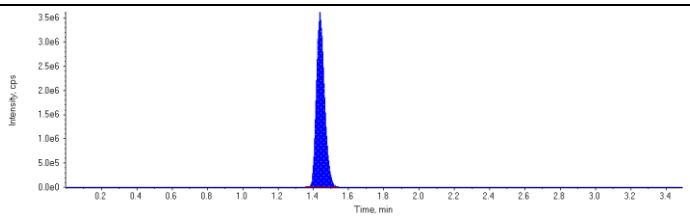


Sample ID	STD 3	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	5
Acquisition Date	2016/08/10 7:49:48 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	389000.	1.69	1.00	-
MPFOA	1640000.	1.88	1.00	-
MPFOS	638000.	1.99	1.00	-
13C6-PFHxA IS	11600000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	987000	1.15	6.00	5.55	92.5
PFOA 1	1380000	1.88	6.00	5.73	95.5
PFOS 1	597000	1.99	6.00	5.92	98.6
13C4-PFOA	1640000	1.88	100.	100.	100.0
13C4-PFOS	638000	1.99	100.	93.1	93.1
13C6-PFHxA	11600000	1.44	100.	104.	104.0

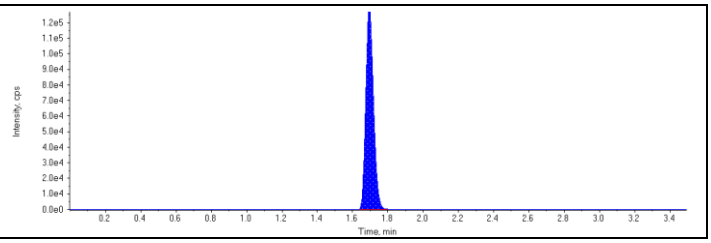
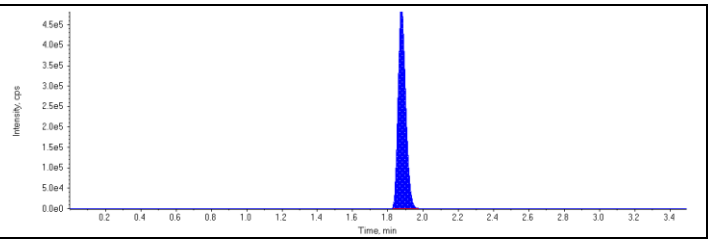
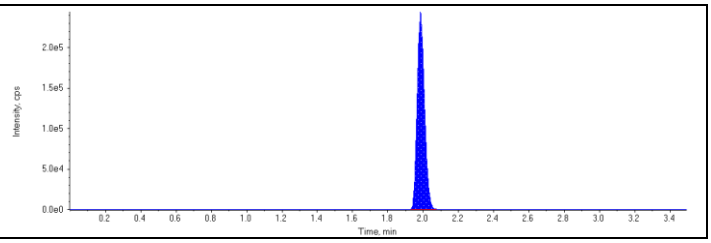
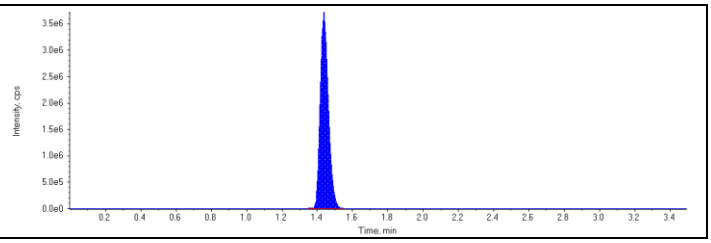
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.15 (1.15) min Calculated Conc: 5.55 µg/L Area Ratio: 2.54 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 5.73 µg/L Area Ratio: 0.838 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 5.92 µg/L Area Ratio: 0.935 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 100. µg/L Area Ratio: 0.142 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 93.1 µg/L Area Ratio: 0.0552 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.44 (1.45) min Calculated Conc: 104. µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 4	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	6
Acquisition Date	2016/08/10 7:54:53 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	392000.	1.69	1.00	-
MPFOA	1480000.	1.88	1.00	-
MPFOS	697000.	1.99	1.00	-
13C6-PFHxA IS	11900000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2620000	1.14	15.0	14.5	97.0
PFOA 1	3380000	1.88	15.0	15.6	104.0
PFOS 1	1510000	1.98	15.0	13.6	90.4
13C4-PFOA	1480000	1.88	100.	87.6	87.6
13C4-PFOS	697000	1.99	100.	98.5	98.5
13C6-PFHxA	11900000	1.44	100.	107.	107.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

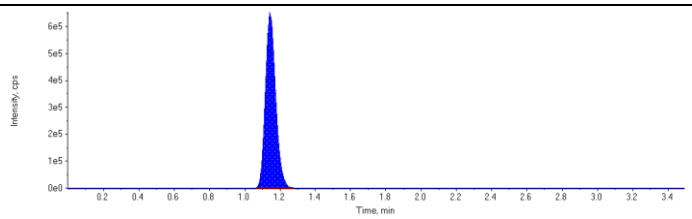
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.15) min

Calculated Conc: 14.5 µg/L

Area Ratio: 6.69

Sample Type: (Standard)



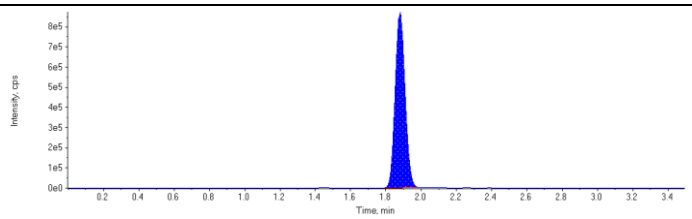
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 15.6 µg/L

Area Ratio: 2.28

Sample Type: (Standard)



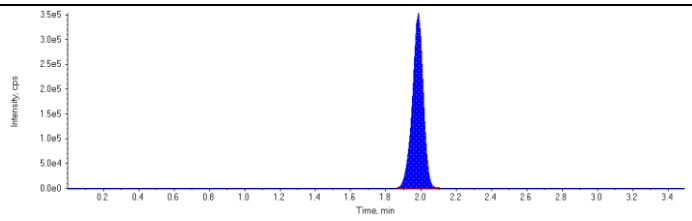
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 13.6 µg/L

Area Ratio: 2.16

Sample Type: (Standard)



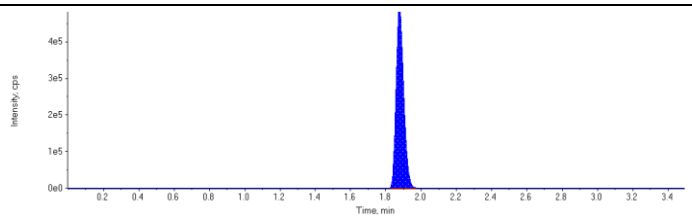
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 87.6 µg/L

Area Ratio: 0.124

Sample Type: (Standard)



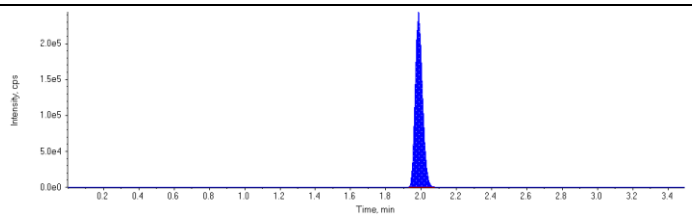
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 98.5 µg/L

Area Ratio: 0.0584

Sample Type: (Standard)



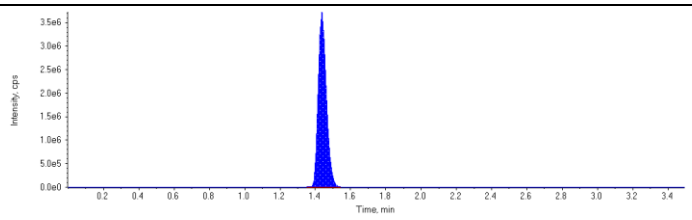
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 107. µg/L

Area Ratio: 0.00

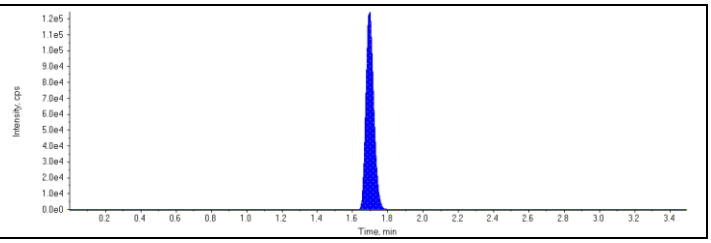
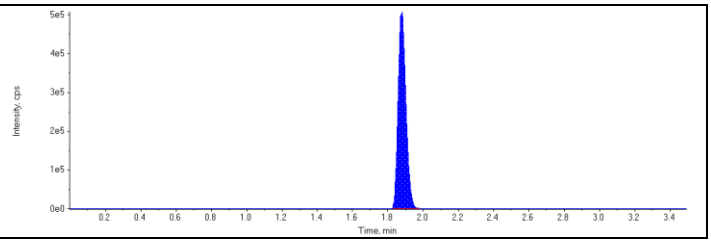
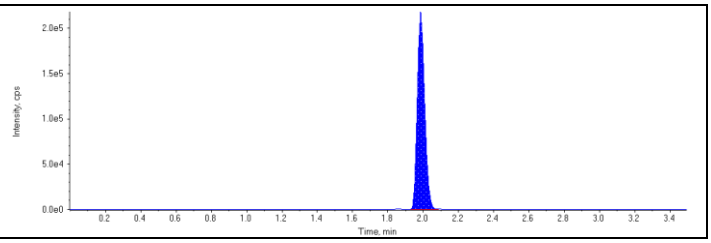
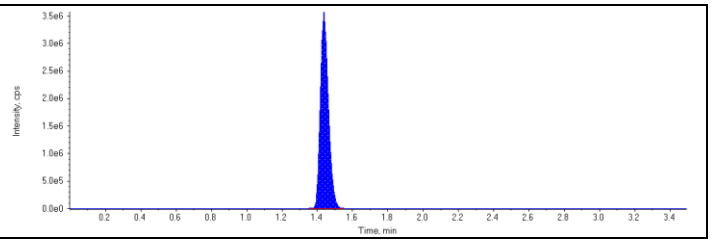
Sample Type: (Standard)

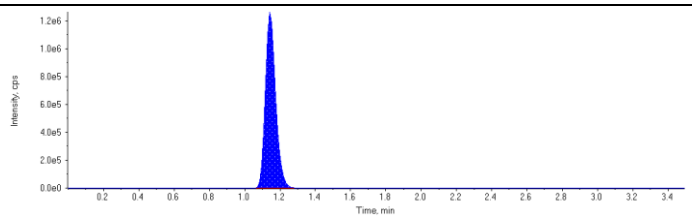
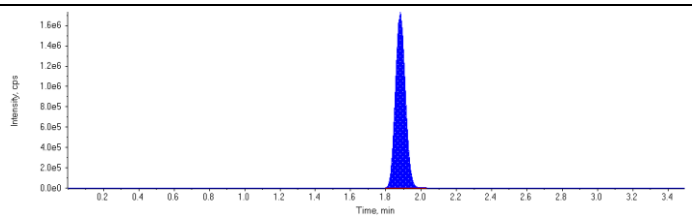
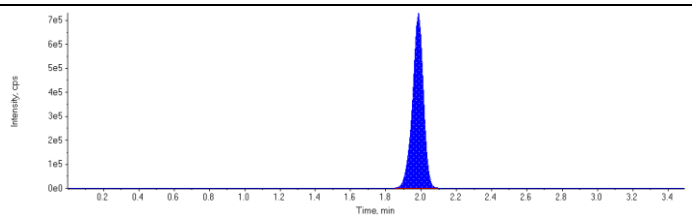
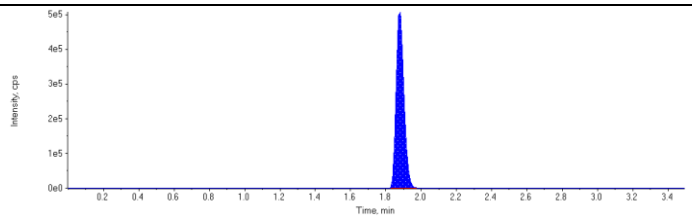
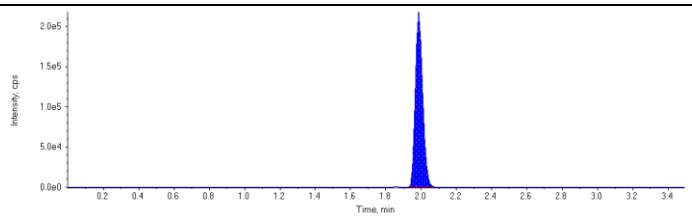
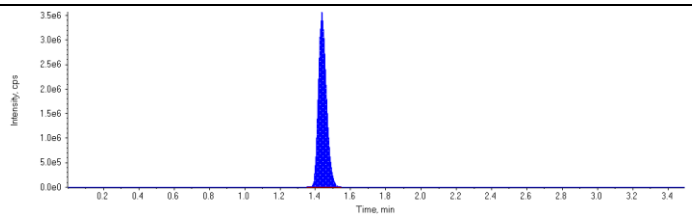


Sample ID	STD 5	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	7
Acquisition Date	2016/08/10 7:59:58 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	387000.	1.70	1.00	-
MPFOA	1570000.	1.88	1.00	-
MPFOS	629000.	1.99	1.00	-
13C6-PFHxA IS	11400000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	5090000	1.14	30.0	28.5	95.1
PFOA 1	6740000	1.88	30.0	29.6	98.5
PFOS 1	3100000	1.98	30.0	30.8	103.0
13C4-PFOA	1570000	1.88	100.	97.3	97.3
13C4-PFOS	629000	1.99	100.	93.4	93.4
13C6-PFHxA	11400000	1.44	100.	102.	102.0

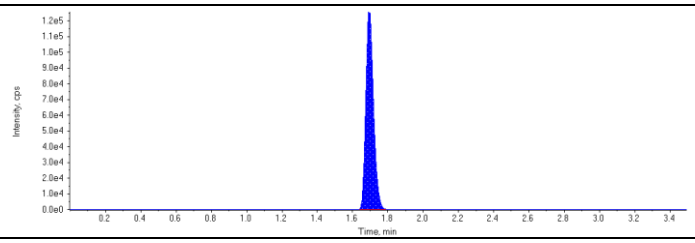
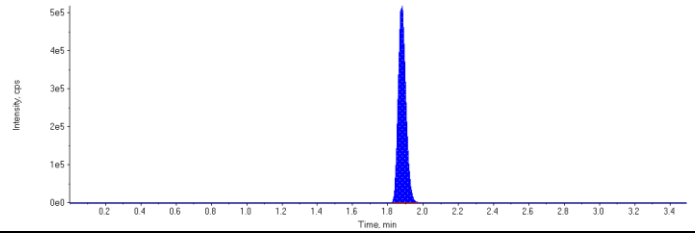
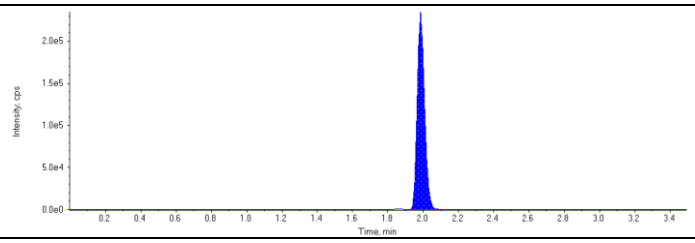
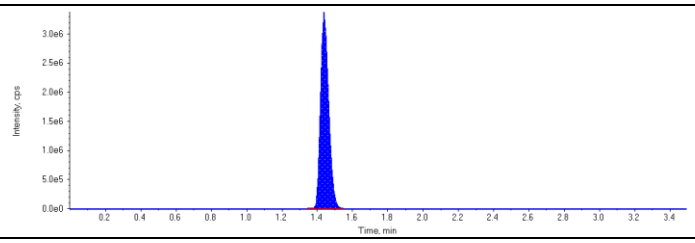
MPFHxS (Internal Standard) RT (Exp. RT): 1.70(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.14 (1.15) min Calculated Conc: 28.5 µg/L Area Ratio: 13.1 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 29.6 µg/L Area Ratio: 4.31 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 30.8 µg/L Area Ratio: 4.94 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 97.3 µg/L Area Ratio: 0.138 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 93.4 µg/L Area Ratio: 0.0554 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.44 (1.45) min Calculated Conc: 102. µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 6	**Injection Volume (µL)**	3
Sample Type	Standard	**Injection Vial**	8
Acquisition Date	2016/08/10 8:05:04 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	383000.	1.69	1.00	-
MPFOA	1550000.	1.88	1.00	-
MPFOS	671000.	1.99	1.00	-
13C6-PFHxA IS	10900000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	9240000	1.15	50.0	52.3	105.0
PFOA 1	11300000	1.88	50.0	50.0	100.0
PFOS 1	5450000	1.98	50.0	50.6	101.0
13C4-PFOA	1550000	1.88	100.	101.	101.0
13C4-PFOS	671000	1.99	100.	104.	104.0
13C6-PFHxA	10900000	1.44	100.	97.8	97.8

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

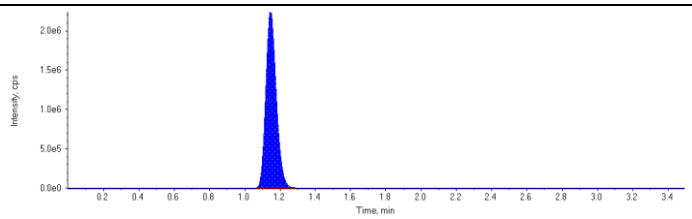
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.15 (1.15) min

Calculated Conc: 52.3 µg/L

Area Ratio: 24.1

Sample Type: (Standard)



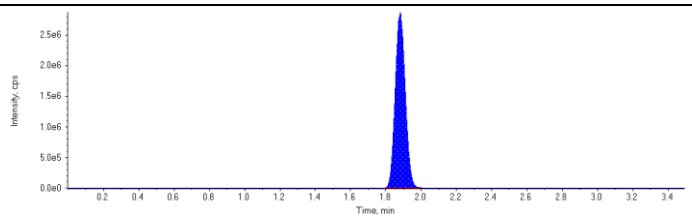
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 50.0 µg/L

Area Ratio: 7.28

Sample Type: (Standard)



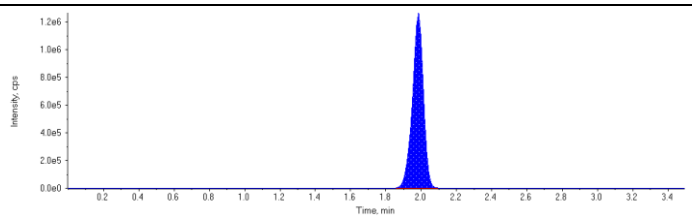
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 50.6 µg/L

Area Ratio: 8.12

Sample Type: (Standard)



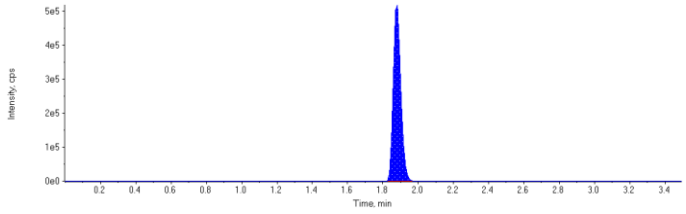
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 101. µg/L

Area Ratio: 0.143

Sample Type: (Standard)



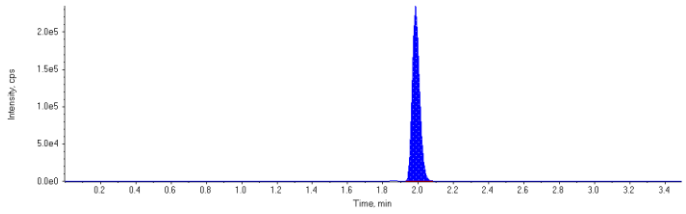
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 104. µg/L

Area Ratio: 0.0617

Sample Type: (Standard)



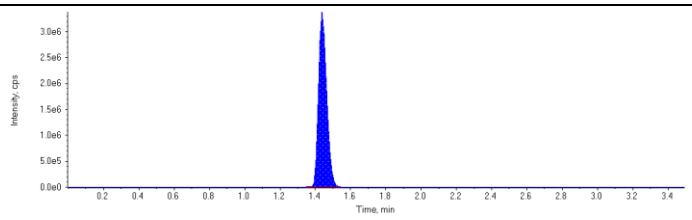
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 97.8 µg/L

Area Ratio: 0.00

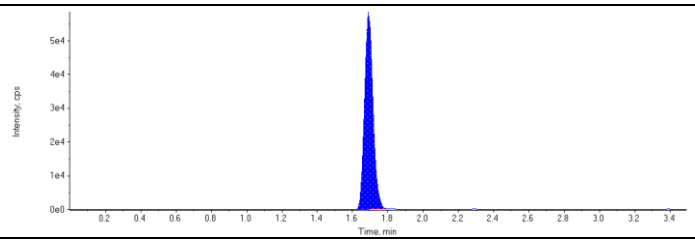
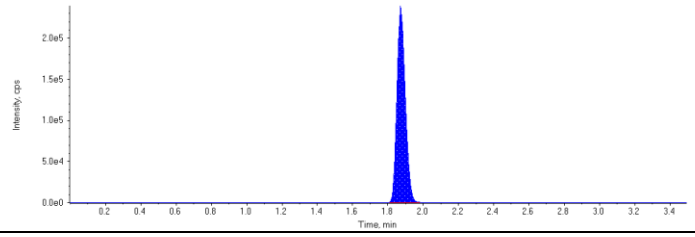
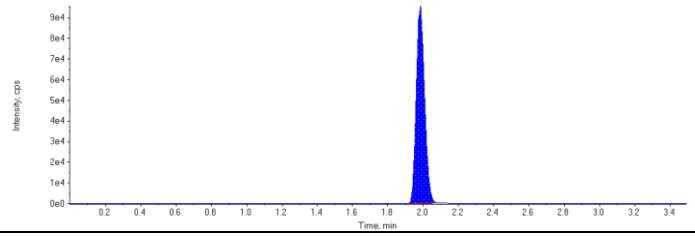
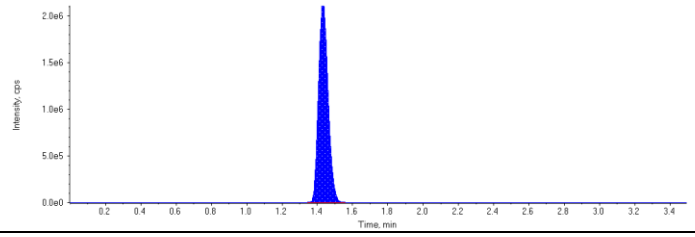
Sample Type: (Standard)

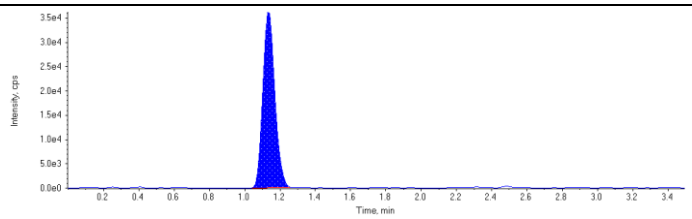
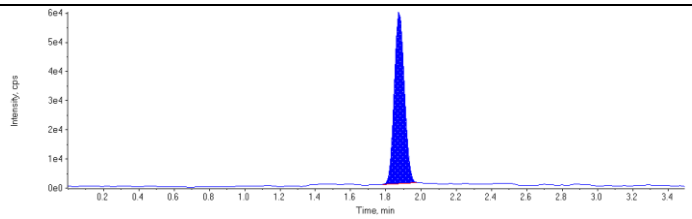
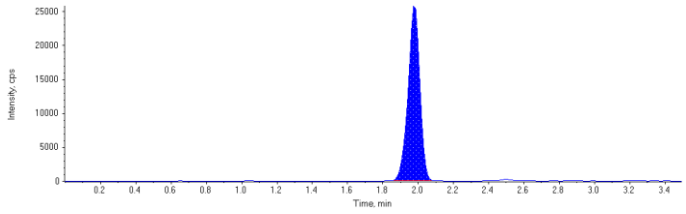
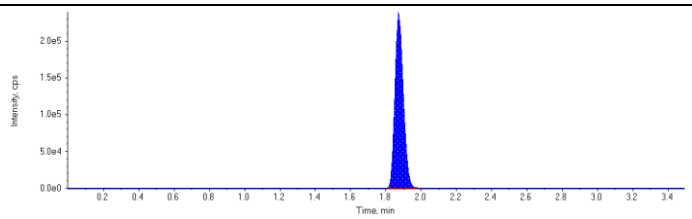
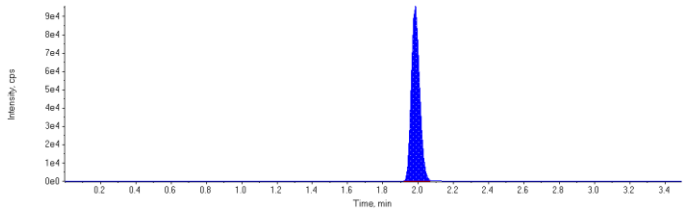
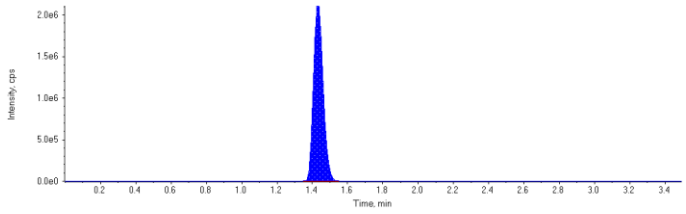


Sample ID	STD 1	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	3
Acquisition Date	2016/08/11 8:37:27 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	191000.	1.69	1.00	-
MPFOA	782000.	1.87	1.00	-
MPFOS	312000.	1.98	1.00	-
13C6-PFHxA IS	8180000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	171000	1.13	0.0200	0.0216	108.0
PFOA 1	234000	1.88	0.0200	0.0205	102.0
PFOS 1	119000	1.98	0.0200	0.0210	105.0
13C4-PFOA	782000	1.87	100.	110.	110.0
13C4-PFOS	312000	1.98	100.	100.	100.0
13C6-PFHxA	8180000	1.43	100.	97.4	97.4

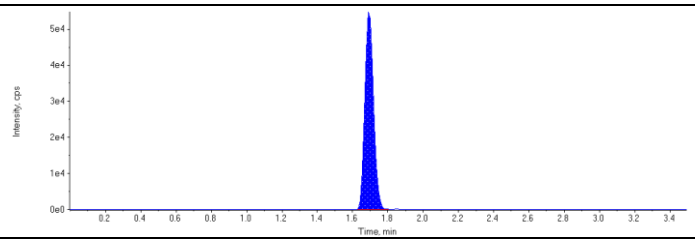
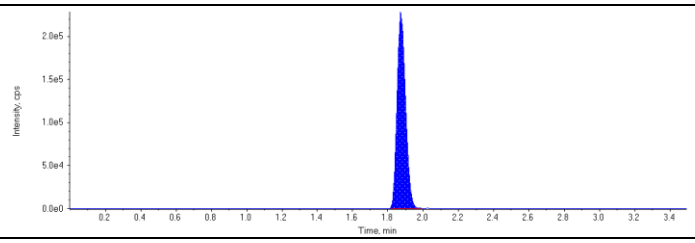
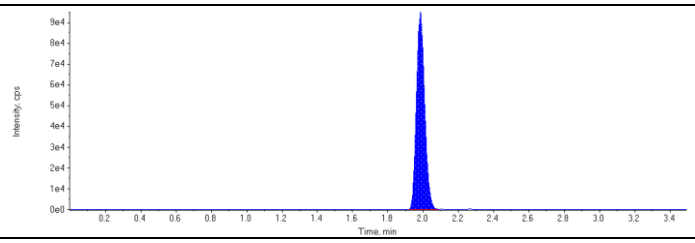
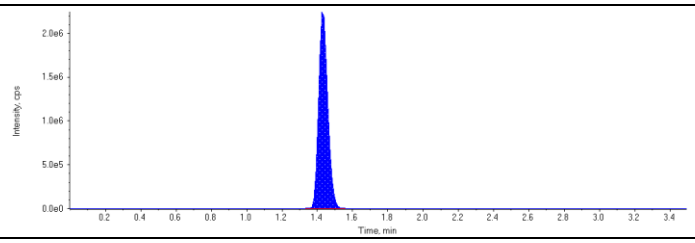
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

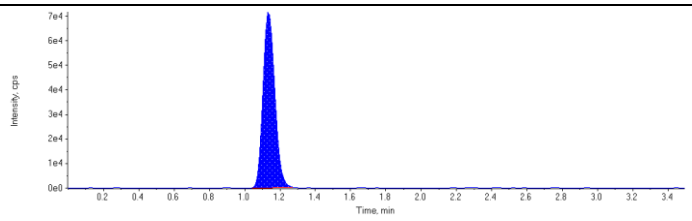
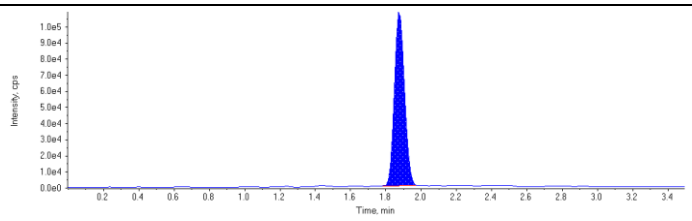
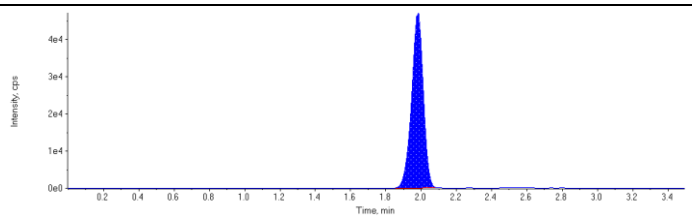
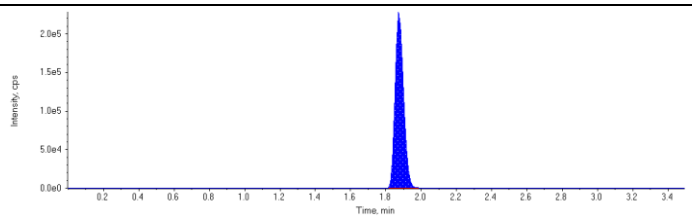
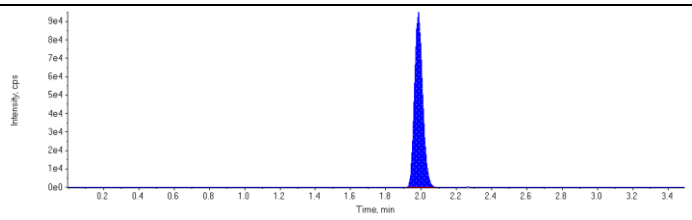
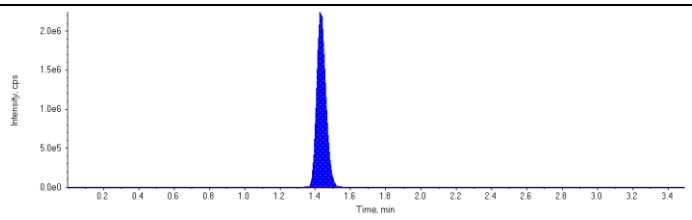
PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.13 (1.20) min Calculated Conc: 0.0216 µg/L Area Ratio: 0.897 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.0205 µg/L Area Ratio: 0.299 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.0210 µg/L Area Ratio: 0.383 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.87 (1.94) min Calculated Conc: 110. µg/L Area Ratio: 0.0955 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 100. µg/L Area Ratio: 0.0381 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 97.4 µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 2	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	4
Acquisition Date	2016/08/11 8:42:31 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	188000.	1.69	1.00	-
MPFOA	755000.	1.87	1.00	-
MPFOS	304000.	1.98	1.00	-
13C6-PFHxA IS	8130000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	335000	1.13	0.0400	0.0394	98.4
PFOA 1	428000	1.88	0.0400	0.0376	94.0
PFOS 1	217000	1.98	0.0400	0.0396	99.1
13C4-PFOA	755000	1.87	100.	106.	106.0
13C4-PFOS	304000	1.98	100.	98.7	98.7
13C6-PFHxA	8130000	1.43	100.	96.8	96.8

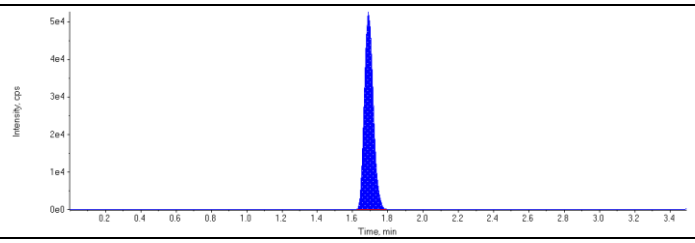
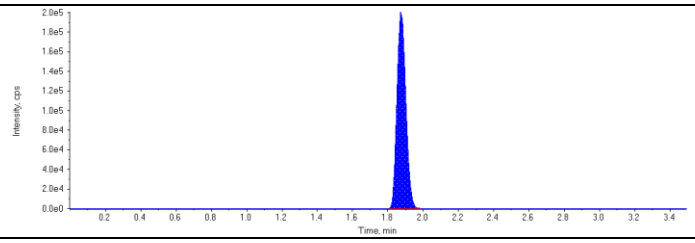
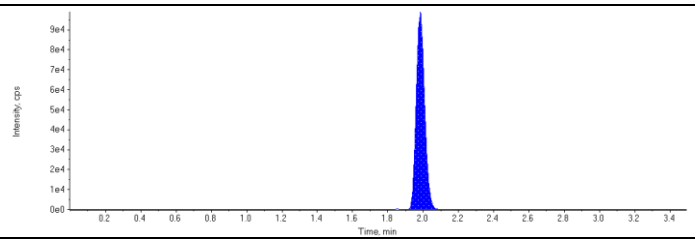
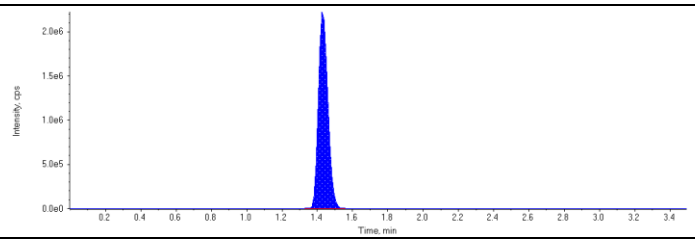
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

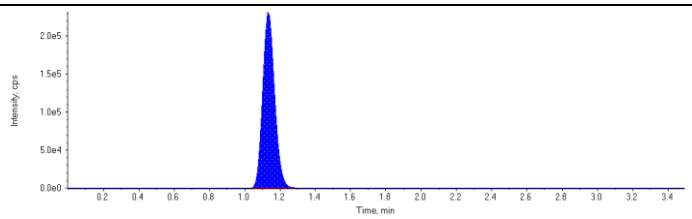
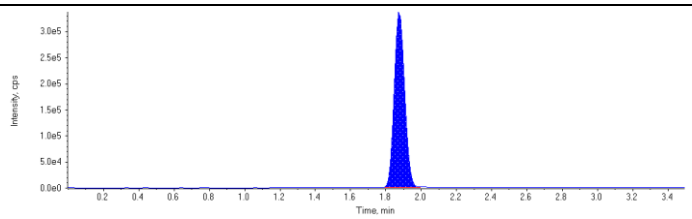
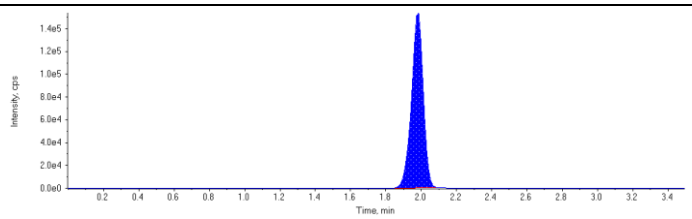
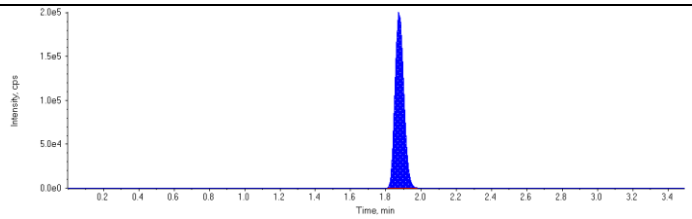
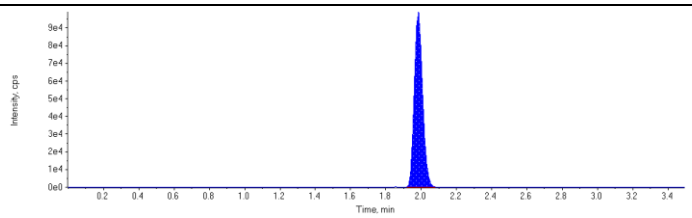
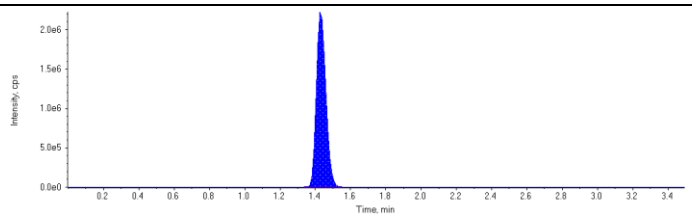
PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.13 (1.20) min Calculated Conc: 0.0394 µg/L Area Ratio: 1.79 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.0376 µg/L Area Ratio: 0.566 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.0396 µg/L Area Ratio: 0.712 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.87 (1.94) min Calculated Conc: 106. µg/L Area Ratio: 0.0929 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 98.7 µg/L Area Ratio: 0.0374 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 96.8 µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 3	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	5
Acquisition Date	2016/08/11 8:47:36 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	184000.	1.69	1.00	-
MPFOA	705000.	1.88	1.00	-
MPFOS	324000.	1.98	1.00	-
13C6-PFHxA IS	8330000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	1080000	1.13	0.120	0.122	101.0
PFOA 1	1380000	1.88	0.120	0.126	105.0
PFOS 1	709000	1.98	0.120	0.123	103.0
13C4-PFOA	705000	1.88	100.	97.0	97.0
13C4-PFOS	324000	1.98	100.	102.	102.0
13C6-PFHxA	8330000	1.43	100.	99.2	99.2

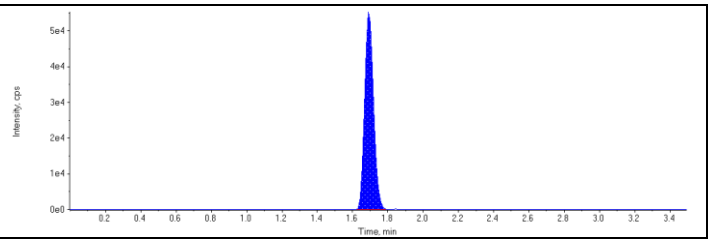
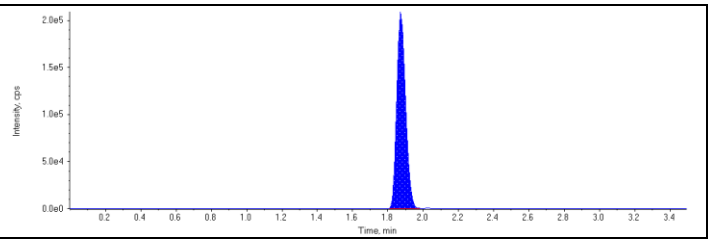
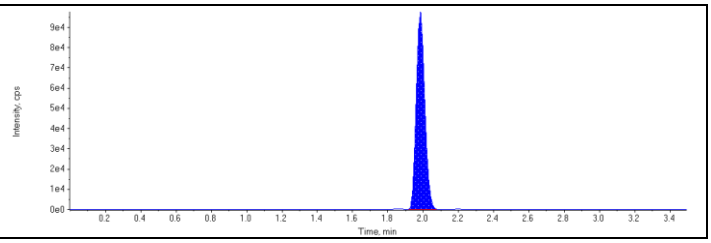
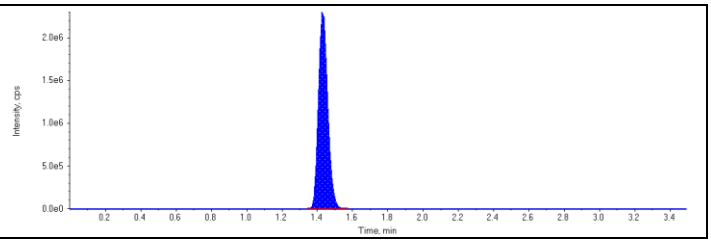
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

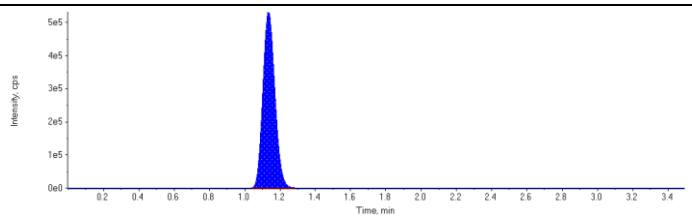
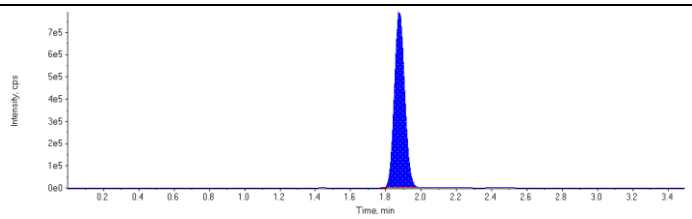
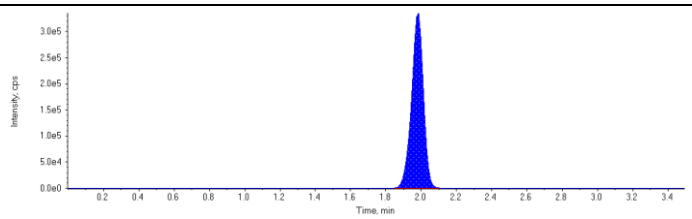
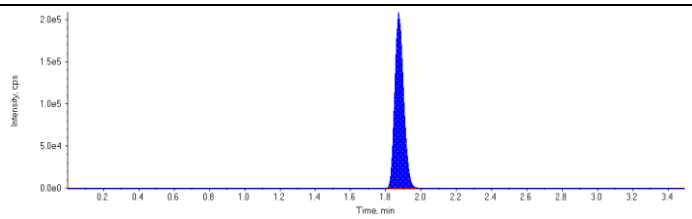
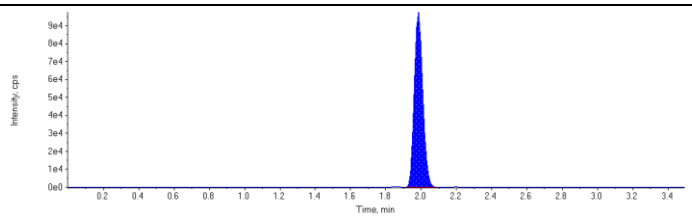
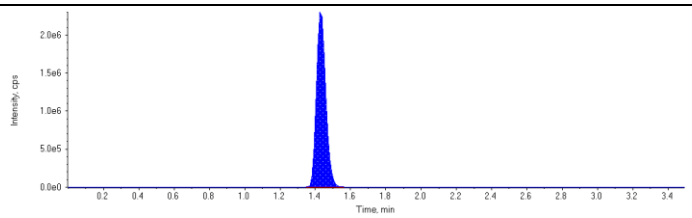
PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.13 (1.20) min Calculated Conc: 0.122 µg/L Area Ratio: 5.90 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.126 µg/L Area Ratio: 1.95 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.123 µg/L Area Ratio: 2.19 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 97.0 µg/L Area Ratio: 0.0846 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 102. µg/L Area Ratio: 0.0389 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 99.2 µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 4	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	6
Acquisition Date	2016/08/11 8:52:40 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	193000.	1.69	1.00	-
MPFOA	719000.	1.87	1.00	-
MPFOS	327000.	1.98	1.00	-
13C6-PFHxA IS	8520000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2530000	1.13	0.300	0.266	88.8
PFOA 1	3200000	1.88	0.300	0.286	95.5
PFOS 1	1570000	1.98	0.300	0.270	90.1
13C4-PFOA	719000	1.87	100.	96.8	96.8
13C4-PFOS	327000	1.98	100.	101.	101.0
13C6-PFHxA	8520000	1.43	100.	101.	101.0

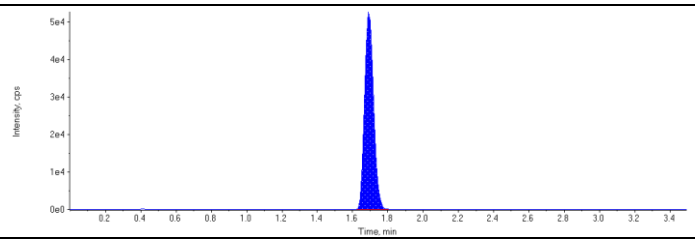
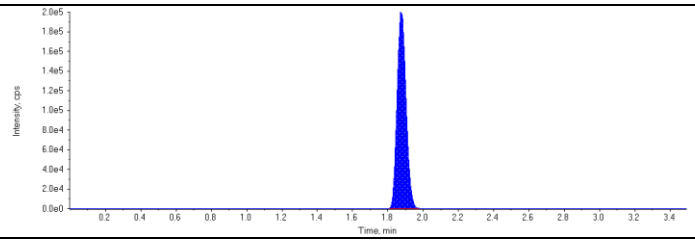
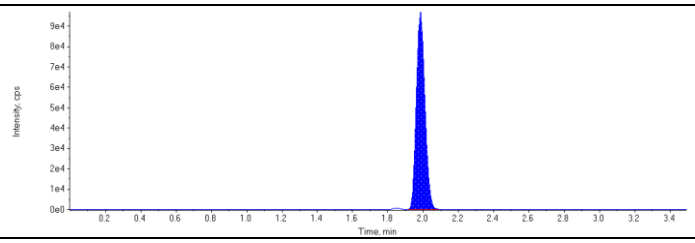
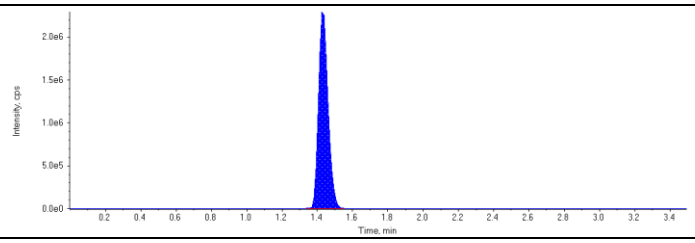
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.13 (1.20) min Calculated Conc: 0.266 µg/L Area Ratio: 13.1 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.286 µg/L Area Ratio: 4.45 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.270 µg/L Area Ratio: 4.79 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.87 (1.94) min Calculated Conc: 96.8 µg/L Area Ratio: 0.0844 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 101. µg/L Area Ratio: 0.0383 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 101. µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	STD 5	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	7
Acquisition Date	2016/08/11 8:57:45 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	186000.	1.69	1.00	-
MPFOA	710000.	1.88	1.00	-
MPFOS	327000.	1.98	1.00	-
13C6-PFHxA IS	8650000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	5580000	1.14	0.600	0.605	101.0
PFOA 1	6970000	1.88	0.600	0.630	105.0
PFOS 1	3520000	1.98	0.600	0.609	101.0
13C4-PFOA	710000	1.88	100.	94.2	94.2
13C4-PFOS	327000	1.98	100.	99.6	99.6
13C6-PFHxA	8650000	1.43	100.	103.	103.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

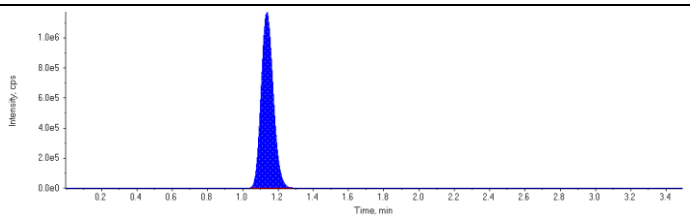
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.20) min

Calculated Conc: 0.605 µg/L

Area Ratio: 30.0

Sample Type: (Standard)



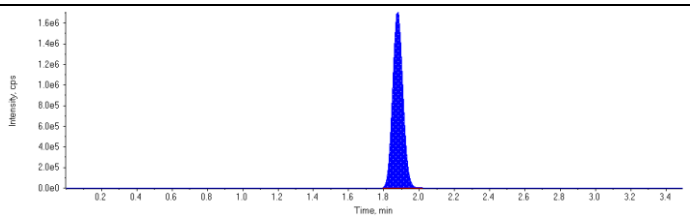
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.630 µg/L

Area Ratio: 9.81

Sample Type: (Standard)



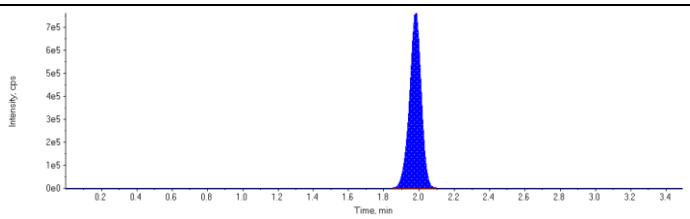
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.609 µg/L

Area Ratio: 10.8

Sample Type: (Standard)



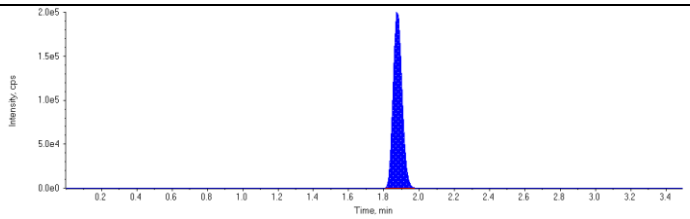
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 94.2 µg/L

Area Ratio: 0.0821

Sample Type: (Standard)



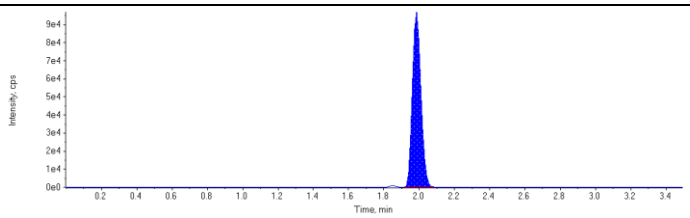
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 99.6 µg/L

Area Ratio: 0.0378

Sample Type: (Standard)



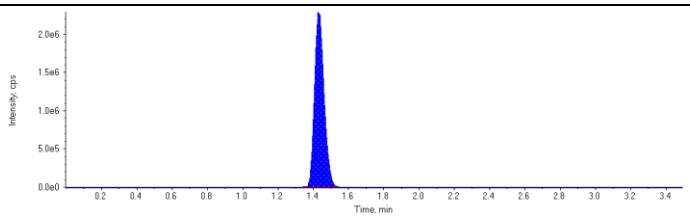
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 103. µg/L

Area Ratio: 0.00

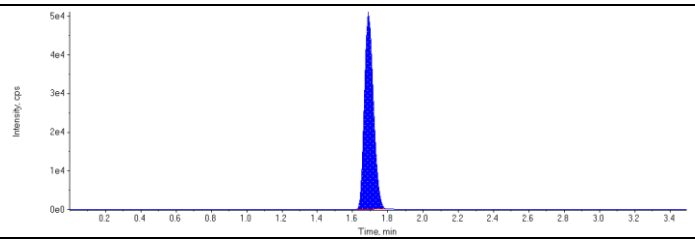
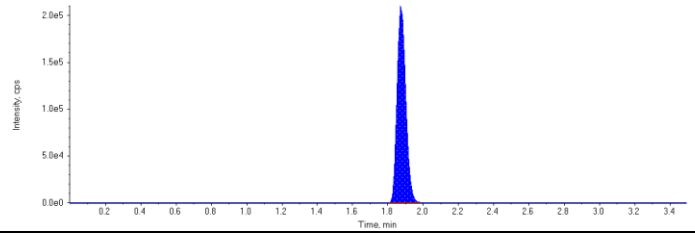
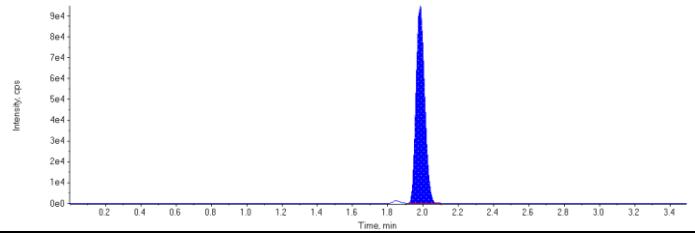
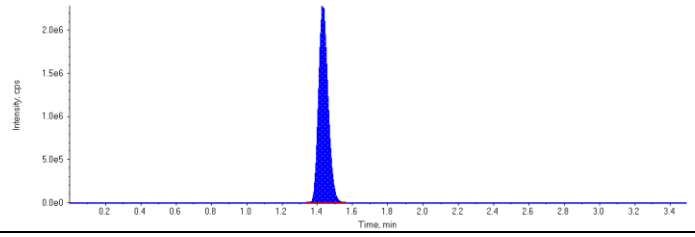
Sample Type: (Standard)

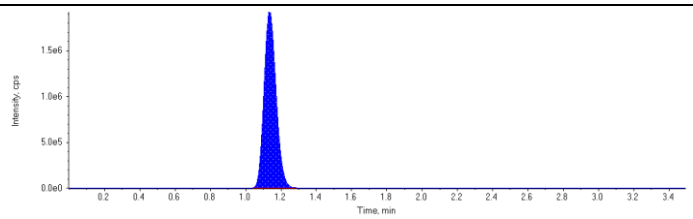
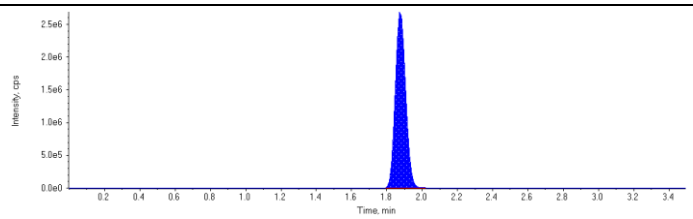
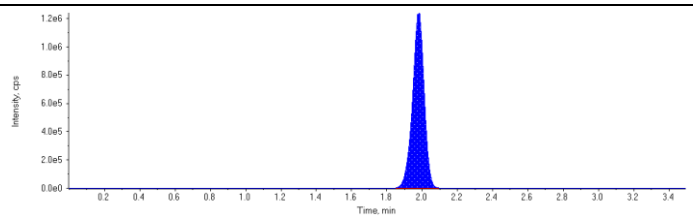
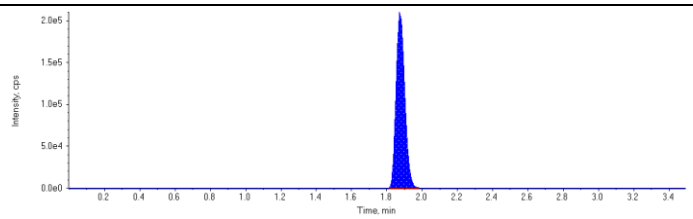
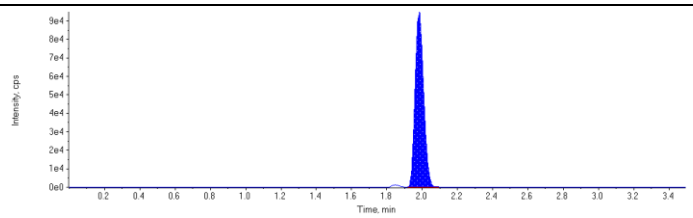
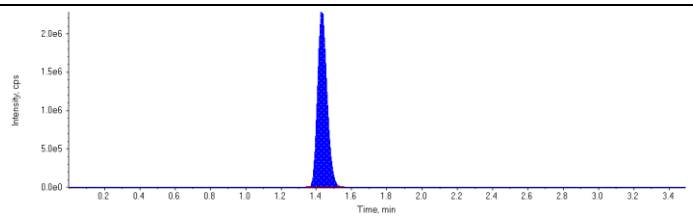


Sample ID	STD 6	**Injection Volume (µL)**	2
Sample Type	Standard	**Injection Vial**	8
Acquisition Date	2016/08/11 9:02:49 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	180000.	1.69	1.00	-
MPFOA	718000.	1.87	1.00	-
MPFOS	318000.	1.98	1.00	-
13C6-PFHxA IS	8570000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	9200000	1.14	1.00	1.03	103.0
PFOA 1	11000000	1.88	1.00	0.980	98.0
PFOS 1	5720000	1.98	1.00	1.02	102.0
13C4-PFOA	718000	1.87	100.	96.1	96.1
13C4-PFOS	318000	1.98	100.	97.8	97.8
13C6-PFHxA	8570000	1.43	100.	102.	102.0

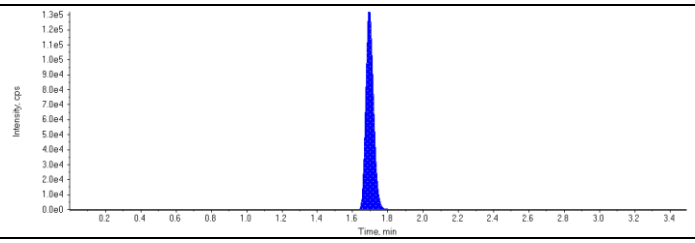
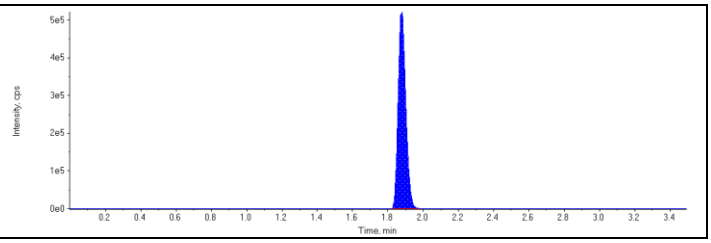
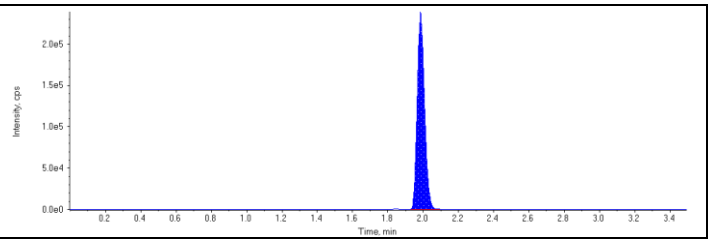
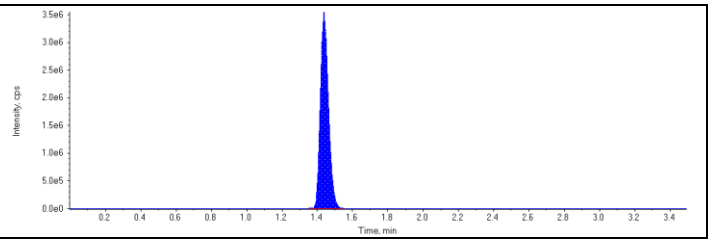
MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Standard)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Standard)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Standard)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.14 (1.20) min Calculated Conc: 1.03 µg/L Area Ratio: 51.1 Sample Type: (Standard)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.980 µg/L Area Ratio: 15.3 Sample Type: (Standard)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 1.02 µg/L Area Ratio: 18.0 Sample Type: (Standard)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.87 (1.94) min Calculated Conc: 96.1 µg/L Area Ratio: 0.0838 Sample Type: (Standard)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 97.8 µg/L Area Ratio: 0.0371 Sample Type: (Standard)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 102. µg/L Area Ratio: 0.00 Sample Type: (Standard)	

Sample ID	ICV	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	9
Acquisition Date	2016/08/10 8:10:11 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	410000.	1.69	1.00	-
MPFOA	1570000.	1.88	1.00	-
MPFOS	680000.	1.99	1.00	-
13C6-PFHxA IS	11300000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4840000	1.14	28.0	25.6	91.5
PFOA 1	6090000	1.88	28.0	26.6	95.0
PFOS 1	2940000	1.98	28.0	27.0	96.3
13C4-PFOA	1570000	1.88	100.	97.9	97.9
13C4-PFOS	680000	1.99	100.	101.	101.0
13C6-PFHxA	11300000	1.44	100.	102.	102.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

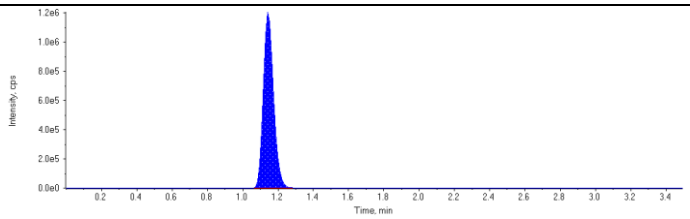
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.15) min

Calculated Conc: 25.6 µg/L

Area Ratio: 11.8

Sample Type: (Quality Control)



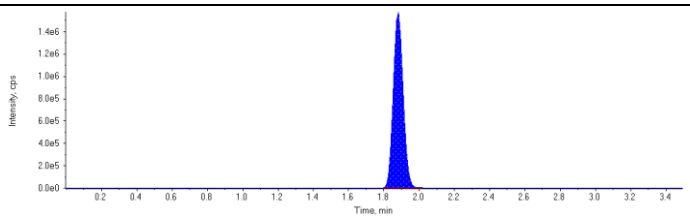
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 26.6 µg/L

Area Ratio: 3.88

Sample Type: (Quality Control)



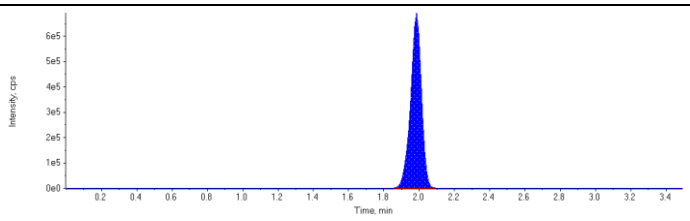
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 27.0 µg/L

Area Ratio: 4.32

Sample Type: (Quality Control)



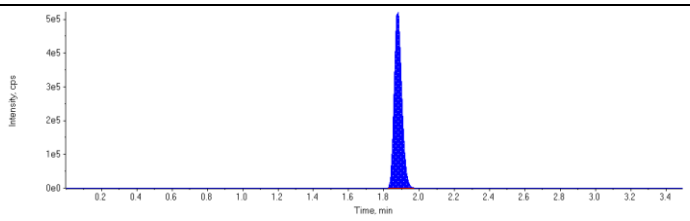
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 97.9 µg/L

Area Ratio: 0.139

Sample Type: (Quality Control)



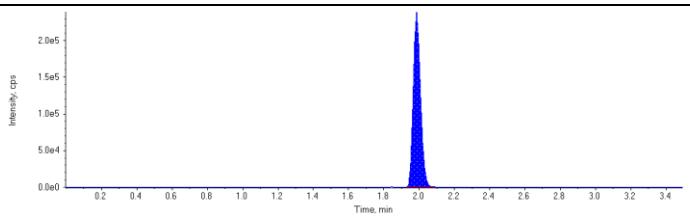
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 101. µg/L

Area Ratio: 0.0600

Sample Type: (Quality Control)



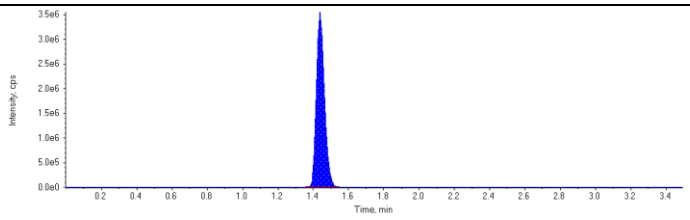
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 102. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



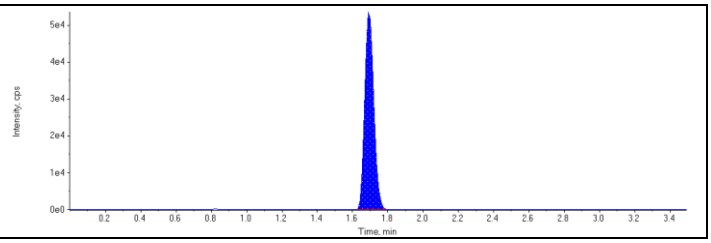
Sample ID	ICV	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	9
Acquisition Date	2016/08/11 9:07:54 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	190000.	1.69	1.00	-
MPFOA	723000.	1.88	1.00	-
MPFOS	308000.	1.98	1.00	-
13C6-PFHxA IS	8910000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	4430000	1.14	0.500	0.470	94.0
PFOA 1	5490000	1.88	0.500	0.488	97.6
PFOS 1	2780000	1.98	0.500	0.510	102.0
13C4-PFOA	723000	1.88	100.	93.1	93.1
13C4-PFOS	308000	1.98	100.	91.0	91.0
13C6-PFHxA	8910000	1.43	100.	106.	106.0

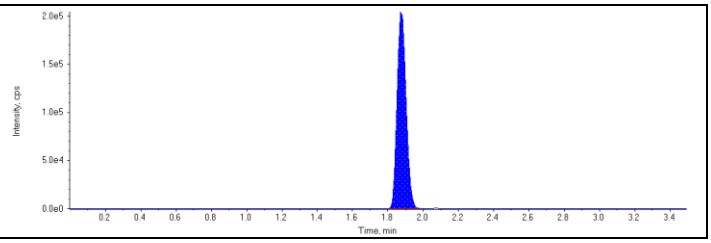
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.73) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



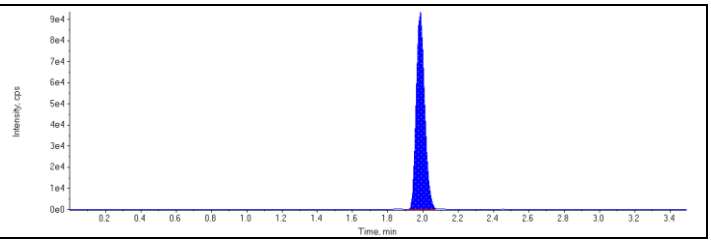
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.92) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



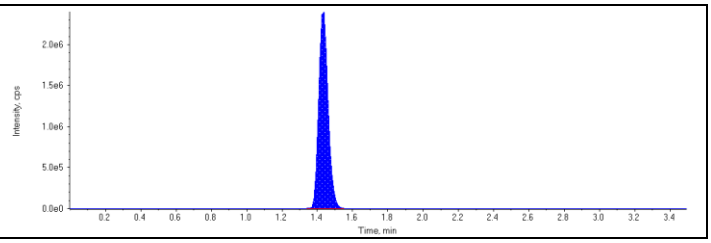
MPFOS (Internal Standard)

RT (Exp. RT): 1.98(2.02) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

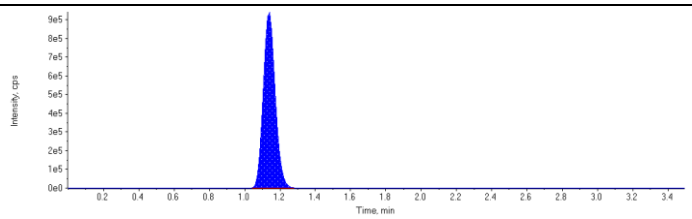
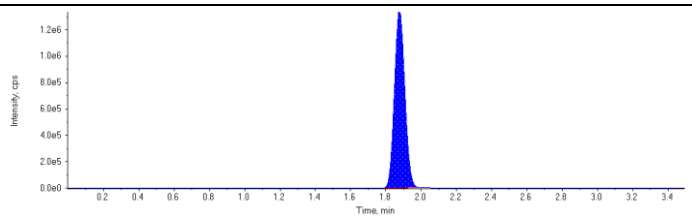
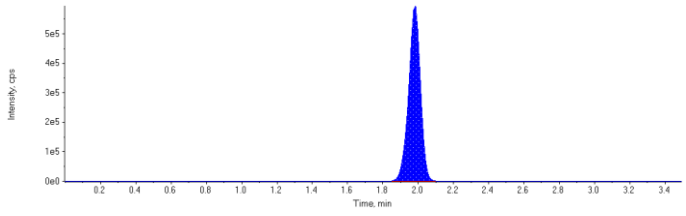
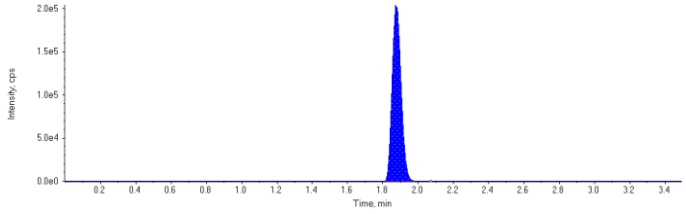
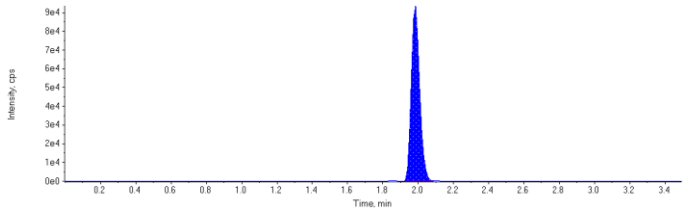
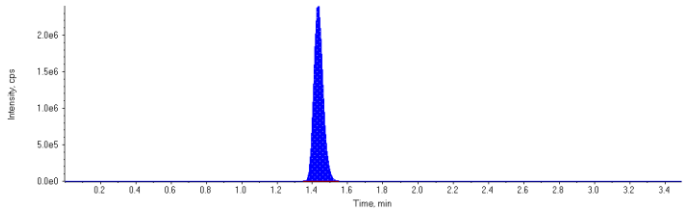
RT (Exp. RT): 1.43(1.43) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.14 (1.20) min Calculated Conc: 0.470 µg/L Area Ratio: 23.3 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.88) min Calculated Conc: 0.488 µg/L Area Ratio: 7.60 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.510 µg/L Area Ratio: 9.03 Sample Type: (Quality Control)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 93.1 µg/L Area Ratio: 0.0812 Sample Type: (Quality Control)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 91.0 µg/L Area Ratio: 0.0345 Sample Type: (Quality Control)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 106. µg/L Area Ratio: 0.00 Sample Type: (Quality Control)	

Perfluorinated Compound Internal Standard (IS) Evaluation

Sample Name	Analyte	PFBS		PFOA		PFOS	
	Mass labeled IS	MPFHxS		MPFOA		MPFOS	
	Average IS Area in ICAL	387167		1570000		657667	
		IS Peak Area	IS %R (ICAL)	IS Peak Area	IS %R (ICAL)	IS Peak Area	IS %R (ICAL)
4612909~BLANK		372000	96	1570000	100	626000	95
STD 1		386000	100	1610000	103	665000	101
STD 2		386000	100	1570000	100	646000	98
STD 3		389000	100	1640000	104	638000	97
STD 4		392000	101	1480000	94	697000	106
STD 5		387000	100	1570000	100	629000	96
STD 6		383000	99	1550000	99	671000	102
ICV		410000	106	1570000	100	680000	103
CCV		408000	105	1660000	106	692000	105
4612909~MTRX SPK (CVV953)		429000	111	1650000	105	695000	106
4612909~MTRX SPK:D1 (CVV953)		422000	109	1670000	106	700000	106
4612909~SPIKE		407000	105	1610000	103	697000	106
4612909~CVT909-01		413000	107	1680000	107	706000	107
4612909~CVT910-01		416000	107	1710000	109	692000	105
4612909~CVV953-01		416000	107	1650000	105	636000	97
4612909~CVV954-01		408000	105	1680000	107	670000	102
4612909~CVV955-01		399000	103	1520000	97	636000	97
4612909~CVV956-01		410000	106	1680000	107	651000	99
4612909~CVV957-01		403000	104	1710000	109	669000	102
4612909~CVV958-01		415000	107	1620000	103	650000	99
4612909~CVV959-01		407000	105	1650000	105	663000	101
4612909~CVV960-01		400000	103	1630000	104	660000	100
CCV		386000	100	1620000	103	680000	103
4612909~CVV961-01		416000	107	1770000	113	661000	101
4612909~CVV962-01		433000	112	1650000	105	669000	102
4612909~CVV964-01		422000	109	1710000	109	672000	102
4612909~CVV965-01		448000	116	1670000	106	688000	105
CCV		442000	114	1720000	110	708000	108

Perfluorinated Compound Internal Standard (IS) Evaluation

Sample Name	Analyte	PFBS		PFOA		PFOS	
	Mass labeled IS	MPFHxS		MPFOA		MPFOS	
	Average IS Area in ICAL	187000		731500		318667	
		IS Peak Area	IS %R (ICAL)	IS Peak Area	IS %R (ICAL)	IS Peak Area	IS %R (ICAL)
4613413~BLANK		189000	101	773000	106	329000	103
STD 1		191000	102	782000	107	312000	98
STD 2		188000	101	755000	103	304000	95
STD 3		184000	98	705000	96	324000	102
STD 4		193000	103	719000	98	327000	103
STD 5		186000	99	710000	97	327000	103
STD 6		180000	96	718000	98	318000	100
ICV		190000	102	723000	99	308000	97
CCV		189000	101	747000	102	320000	100
4613413~MTRX SPK (CUT533)		181000	97	759000	104	301000	94
4613413~MTRX SPK:D1 (CUT533)		186000	99	706000	97	293000	92
4613413~SPIKE		198000	106	755000	103	324000	102
4613413~CVT909-01		184000	98	791000	108	307000	96
4613413~CVT910-01		187000	100	728000	100	302000	95
4613413~CVV953-01		177000	95	772000	106	320000	100
4613413~CVV954-01		180000	96	724000	99	305000	96
4613413~CVV955-01		181000	97	718000	98	310000	97
4613413~CVV956-01		190000	102	749000	102	308000	97
4613413~CVV957-01		174000	93	757000	103	291000	91
4613413~CVV958-01		187000	100	767000	105	323000	101
4613413~CVV959-01		182000	97	738000	101	310000	97
4613413~CVV960-01		181000	97	750000	103	293000	92
CCV		188000	101	746000	102	309000	97
4613413~CVV961-01		185000	99	751000	103	310000	97
4613413~CVV962-01		183000	98	747000	102	308000	97
4613413~CVV964-01		181000	97	785000	107	311000	98
4613413~CVV965-01		197000	105	739000	101	301000	94
4613413~CUT528-01 (5x)		189000	101	792000	108	331000	104
4613413~CUT529-01		187000	100	755000	103	298000	94
4613413~CUT530-01		181000	97	750000	103	289000	91
4613413~CUT532-01		189000	101	750000	103	306000	96
4613413~CUT533-01 (5x)		204000	109	763000	104	336000	105
4613413~CUY302-01		183000	98	760000	104	305000	96
CCV		200000	107	741000	101	322000	101
4613413~CUT532-01		194000	104	748000	102	319000	100
4613413~CUT530-01		175000	94	763000	104	284000	89
CCV		184000	98	753000	103	313000	98

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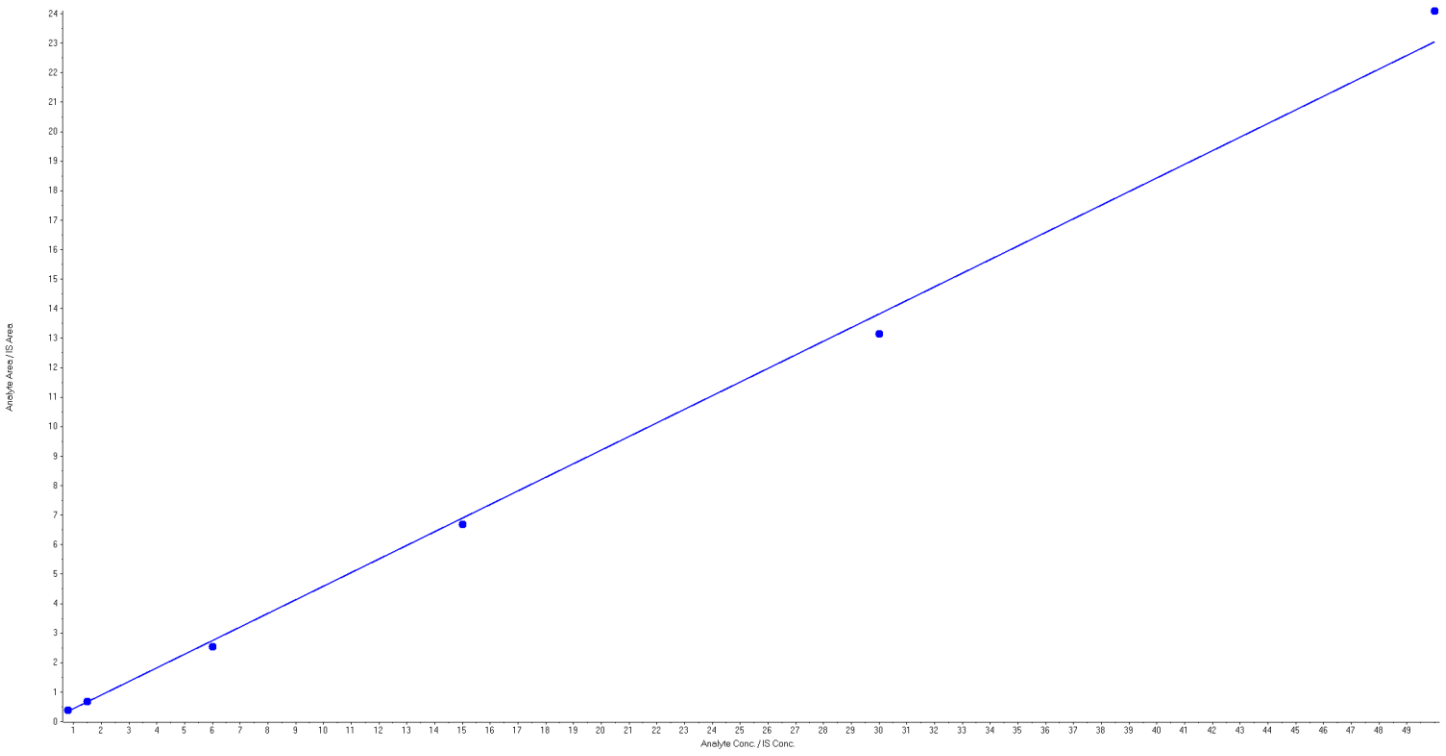
Printed: 12/08/2016 11:59:19 AM

Analyte Name: PFBS 1
Internal Standard: MPFHxS

Data File	PFC_160810\WS#4612909.wiff	**Result Table**	PFC_Water_160810_4612909_High_OTIE.rdb
Acquisition Date	2016/08/10 7:34:32 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.461 x + -0.0211 (r = 0.9987)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.8	1	0.87	108.7
1.5	1	1.53	102.2
6	1	5.55	92.5
15	1	14.54	97.0
30	1	28.54	95.1
50	1	52.26	104.5

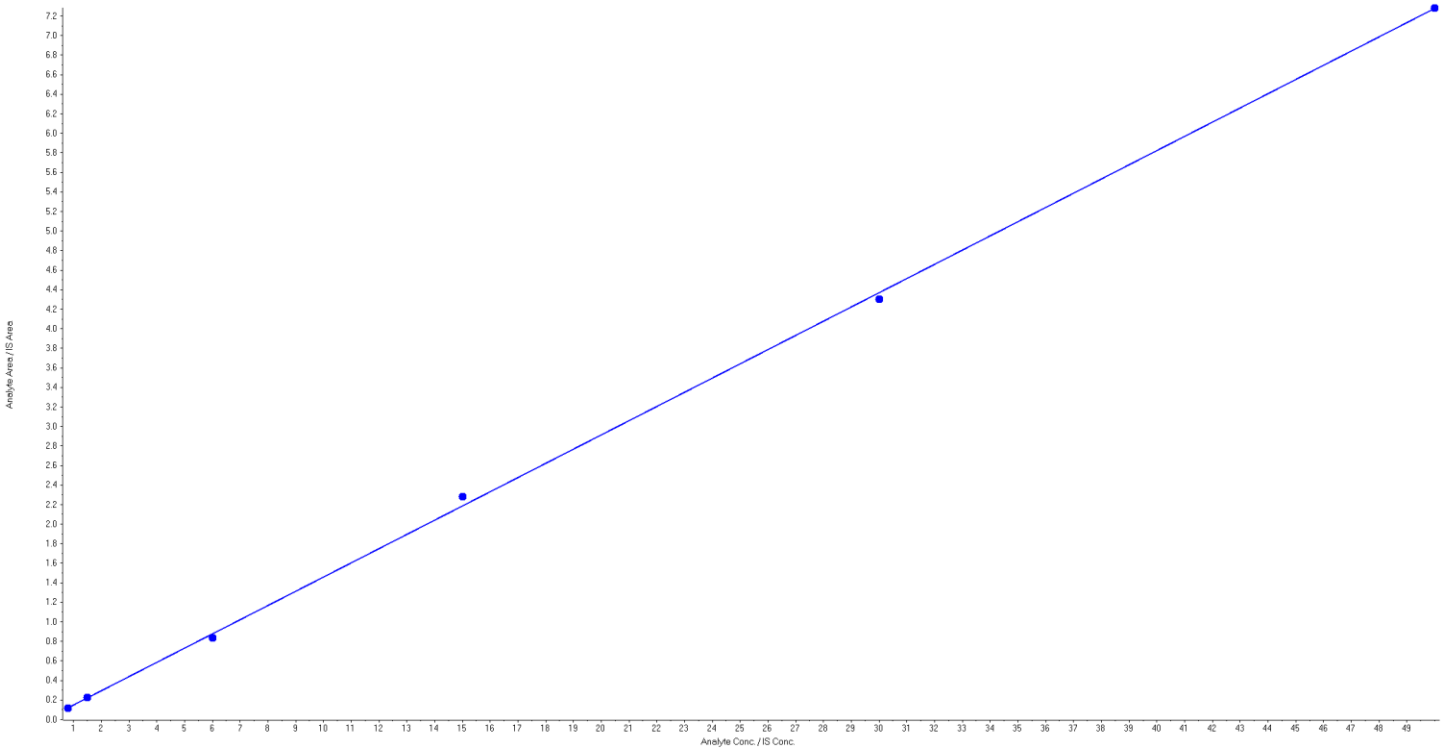


Analyte Name: PFOA 1
Internal Standard: MPFOA

Data File	PFC_160810\WS#4612909.wiff	**Result Table**	PFC_Water_160810_4612909_High_OTIE.rdb
Acquisition Date	2016/08/10 7:34:32 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.146 x + 0.00378 (r = 0.9997)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.8	1	0.79	98.3
1.5	1	1.55	103.3
6	1	5.73	95.5
15	1	15.64	104.3
30	1	29.56	98.5
50	1	50.03	100.1

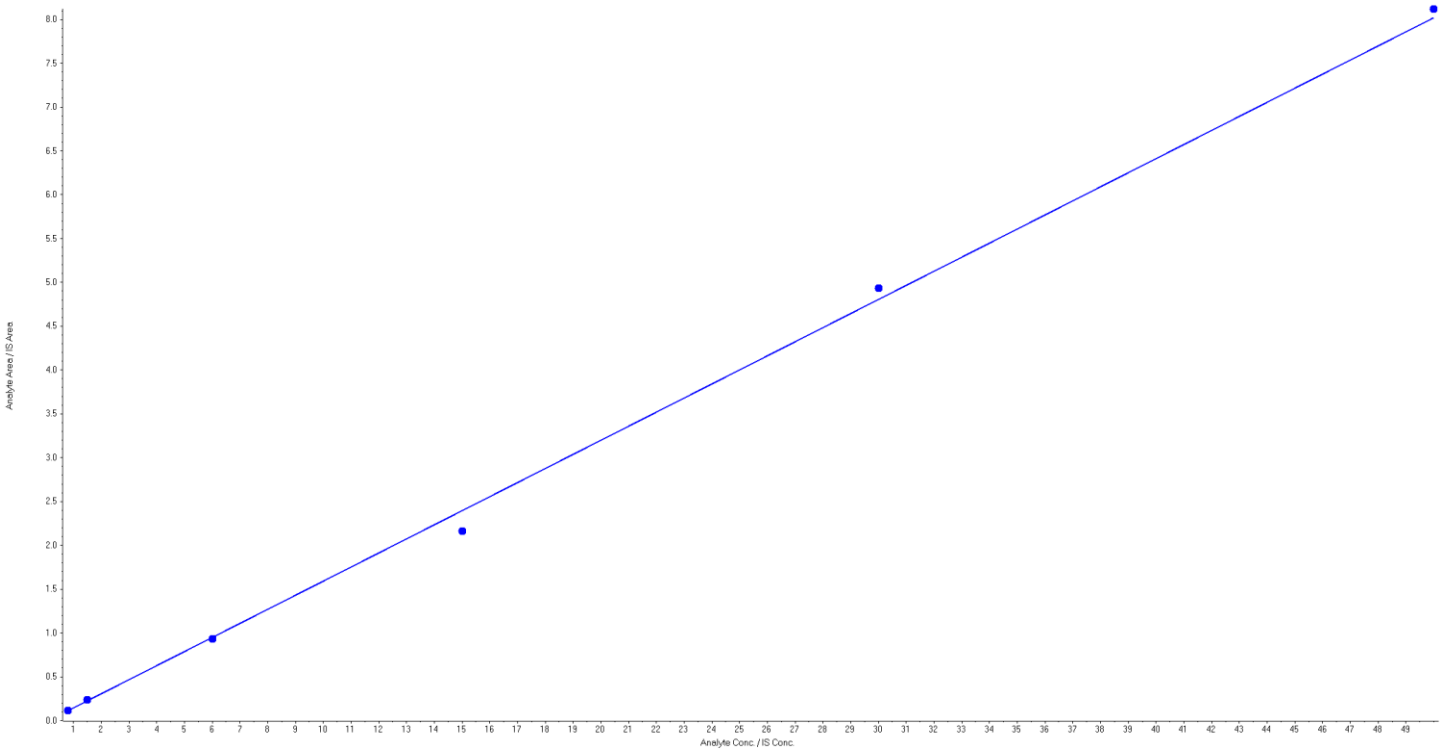


Analyte Name: PFOS 1
Internal Standard: MPFOS

Data File	PFC_160810\WS#4612909.wiff	**Result Table**	PFC_Water_160810_4612909_High_OTIE.rdb
Acquisition Date	2016/08/10 7:34:32 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.161 x + -0.0158 (r = 0.9990)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.8	1	0.82	102.8
1.5	1	1.56	104.2
6	1	5.92	98.6
15	1	13.56	90.4
30	1	30.82	102.7
50	1	50.62	101.2

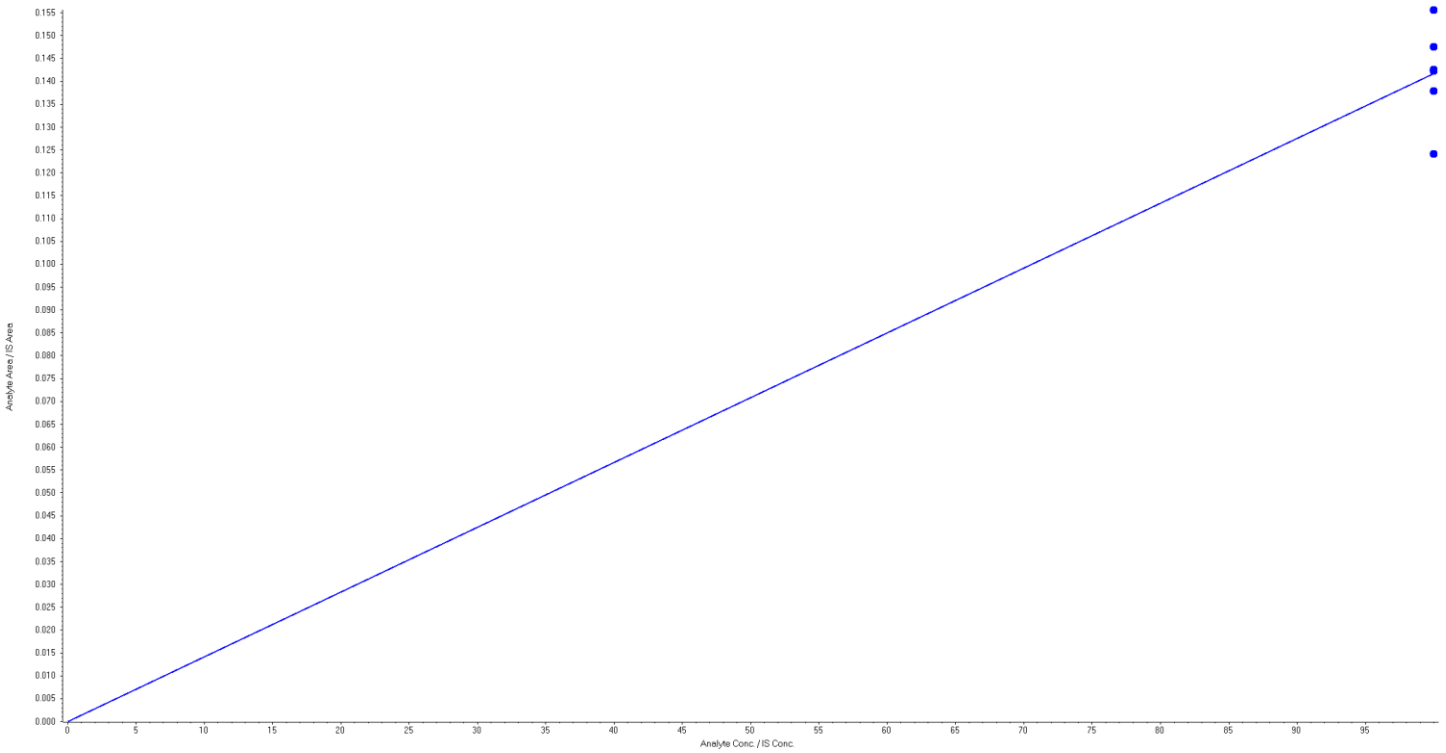


Analyte Name: 13C4-PFOA
Internal Standard: 13C6-PFHxA IS

Data File	PFC_160810\WS#4612909.wiff	**Result Table**	PFC_Water_160810_4612909_High_OTIE.rdb
Acquisition Date	2016/08/10 7:34:32 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.00142 x (r = 0.9977)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
100	6	100.00	100.0

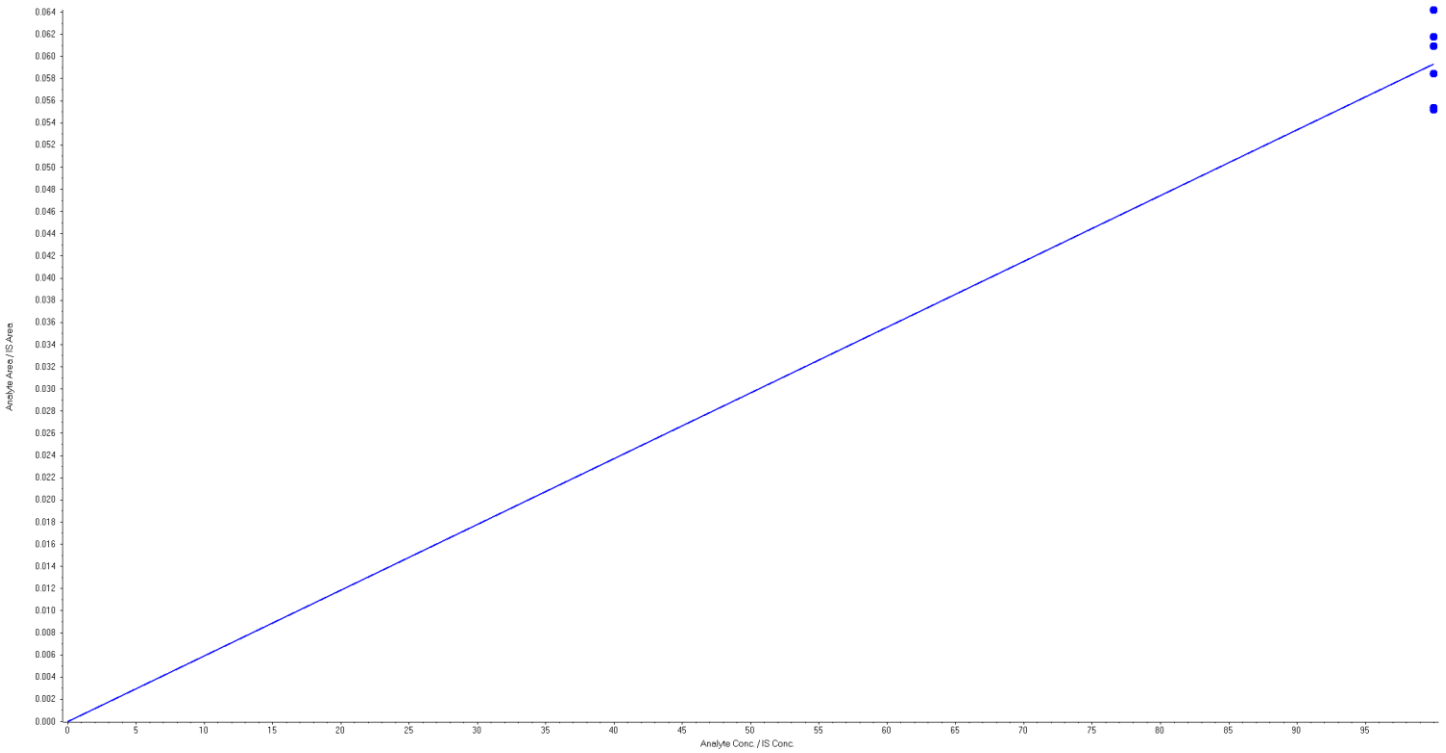


Analyte Name: 13C4-PFOS
Internal Standard: 13C6-PFHxA IS

Data File	PFC_160810\WS#4612909.wiff	**Result Table**	PFC_Water_160810_4612909_High_OTIE.rdb
Acquisition Date	2016/08/10 7:34:32 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.000593 x (r = 0.9985)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
100	6	100.00	100.0



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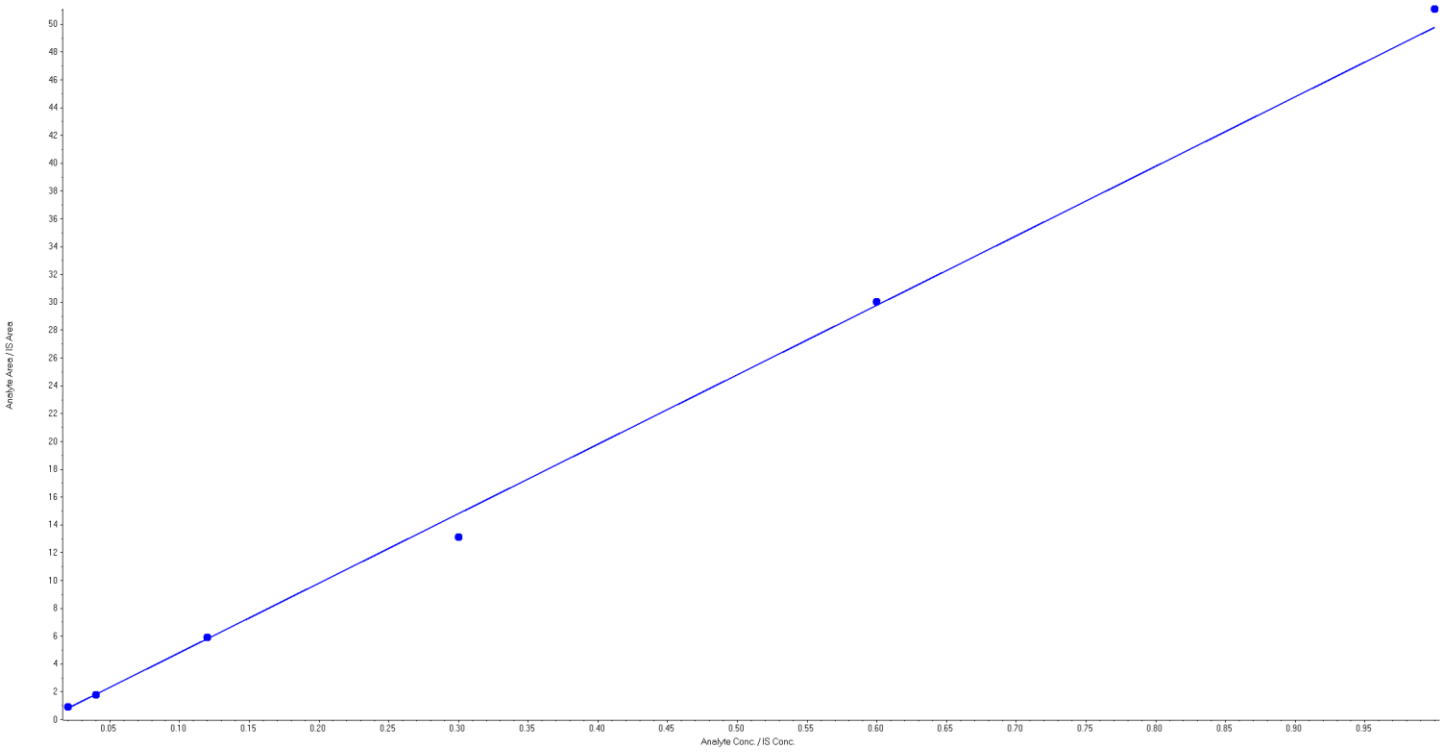
Created with Analyst Reporter
Printed: 12/08/2016 1:13:24 PM

Analyte Name: PFBS 1
Internal Standard: MPFHxS

Data File	PFC_160811\WS#4613413.wiff	**Result Table**	PFC_Water_160811_4613413_Low_OTIE3.rdb
Acquisition Date	2016/08/11 8:22:11 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03

Regression Equation: y = 50 x + -0.181 (r = 0.9986)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.02	1	0.02	107.9
0.04	1	0.04	98.4
0.12	1	0.12	101.5
0.3	1	0.27	88.8
0.6	1	0.60	100.8
1	1	1.03	102.6

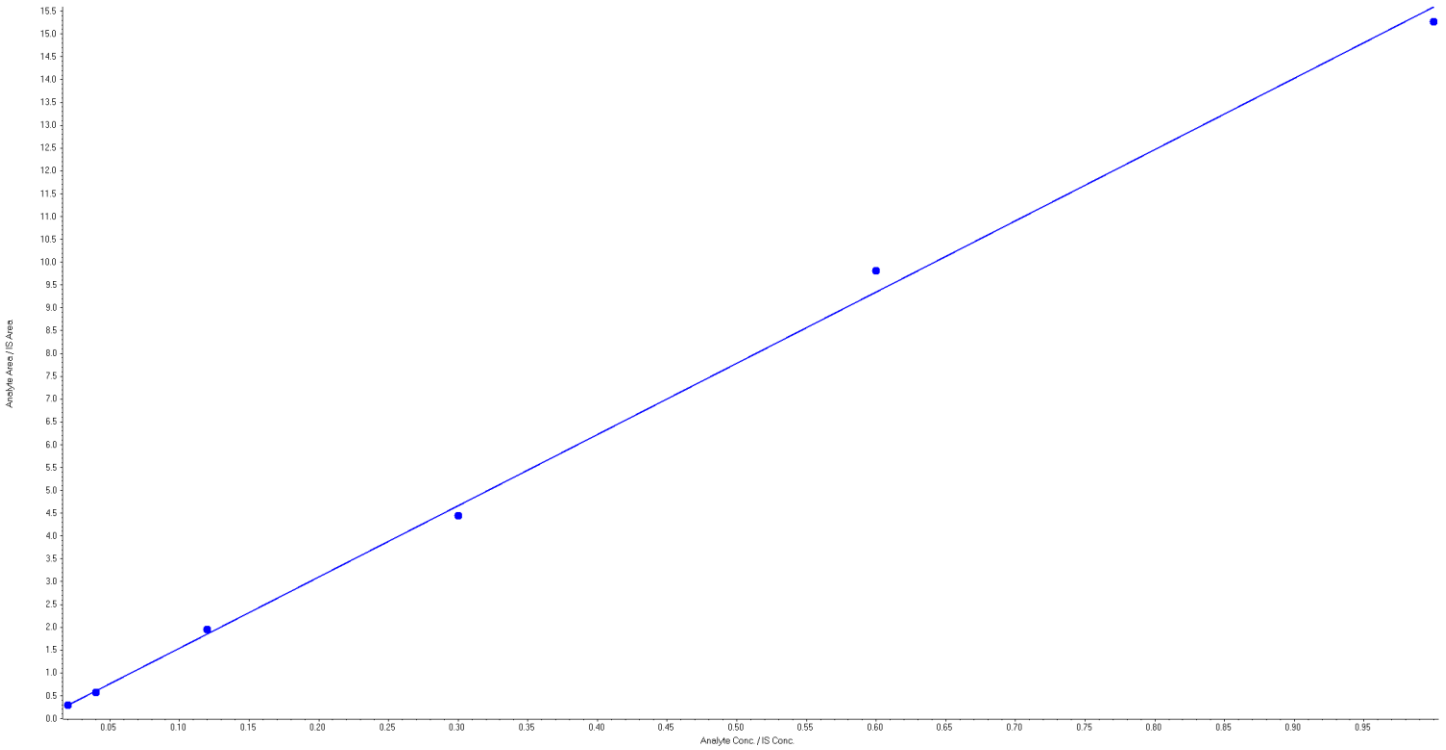


Analyte Name: PFOA 1
Internal Standard: MPFOA

Data File	PFC_160811\WS#4613413.wiff	**Result Table**	PFC_Water_160811_4613413_Low_OTIE3.rdb
Acquisition Date	2016/08/11 8:22:11 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03

Regression Equation: y = 15.6 x + -0.0203 (r = 0.9991)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.02	1	0.02	102.4
0.04	1	0.04	94.0
0.12	1	0.13	105.3
0.3	1	0.29	95.5
0.6	1	0.63	104.9
1	1	0.98	98.0

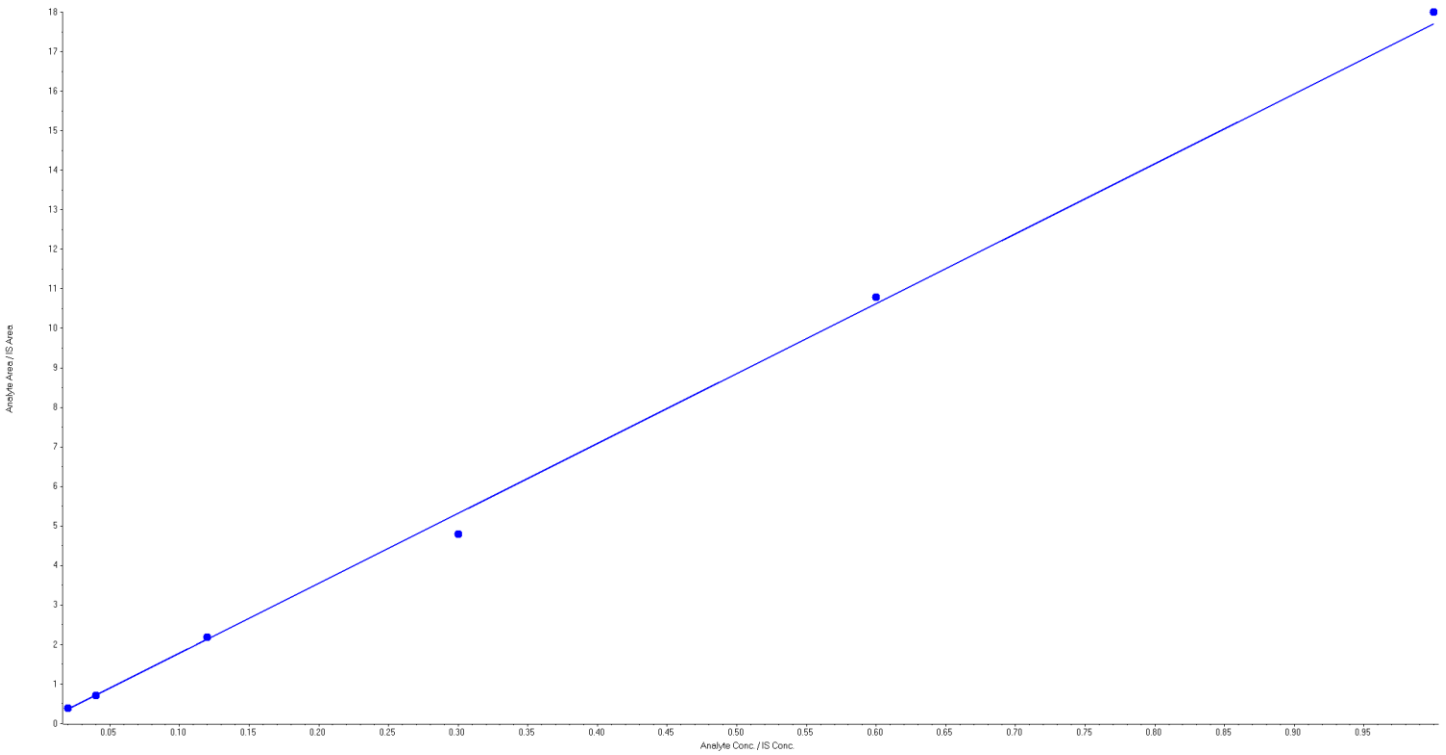


Analyte Name: PFOS 1
Internal Standard: MPFOS

Data File	PFC_160811\WS#4613413.wiff	**Result Table**	PFC_Water_160811_4613413_Low_OTIE3.rdb
Acquisition Date	2016/08/11 8:22:11 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03

Regression Equation: y = 17.7 x + 0.0111 (r = 0.9990)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.02	1	0.02	105.0
0.04	1	0.04	99.1
0.12	1	0.12	102.7
0.3	1	0.27	90.1
0.6	1	0.61	101.5
1	1	1.02	101.7

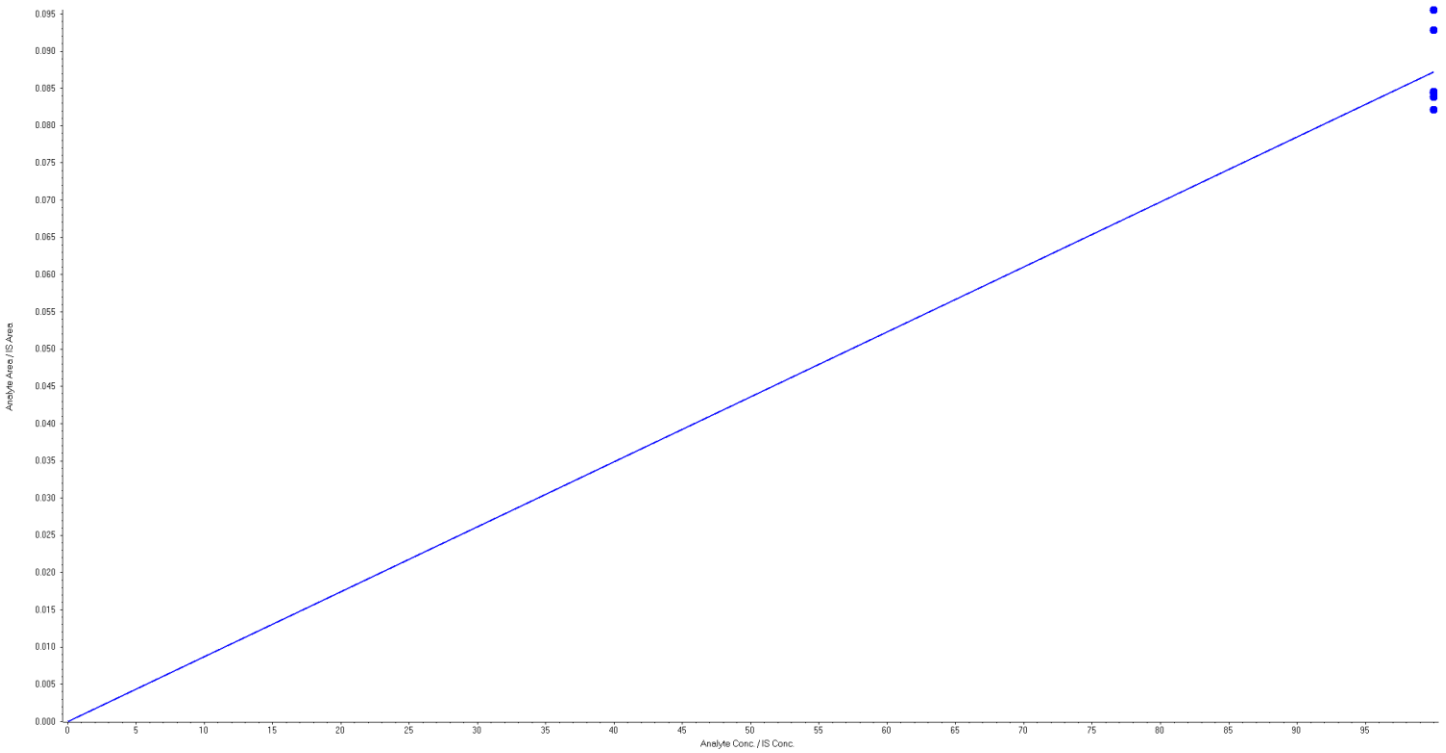


Analyte Name: 13C4-PFOA
Internal Standard: 13C6-PFHxA IS

Data File	PFC_160811\WS#4613413.wiff	**Result Table**	PFC_Water_160811_4613413_Low_OTIE3.rdb
Acquisition Date	2016/08/11 8:22:11 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.000872 x (r = 0.9983)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
100	6	100.00	100.0

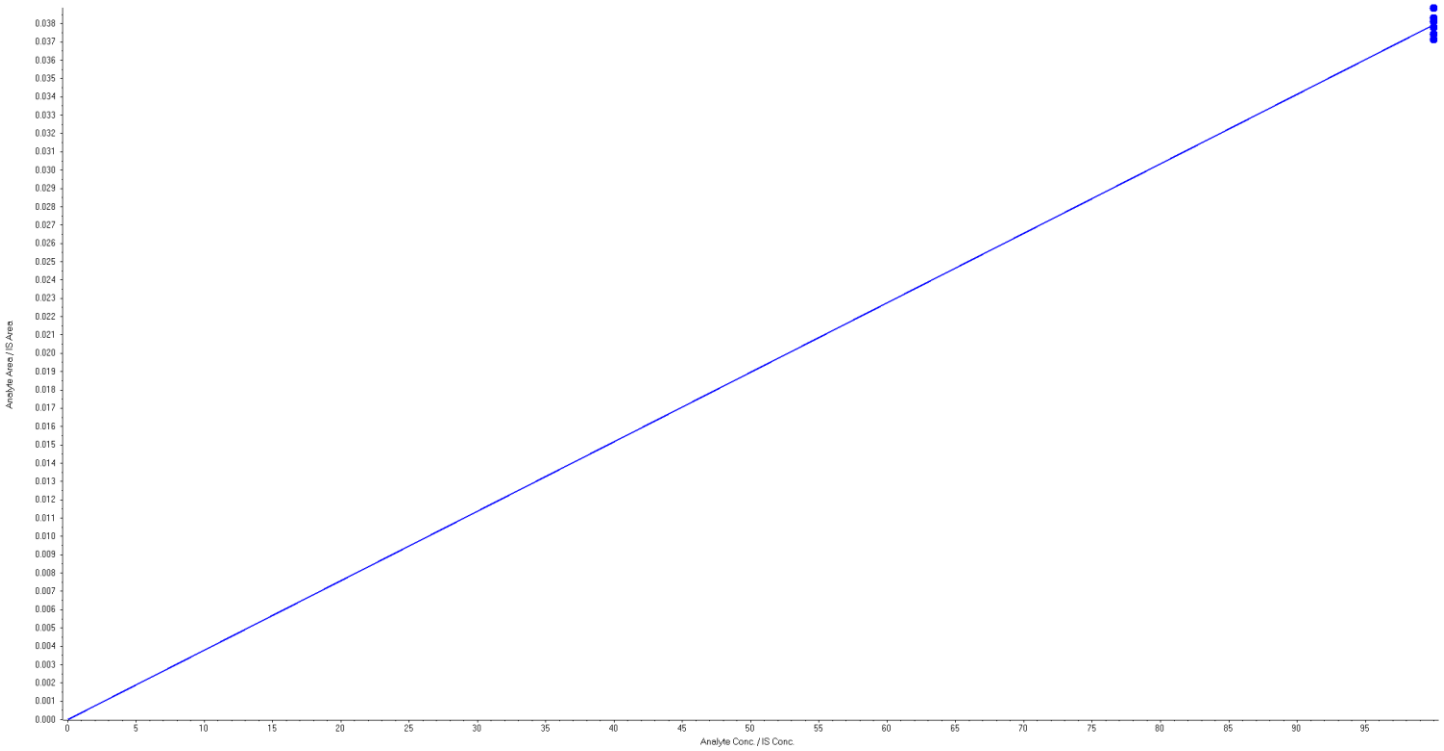


Analyte Name: 13C4-PFOS
Internal Standard: 13C6-PFHxA IS

Data File	PFC_160811\WS#4613413.wiff	**Result Table**	PFC_Water_160811_4613413_Low_OTIE3.rdb
Acquisition Date	2016/08/11 8:22:11 AM	**Project**	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03

Regression Equation: y = 0.000379 x (r = 0.9999)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
100	6	100.00	100.0



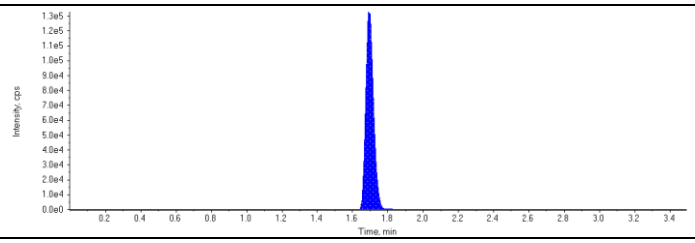
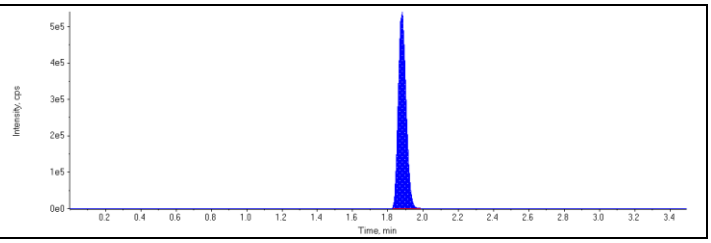
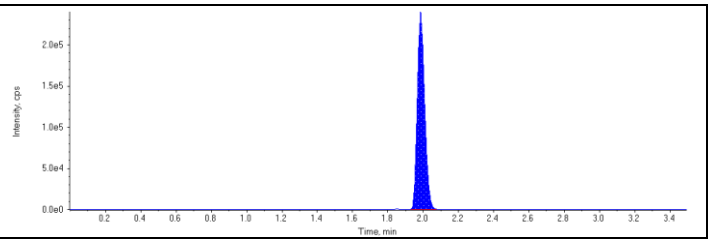
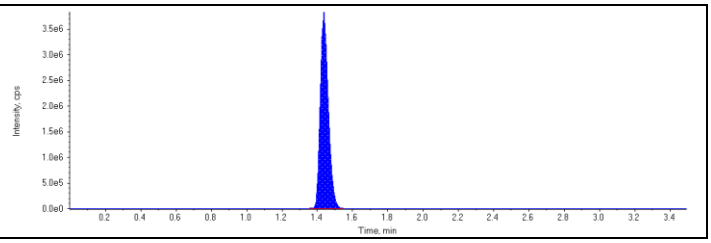
6. Continuing Calibration

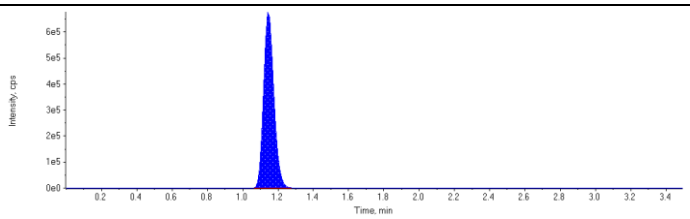
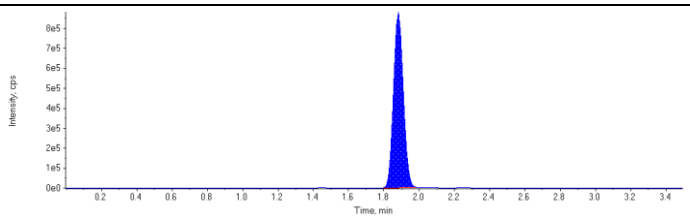
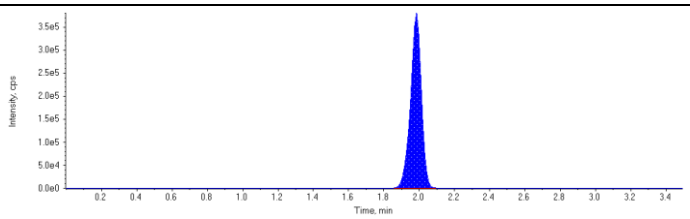
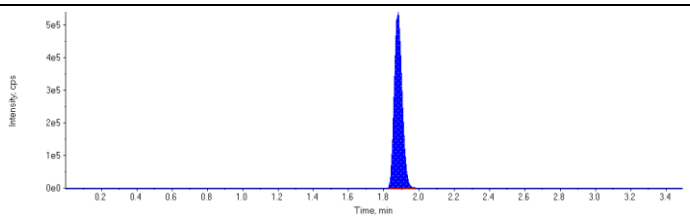
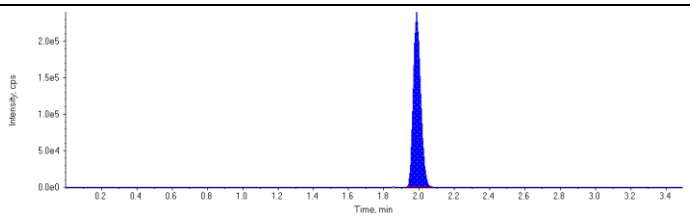
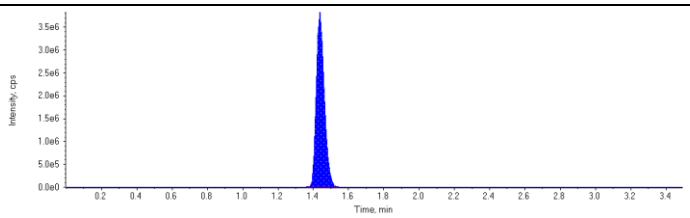
Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Sample ID	CCV	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/10 8:15:17 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	408000.	1.69	1.00	-
MPFOA	1660000.	1.88	1.00	-
MPFOS	692000.	1.99	1.00	-
13C6-PFHxA IS	12100000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2740000	1.15	15.0	14.6	97.2
PFOA 1	3380000	1.88	15.0	14.0	93.4
PFOS 1	1610000	1.98	15.0	14.6	97.4
13C4-PFOA	1660000	1.88	100.	96.2	96.2
13C4-PFOS	692000	1.99	100.	96.0	96.0
13C6-PFHxA	12100000	1.44	100.	109.	109.0

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.75) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.88(1.94) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.99(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.44(1.45) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.15 (1.15) min Calculated Conc: 14.6 µg/L Area Ratio: 6.71 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 14.0 µg/L Area Ratio: 2.04 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 14.6 µg/L Area Ratio: 2.33 Sample Type: (Quality Control)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.88 (1.94) min Calculated Conc: 96.2 µg/L Area Ratio: 0.136 Sample Type: (Quality Control)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.99 (1.97) min Calculated Conc: 96.0 µg/L Area Ratio: 0.0570 Sample Type: (Quality Control)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.44 (1.45) min Calculated Conc: 109. µg/L Area Ratio: 0.00 Sample Type: (Quality Control)	

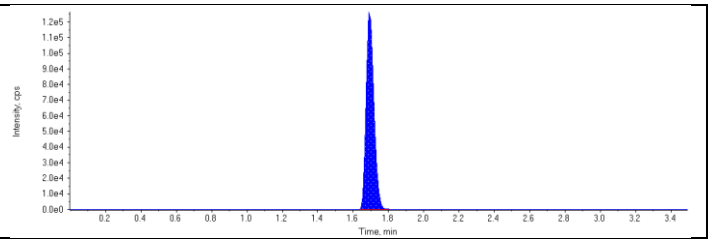
Sample ID	CCV	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/10 9:26:37 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	386000.	1.69	1.00	-
MPFOA	1620000.	1.88	1.00	-
MPFOS	680000.	1.99	1.00	-
13C6-PFHxA IS	12300000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2690000	1.14	15.0	15.2	101.0
PFOA 1	3510000	1.88	15.0	14.9	99.3
PFOS 1	1610000	1.98	15.0	14.8	98.9
13C4-PFOA	1620000	1.88	100.	92.9	92.9
13C4-PFOS	680000	1.99	100.	93.4	93.4
13C6-PFHxA	12300000	1.44	100.	111.	111.0

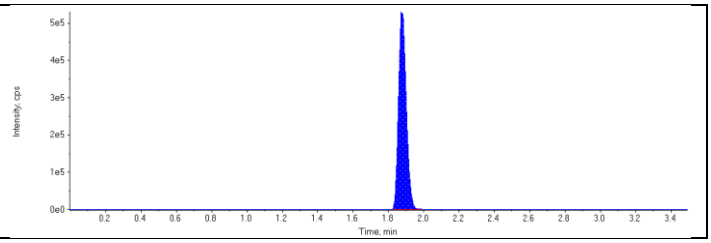
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.75) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



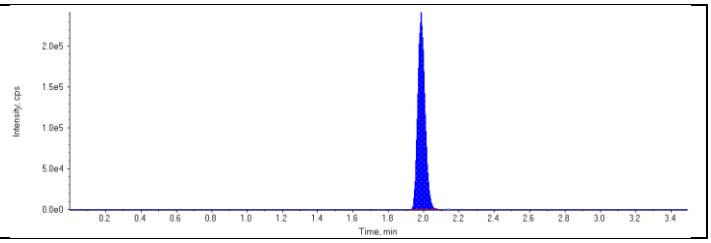
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.94) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



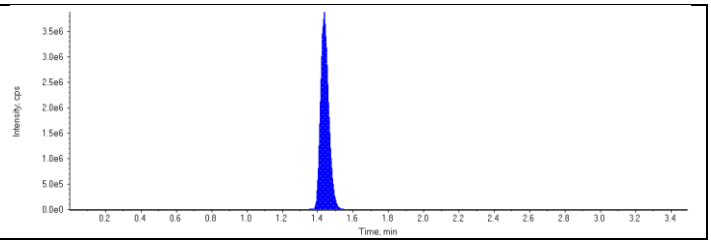
MPFOS (Internal Standard)

RT (Exp. RT): 1.99(1.97) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.44(1.45) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

This image is not available

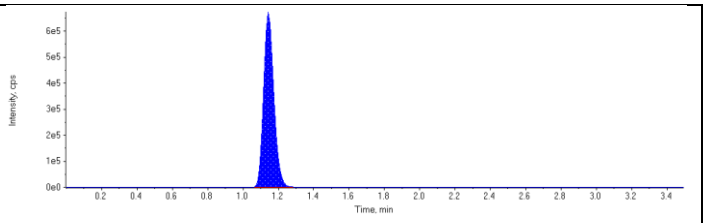
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.15) min

Calculated Conc: 15.2 µg/L

Area Ratio: 6.97

Sample Type: (Quality Control)



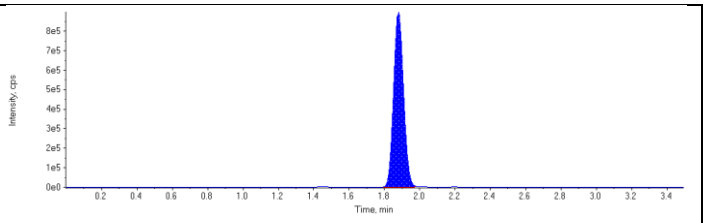
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 14.9 µg/L

Area Ratio: 2.17

Sample Type: (Quality Control)



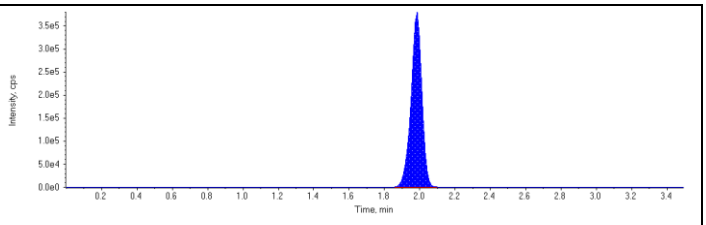
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 14.8 µg/L

Area Ratio: 2.37

Sample Type: (Quality Control)



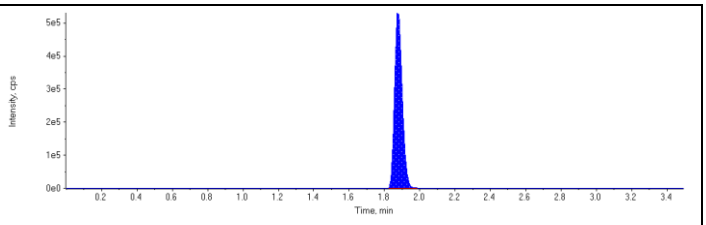
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 92.9 µg/L

Area Ratio: 0.132

Sample Type: (Quality Control)



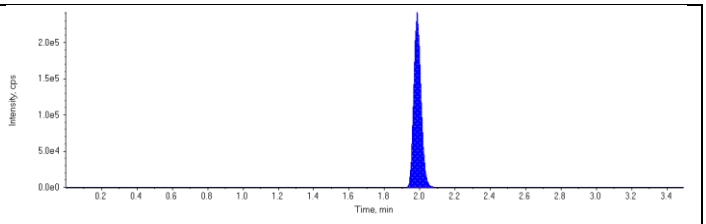
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 93.4 µg/L

Area Ratio: 0.0554

Sample Type: (Quality Control)



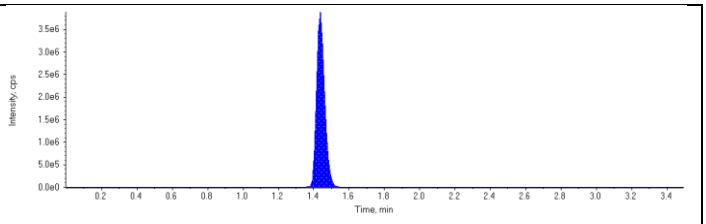
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 111. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



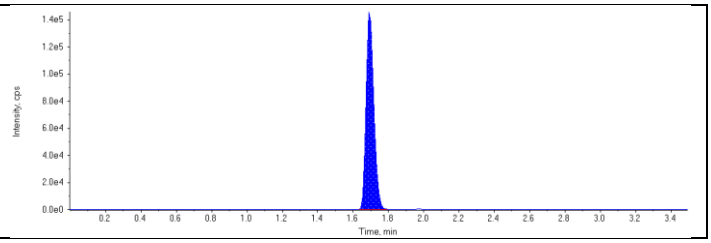
Sample ID	CCV	**Injection Volume (µL)**	3
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/10 9:52:06 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_High.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160810\WS#4612909.wiff		
Result Table	PFC_Water_160810_4612909_High_OTIE.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	442000.	1.69	1.00	-
MPFOA	1720000.	1.88	1.00	-
MPFOS	708000.	1.99	1.00	-
13C6-PFHxA IS	12700000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2750000	1.14	15.0	13.5	90.3
PFOA 1	3670000	1.88	15.0	14.7	97.8
PFOS 1	1680000	1.98	15.0	14.8	98.9
13C4-PFOA	1720000	1.88	100.	95.8	95.8
13C4-PFOS	708000	1.99	100.	94.3	94.3
13C6-PFHxA	12700000	1.44	100.	114.	114.0

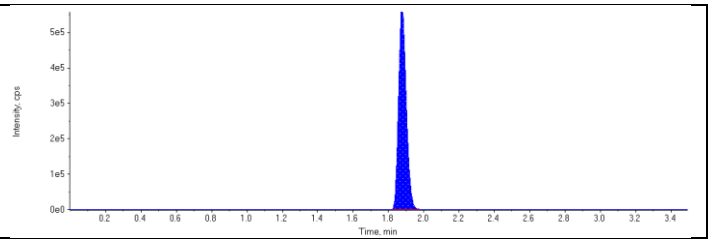
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.75) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



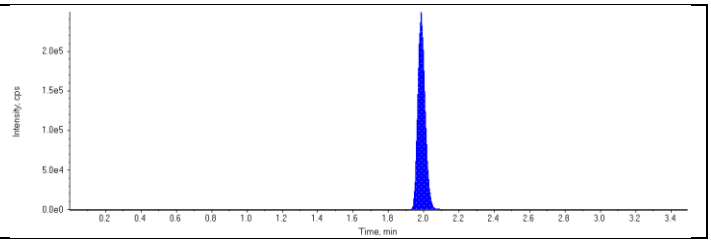
MPFOA (Internal Standard)

RT (Exp. RT): 1.88(1.94) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



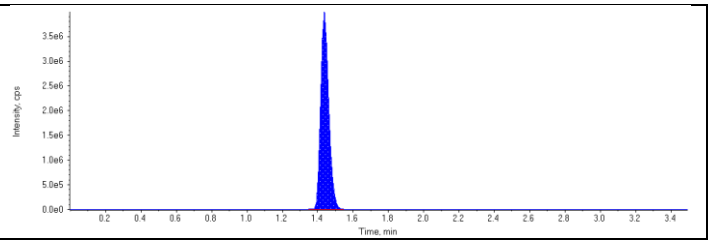
MPFOS (Internal Standard)

RT (Exp. RT): 1.99(1.97) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.44(1.45) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

This image is not available

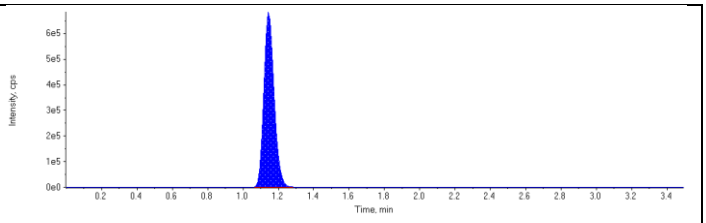
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.15) min

Calculated Conc: 13.5 µg/L

Area Ratio: 6.23

Sample Type: (Quality Control)



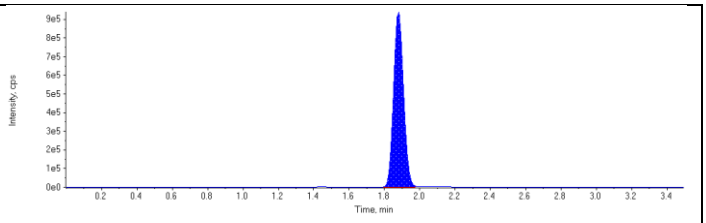
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 14.7 µg/L

Area Ratio: 2.14

Sample Type: (Quality Control)



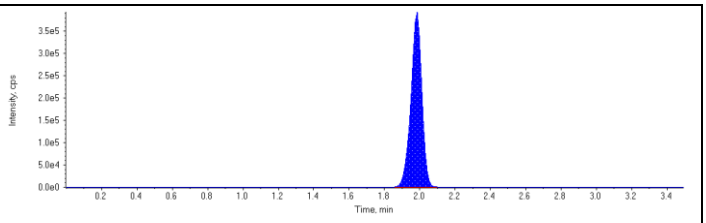
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 14.8 µg/L

Area Ratio: 2.37

Sample Type: (Quality Control)



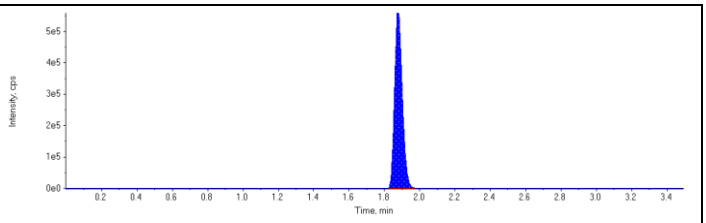
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.88 (1.94) min

Calculated Conc: 95.8 µg/L

Area Ratio: 0.136

Sample Type: (Quality Control)



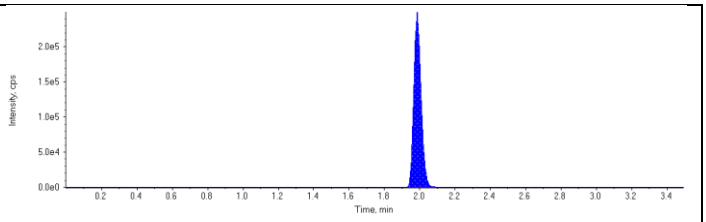
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.99 (1.97) min

Calculated Conc: 94.3 µg/L

Area Ratio: 0.0559

Sample Type: (Quality Control)



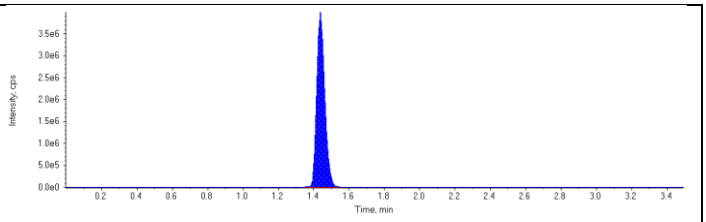
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.45) min

Calculated Conc: 114. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



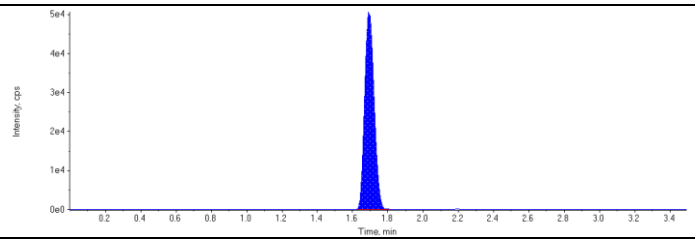
Sample ID	CCV	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/11 9:13:00 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	189000.	1.69	1.00	-
MPFOA	747000.	1.87	1.00	-
MPFOS	320000.	1.98	1.00	-
13C6-PFHxA IS	8290000.	1.44	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2390000	1.14	0.300	0.257	85.8
PFOA 1	3400000	1.88	0.300	0.293	97.6
PFOS 1	1550000	1.98	0.300	0.274	91.4
13C4-PFOA	747000	1.87	100.	103.	103.0
13C4-PFOS	320000	1.98	100.	102.	102.0
13C6-PFHxA	8290000	1.44	100.	98.7	98.7

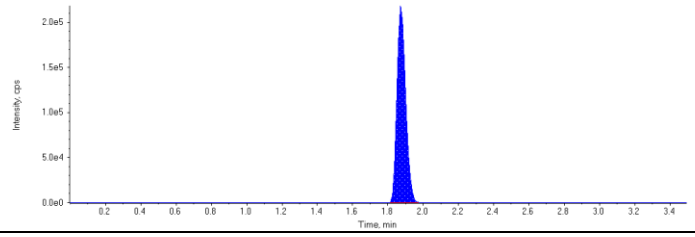
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.73) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



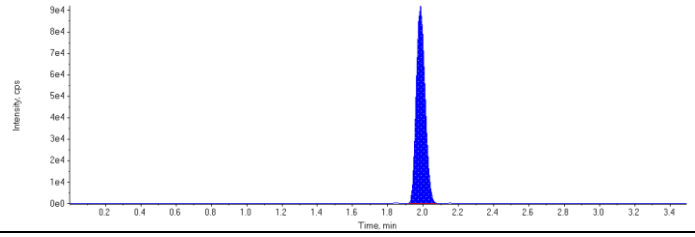
MPFOA (Internal Standard)

RT (Exp. RT): 1.87(1.92) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



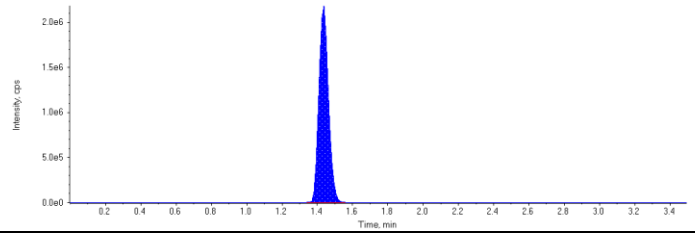
MPFOS (Internal Standard)

RT (Exp. RT): 1.98(2.02) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.44(1.43) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

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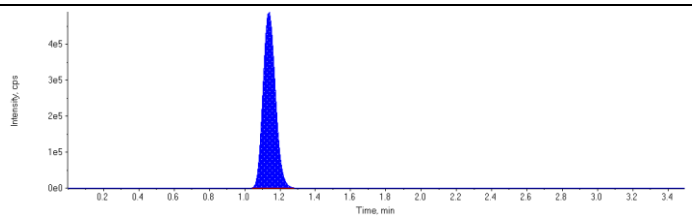
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.20) min

Calculated Conc: 0.257 µg/L

Area Ratio: 12.7

Sample Type: (Quality Control)



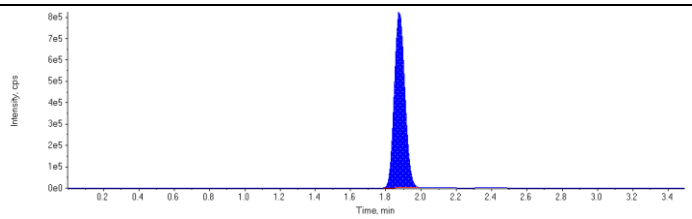
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.293 µg/L

Area Ratio: 4.55

Sample Type: (Quality Control)



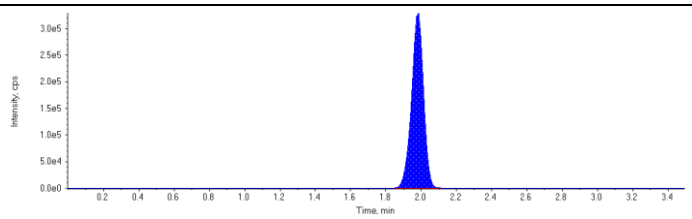
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.274 µg/L

Area Ratio: 4.86

Sample Type: (Quality Control)



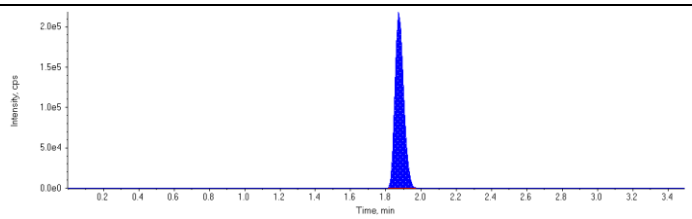
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 103. µg/L

Area Ratio: 0.0902

Sample Type: (Quality Control)



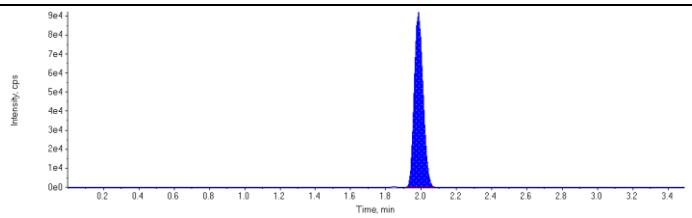
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 102. µg/L

Area Ratio: 0.0386

Sample Type: (Quality Control)



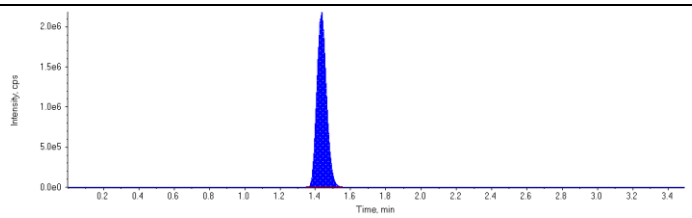
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.44 (1.43) min

Calculated Conc: 98.7 µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



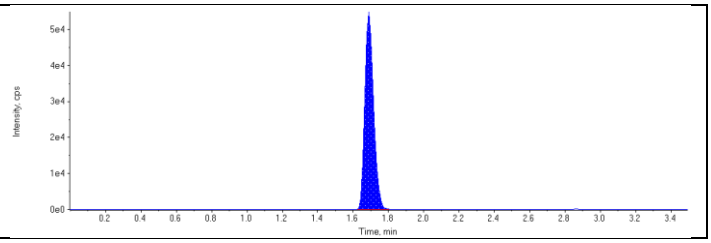
Sample ID	CCV	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/11 10:24:08 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	188000.	1.69	1.00	-
MPFOA	746000.	1.87	1.00	-
MPFOS	309000.	1.98	1.00	-
13C6-PFHxA IS	8400000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2490000	1.13	0.300	0.269	89.7
PFOA 1	3300000	1.87	0.300	0.284	94.8
PFOS 1	1540000	1.98	0.300	0.281	93.8
13C4-PFOA	746000	1.87	100.	102.	102.0
13C4-PFOS	309000	1.98	100.	96.9	96.9
13C6-PFHxA	8400000	1.43	100.	100.	100.0

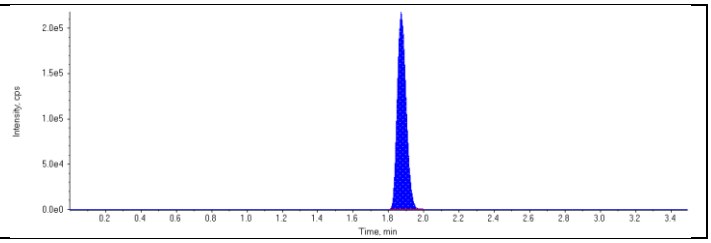
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.73) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



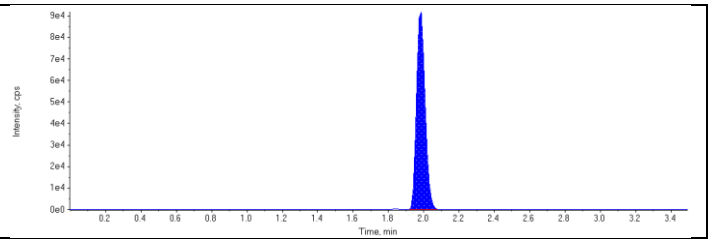
MPFOA (Internal Standard)

RT (Exp. RT): 1.87(1.92) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



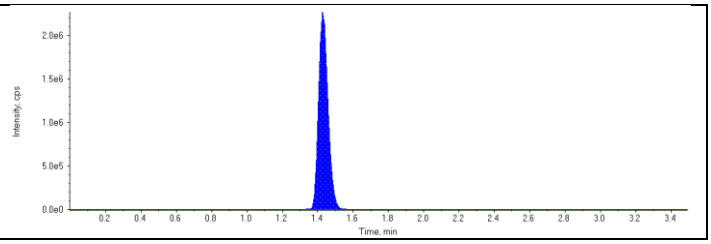
MPFOS (Internal Standard)

RT (Exp. RT): 1.98(2.02) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.43(1.43) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

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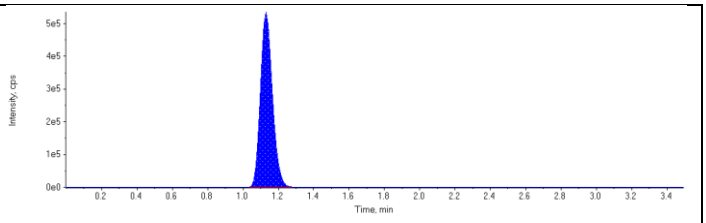
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.13 (1.20) min

Calculated Conc: 0.269 µg/L

Area Ratio: 13.3

Sample Type: (Quality Control)



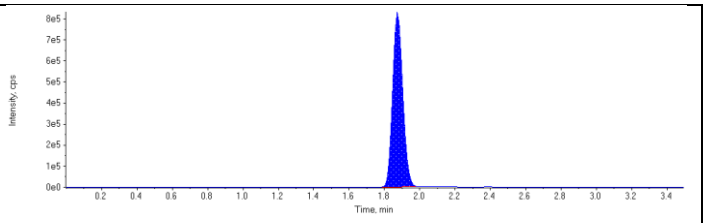
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.87 (1.88) min

Calculated Conc: 0.284 µg/L

Area Ratio: 4.42

Sample Type: (Quality Control)



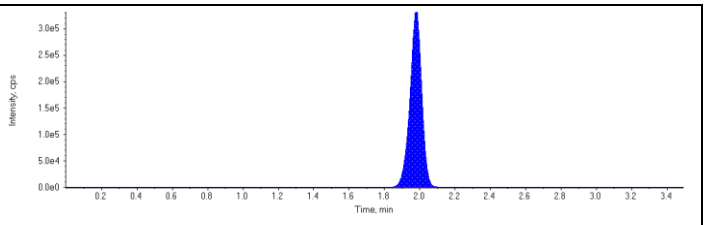
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.281 µg/L

Area Ratio: 4.99

Sample Type: (Quality Control)



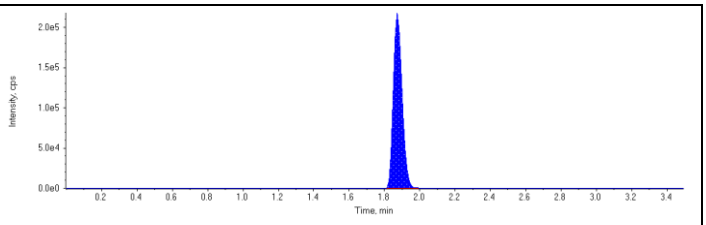
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 102. µg/L

Area Ratio: 0.0889

Sample Type: (Quality Control)



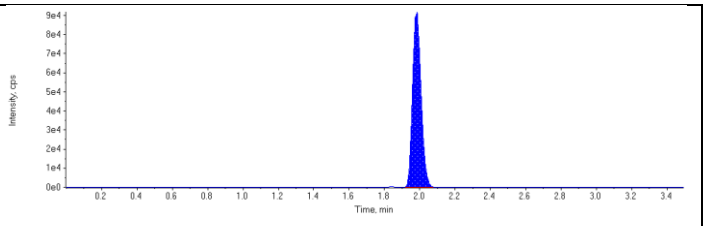
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 96.9 µg/L

Area Ratio: 0.0368

Sample Type: (Quality Control)



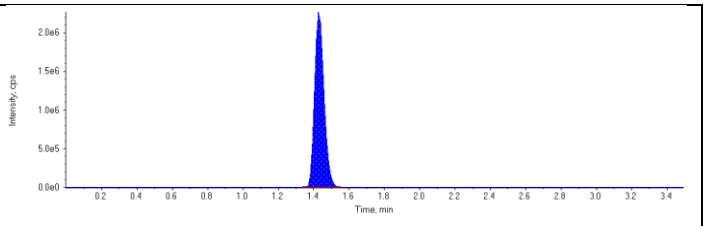
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 100. µg/L

Area Ratio: 0.00

Sample Type: (Quality Control)



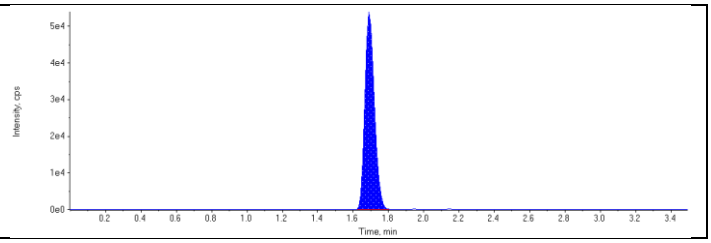
Sample ID	CCV	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/11 11:20:05 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	200000.	1.69	1.00	-
MPFOA	741000.	1.87	1.00	-
MPFOS	322000.	1.98	1.00	-
13C6-PFHxA IS	8140000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2590000	1.14	0.300	0.263	87.5
PFOA 1	3420000	1.88	0.300	0.297	98.9
PFOS 1	1530000	1.98	0.300	0.268	89.3
13C4-PFOA	741000	1.87	100.	104.	104.0
13C4-PFOS	322000	1.98	100.	104.	104.0
13C6-PFHxA	8140000	1.43	100.	96.9	96.9

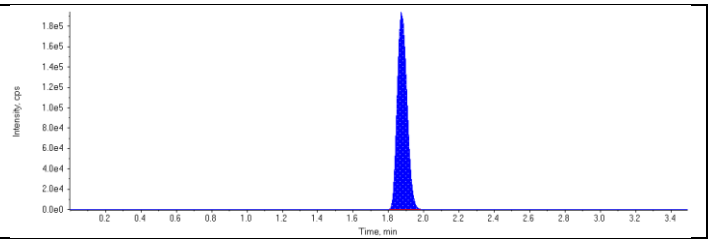
MPFHxS (Internal Standard)

RT (Exp. RT): 1.69(1.73) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



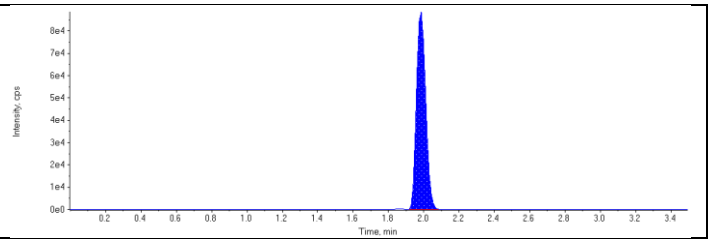
MPFOA (Internal Standard)

RT (Exp. RT): 1.87(1.92) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



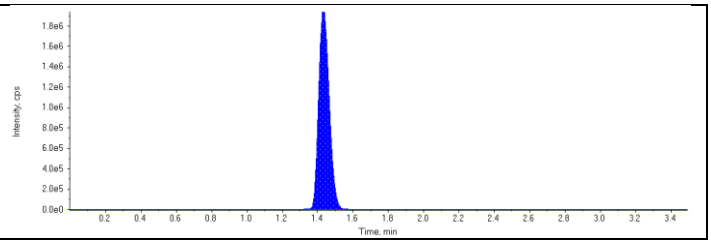
MPFOS (Internal Standard)

RT (Exp. RT): 1.98(2.02) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



13C6-PFHxA IS (Internal Standard)

RT (Exp. RT): 1.43(1.43) min
Concentration: 1.00 ug/L
Sample Type: (Quality Control)



N/A (Internal Standard)

RT (Exp. RT): N/A(N/A) min
Concentration: N/A N/A
Sample Type: (Quality Control)

This image is not available

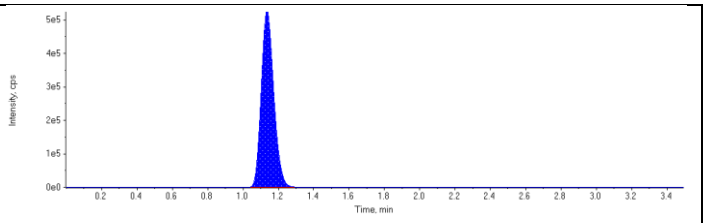
PFBS 1 (298.900/79.900 Da)

RT (Exp. RT): 1.14 (1.20) min

Calculated Conc: 0.263 µg/L

Area Ratio: 12.9

Sample Type: (Quality Control)



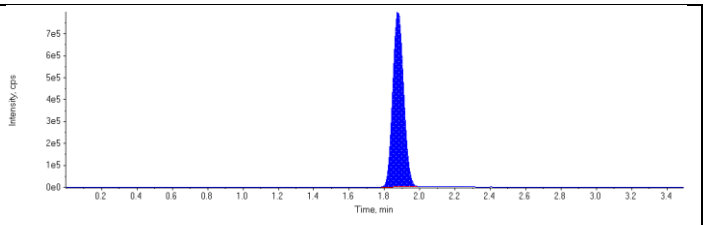
PFOA 1 (413.100/369.000 Da)

RT (Exp. RT): 1.88 (1.88) min

Calculated Conc: 0.297 µg/L

Area Ratio: 4.61

Sample Type: (Quality Control)



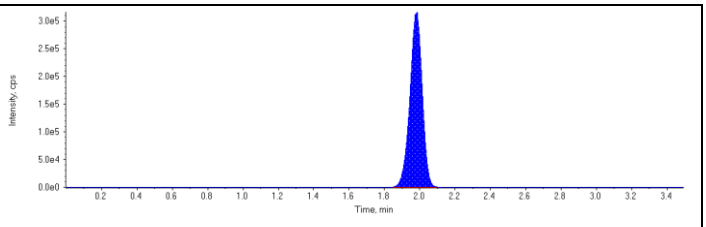
PFOS 1 (498.900/79.900 Da)

RT (Exp. RT): 1.98 (1.97) min

Calculated Conc: 0.268 µg/L

Area Ratio: 4.75

Sample Type: (Quality Control)



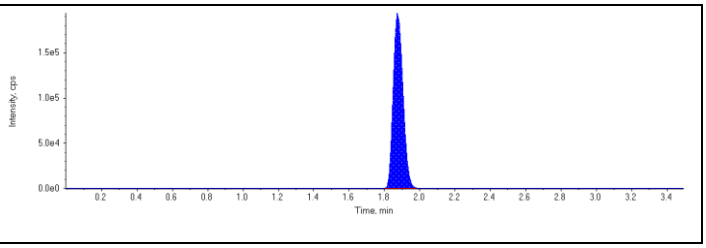
13C4-PFOA (416.900/372.000 Da)

RT (Exp. RT): 1.87 (1.94) min

Calculated Conc: 104. µg/L

Area Ratio: 0.0911

Sample Type: (Quality Control)



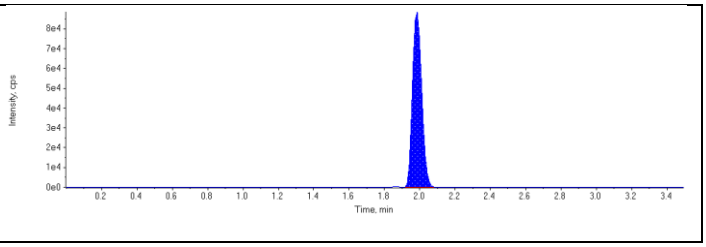
13C4-PFOS (502.900/79.900 Da)

RT (Exp. RT): 1.98 (2.02) min

Calculated Conc: 104. µg/L

Area Ratio: 0.0396

Sample Type: (Quality Control)



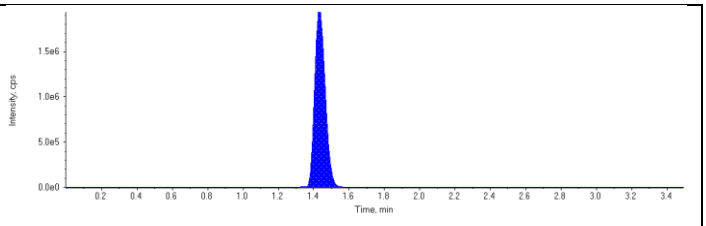
13C6-PFHxA (318.900/274.000 Da)

RT (Exp. RT): 1.43 (1.43) min

Calculated Conc: 96.9 µg/L

Area Ratio: 0.00

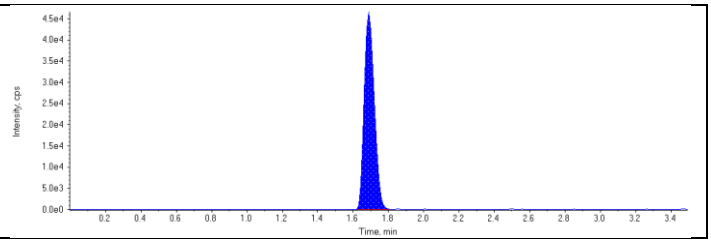
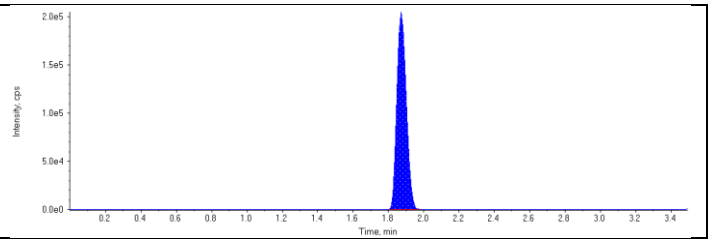
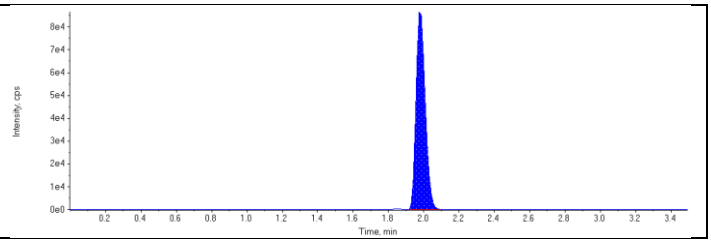
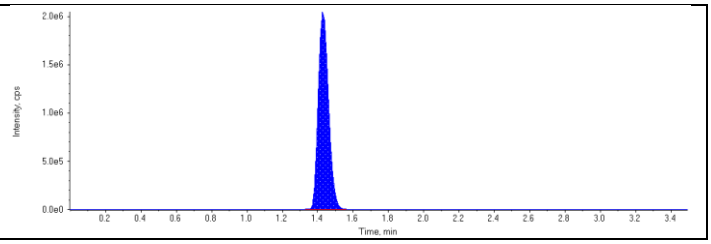
Sample Type: (Quality Control)

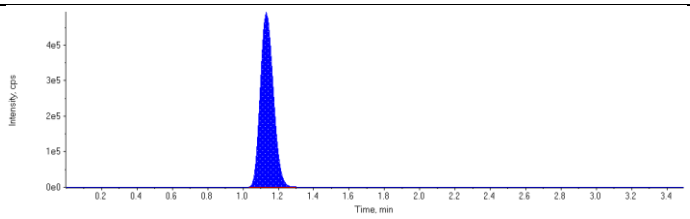
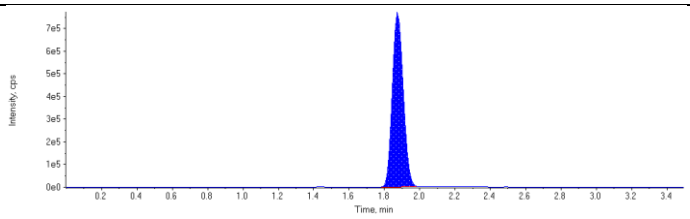
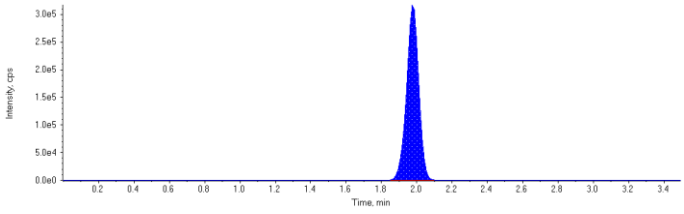
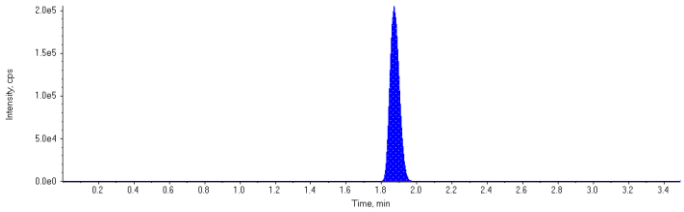
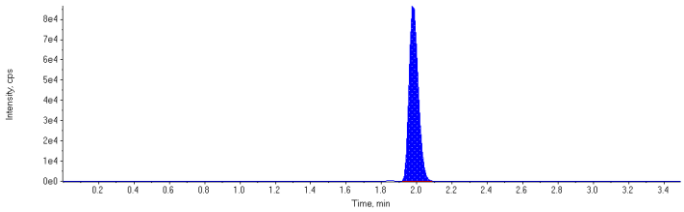
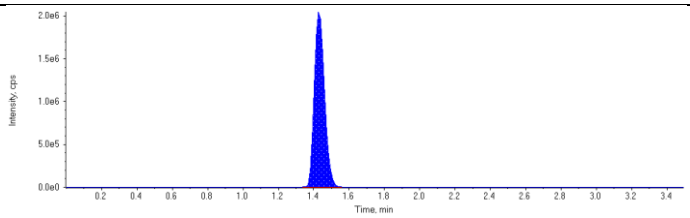


Sample ID	CCV	**Injection Volume (µL)**	2
Sample Type	Quality Control	**Injection Vial**	6
Acquisition Date	2016/08/11 11:48:03 AM	**Dilution Factor**	1.0
Acquisition Method	PFC_Water_Low.dam	**Instrument Name**	LCMS03
Project	Enviro\PFOS	**Algorithm Used**	Analyst Classic
Data File	PFC_160811\WS#4613413.wiff		
Result Table	PFC_Water_160811_4613413_Low_OTIE3.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	184000.	1.69	1.00	-
MPFOA	753000.	1.87	1.00	-
MPFOS	313000.	1.98	1.00	-
13C6-PFHxA IS	8310000.	1.43	1.00	-
N/A	N/A	N/A	N/A	-

Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2510000	1.13	0.300	0.276	92.1
PFOA 1	3300000	1.87	0.300	0.282	94.1
PFOS 1	1530000	1.98	0.300	0.275	91.6
13C4-PFOA	753000	1.87	100.	104.	104.0
13C4-PFOS	313000	1.98	100.	99.4	99.4
13C6-PFHxA	8310000	1.43	100.	98.9	98.9

MPFHxS (Internal Standard) RT (Exp. RT): 1.69(1.73) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOA (Internal Standard) RT (Exp. RT): 1.87(1.92) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
MPFOS (Internal Standard) RT (Exp. RT): 1.98(2.02) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
13C6-PFHxA IS (Internal Standard) RT (Exp. RT): 1.43(1.43) min Concentration: 1.00 ug/L Sample Type: (Quality Control)	
N/A (Internal Standard) RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)	This image is not available

PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.13 (1.20) min Calculated Conc: 0.276 µg/L Area Ratio: 13.6 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.87 (1.88) min Calculated Conc: 0.282 µg/L Area Ratio: 4.39 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.98 (1.97) min Calculated Conc: 0.275 µg/L Area Ratio: 4.87 Sample Type: (Quality Control)	
13C4-PFOA (416.900/372.000 Da) RT (Exp. RT): 1.87 (1.94) min Calculated Conc: 104. µg/L Area Ratio: 0.0907 Sample Type: (Quality Control)	
13C4-PFOS (502.900/79.900 Da) RT (Exp. RT): 1.98 (2.02) min Calculated Conc: 99.4 µg/L Area Ratio: 0.0377 Sample Type: (Quality Control)	
13C6-PFHxA (318.900/274.000 Da) RT (Exp. RT): 1.43 (1.43) min Calculated Conc: 98.9 µg/L Area Ratio: 0.00 Sample Type: (Quality Control)	

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Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Oneida Total Integrated Enterprises, LLC
317 E Main Street
Ventura, CA 93001
ATTN: Mr. Emmanuel Vasquez

August 17, 2016

SUBJECT: MCLB Barstow, Data Validation

Dear Mr. Vasquez,

Enclosed is the final validation report for the fraction listed below. This SDG was received on August 16, 2016. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #36869:

SDG #	Fraction
B6G7486	Perfluorinated Alkyl Acids

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method

- USEPA National Functional Guidelines for Superfund Organic Methods Data Review, August 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

186 pages-SF Client Select IV 1 WEEK TAT Attachment 1

EDD

LDC #36869 (Oneida Total Integrated Enterprises, LLC - Ventura, CA / MCLB Barstow)

Project #2014188

LDC	SDG#	DATE REC'D	(3) DATE DUE	PFCs (537)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	B6G7486	08/16/16	08/23/16	10	0																														
A	B6G7486	08/16/16	08/23/16	2	0																														
Total	T/PG			12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

L:\OTIE\Barstow\36869ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCLB Barstow

LDC Report Date: August 16, 2016

Parameters: Perfluorinated Alkyl Acids

Validation Level: Level III & IV

Laboratory: Maxxam

Sample Delivery Group (SDG): B6G7486

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
2014188-616**	CVV953**	Water	08/04/16
2014188-617	CVV954	Water	08/04/16
2014188-618	CVV955	Water	08/04/16
2014188-619	CVV956	Water	08/04/16
2014188-620	CVV957	Water	08/04/16
2014188-621	CVV958	Water	08/04/16
2014188-622	CVV959	Water	08/04/16
2014188-624	CVV960	Water	08/05/16
2014188-625	CVV961	Water	08/04/16
2014188-626	CVV962	Water	08/05/16
2014188-623**	CVV964**	Water	08/05/16
2014188-627	CVV965	Water	08/04/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluorinated Alkyl Acids by Environmental Protection Agency (EPA) Method 537

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked as applicable.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples 2014188-625 and 2014188-626 were identified as equipment blanks. No contaminants were found.

Sample 2014188-627 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples 2014188-621 and 2014188-622 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	2014188-621	2014188-622			
Perfluorobutane Sulfonate (PFBS)	0.030	0.028	7 (≤40)	-	-
Perfluoro-n-Octanoic Acid (PFOA)	0.038	0.039	3 (≤40)	-	-
Perfluorooctane Sulfonate (PFOS)	0.098	0.099	1 (≤40)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

MCLB Barstow
Perfluorinated Alkyl Acids - Data Qualification Summary - SDG B6G7486

No Sample Data Qualified in this SDG

MCLB Barstow
Perfluorinated Alkyl Acids - Laboratory Blank Data Qualification Summary - SDG B6G7486

No Sample Data Qualified in this SDG

MCLB Barstow
Perfluorinated Alkyl Acids - Field Blank Data Qualification Summary - SDG B6G7486

No Sample Data Qualified in this SDG

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

RESULTS OF ANALYSES OF WATER

Maxxam ID		CVV953	CVV954	CVV955	CVV956	CVV957			
Sampling Date		2016/08/04 08:05	2016/08/04 16:00	2016/08/04 14:15	2016/08/04 07:10	2016/08/04 10:55			
COC Number		572491-01-01	572491-01-01	572491-01-01	572491-01-01	572491-01-01			
	UNITS	2014188-616	2014188-617	2014188-618	2014188-619	2014188-620	RDL	MDL	QC Batch
Miscellaneous Parameters									
Perfluorobutane Sulfonate (PFBS)	ug/L	0.015 J	0.016 J	0.015 J	0.028	0.014 J	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.0053 U	0.037	0.037	0.037	0.032	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.020	0.083	0.10	0.087	0.067	0.020	0.0033	4613413
Surrogate Recovery (%)									
13C4-Perfluorooctanesulfonate	%	94	88	88	95	87	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	99	91	89	100	99	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CVV958	CVV959	CVV960	CVV961	CVV962			
Sampling Date		2016/08/04 09:00	2016/08/04 09:05	2016/08/05 09:15	2016/08/04 17:00	2016/08/05 13:00			
COC Number		572491-01-01	572491-01-01	572491-01-01	572491-01-01	572491-01-01			
	UNITS	2014188-621	2014188-622	2014188-624	2014188-625	2014188-626	RDL	MDL	QC Batch
Miscellaneous Parameters									
Perfluorobutane Sulfonate (PFBS)	ug/L	0.030	0.028	0.025	0.0019 U	0.0019 U	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.038	0.039	0.030	0.0053 U	0.0053 U	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.098	0.099	0.050	0.0033 U	0.0033 U	0.020	0.0033	4613413
Surrogate Recovery (%)									
13C4-Perfluorooctanesulfonate	%	93	94	88	91	88	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	96	97	98	96	92	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

8/16/16

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6G7486
Report Date: 2016/08/12

Oneida Total Integrated Enterprises
Client Project #: PFC Barstow

RESULTS OF ANALYSES OF WATER

Maxxam ID		CVV964	CVV965			
Sampling Date		2016/08/05 10:00	2016/08/04 07:00			
COC Number		na	na			
	UNITS	2014188-623	2014188-627	RDL	MDL	QC Batch
Miscellaneous Parameters						
Perfluorobutane Sulfonate (PFBS)	ug/L	0.021	0.0019 U	0.020	0.0019	4613413
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.025	0.0053 U	0.020	0.0053	4613413
Perfluorooctane Sulfonate (PFOS)	ug/L	0.056	0.0033 U	0.020	0.0033	4613413
Surrogate Recovery (%)						
13C4-Perfluorooctanesulfonate	%	88	84	N/A	N/A	4613413
13C4-Perfluorooctanoic acid	%	97	89	N/A	N/A	4613413

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

8/16/16

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

LDC #: 36869A96
SDG #: B6G7486
Laboratory: Maxxam

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 8/16/16
Page: 1 of 2
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LCMS Perfluorinated Alkyl Acids (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	r^2 ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 9, 10 TB = 12
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 6+7
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	2014188-616**	CVV953**	Water	08/04/16
2	2014188-617	CVV954	Water	08/04/16
3	2014188-618	CVV955	Water	08/04/16
4	2014188-619	CVV956	Water	08/04/16
5	2014188-620	CVV957	Water	08/04/16
6	2014188-621	CVV958	Water	08/04/16
7	2014188-622	CVV959	Water	08/04/16
8	2014188-624	CVV960	Water	08/05/16
9	2014188-625	CVV961	Water	08/04/16
10	2014188-626	CVV962	Water	08/05/16
11	2014188-623**	CVV964**	Water	08/05/16
12	2014188-627	CVV965	Water	08/04/16
13	2014188-616MS	CVV953MS	Water	08/04/16

LDC #: 36869A96
SDG #: B6G7486
Laboratory: Maxxam

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 8/16/16
Page: 2 of 2
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LCMS Perfluorinated Alkyl Acids (EPA Method 537)

	Client ID	Lab ID	Matrix	Date
~~14~~	~~2014188-616MSD~~	~~CVV963MSD~~	~~Water~~	~~08/04/16~~
15				
16				
17				
18				
19				

Notes:

	461343MB						

LDC #: 36869A96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: 82

Method: LCMS (EPA Method 537)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the specified criteria? < 10%	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit criteria of ≥ 0.990?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VIII. Matrix spike/Matrix spike duplicates / SURY				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 26869A96

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: SZ

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?.	✓			
XI. Internal standards				
Were internal standard area counts within ± 50% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC#: 36869A96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd Reviewer: JL

METHOD: LC MS

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤40%)	Qualifications (Parent Only)
	6	7		
Perfluorobutane Sulfonate (PFBS)	0.030	0.028	7	
Perfluoro-n-Octanoic Acid (PFOA)	0.038	0.039	3	
Perfluorooctane Sulfonate (PFOS)	0.098	0.099	1	

V:\FIELD DUPLICATES\36869A96_OTIE.wpd

LDC#: 36869A96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: JE

Method: LC/MS/MS PFCs

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
8/11/2016	LCMS03	PFOS	0	0.3814102	0.02
			s1	0.7138157	0.04
			s2	2.1882716	0.12
			s3	4.8012232	0.30
			s4	10.764525	0.60
			s7	17.987421	1.00

Regression Output		***Reported***
Constant	*-0.100198*	*0.011100*
Std Err of Y Est		
R Squared	*0.998757*	*0.999000*
Degrees of Freedom		
X Coefficient(s)	*17.998969*	*17.700000*
Std Err of Coef.		
Correlation Coefficient	*0.999378*	
Coefficient of Determination (r^2)	*0.998757*	*0.999000*

LDC #: 36869A96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JE

METHOD: GC ✓ HPLC / MS

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	CCV	8/11/16 (9>13)	PFOS	0.300	0.274	0.273	8.6	9.0
2	CCV	8/11/16 (10=24)	PFOS	0.300	0.280	0.281	6.7	6.3
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 26869A96

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: Q
2nd reviewer: JL

METHOD: __ GC ✓ HPLC / LMS

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
13C-PFOS		100.0	94.3	94	94	0
13C-PFOA		↓	93.8	99	99	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 26694A96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JC

METHOD: ___ GC ✓ HPLC / MS

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

RPD = I SSCLCS - SSCLCSD I * 2/(SSCLCS + SSCLCSD)

Where: SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory control sample percent recovery
SC = Concentration
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 461343

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
PFOA	0.500	NA	0.496	NA	97	97				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 26869A96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: 9
2nd Reviewer: JE

METHOD: __ GC √ HPLC /MS

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 1 Compound Name PFOS

Concentration = $\frac{(\frac{117000}{320000} - 0.011100)(1)}{(17.7)}$

$= 0.0200$ µg/L

#	Sample ID	Compound	Reported Concentrations (µg/L)	Recalculated Results Concentrations ( )	Qualifications
	1	PFOS	0.020		

mments: _____

The attached zipped file contains two files:

File	Format	Description
1) Readme_Barstow_081616.doc	MS Word 2003	A "Readme" file (this document).
2) B6G7486V1-R2016-08-12_11-23-35_N001.xls	MS Excel 2003	A spreadsheet for the following SDG(s): BG67486 36869A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Pei Geng at (760) 827-1100 if you have any questions regarding this electronic data submittal.