



**Groundwater Sample Results,
Level 4 Laboratory Report, Electronic Data
Deliverable, Data Validation Report, Sample Location
Report, SDG B799808**

NS

Treasure Island, CA

April 2021



Prepared for: EMAX Laboratories, Inc.

Project: 17E075 TREASURE ISLAND, IR SITE 6
(T10000006825)

Analytical Data Package (Level IV)

Analysis: PFOS and PFOA in water (Method 537 mod.)

Maxxam Job #: B799808

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



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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:

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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 assess 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: B799808Sample Analysis

Samples were initially pre-screened and estimated concentrations were obtained so that samples could be appropriately diluted for quantitative analysis on QC batch 4989765 (2017/05/19). Due to high concentrations, 20x dilutions were required for selected analytes in the following samples:

EJU284 06-MW25-0517 *Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonate (PFOS)*

EJU285 06-MW26-0517 *Perfluorooctanesulfonate (PFOS)*

Detection limits were adjusted accordingly.

Data was evaluated in accordance with acceptance criteria specified in DoD QSM 5.1.

Sin Chii Chia, B.Sc.

schia@maxxam.ca

Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: NO_1702_



Client: EMAX Laboratories Inc
Client Project: NO_1702_

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						
EJU281	QCFB-0517	2017/05/09	2017/05/16	2017/05/18	2017/05/19	2017/05/19
EJU282	06-MW30-0517	2017/05/09	2017/05/16	2017/05/18	2017/05/19	2017/05/19
EJU283	06-MW30-0517DUP	2017/05/09	2017/05/16	2017/05/18	2017/05/19	2017/05/19
EJU284	06-MW25-0517	2017/05/09	2017/05/16	2017/05/18	2017/05/19	2017/05/19
EJU285	06-MW26-0517	2017/05/09	2017/05/16	2017/05/18	2017/05/19	2017/05/19

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.

M Di Grazia
Supervisor- Environmental Customer Service

2017/06/05
Date



2. Sample Management Records

Maxxam Analytics International
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2.1 Sample Custody

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AIR

CHAIN OF CUSTODY



Tel#: 310-618-8889 FAX#: 310-618-0818
email: info@emaxlabs.com

EMAX CONTROL NO	17E075
PROJECT CODE	NO 1702
TURN-AROUND-TIME	10 BUS. DAYS

SEND REPORT TO:
EMAX LABORATORIES, INC.
1835 W. 205TH ST. CA 90501

CLIENT: NOREAS
PROJECT: Treasure Island, IR Site 6

SEND SAMPLES TO:

MAXXAM

ATTN: **Richard Beauvil**

EMAX Sample ID	Client Sample ID	Collection Date	Collection Time	Matrix	Method	COMMENTS
E075-01	QCFB-0517	5/9/2017	7:30:00 AM	WATER	E537 PFCs	
E075-04	06-MW30-0517	5/9/2017	9:15:00 AM	WATER	E537 PFCs	Level 4
E075-05	06-MW30-0517 DUP	5/9/2017	9:20:00 AM	WATER	E537 PFCs	
E075-06	06-MW25-0517	5/9/2017	10:05:00 AM	WATER	E537 PFCs	
E075-06M	06-MW25-0517MS	5/9/2017	10:05:00 AM	WATER	E537 PFCs	16-May-17 15:15 Melissa DiGrazia
E075-06S	06-MW25-0517MSD	5/9/2017	10:05:00 AM	WATER	E537 PFCs	 B799808
E075-07	06-MW26-0517	5/9/2017	10:50:00 AM	WATER	E537 PFCs	TSP ENV-1275

INSTRUCTION: Data Package: IHC mailed to EMAX and 1 pdf emailed to rbeauvil@emaxlabs.com
EDDS: NEDD and EDF geotracer. (Specs sent via email on 5/12/17)

COOLER TEMPERATURE

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
JEFF Y.	5/15/17	15:15	KLAPROESTER PPA KJ	2017/05/16	15:15

2.3/1.6/3.2
2.1/2.1/2.8

Col



METHOD 537 Modified
DETERMINATION OF SELECTED PERFLUORINATED ALKYL
ACIDS IN DRINKING WATER BY SOLID PHASE EXTRACTION
AND LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY
(LC/MS/MS)

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3. Analytical Results

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3.1 Summary Report

Maxxam Analytics International
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Your P.O. #: 17E075
Your Project #: NO_1702_
Your C.O.C. #: 17E075

EMAX Laboratories Inc
1835 W 205th St
Torrance, CA
USA 90501

Report Date: 2017/05/26
Report #: R4485318
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B799808
Received: 2017/05/16, 15:15

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PFOS and PFOA in water	5	2017/05/18	2017/05/19	CAM SOP-00894	EPA 537 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

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

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.

Encryption Key

Melissa Di Grazia
Supervisor- Environmental Customer Service
26 May 2017 18:21:34

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Melissa DiGrazia, Supervisor –Environmental Customer Service

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 Job #: B799808
Report Date: 2017/05/26

EMAX Laboratories Inc
Client Project #: NO_1702_
Your P.O. #: 17E075

RESULTS OF ANALYSES OF WATER

Maxxam ID		EJU281	EJU282	EJU283					
Sampling Date		2017/05/09 07:30	2017/05/09 09:15	2017/05/09 09:20					
COC Number		17E075	17E075	17E075					
	UNITS	QCFB-0517	06-MW30-0517	06-MW30-0517DUP	DL	LOD	LOQ	QC Batch	

Miscellaneous Parameters

Perfluorobutane Sulfonate (PFBS)	ug/L	0.010 U	0.0060 J	0.0065 J	0.0048	0.010	0.020	4989765
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	0.010 U	0.032	0.033	0.0046	0.010	0.020	4989765
Perfluorooctane Sulfonate (PFOS)	ug/L	0.010 U	0.13	0.17	0.0026	0.010	0.020	4989765

Surrogate Recovery (%)

13C4-Perfluorooctanesulfonate	%	93	87	112				4989765
13C4-Perfluorooctanoic acid	%	93	92	123				4989765
18O2-Perfluorohexanesulfonate	%	90	92	115				4989765

DL = Detection Limit

LOD = Limit of Detection

LOQ = Limit of Quantitation

QC Batch = Quality Control Batch

N/A = Not Applicable

Maxxam ID		EJU284				EJU285				
Sampling Date		2017/05/09 10:05				2017/05/09 10:50				
COC Number		17E075				17E075				
	UNITS	06-MW25-0517	DL	LOD	LOQ	06-MW26-0517	DL	LOD	LOQ	QC Batch

Miscellaneous Parameters

Perfluorobutane Sulfonate (PFBS)	ug/L	0.12	0.0048	0.010	0.020	0.038	0.0048	0.010	0.020	4989765
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	7.3 (1)	0.092	0.20	0.40	0.75	0.0046	0.010	0.020	4989765
Perfluorooctane Sulfonate (PFOS)	ug/L	7.1 (1)	0.052	0.20	0.40	10 (1)	0.052	0.20	0.40	4989765

Surrogate Recovery (%)

13C4-Perfluorooctanesulfonate	%	108				100				4989765
13C4-Perfluorooctanoic acid	%	113				115				4989765
18O2-Perfluorohexanesulfonate	%	103				108				4989765

DL = Detection Limit

LOD = Limit of Detection

LOQ = Limit of Quantitation

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Due to high concentrations of the target analyte, sample required 20x dilution. Detection limit was adjusted accordingly.



Maxxam Job #: B799808
 Report Date: 2017/05/26

EMAX Laboratories Inc
 Client Project #: NO_1702_
 Your P.O. #: 17E075

TEST SUMMARY

Maxxam ID: EJU281
Sample ID: QCFB-0517
Matrix: Water

Collected: 2017/05/09
Shipped:
Received: 2017/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4989765	2017/05/18	2017/05/19	Daniela Zupu

Maxxam ID: EJU282
Sample ID: 06-MW30-0517
Matrix: Water

Collected: 2017/05/09
Shipped:
Received: 2017/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4989765	2017/05/18	2017/05/19	Daniela Zupu

Maxxam ID: EJU283
Sample ID: 06-MW30-0517DUP
Matrix: Water

Collected: 2017/05/09
Shipped:
Received: 2017/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4989765	2017/05/18	2017/05/19	Daniela Zupu

Maxxam ID: EJU284
Sample ID: 06-MW25-0517
Matrix: Water

Collected: 2017/05/09
Shipped:
Received: 2017/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4989765	2017/05/18	2017/05/19	Daniela Zupu

Maxxam ID: EJU285
Sample ID: 06-MW26-0517
Matrix: Water

Collected: 2017/05/09
Shipped:
Received: 2017/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PFOS and PFOA in water	LCMS	4989765	2017/05/18	2017/05/19	Daniela Zupu



Maxxam Job #: B799808
Report Date: 2017/05/26

EMAX Laboratories Inc
Client Project #: NO_1702_
Your P.O. #: 17E075

GENERAL COMMENTS

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

Package 1	2.4°C
Package 2	2.3°C

Results relate only to the items tested.



Maxxam Job #: B799808
 Report Date: 2017/05/26

EMAX Laboratories Inc
 Client Project #: NO_1702_
 Your P.O. #: 17E075

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4989765	DZU	Matrix Spike(EJU284)	13C4-Perfluorooctanesulfonate	2017/05/19		71	%	50 - 150
			13C4-Perfluorooctanoic acid	2017/05/19		74	%	50 - 150
			18O2-Perfluorohexanesulfonate	2017/05/19		85	%	50 - 150
			Perfluorobutane Sulfonate (PFBS)	2017/05/19		106	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2017/05/19		NC	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2017/05/19		NC	%	70 - 130
4989765	DZU	Matrix Spike DUP(EJU284)	13C4-Perfluorooctanesulfonate	2017/05/19		71	%	50 - 150
			13C4-Perfluorooctanoic acid	2017/05/19		77	%	50 - 150
			18O2-Perfluorohexanesulfonate	2017/05/19		80	%	50 - 150
			Perfluorobutane Sulfonate (PFBS)	2017/05/19		103	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2017/05/19		NC	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2017/05/19		NC	%	70 - 130
4989765	DZU	MS/MSD RPD	Perfluorobutane Sulfonate (PFBS)	2017/05/19	3.3		%	30
			Perfluoro-n-Octanoic Acid (PFOA)	2017/05/19	0		%	30
			Perfluorooctane Sulfonate (PFOS)	2017/05/19	0		%	30
4989765	DZU	Spiked Blank	13C4-Perfluorooctanesulfonate	2017/05/19		88	%	50 - 150
			13C4-Perfluorooctanoic acid	2017/05/19		94	%	50 - 150
			18O2-Perfluorohexanesulfonate	2017/05/19		92	%	50 - 150
			Perfluorobutane Sulfonate (PFBS)	2017/05/19		92	%	70 - 130
			Perfluoro-n-Octanoic Acid (PFOA)	2017/05/19		101	%	70 - 130
			Perfluorooctane Sulfonate (PFOS)	2017/05/19		98	%	70 - 130
4989765	DZU	Method Blank	13C4-Perfluorooctanesulfonate	2017/05/19		87	%	50 - 150
			13C4-Perfluorooctanoic acid	2017/05/19		89	%	50 - 150
			18O2-Perfluorohexanesulfonate	2017/05/19		83	%	50 - 150
			Perfluorobutane Sulfonate (PFBS)	2017/05/19	0.010 U, LOD=0.010		ug/L	
			Perfluoro-n-Octanoic Acid (PFOA)	2017/05/19	0.010 U, LOD=0.010		ug/L	
			Perfluorooctane Sulfonate (PFOS)	2017/05/19	0.010 U, LOD=0.010		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.

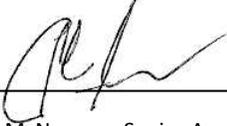
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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 spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

VALIDATION SIGNATURE PAGE

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



Colm McNamara, Senior Analyst, Liquid Chromatography

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.



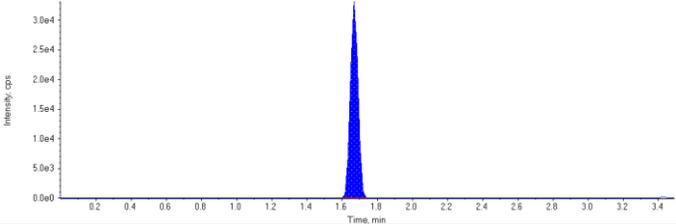
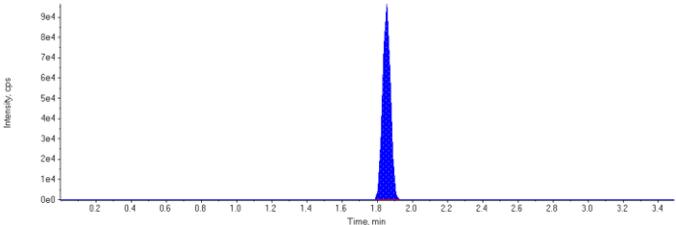
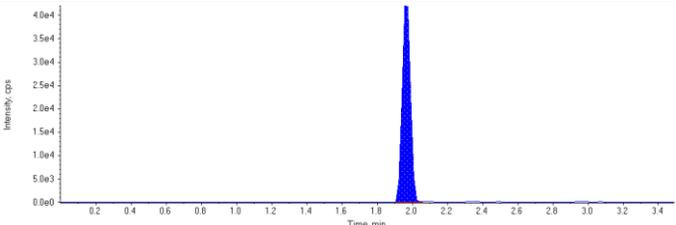
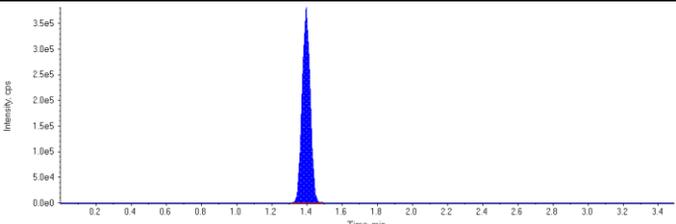
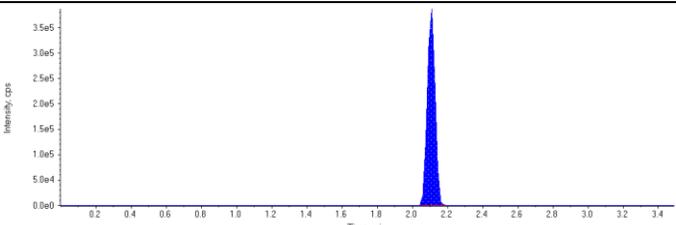
3.2 Sample Chromatograms

Maxxam Analytics International
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Sample ID	4989765~EJU281-01	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	22
Acquisition Date	2017/05/19 8:25:09 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	100000.	1.67	1.00	-
MPFOA	299000.	1.85	1.00	-
MPFOS	140000.	1.97	1.00	-
13C6-PFHxA IS	1200000.	1.40	41.7	-
13C9-PFDA IS	1190000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	774	1.27	N/A	0.00167	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1200	1.84	N/A	0.00193	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	921	1.98	N/A	0.00490	N/A
13C4-PFOA	299000	1.85	N/A	93.0	N/A
13C4-PFOS	140000	1.97	N/A	92.6	N/A
13C8-PFOSA	272000	2.46	N/A	78.9	N/A
13C6-PFHxA	1200000	1.40	N/A	2.54	N/A
13C9-PFDA	1190000	2.11	N/A	2.67	N/A

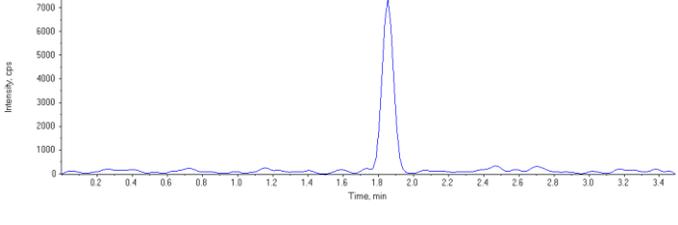
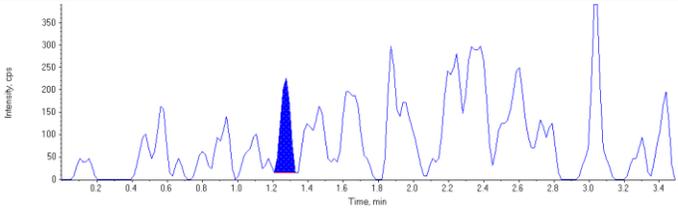
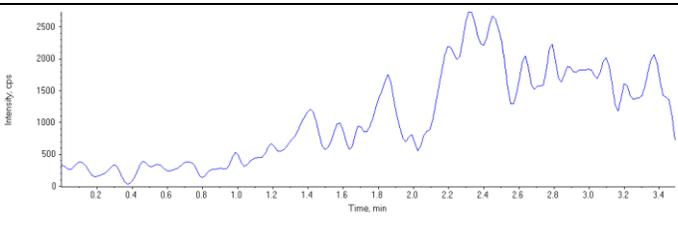
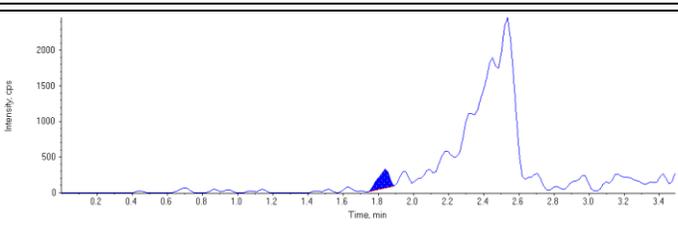
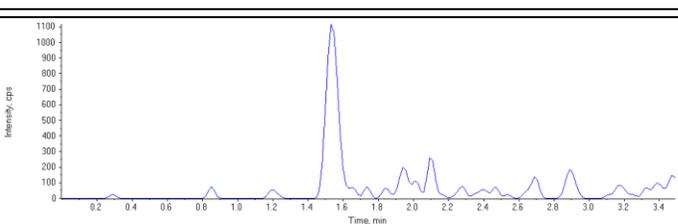
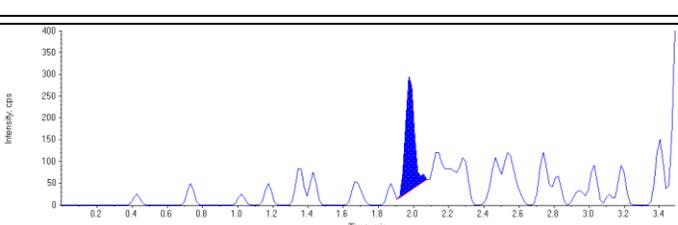
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<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>

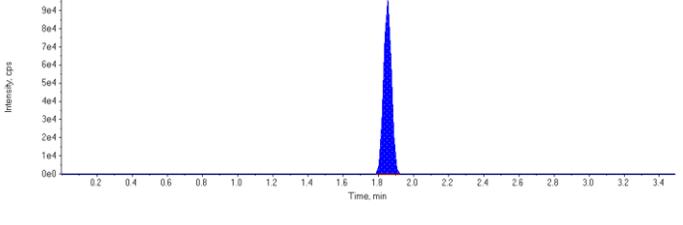
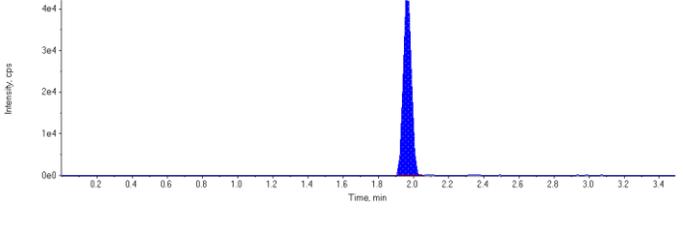
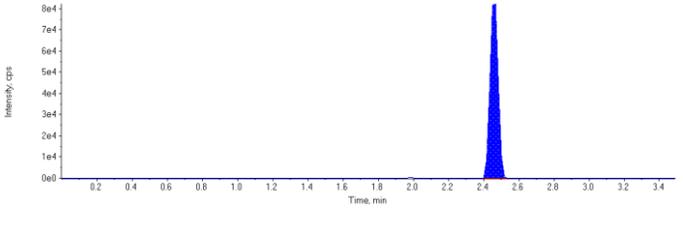
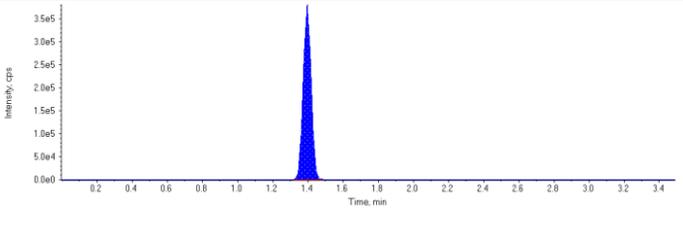
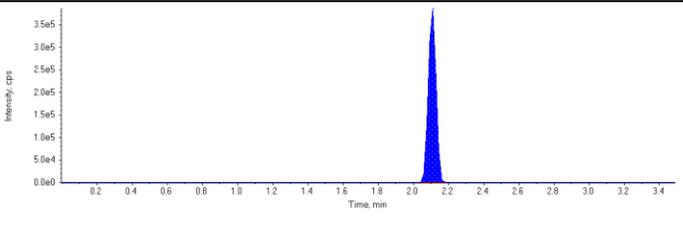


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<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.27 (1.11) min</p> <p>Calculated Conc: 0.00167 µg/L</p> <p>Area Ratio: 0.00773</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.84 (1.85) min</p> <p>Calculated Conc: 0.00193 µg/L</p> <p>Area Ratio: 0.00400</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.98 (1.96) min</p> <p>Calculated Conc: 0.00490 µg/L</p> <p>Area Ratio: 0.00658</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 93.0 µg/L</p> <p>Area Ratio: 0.249</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 92.6 µg/L</p> <p>Area Ratio: 0.117</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 78.9 µg/L</p> <p>Area Ratio: 0.228</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.54 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.67 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

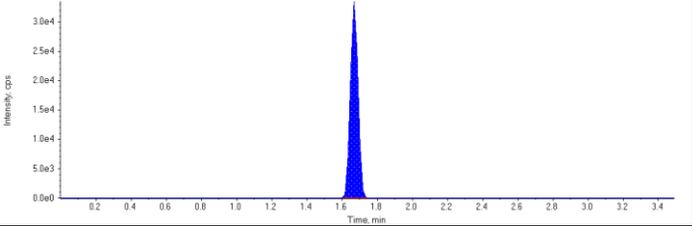
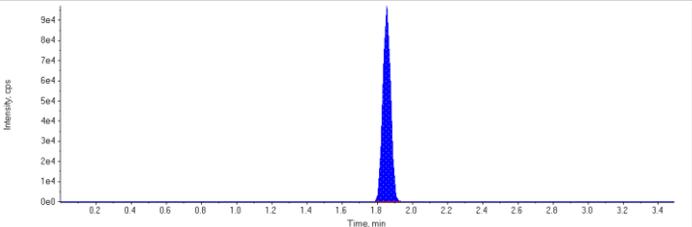
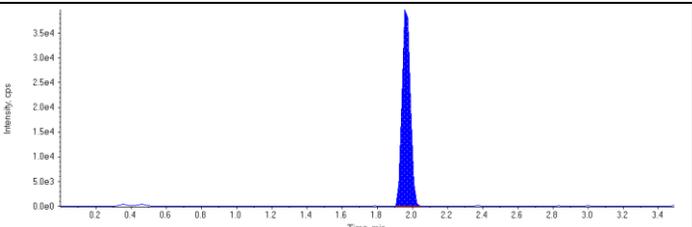
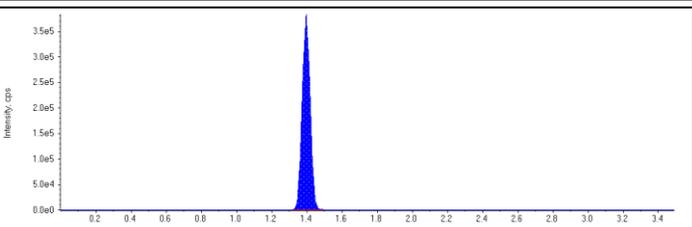
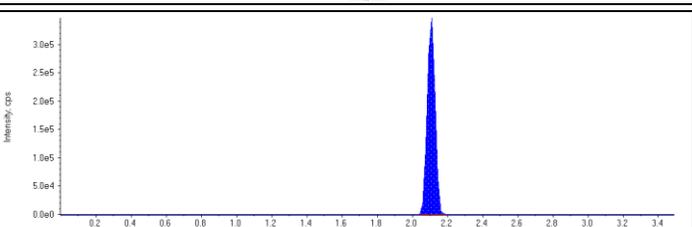


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Sample ID	4989765~EJU282-01	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	23
Acquisition Date	2017/05/19 8:30:13 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro/PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	102000.	1.67	1.00	-
MPFOA	296000.	1.85	1.00	-
MPFOS	131000.	1.96	1.00	-
13C6-PFHxA IS	1200000.	1.40	41.7	-
13C9-PFDA IS	1080000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

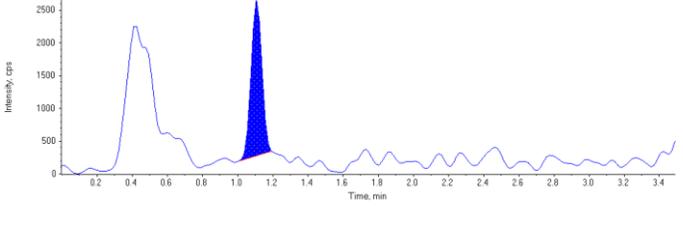
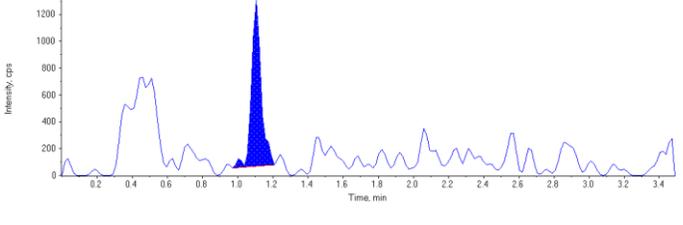
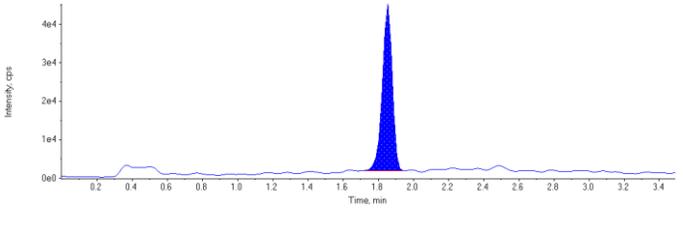
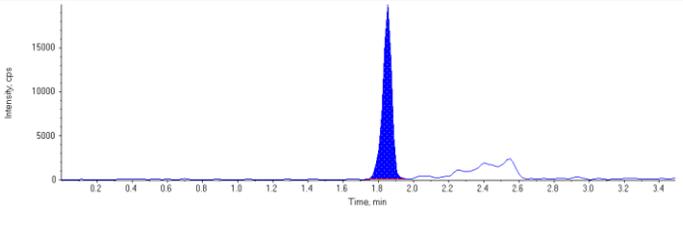
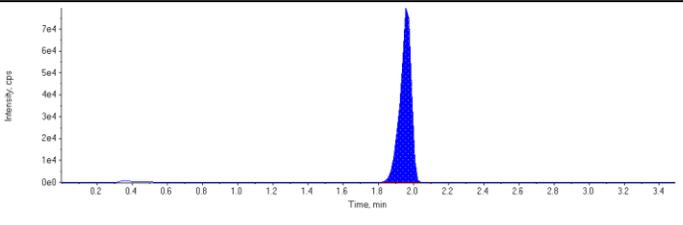
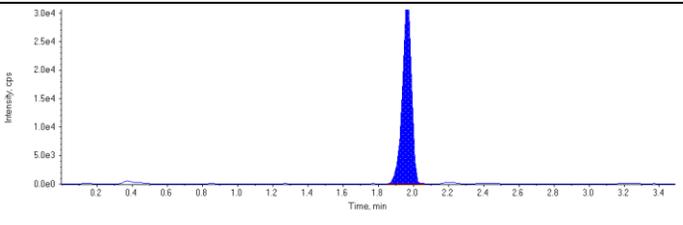
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	10100	1.11	N/A	0.00600	N/A
PFBS 2	4700	1.11	N/A	0.00330	N/A
PFOA 1	169000	1.85	N/A	0.0316	N/A
PFOA 2	69600	1.85	N/A	0.0330	N/A
PFOS 1	346000	1.96	N/A	0.130	N/A
PFOS 2	116000	1.97	N/A	0.134	N/A
13C4-PFOA	296000	1.85	N/A	92.4	N/A
13C4-PFOS	131000	1.96	N/A	86.8	N/A
13C8-PFOSA	298000	2.46	N/A	95.4	N/A
13C6-PFHxA	1200000	1.40	N/A	2.53	N/A
13C9-PFDA	1080000	2.11	N/A	2.42	N/A

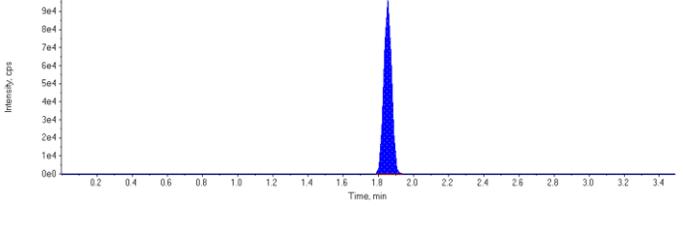
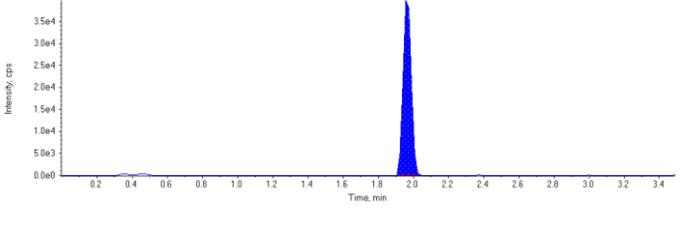
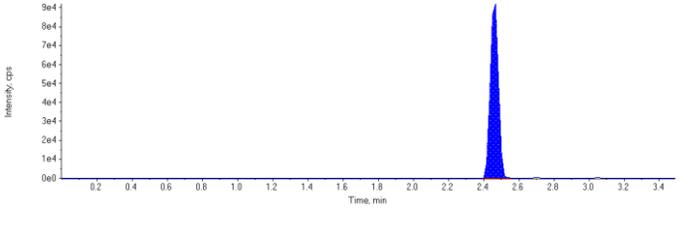
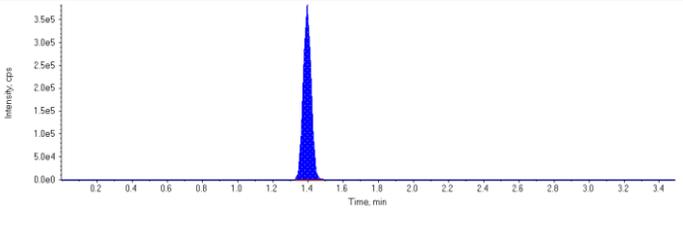
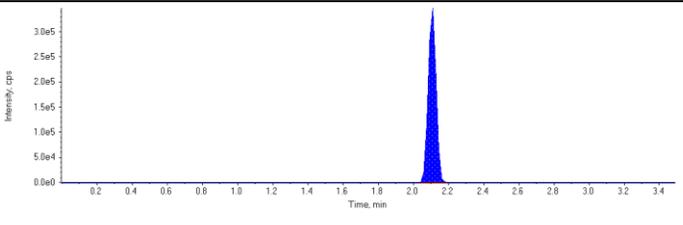
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 0.00600 µg/L</p> <p>Area Ratio: 0.0997</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 0.00330 µg/L</p> <p>Area Ratio: 0.0463</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.0316 µg/L</p> <p>Area Ratio: 0.570</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.0330 µg/L</p> <p>Area Ratio: 0.235</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 0.130 µg/L</p> <p>Area Ratio: 2.65</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 0.134 µg/L</p> <p>Area Ratio: 0.883</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 92.4 µg/L</p> <p>Area Ratio: 0.248</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 86.8 µg/L</p> <p>Area Ratio: 0.109</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOSA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 95.4 µg/L</p> <p>Area Ratio: 0.276</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.53 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.42 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

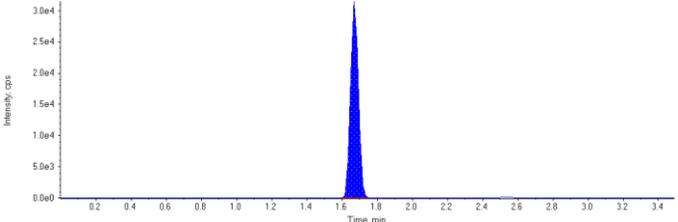
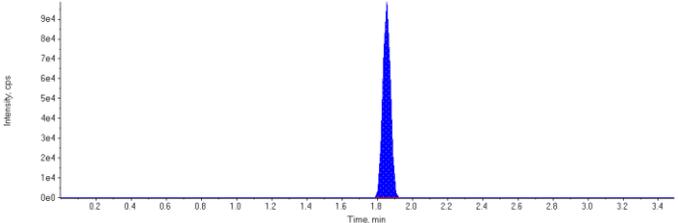
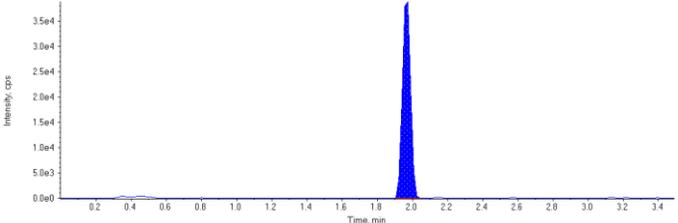
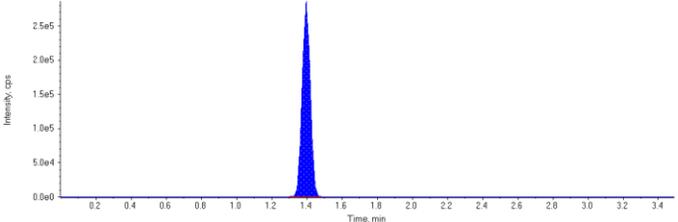
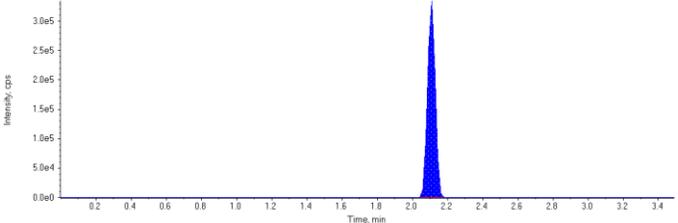


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Sample ID	4989765~EJU283-01	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	24
Acquisition Date	2017/05/19 8:50:27 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	97300.	1.67	1.00	-
MPFOA	299000.	1.85	1.00	-
MPFOS	129000.	1.97	1.00	-
13C6-PFHxA IS	912000.	1.40	41.7	-
13C9-PFDA IS	1020000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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	11800	1.10	N/A	0.00648	N/A
PFBS 2	8970	1.10	N/A	0.00526	N/A
PFOA 1	177000	1.85	N/A	0.0328	N/A
PFOA 2	73700	1.85	N/A	0.0346	N/A
PFOS 1	448000	1.97	N/A	0.170	N/A
PFOS 2	131000	1.97	N/A	0.154	N/A
13C4-PFOA	299000	1.85	N/A	123.	N/A
13C4-PFOS	129000	1.97	N/A	112.	N/A
13C8-PFOSA	257000	2.46	N/A	87.4	N/A
13C6-PFHxA	912000	1.40	N/A	1.93	N/A
13C9-PFDA	1020000	2.11	N/A	2.28	N/A

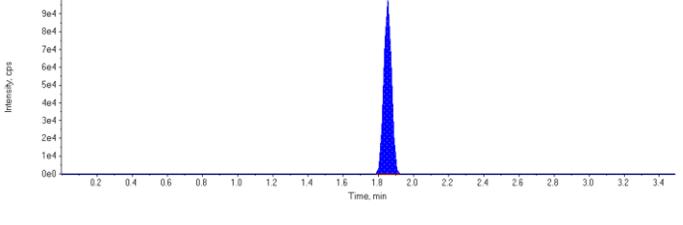
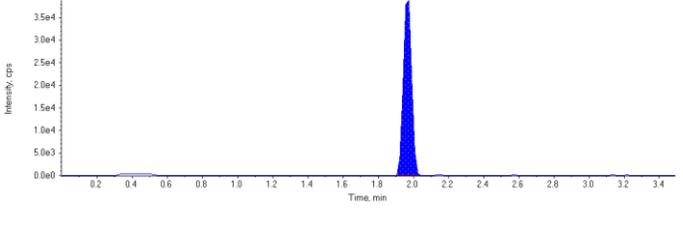
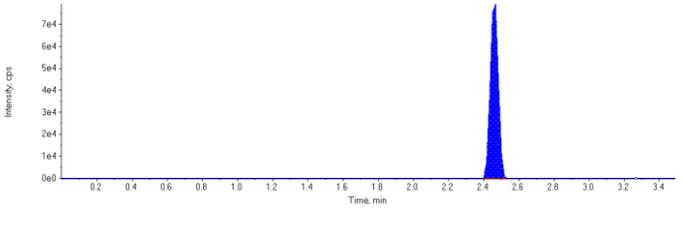
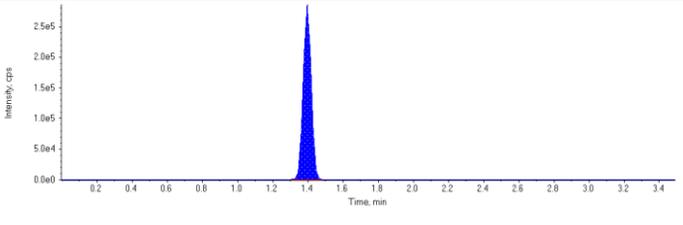
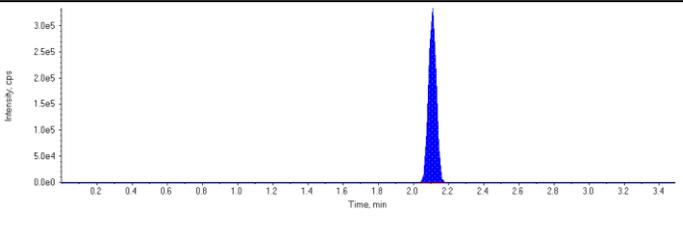
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



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<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.00648 µg/L</p> <p>Area Ratio: 0.122</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.00526 µg/L</p> <p>Area Ratio: 0.0923</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.0328 µg/L</p> <p>Area Ratio: 0.591</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.0346 µg/L</p> <p>Area Ratio: 0.246</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 0.170 µg/L</p> <p>Area Ratio: 3.47</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 0.154 µg/L</p> <p>Area Ratio: 1.02</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 123. µg/L</p> <p>Area Ratio: 0.328</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 112. µg/L</p> <p>Area Ratio: 0.141</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 87.4 µg/L</p> <p>Area Ratio: 0.252</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 1.93 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.28 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	



Created with Analyst Reporter
Printed: 02/06/2017 2:07:23 PM

Sample ID	4989765~EJU284-01:20x	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	25
Acquisition Date	2017/05/19 8:55:31 PM	Dilution Factor	0.480
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
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Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	Reported for PFOA & PFOS		

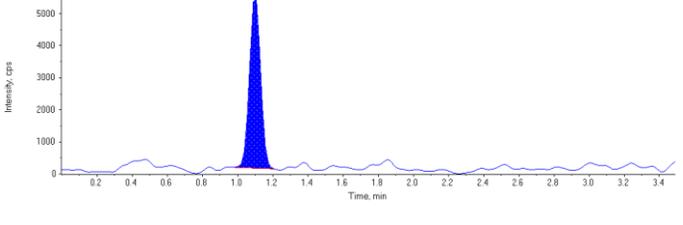
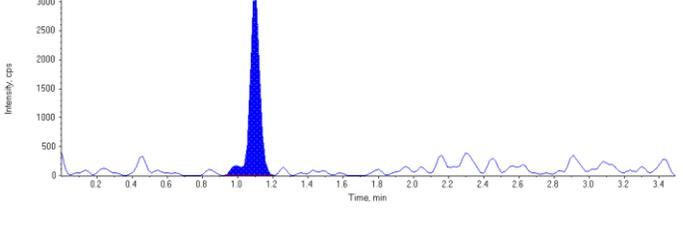
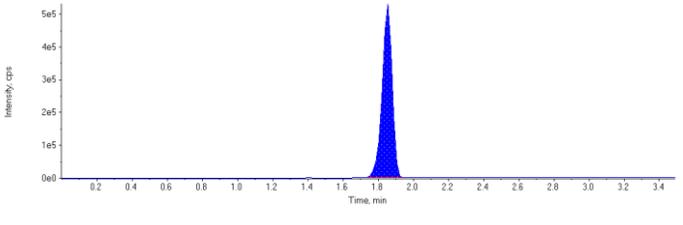
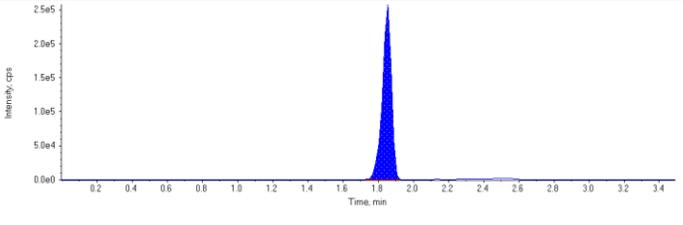
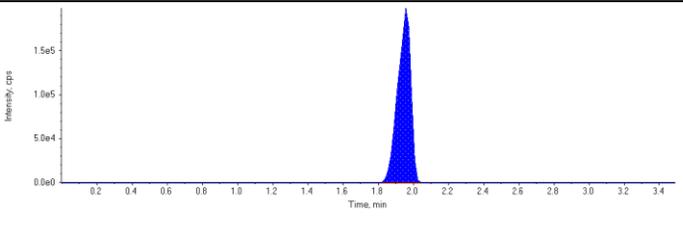
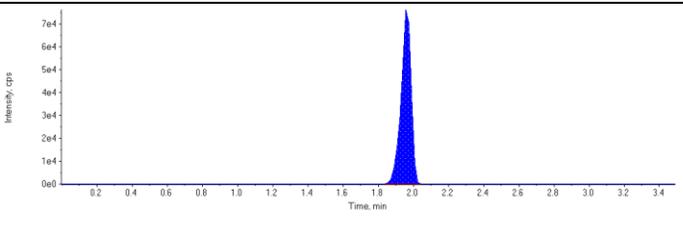
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	97600.	1.67	1.00	-
MPFOA	311000.	1.85	1.00	-
MPFOS	140000.	1.97	1.00	-
13C6-PFHxA IS	1020000.	1.39	2.08	-
13C9-PFDA IS	1020000.	2.11	2.08	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

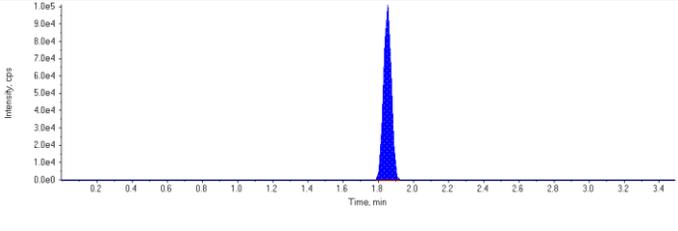
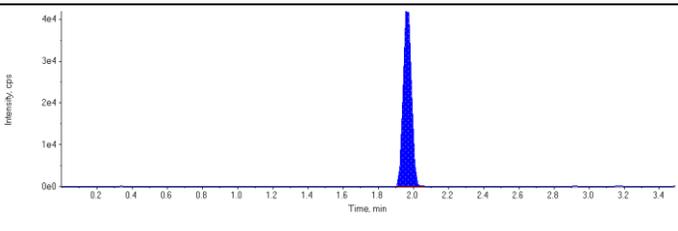
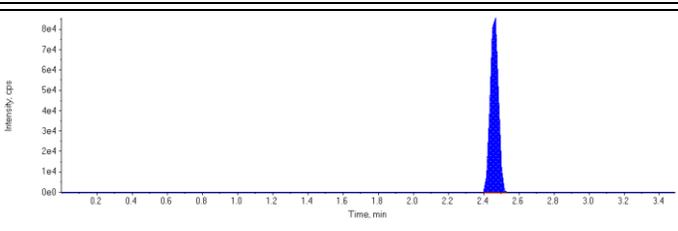
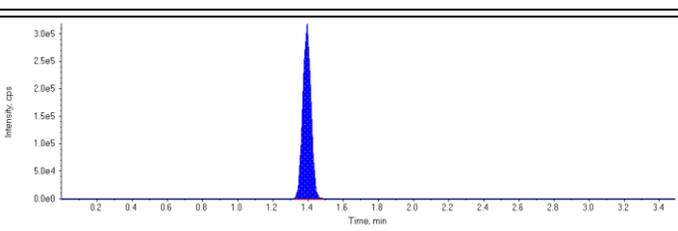
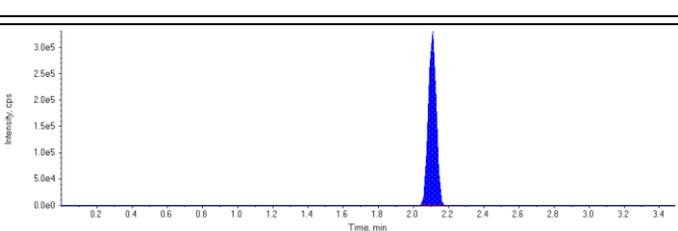
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	23500	1.10	N/A	0.181	N/A
PFBS 2	12300	1.10	N/A	0.133	N/A
PFOA 1	2080000	1.85	N/A	7.32	N/A
PFOA 2	924000	1.85	N/A	8.04	N/A
PFOS 1	1020000	1.96	N/A	7.05	N/A
PFOS 2	305000	1.96	N/A	6.49	N/A
13C4-PFOA	311000	1.85	N/A	113.	N/A
13C4-PFOS	140000	1.97	N/A	108.	N/A
13C8-PFOSA	278000	2.46	N/A	94.3	N/A
13C6-PFHxA	1020000	1.39	N/A	43.3	N/A
13C9-PFDA	1020000	2.11	N/A	45.4	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 2.08 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 2.08 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.181 µg/L</p> <p>Area Ratio: 0.241</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.133 µg/L</p> <p>Area Ratio: 0.126</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 7.32 µg/L</p> <p>Area Ratio: 6.71</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 8.04 µg/L</p> <p>Area Ratio: 2.97</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 7.05 µg/L</p> <p>Area Ratio: 7.32</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 6.49 µg/L</p> <p>Area Ratio: 2.18</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 113. µg/L</p> <p>Area Ratio: 0.304</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 108. µg/L</p> <p>Area Ratio: 0.137</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 94.3 µg/L</p> <p>Area Ratio: 0.273</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 43.3 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 45.4 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

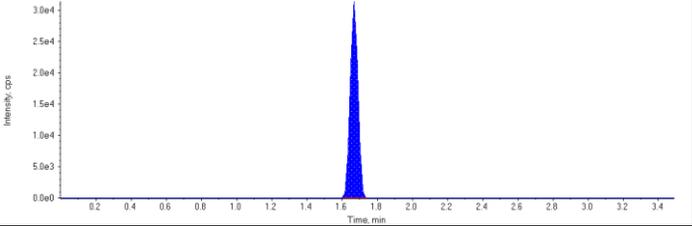
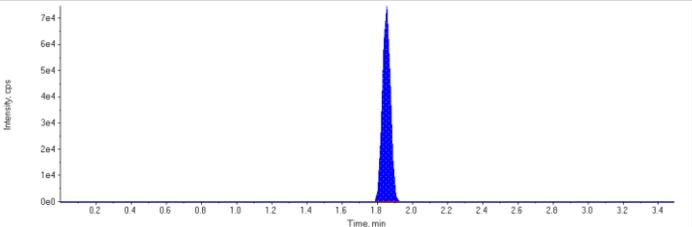
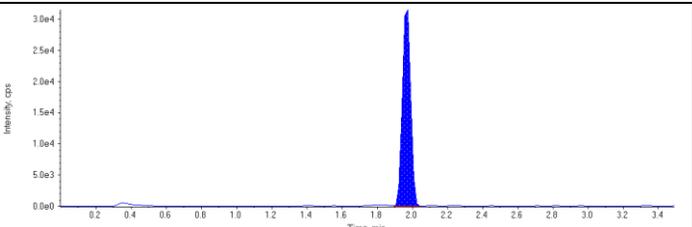
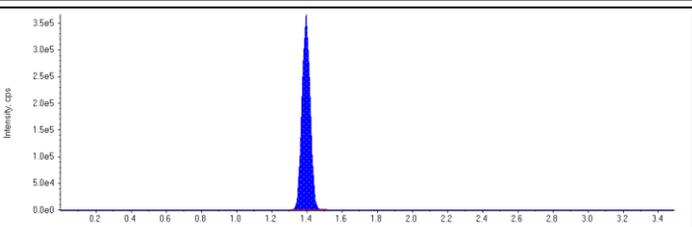
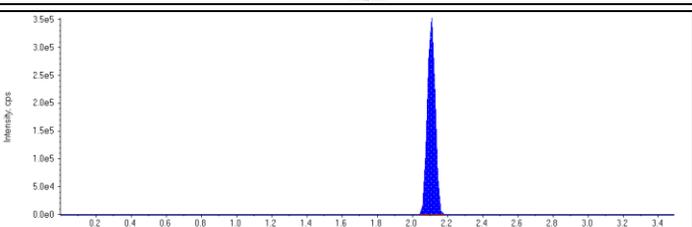


Created with Analyst Reporter
Printed: 02/06/2017 2:07:23 PM

Sample ID	4989765~EJU284-01	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	26
Acquisition Date	2017/05/19 9:00:35 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	Reported for PFBS		

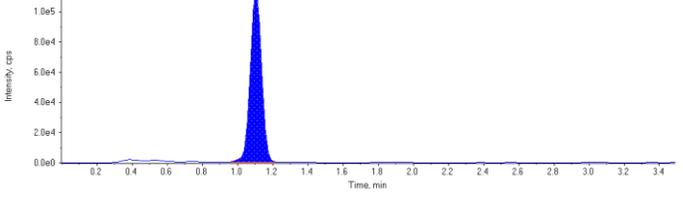
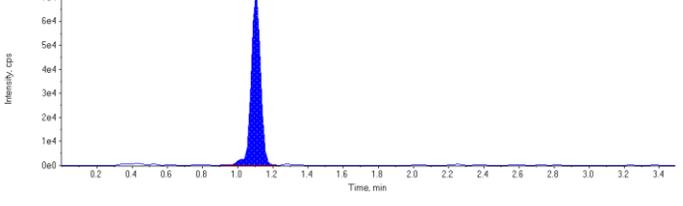
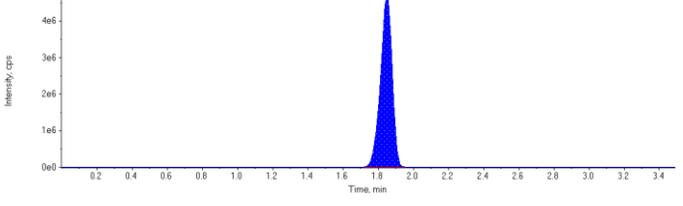
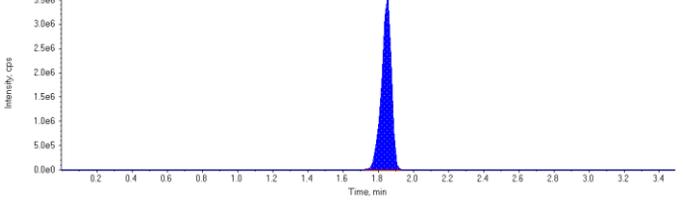
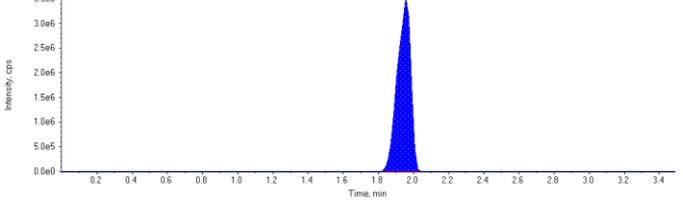
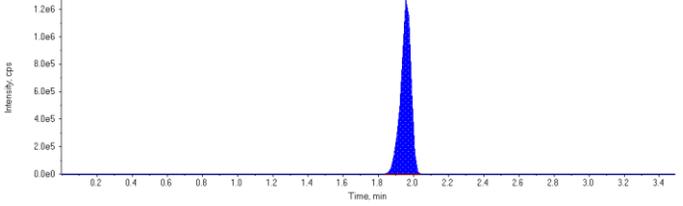
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	95300.	1.67	1.00	-
MPFOA	237000.	1.85	1.00	-
MPFOS	105000.	1.97	1.00	-
13C6-PFHxA IS	1170000.	1.40	41.7	-
13C9-PFDA IS	1090000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

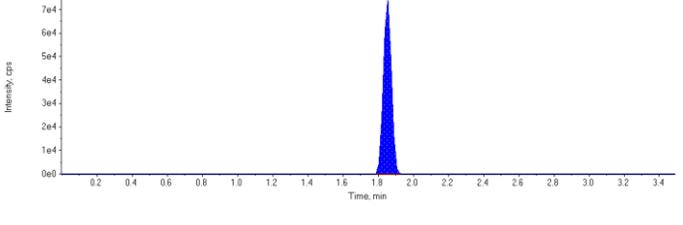
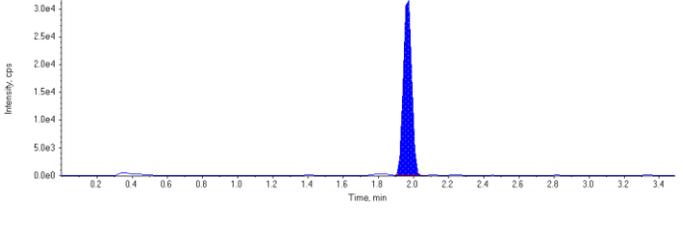
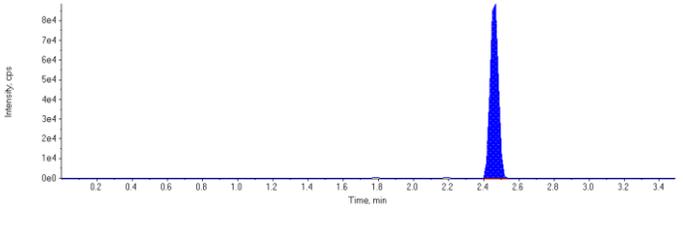
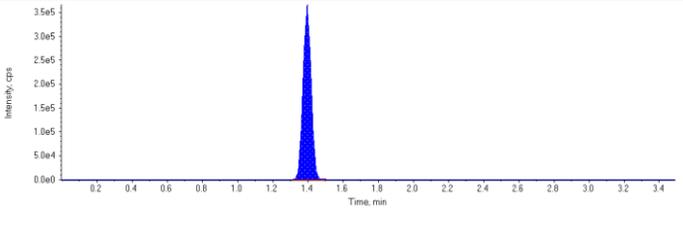
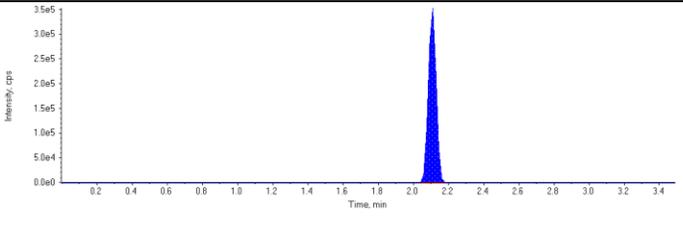
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	507000	1.10	N/A	0.118	N/A
PFBS 2	264000	1.10	N/A	0.119	N/A
PFOA 1	21700000	1.85	N/A	4.99	N/A
PFOA 2	13800000	1.85	N/A	7.84	N/A
PFOS 1	18800000	1.96	N/A	8.53	N/A
PFOS 2	5100000	1.96	N/A	7.17	N/A
13C4-PFOA	237000	1.85	N/A	75.5	N/A
13C4-PFOS	105000	1.97	N/A	70.9	N/A
13C8-PFOSA	289000	2.46	N/A	92.1	N/A
13C6-PFHxA	1170000	1.40	N/A	2.48	N/A
13C9-PFDA	1090000	2.11	N/A	2.43	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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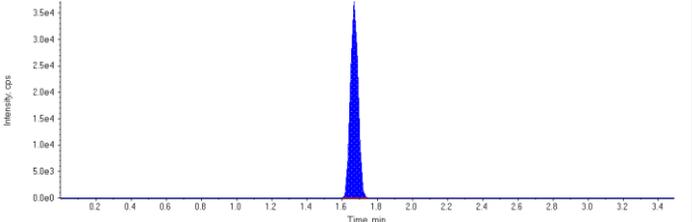
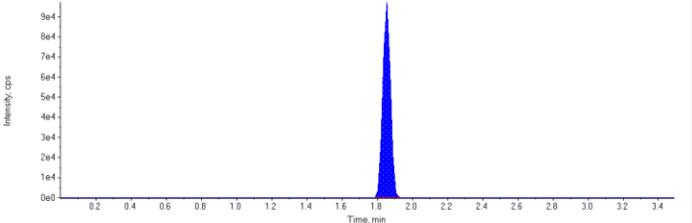
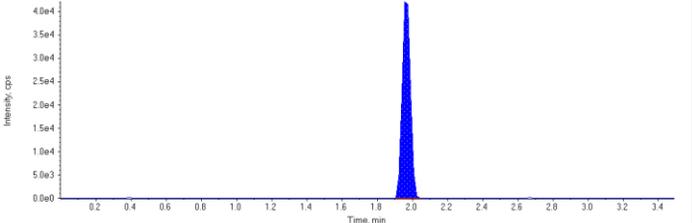
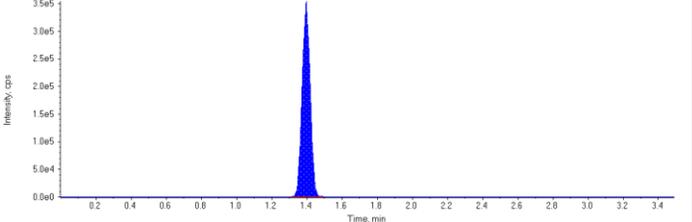
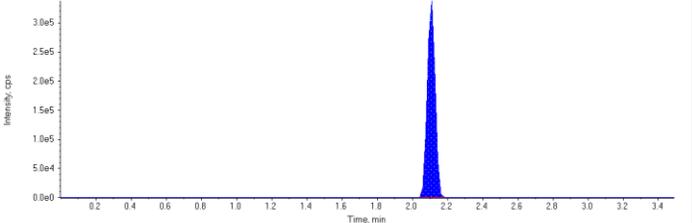
<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.118 µg/L</p> <p>Area Ratio: 5.31</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.119 µg/L</p> <p>Area Ratio: 2.77</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 4.99 µg/L</p> <p>Area Ratio: 91.5</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 7.84 µg/L</p> <p>Area Ratio: 58.2</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 8.53 µg/L</p> <p>Area Ratio: 180.</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 7.17 µg/L</p> <p>Area Ratio: 48.7</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 75.5 µg/L</p> <p>Area Ratio: 0.202</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 70.9 µg/L</p> <p>Area Ratio: 0.0893</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 92.1 µg/L</p> <p>Area Ratio: 0.266</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.48 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.43 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

Sample ID	4989765~EJU285-01:20x	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	27
Acquisition Date	2017/05/19 9:10:44 PM	Dilution Factor	0.480
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	Reported for PFOS		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	112000.	1.67	1.00	-
MPFOA	297000.	1.85	1.00	-
MPFOS	141000.	1.97	1.00	-
13C6-PFHxA IS	1120000.	1.40	2.08	-
13C9-PFDA IS	1050000.	2.11	2.08	-
N/A	N/A	N/A	N/A	-
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	9110	1.10	N/A	0.112	N/A
PFBS 2	6020	1.11	N/A	0.0725	N/A
PFOA 1	230000	1.85	N/A	0.856	N/A
PFOA 2	93000	1.85	N/A	0.872	N/A
PFOS 1	1460000	1.96	N/A	9.97	N/A
PFOS 2	451000	1.97	N/A	9.53	N/A
13C4-PFOA	297000	1.85	N/A	99.0	N/A
13C4-PFOS	141000	1.97	N/A	99.8	N/A
13C8-PFOSA	282000	2.46	N/A	93.2	N/A
13C6-PFHxA	1120000	1.40	N/A	47.2	N/A
13C9-PFDA	1050000	2.11	N/A	46.7	N/A

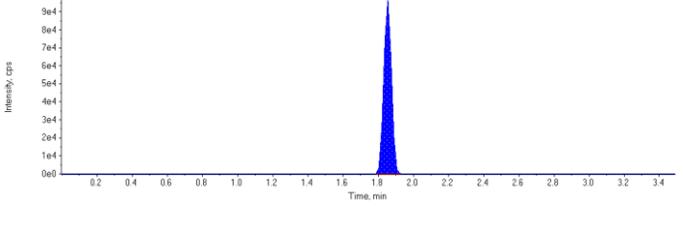
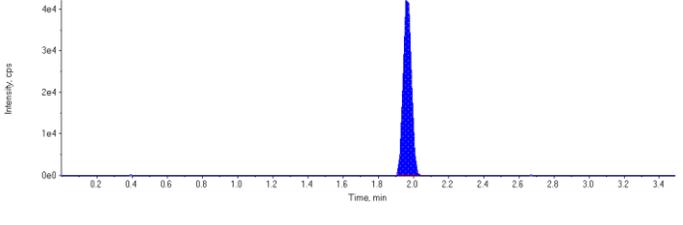
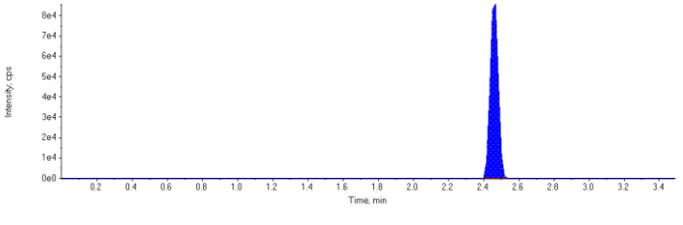
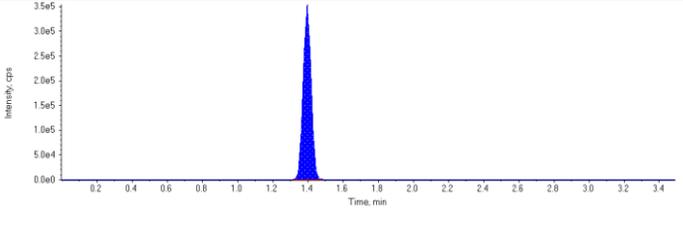
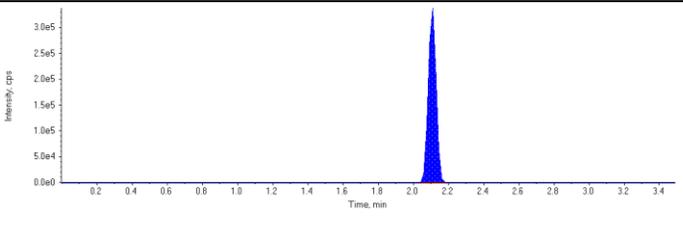
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 2.08 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 2.08 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.112 µg/L</p> <p>Area Ratio: 0.0814</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 0.0725 µg/L</p> <p>Area Ratio: 0.0538</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.856 µg/L</p> <p>Area Ratio: 0.775</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.872 µg/L</p> <p>Area Ratio: 0.313</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 9.97 µg/L</p> <p>Area Ratio: 10.4</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 9.53 µg/L</p> <p>Area Ratio: 3.21</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 99.0 µg/L</p> <p>Area Ratio: 0.266</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 99.8 µg/L</p> <p>Area Ratio: 0.126</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 93.2 µg/L</p> <p>Area Ratio: 0.270</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 47.2 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 46.7 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

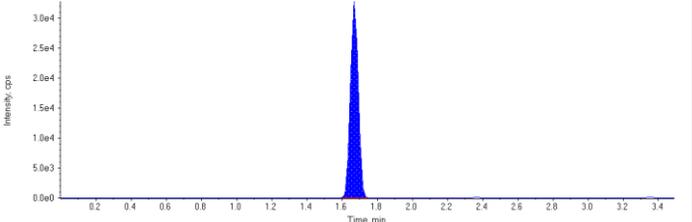
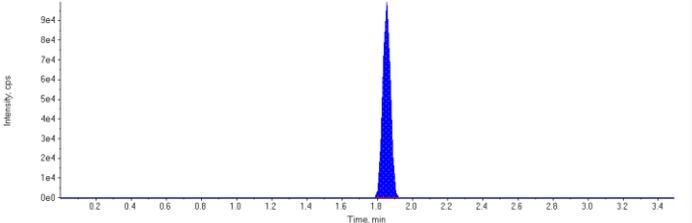
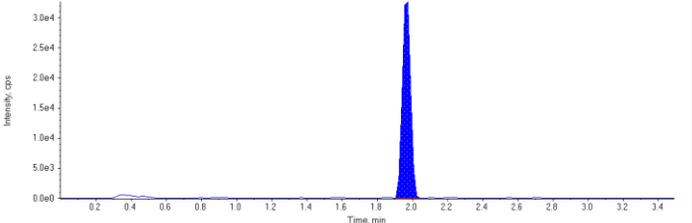
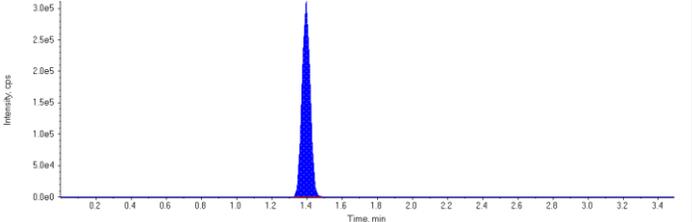
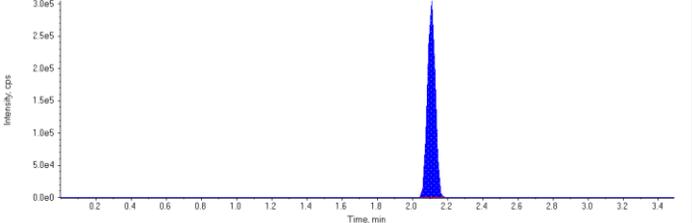


Created with Analyst Reporter
Printed: 02/06/2017 2:07:23 PM

Sample ID	4989765~EJU285-01	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	28
Acquisition Date	2017/05/19 9:15:48 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	Reported for PFBS & PFOA		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	101000.	1.67	1.00	-
MPFOA	304000.	1.85	1.00	-
MPFOS	109000.	1.97	1.00	-
13C6-PFHxA IS	989000.	1.40	41.7	-
13C9-PFDA IS	936000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

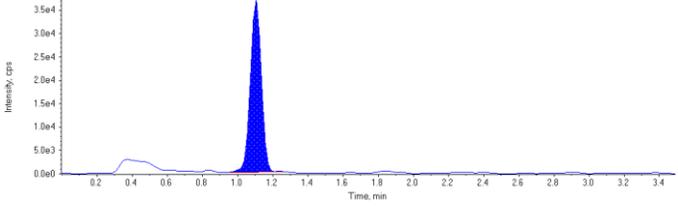
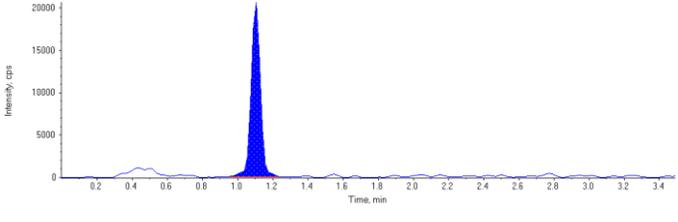
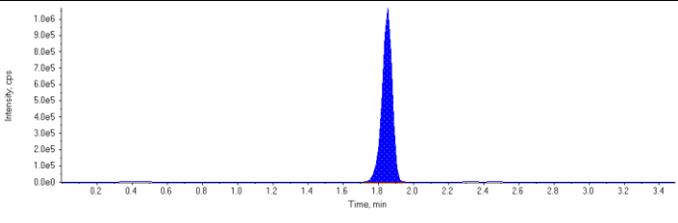
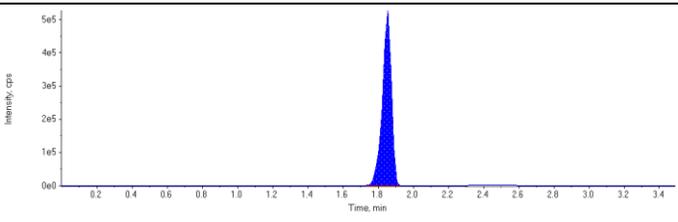
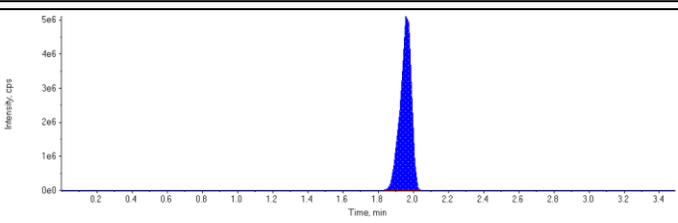
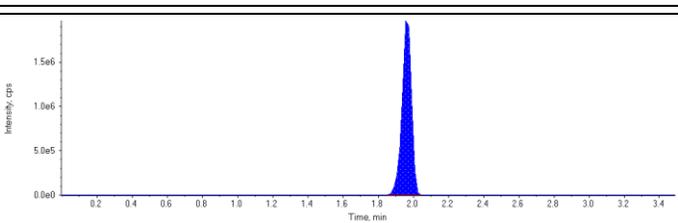
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	160000	1.10	N/A	0.0380	N/A
PFBS 2	75900	1.10	N/A	0.0332	N/A
PFOA 1	4180000	1.85	N/A	0.751	N/A
PFOA 2	1870000	1.85	N/A	0.832	N/A
PFOS 1	22600000	1.96	N/A	9.89	N/A
PFOS 2	7420000	1.96	N/A	10.0	N/A
13C4-PFOA	304000	1.85	N/A	115.	N/A
13C4-PFOS	109000	1.97	N/A	87.3	N/A
13C8-PFOSA	288000	2.46	N/A	107.	N/A
13C6-PFHxA	989000	1.40	N/A	2.09	N/A
13C9-PFDA	936000	2.11	N/A	2.09	N/A

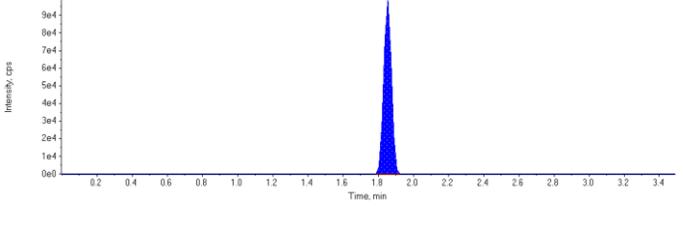
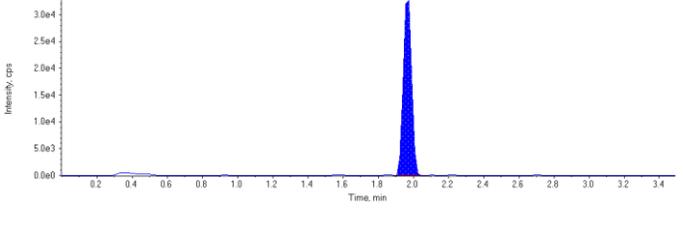
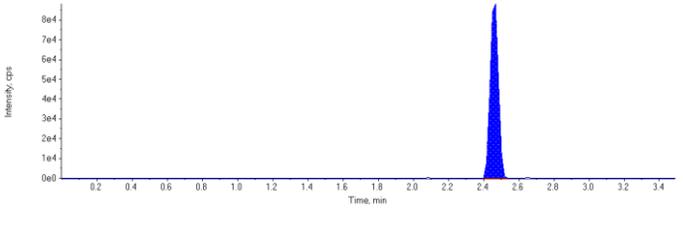
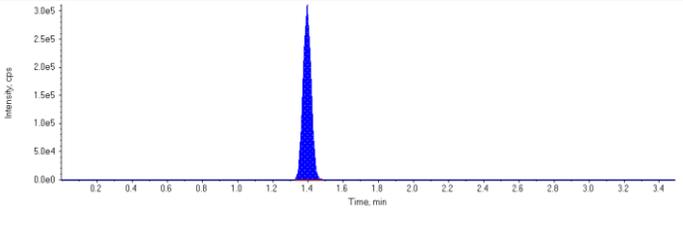
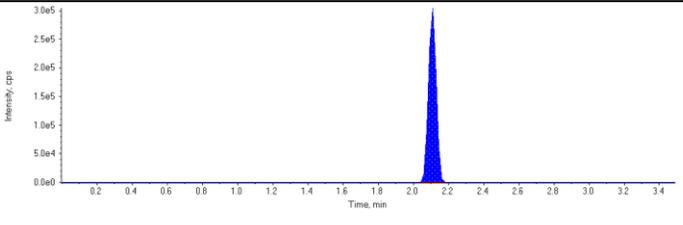
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.0380 µg/L</p> <p>Area Ratio: 1.58</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.0332 µg/L</p> <p>Area Ratio: 0.751</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.751 µg/L</p> <p>Area Ratio: 13.8</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.832 µg/L</p> <p>Area Ratio: 6.17</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 9.89 µg/L</p> <p>Area Ratio: 208.</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 10.0 µg/L</p> <p>Area Ratio: 68.2</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 115. µg/L</p> <p>Area Ratio: 0.307</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 87.3 µg/L</p> <p>Area Ratio: 0.110</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 107. µg/L</p> <p>Area Ratio: 0.308</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.09 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.09 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	



4. QA/QC Data

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

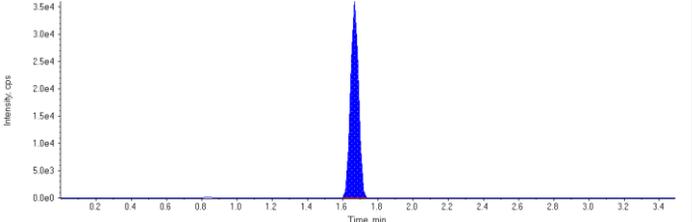
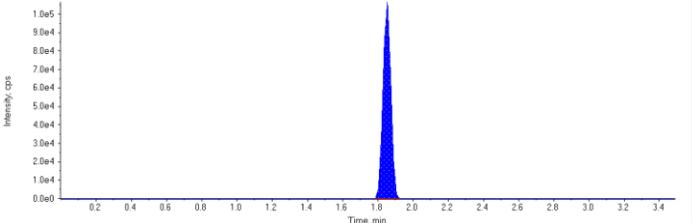
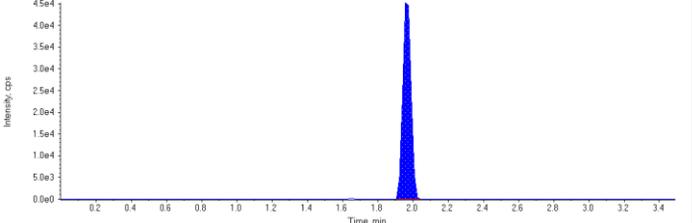
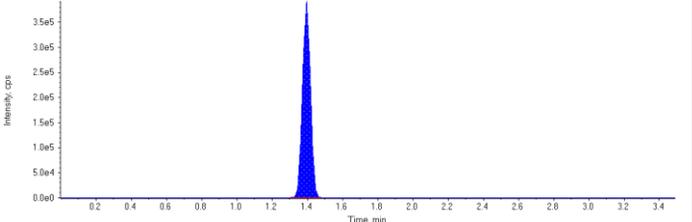
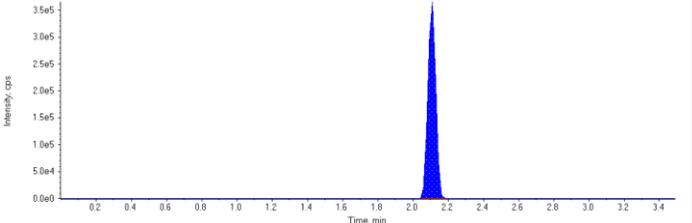


Created with Analyst Reporter
Printed: 02/06/2017 1:52:03 PM

Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 5:58:20 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	111000.	1.67	1.00	-
MPFOA	331000.	1.85	1.00	-
MPFOS	150000.	1.97	1.00	-
13C6-PFHxA IS	1230000.	1.39	41.7	-
13C9-PFDA IS	1130000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	1100	0.879	N/A	0.00176	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1230	1.86	N/A	0.00190	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	647	2.17	N/A	0.00456	N/A
13C4-PFOA	331000	1.85	N/A	100.	N/A
13C4-PFOS	150000	1.97	N/A	97.0	N/A
13C8-PFOA	298000	2.46	N/A	91.1	N/A
13C6-PFHxA	1230000	1.39	N/A	2.60	N/A
13C9-PFDA	1130000	2.11	N/A	2.53	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 0.879 (1.11) min</p> <p>Calculated Conc: 0.00176 µg/L</p> <p>Area Ratio: 0.00989</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.86 (1.85) min</p> <p>Calculated Conc: 0.00190 µg/L</p> <p>Area Ratio: 0.00371</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 2.17 (1.96) min</p> <p>Calculated Conc: 0.00456 µg/L</p> <p>Area Ratio: 0.00430</p> <p>Sample Type: (Unknown)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 100. µg/L</p> <p>Area Ratio: 0.269</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 97.0 µg/L</p> <p>Area Ratio: 0.122</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 91.1 µg/L</p> <p>Area Ratio: 0.263</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 2.60 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.53 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

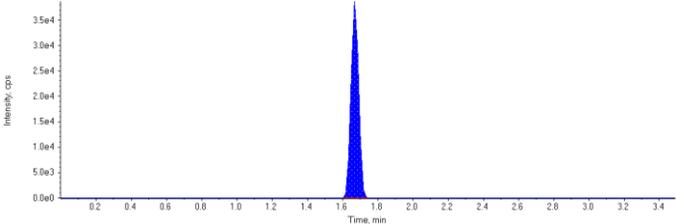
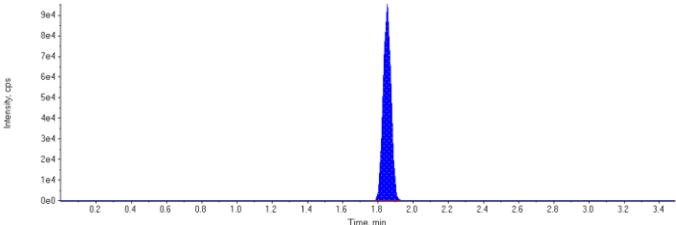
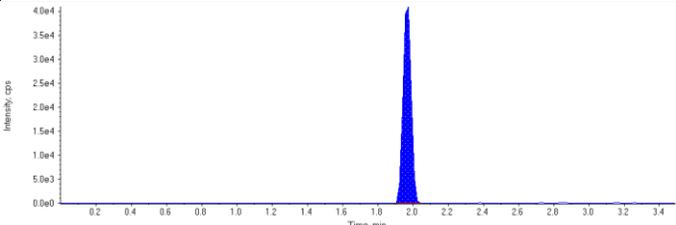
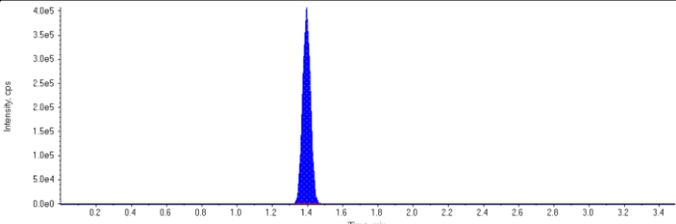
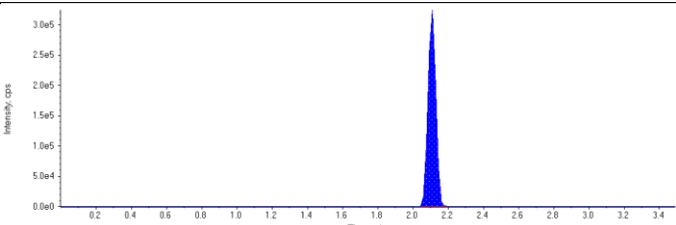


Created with Analyst Reporter
Printed: 02/06/2017 1:52:03 PM

Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 7:24:23 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	117000.	1.67	1.00	-
MPFOA	295000.	1.85	1.00	-
MPFOS	134000.	1.97	1.00	-
13C6-PFHxA IS	1270000.	1.40	41.7	-
13C9-PFDA IS	1010000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	1390	1.09	N/A	0.00184	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1100	1.85	N/A	0.00190	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	0	0.00	N/A	N/A	N/A
13C4-PFOA	295000	1.85	N/A	86.8	N/A
13C4-PFOS	134000	1.97	N/A	84.1	N/A
13C8-PFOA	326000	2.46	N/A	112.	N/A
13C6-PFHxA	1270000	1.40	N/A	2.68	N/A
13C9-PFDA	1010000	2.11	N/A	2.25	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>

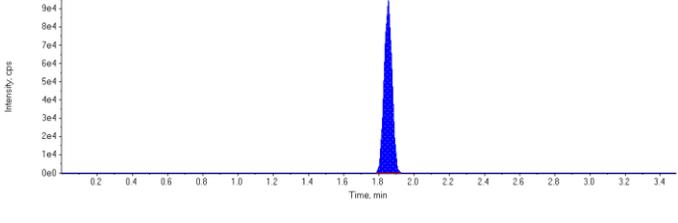
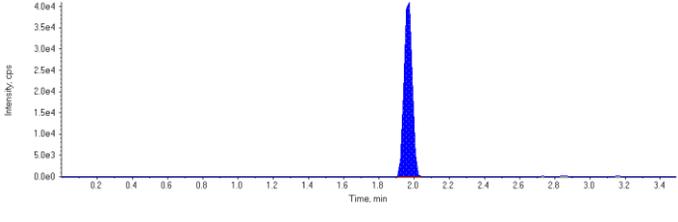
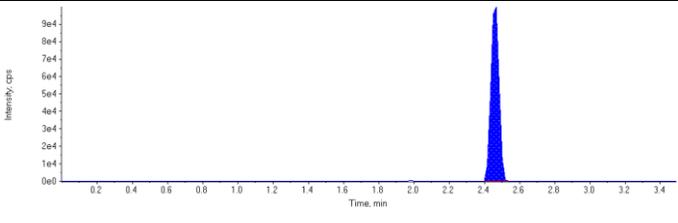
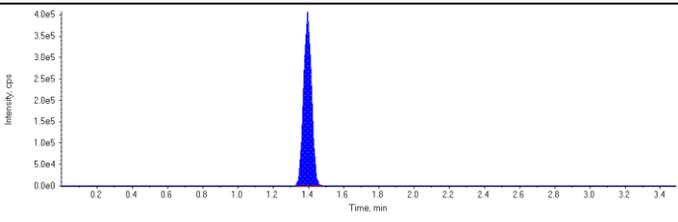
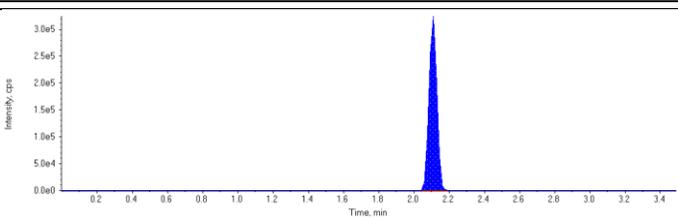


<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.09 (1.11) min</p> <p>Calculated Conc: 0.00184 µg/L</p> <p>Area Ratio: 0.0118</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.00190 µg/L</p> <p>Area Ratio: 0.00373</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 86.8 µg/L</p> <p>Area Ratio: 0.233</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 84.1 µg/L</p> <p>Area Ratio: 0.106</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 112. µg/L</p> <p>Area Ratio: 0.323</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.68 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.25 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

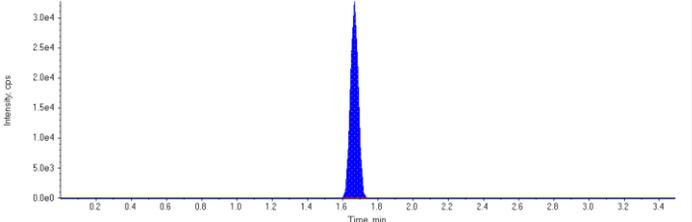
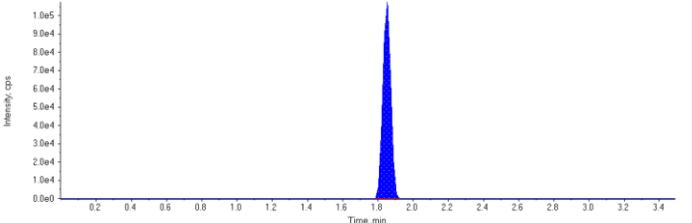
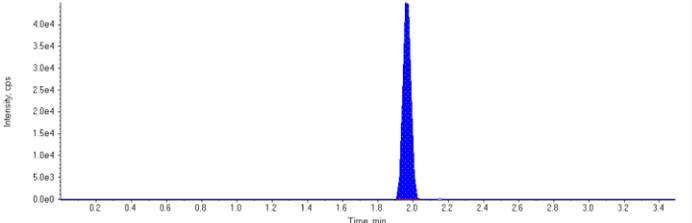
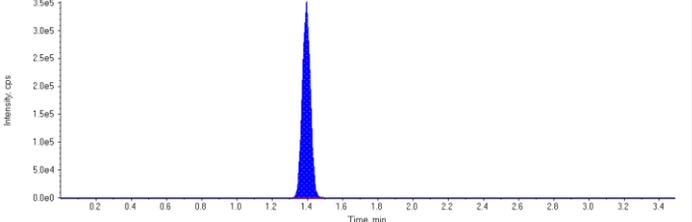
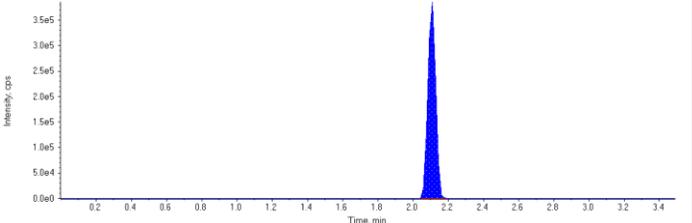


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Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 7:44:38 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	99800.	1.67	1.00	-
MPFOA	338000.	1.85	1.00	-
MPFOS	149000.	1.97	1.00	-
13C6-PFHxA IS	1120000.	1.39	41.7	-
13C9-PFDA IS	1200000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	758	1.14	N/A	0.00166	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	2590	1.86	N/A	0.00243	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	0	0.00	N/A	N/A	N/A
13C4-PFOA	338000	1.85	N/A	112.	N/A
13C4-PFOS	149000	1.97	N/A	105.	N/A
13C8-PFOA	311000	2.46	N/A	89.9	N/A
13C6-PFHxA	1120000	1.39	N/A	2.38	N/A
13C9-PFDA	1200000	2.11	N/A	2.68	N/A

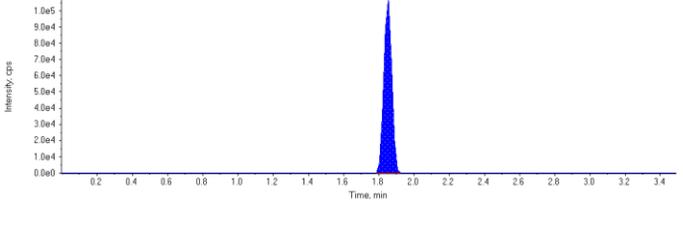
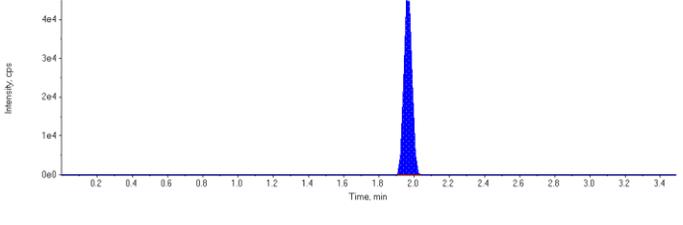
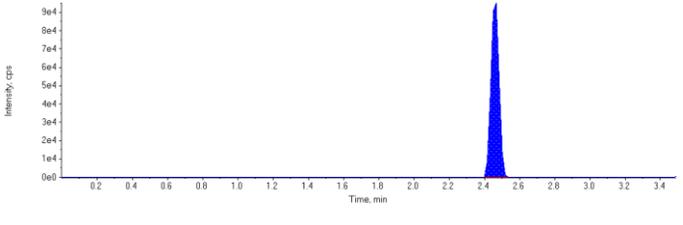
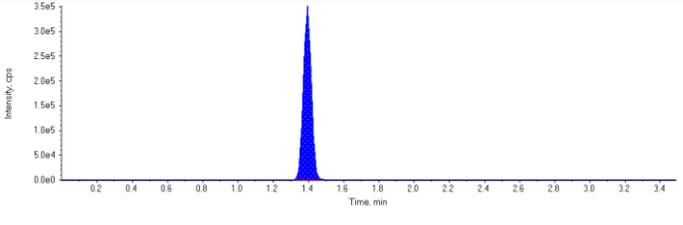
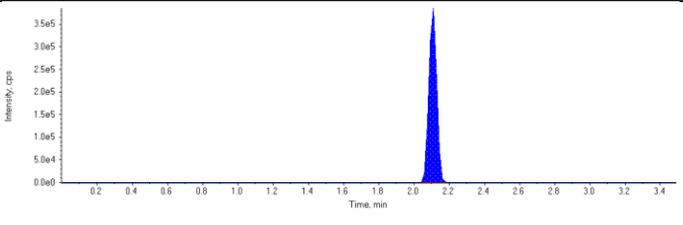
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.14 (1.11) min</p> <p>Calculated Conc: 0.00166 µg/L</p> <p>Area Ratio: 0.00759</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.86 (1.85) min</p> <p>Calculated Conc: 0.00243 µg/L</p> <p>Area Ratio: 0.00764</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 112. µg/L</p> <p>Area Ratio: 0.301</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.132</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 89.9 µg/L</p> <p>Area Ratio: 0.260</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 2.38 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.68 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

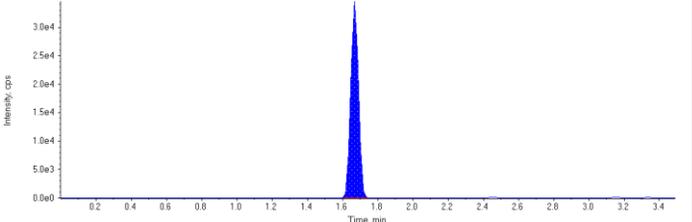
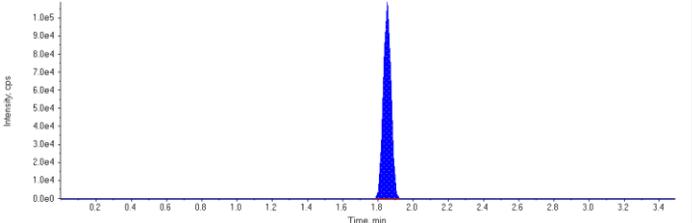
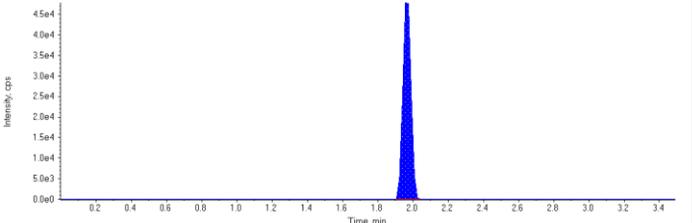
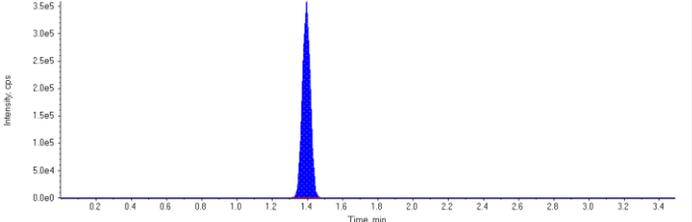
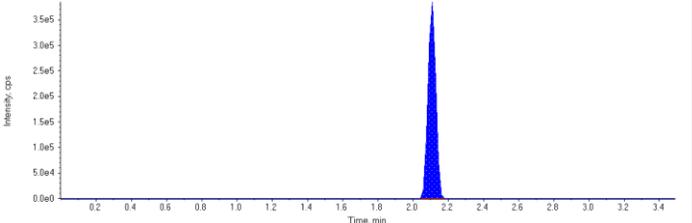


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Printed: 02/06/2017 1:52:03 PM

Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 7:59:49 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	104000.	1.67	1.00	-
MPFOA	332000.	1.85	1.00	-
MPFOS	159000.	1.97	1.00	-
13C6-PFHxA IS	1130000.	1.39	41.7	-
13C9-PFDA IS	1180000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	1030	1.17	N/A	0.00176	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1440	1.85	N/A	0.00198	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	0	0.00	N/A	N/A	N/A
13C4-PFOA	332000	1.85	N/A	109.	N/A
13C4-PFOS	159000	1.97	N/A	112.	N/A
13C8-PFOA	304000	2.46	N/A	89.0	N/A
13C6-PFHxA	1130000	1.39	N/A	2.39	N/A
13C9-PFDA	1180000	2.11	N/A	2.64	N/A

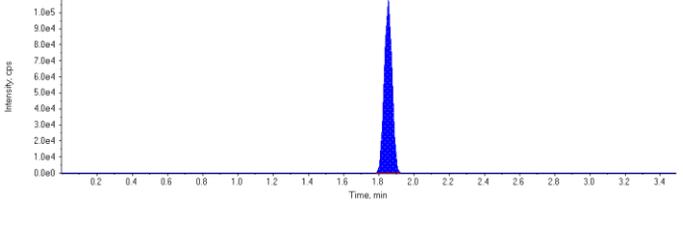
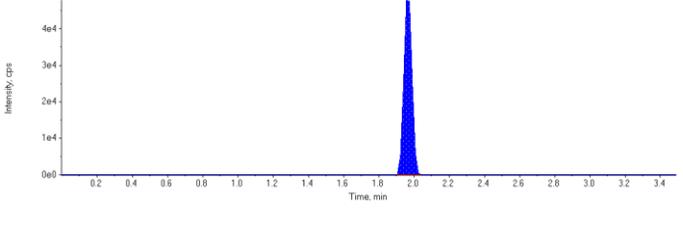
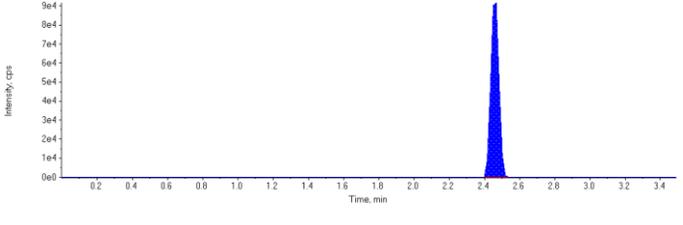
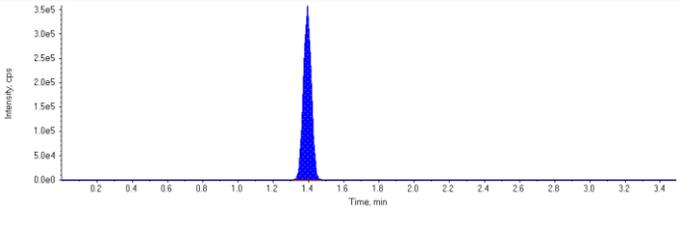
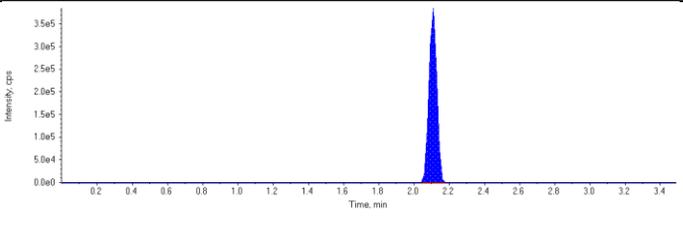
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.17 (1.11) min</p> <p>Calculated Conc: 0.00176 µg/L</p> <p>Area Ratio: 0.00986</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.00198 µg/L</p> <p>Area Ratio: 0.00433</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 109. µg/L</p> <p>Area Ratio: 0.293</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 112. µg/L</p> <p>Area Ratio: 0.141</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 89.0 µg/L</p> <p>Area Ratio: 0.257</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 2.39 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.64 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

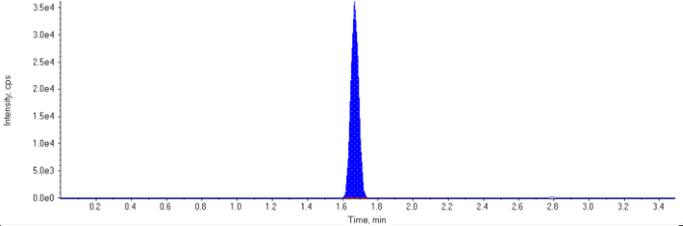
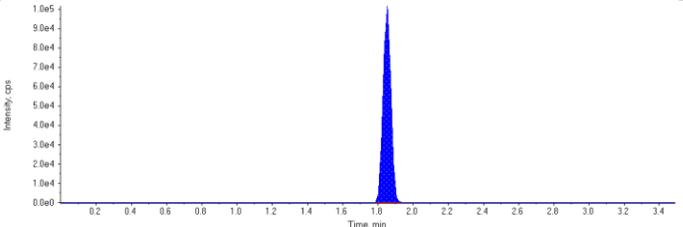
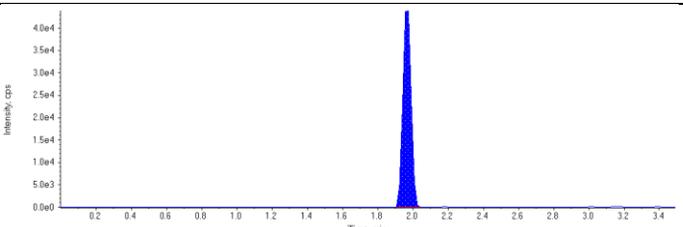
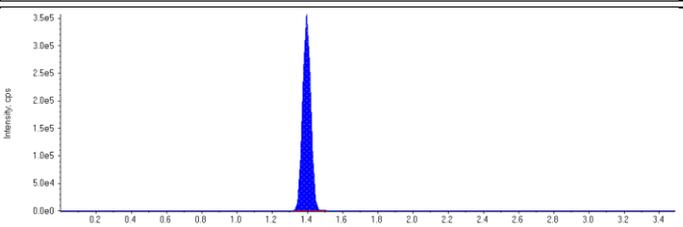
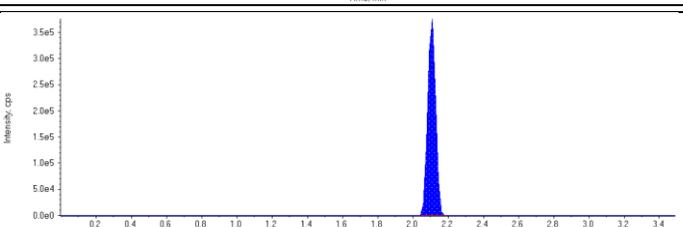


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Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 8:20:05 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	110000.	1.67	1.00	-
MPFOA	314000.	1.85	1.00	-
MPFOS	147000.	1.97	1.00	-
13C6-PFHxA IS	1140000.	1.40	41.7	-
13C9-PFDA IS	1180000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	790	1.08	N/A	0.00164	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1230	1.85	N/A	0.00192	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	577	1.99	N/A	0.00451	N/A
13C4-PFOA	314000	1.85	N/A	103.	N/A
13C4-PFOS	147000	1.97	N/A	102.	N/A
13C8-PFOA	336000	2.46	N/A	98.7	N/A
13C6-PFHxA	1140000	1.40	N/A	2.41	N/A
13C9-PFDA	1180000	2.11	N/A	2.63	N/A

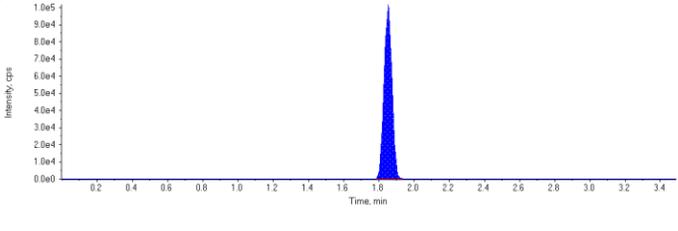
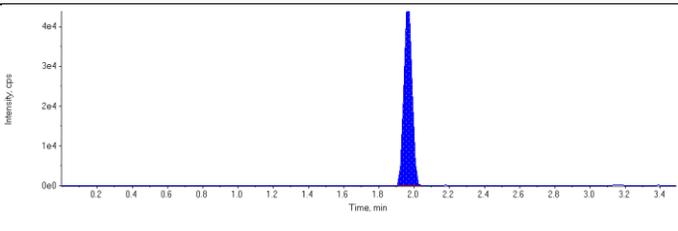
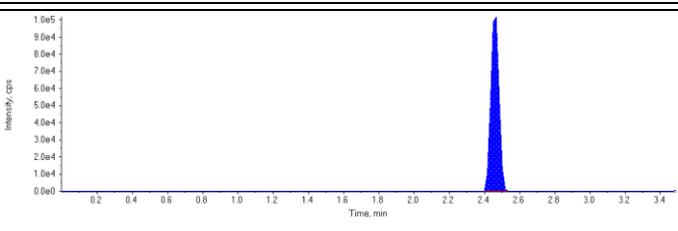
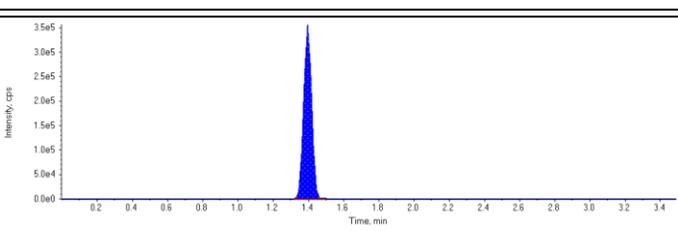
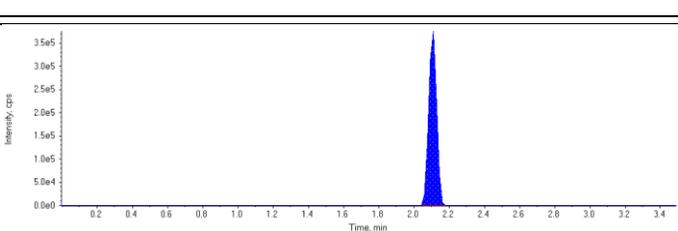
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<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.08 (1.11) min</p> <p>Calculated Conc: 0.00164 µg/L</p> <p>Area Ratio: 0.00721</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.00192 µg/L</p> <p>Area Ratio: 0.00392</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.99 (1.96) min</p> <p>Calculated Conc: 0.00451 µg/L</p> <p>Area Ratio: 0.00393</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 103. µg/L</p> <p>Area Ratio: 0.275</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 102. µg/L</p> <p>Area Ratio: 0.129</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 98.7 µg/L</p> <p>Area Ratio: 0.285</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.41 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.63 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

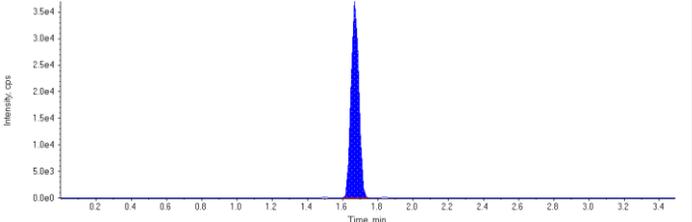
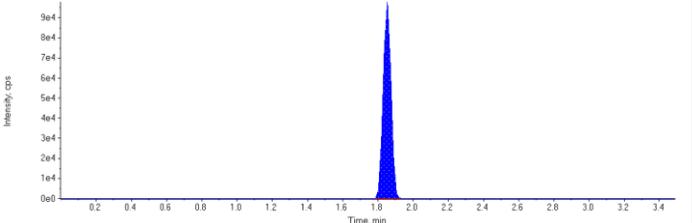
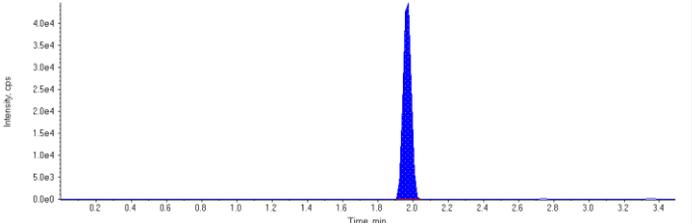
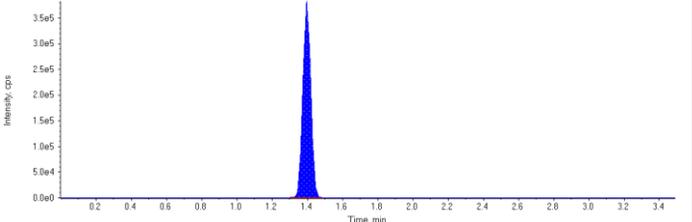
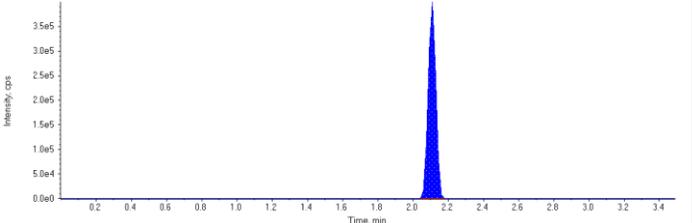


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Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 9:05:40 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	112000.	1.67	1.00	-
MPFOA	303000.	1.85	1.00	-
MPFOS	147000.	1.97	1.00	-
13C6-PFHxA IS	1190000.	1.40	41.7	-
13C9-PFDA IS	1210000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	893	1.25	N/A	0.00168	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1400	1.86	N/A	0.00202	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	0	0.00	N/A	N/A	N/A
13C4-PFOA	303000	1.85	N/A	94.6	N/A
13C4-PFOS	147000	1.97	N/A	97.5	N/A
13C8-PFOA	300000	2.46	N/A	85.7	N/A
13C6-PFHxA	1190000	1.40	N/A	2.53	N/A
13C9-PFDA	1210000	2.11	N/A	2.71	N/A

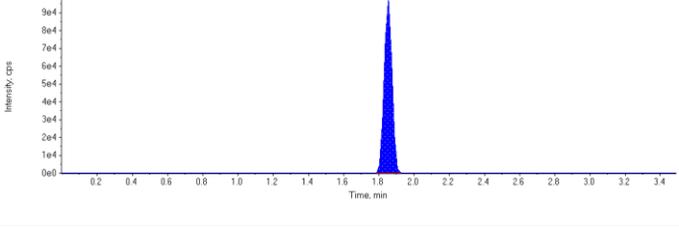
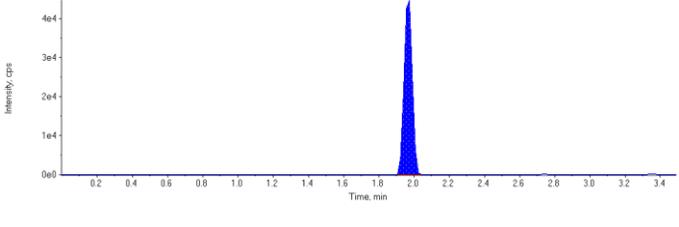
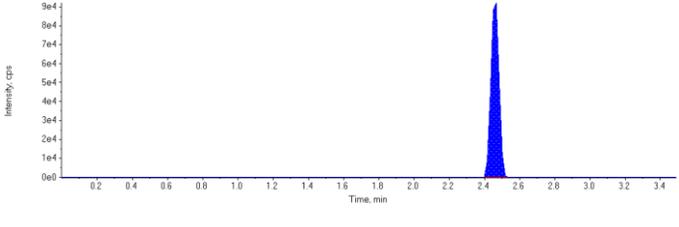
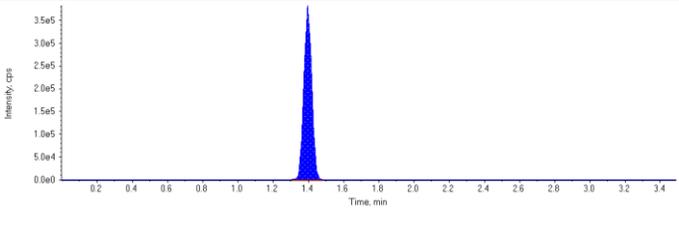
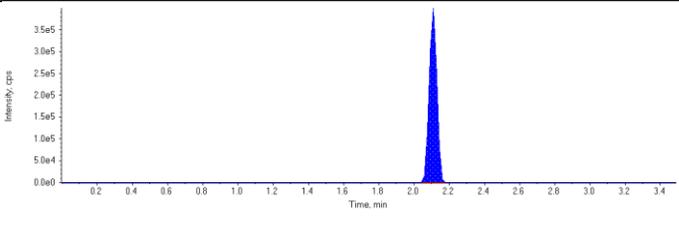
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.25 (1.11) min</p> <p>Calculated Conc: 0.00168 µg/L</p> <p>Area Ratio: 0.00799</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.86 (1.85) min</p> <p>Calculated Conc: 0.00202 µg/L</p> <p>Area Ratio: 0.00461</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 94.6 µg/L</p> <p>Area Ratio: 0.254</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 97.5 µg/L</p> <p>Area Ratio: 0.123</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 85.7 µg/L</p> <p>Area Ratio: 0.248</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.53 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.71 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

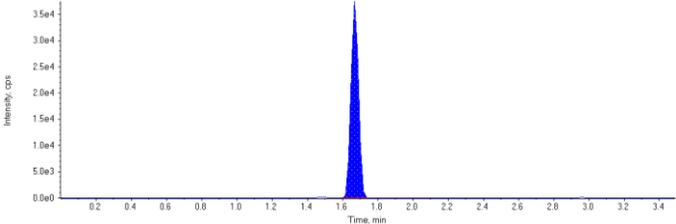
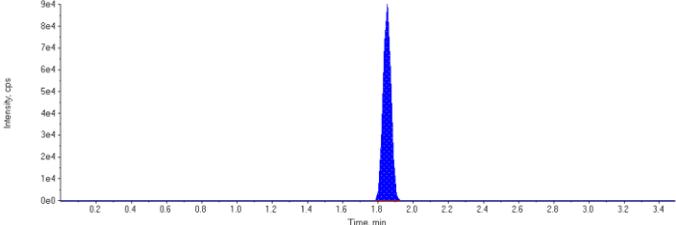
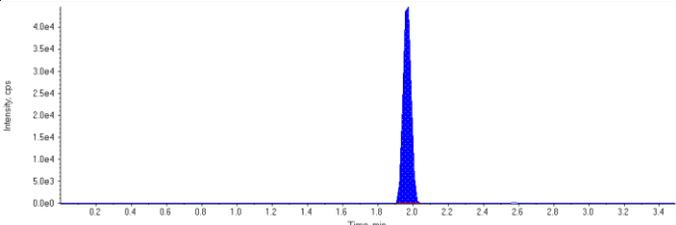
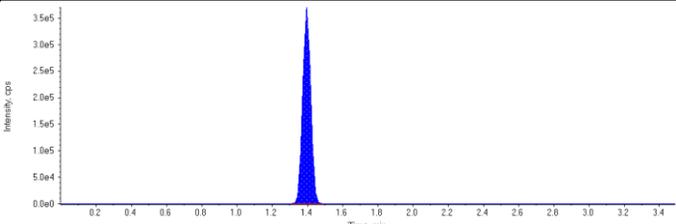
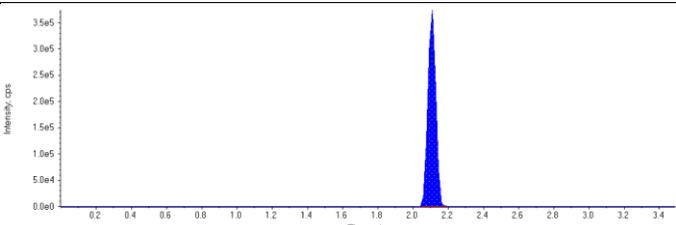


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Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 9:20:52 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	111000.	1.67	1.00	-
MPFOA	283000.	1.85	1.00	-
MPFOS	148000.	1.97	1.00	-
13C6-PFHxA IS	1180000.	1.40	41.7	-
13C9-PFDA IS	1160000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	830	1.23	N/A	0.00166	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	559	1.84	N/A	0.00166	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	765	2.12	N/A	0.00469	N/A
13C4-PFOA	283000	1.85	N/A	89.7	N/A
13C4-PFOS	148000	1.97	N/A	99.7	N/A
13C8-PFOA	318000	2.46	N/A	94.7	N/A
13C6-PFHxA	1180000	1.40	N/A	2.49	N/A
13C9-PFDA	1160000	2.11	N/A	2.60	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.23 (1.11) min</p> <p>Calculated Conc: 0.00166 µg/L</p> <p>Area Ratio: 0.00748</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.84 (1.85) min</p> <p>Calculated Conc: 0.00166 µg/L</p> <p>Area Ratio: 0.00198</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 2.12 (1.96) min</p> <p>Calculated Conc: 0.00469 µg/L</p> <p>Area Ratio: 0.00517</p> <p>Sample Type: (Unknown)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 89.7 µg/L</p> <p>Area Ratio: 0.240</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 99.7 µg/L</p> <p>Area Ratio: 0.126</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 94.7 µg/L</p> <p>Area Ratio: 0.273</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.49 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.60 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	

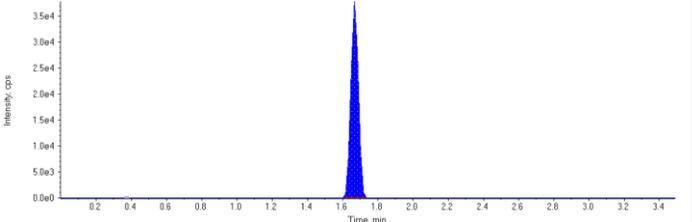
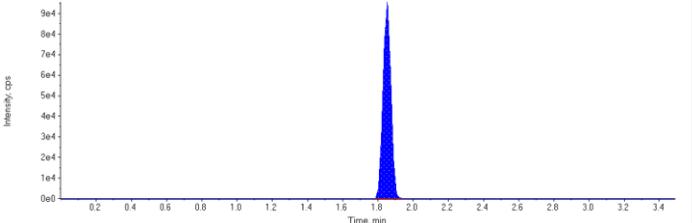
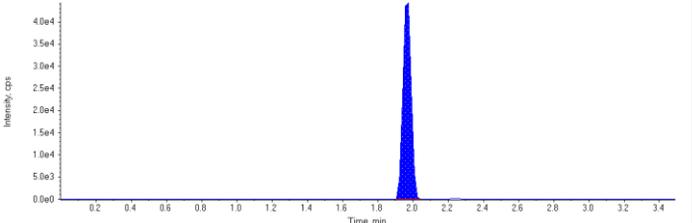
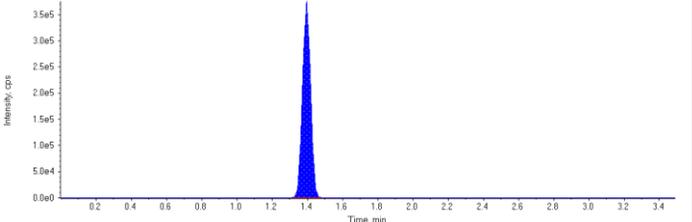
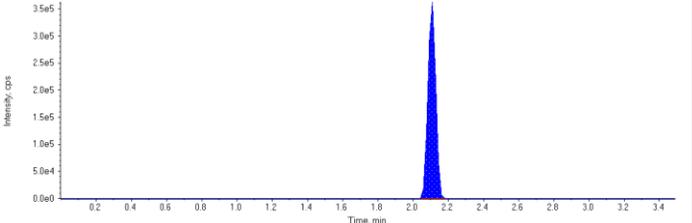


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Printed: 02/06/2017 1:52:03 PM

Sample ID	IB	Injection Volume (µL)	1
Sample Type	Unknown	Injection Vial	8
Acquisition Date	2017/05/19 9:46:13 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	112000.	1.67	1.00	-
MPFOA	296000.	1.85	1.00	-
MPFOS	147000.	1.97	1.00	-
13C6-PFHxA IS	1190000.	1.40	41.7	-
13C9-PFDA IS	1120000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	475	1.01	N/A	0.00152	N/A
PFOA 1	0	0.00	N/A	N/A	N/A
PFOA 2	1110	1.85	N/A	0.00190	N/A
PFOS 1	0	0.00	N/A	N/A	N/A
PFOS 2	0	0.00	N/A	N/A	N/A
13C4-PFOA	296000	1.85	N/A	92.8	N/A
13C4-PFOS	147000	1.97	N/A	98.2	N/A
13C8-PFOA	338000	2.46	N/A	104.	N/A
13C6-PFHxA	1190000	1.40	N/A	2.52	N/A
13C9-PFDA	1120000	2.11	N/A	2.51	N/A

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Unknown)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Unknown)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Unknown)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Unknown)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.01 (1.11) min</p> <p>Calculated Conc: 0.00152 µg/L</p> <p>Area Ratio: 0.00422</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.00190 µg/L</p> <p>Area Ratio: 0.00375</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 92.8 µg/L</p> <p>Area Ratio: 0.249</p> <p>Sample Type: (Unknown)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 98.2 µg/L</p> <p>Area Ratio: 0.124</p> <p>Sample Type: (Unknown)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 104. µg/L</p> <p>Area Ratio: 0.301</p> <p>Sample Type: (Unknown)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.52 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.51 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Unknown)</p>	



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Sample ID	4989765~BLANK	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	10
Acquisition Date	2017/05/19 7:04:08 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	92200.	1.67	1.00	-
MPFOA	286000.	1.85	1.00	-
MPFOS	131000.	1.96	1.00	-
13C6-PFHxA IS	1200000.	1.39	41.7	-
13C9-PFDA IS	1150000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
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
PFBS 2	1020	1.33	0.00	0.00181	0.0
PFOA 1	0	0.00	0.00	N/A	0.0
PFOA 2	1700	1.86	0.00	0.00220	0.0
PFOS 1	0	0.00	0.00	N/A	0.0
PFOS 2	0	0.00	0.00	N/A	0.0
13C4-PFOA	286000	1.85	0.00	89.1	0.0
13C4-PFOS	131000	1.96	0.00	86.8	0.0
13C8-PFOSA	247000	2.46	0.00	74.7	0.0
13C6-PFHxA	1200000	1.39	0.00	2.53	0.0
13C9-PFDA	1150000	2.11	0.00	2.56	0.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.11) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.33 (1.11) min</p> <p>Calculated Conc: 0.00181 µg/L</p> <p>Area Ratio: 0.0111</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 0.00 (1.85) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.86 (1.85) min</p> <p>Calculated Conc: 0.00220 µg/L</p> <p>Area Ratio: 0.00595</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 0.00 (1.96) min</p> <p>Calculated Conc: N/A µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 89.1 µg/L</p> <p>Area Ratio: 0.239</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 86.8 µg/L</p> <p>Area Ratio: 0.109</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 74.7 µg/L</p> <p>Area Ratio: 0.216</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 2.53 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.56 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	



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Sample ID	4989765~MTRX SPK (EJU284)	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	11
Acquisition Date	2017/05/19 7:09:11 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	95900.	1.67	1.00	-
MPFOA	241000.	1.85	1.00	-
MPFOS	108000.	1.96	1.00	-
13C6-PFHxA IS	1220000.	1.40	41.7	-
13C9-PFDA IS	1090000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

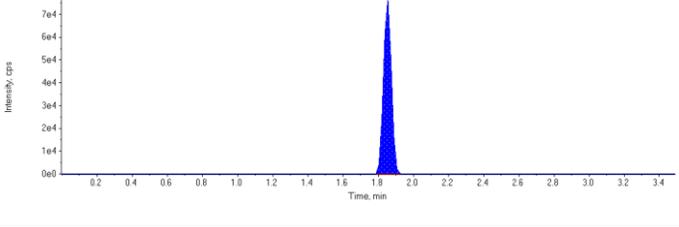
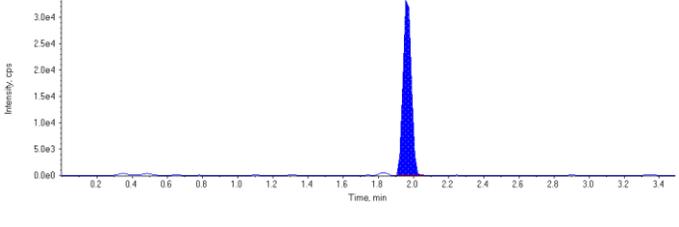
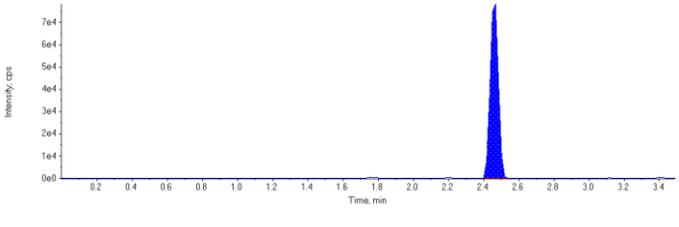
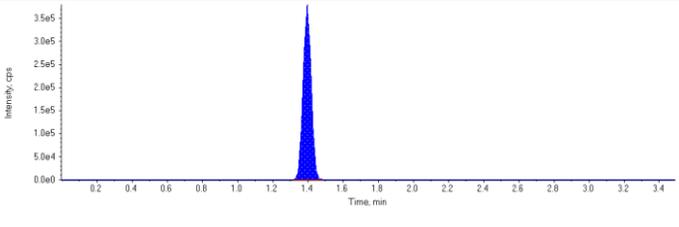
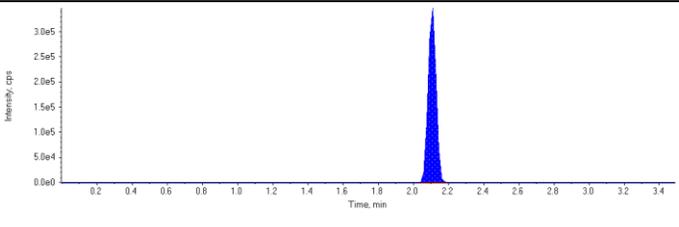
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2870000	1.10	0.500	0.649	130.0
PFBS 2	1340000	1.10	0.500	0.596	119.0
PFOA 1	22500000	1.85	0.500	5.09	1020.0
PFOA 2	14600000	1.85	0.500	8.16	1630.0
PFOS 1	20100000	1.96	0.500	8.82	1760.0
PFOS 2	5480000	1.96	0.500	7.44	1490.0
13C4-PFOA	241000	1.85	100.	73.9	73.9
13C4-PFOS	108000	1.96	100.	70.6	70.6
13C8-PFOSA	257000	2.46	100.	81.9	81.9
13C6-PFHxA	1220000	1.40	100.	2.58	2.6
13C9-PFDA	1090000	2.11	100.	2.43	2.4

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.649 µg/L</p> <p>Area Ratio: 29.9</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.596 µg/L</p> <p>Area Ratio: 14.0</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 5.09 µg/L</p> <p>Area Ratio: 93.4</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 8.16 µg/L</p> <p>Area Ratio: 60.6</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 8.82 µg/L</p> <p>Area Ratio: 186.</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 7.44 µg/L</p> <p>Area Ratio: 50.5</p> <p>Sample Type: (Quality Control)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 73.9 µg/L</p> <p>Area Ratio: 0.198</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 70.6 µg/L</p> <p>Area Ratio: 0.0890</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 81.9 µg/L</p> <p>Area Ratio: 0.237</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.58 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.43 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

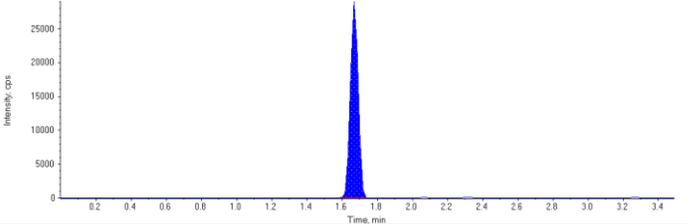
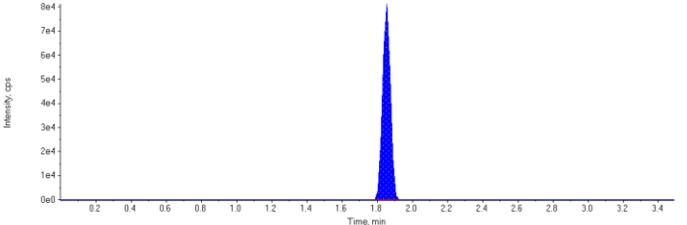
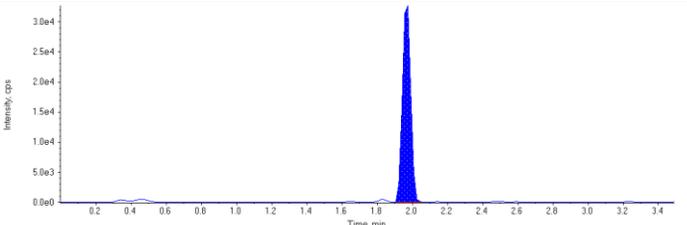
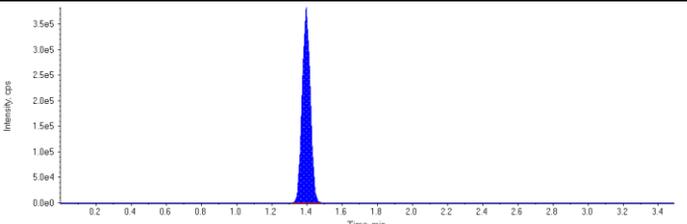
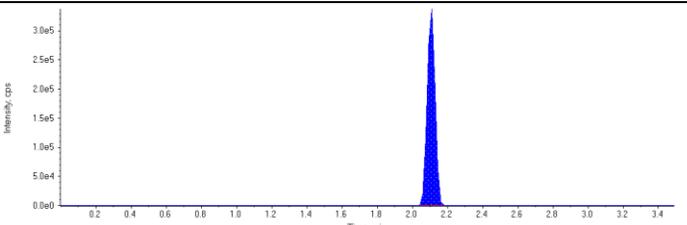


Created with Analyst Reporter
Printed: 02/06/2017 1:52:03 PM

Sample ID	4989765~MTRX SPK:D1 (EJU284)	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	12
Acquisition Date	2017/05/19 7:14:15 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

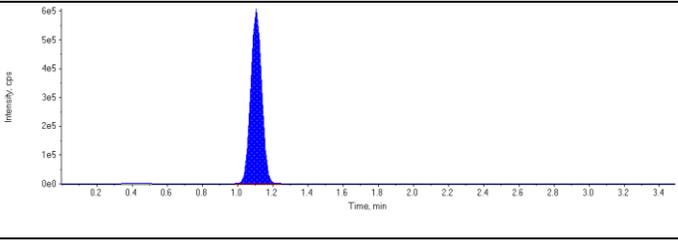
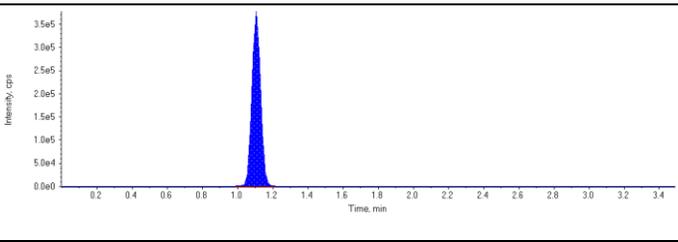
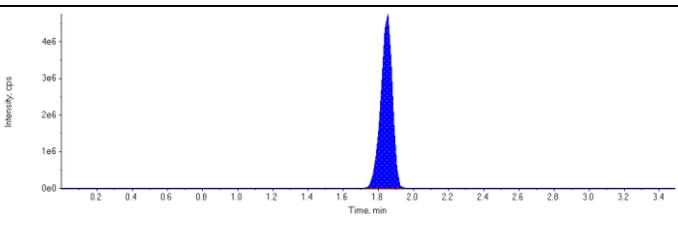
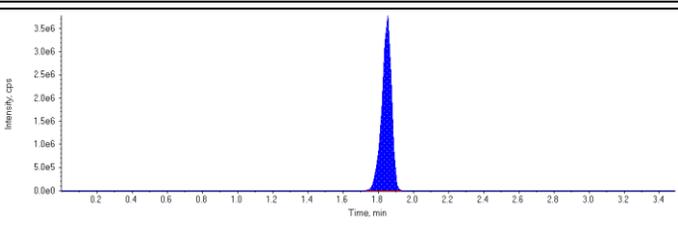
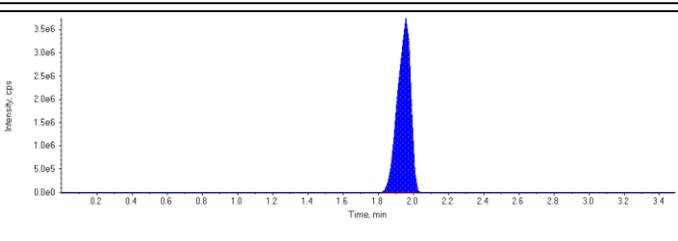
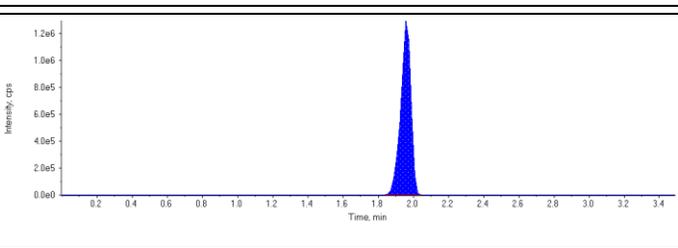
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	89600.	1.67	1.00	-
MPFOA	250000.	1.85	1.00	-
MPFOS	109000.	1.97	1.00	-
13C6-PFHxA IS	1210000.	1.40	41.7	-
13C9-PFDA IS	1060000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

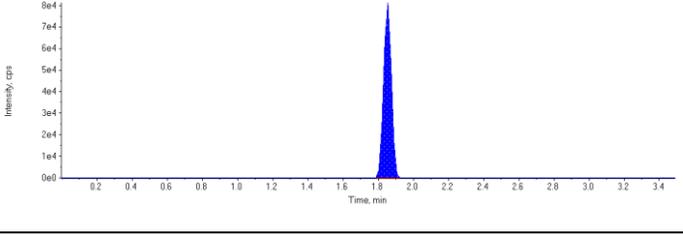
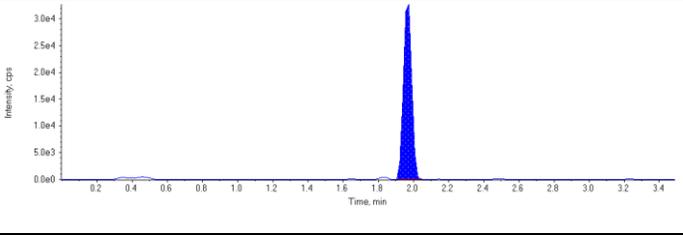
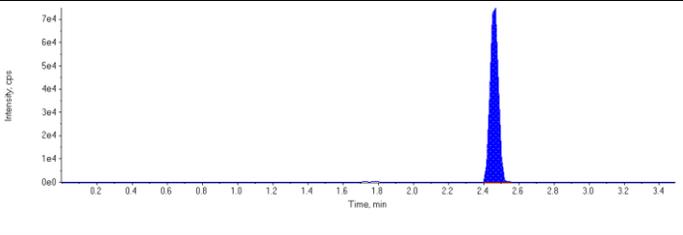
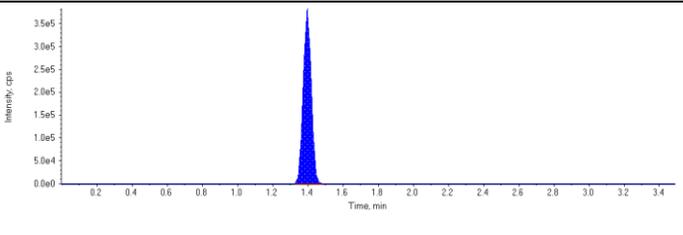
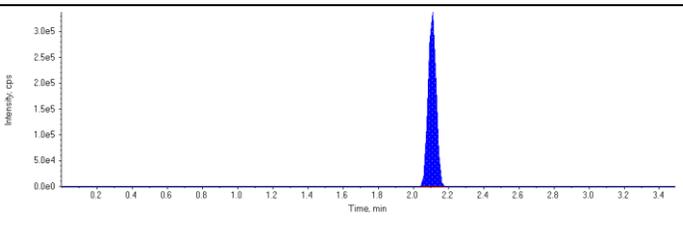
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2610000	1.11	0.500	0.632	126.0
PFBS 2	1280000	1.11	0.500	0.609	122.0
PFOA 1	21400000	1.85	0.500	4.65	930.0
PFOA 2	14100000	1.85	0.500	7.59	1520.0
PFOS 1	19300000	1.96	0.500	8.47	1690.0
PFOS 2	5230000	1.96	0.500	7.10	1420.0
13C4-PFOA	250000	1.85	100.	77.4	77.4
13C4-PFOS	109000	1.97	100.	71.4	71.4
13C8-PFOSA	248000	2.46	100.	81.1	81.1
13C6-PFHxA	1210000	1.40	100.	2.55	2.6
13C9-PFDA	1060000	2.11	100.	2.36	2.4

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 0.632 µg/L</p> <p>Area Ratio: 29.1</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 0.609 µg/L</p> <p>Area Ratio: 14.3</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 4.65 µg/L</p> <p>Area Ratio: 85.4</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 7.59 µg/L</p> <p>Area Ratio: 56.3</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 8.47 µg/L</p> <p>Area Ratio: 178.</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 7.10 µg/L</p> <p>Area Ratio: 48.2</p> <p>Sample Type: (Quality Control)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 77.4 µg/L</p> <p>Area Ratio: 0.207</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 71.4 µg/L</p> <p>Area Ratio: 0.0899</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 81.1 µg/L</p> <p>Area Ratio: 0.234</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 2.55 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.36 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	



Created with Analyst Reporter
Printed: 02/06/2017 1:52:03 PM

Sample ID	4989765~SPIKE	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	13
Acquisition Date	2017/05/19 7:19:18 PM	Dilution Factor	0.0240
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	96500.	1.67	1.00	-
MPFOA	284000.	1.85	1.00	-
MPFOS	126000.	1.97	1.00	-
13C6-PFHxA IS	1130000.	1.39	41.7	-
13C9-PFDA IS	1230000.	2.11	41.7	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

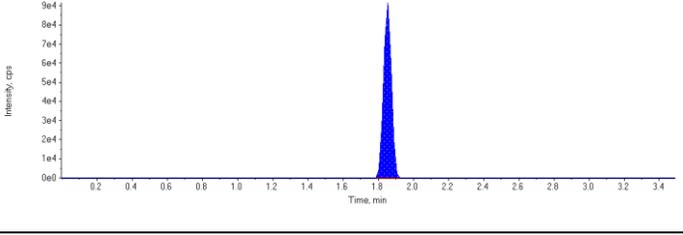
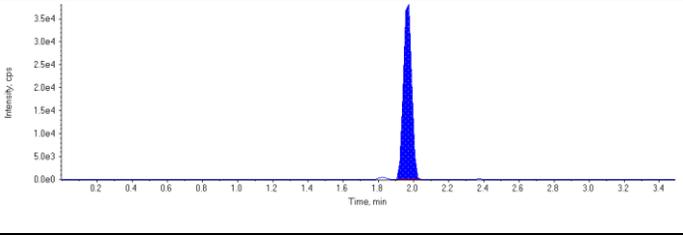
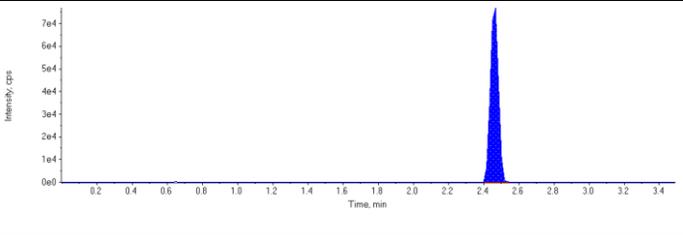
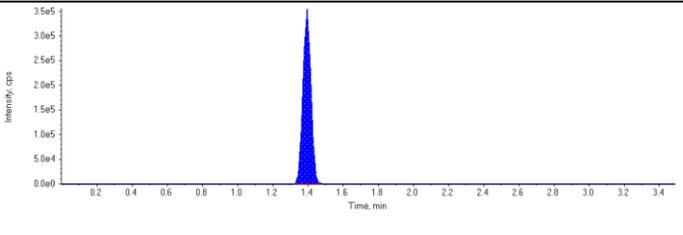
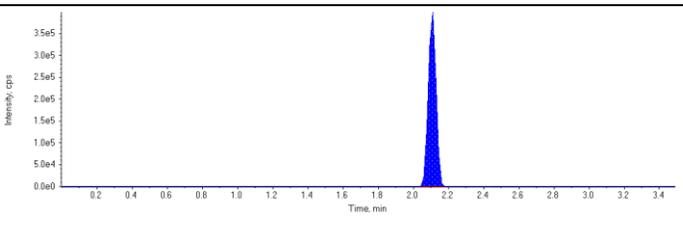
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2040000	1.10	0.500	0.459	91.8
PFBS 2	1030000	1.10	0.500	0.453	90.5
PFOA 1	2620000	1.85	0.500	0.503	101.0
PFOA 2	988000	1.85	0.500	0.469	93.8
PFOS 1	1280000	1.96	0.500	0.488	97.6
PFOS 2	396000	1.96	0.500	0.467	93.3
13C4-PFOA	284000	1.85	100.	93.6	93.6
13C4-PFOS	126000	1.97	100.	88.2	88.2
13C8-PFOSA	248000	2.46	100.	69.9	69.9
13C6-PFHxA	1130000	1.39	100.	2.40	2.4
13C9-PFDA	1230000	2.11	100.	2.75	2.8

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 41.7 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.459 µg/L</p> <p>Area Ratio: 21.1</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.453 µg/L</p> <p>Area Ratio: 10.6</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.503 µg/L</p> <p>Area Ratio: 9.23</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.469 µg/L</p> <p>Area Ratio: 3.47</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 0.488 µg/L</p> <p>Area Ratio: 10.2</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 0.467 µg/L</p> <p>Area Ratio: 3.14</p> <p>Sample Type: (Quality Control)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 93.6 µg/L</p> <p>Area Ratio: 0.251</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 88.2 µg/L</p> <p>Area Ratio: 0.111</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 69.9 µg/L</p> <p>Area Ratio: 0.202</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 2.40 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 2.75 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

DoD Projects - Internal Data Validation Checklist						
Run date: 2017/05/19						
Worksheet # (s): 4989765						
Analysis: PFDSALCM-W						
Primary review by the analyst - 1st 100% analysis review				2nd 100% review		
			1st 100% review			
			yes	no		
			n/a			
1	Sample analyses meet hold time criteria	2017/05/25 UGP	✓	✓	✓	
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, imprinter 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: UGP Date: 2017/05/25						
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: CM Date: 2017/05/26						
Comments:						

*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 # 4989765 Testcode: PROSALCM-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.	✓		

SSV
2/17/18

Reviewed by: SSV Date: 2/17/18

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			

2/17/18 SSV

Reviewed by: _____ Date: _____

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: _____ Date: _____

Comments:

WS# : 4989765

Page #: 1/2



RUSH

Report Name : Worksheet - (Liquids and Solids)

Assignment Date : Thursday, May 18, 2017

Assigned to : Shivani Shivani

Test Code : PFOSALCM-W

Instrument Id:

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

sediment (m) (m) (m)

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 EJU284-01		<0.1	125	3	1X					2017/05/18
	MTRX SPK	1	PFOS EJU284-01		<0.1	125	3	1X					2017/05/18
	SPIKE		PFOS		0	125	3	1X					2017/05/18
	BLANK				0	125	3	1X					2017/05/18
B780524*	*EGH865-01R		[REDACTED]		<0.1	125	3	1X	1	2017/05/05	2017/05/25 17:00		2017/05/18
B797633	*EJK050-01R		[REDACTED]		<0.1	125	3	10/100	1	2017/05/23	2017/05/29 18:00	DOD	2017/05/18
B797633	*EJK051-01R		[REDACTED]		<0.1	125	3	10/100	1	2017/05/23	2017/05/29 18:00	DOD	2017/05/18
B797633	*EJK052-01R		[REDACTED]		<0.1	125	3	N	1	2017/05/23	2017/05/29 18:00	DOD	2017/05/18
B797633	*EJK053-01R		[REDACTED]		<0.1	125	3	10/100	1	2017/05/24	2017/05/29 18:00	DOD	2017/05/18
B799808	*EJU281-01R		QCFB-0517		<0.1	125	3	1X	1	2017/05/23	2017/05/31 18:00	DOD	2017/05/18
B799808	*EJU282-01R		06-MW30-0517		<0.1	125	3	1X	1	2017/05/23	2017/05/31 18:00	DOD	2017/05/18
B799808	*EJU283-01R		06-MW30-0517DUP		<0.1	125	3	1X	1	2017/05/23	2017/05/31 18:00	DOD	2017/05/18
B799808	*EJU284-01R		06-MW25-0517		<0.1	125	3	1X/20X ³		2017/05/23	2017/05/31 18:00	DOD	2017/05/18
B799808	*EJU285-01R		06-MW26-0517		<0.1	125	3	1X/20X ¹		2017/05/23	2017/05/31 18:00	DOD	2017/05/18
B799814	*EJU312-01R		[REDACTED]*		<0.1	125	3	1X	2	2017/05/25	2017/06/01 18:00	DOD	2017/05/18
B799814	*EJU313-01R		[REDACTED]*		<0.1	125	3	1X	2	2017/05/26	2017/06/01 18:00	DOD	2017/05/18
B799814	*EJU314-01R		[REDACTED]*		<0.1	125	3	1X/10X	2	2017/05/26	2017/06/01 18:00	DOD	2017/05/18
B799814	*EJU315-01R		[REDACTED]*		<0.1	125	3	1X	2	2017/05/27	2017/06/01 18:00	DOD	2017/05/18
B799819	*EJU327-01R		[REDACTED]		<0.1	125	3	1X	1	2017/05/26	2017/05/31 23:00		2017/05/18
B799819	*EJU330-01R		[REDACTED]		<0.1	125	3	1X	1	2017/05/26	2017/05/31 23:00		2017/05/18
B799819	*EJU331-01R		[REDACTED]		<0.1	125	3	1X	1	2017/05/26	2017/05/31 23:00		2017/05/18

2017/05/18 SSU

Remarks:

Shivani 21/05/18

Samples extracted by: Shivani Shivani

Instrumentation performed by:

Calculations performed by:

Validated by: Maxxam Analytics

Date:

Date:

Date:

2017/05/19

2017/05/25

2017/05/26

RUSH

WS#: 4989765

Test Code: PFOSALCM-W

Page #: 2/2

Job No.	Rep	Client Name	Contact	Client Tier	National
GB780524					
GB797633					
GB799808		MDG EMAX Laboratories Inc	Richard Beauvil	Tier 4 (Enviro.)	
GB799814					
GB799819					

Surrogates/Spikes	MeOH	IS	Sph	Method Spike	Spikes	Samples
IB	2850		25	SSV 2.17/05/18		
S1	2825		50	25		
S2	2800	SI-6439	150	50	SK-6786	
S3	2700	3/4	37.5	150		
S4	2713		75	37.5		
S5	2775		15	75	I-4990	
S6	2725		12.5	SSV 2.7/05/18		
ICV	2788	ISO WL	62.5	I-5015		

Sample	Preparation Remarks

Sample	Instrumentation Remarks

PFOS and PFOA in water - Water
ug/L

Parameter Name	Units	MTRX:SPK	MTRX SPK Dup1	SPIKE	BLANK	DL	B780524 EGH865
6:2 Fluorotelomer sulfonate	ug/L	!! 20.00NC	!! 40.00NC	84.80000	0	0.02	0
8:2 Fluorotelomer sulfonate	ug/L	111.80000	110.80000	84.40000	0	0.02	0
N-ethylperfluorooctane sulfonamide	ug/L	104.20000	94.80000	106.00000	0	0.02	0
EtFOSAA	ug/L	N/A*****	N/A*****	N/A*****	N/A*****		N/A*****
N-ethylperfluorooctane sulfonamido	ug/L	102.20000	107.20000	114.40000	0	0.02	0
N-methylperfluorooctane sulfonamide	ug/L	99.40000	102.40000	96.00000	0	0.02	0
MeFOSAA	ug/L	N/A*****	N/A*****	N/A*****	N/A*****		N/A*****
N-methylperfluorooctanesulfonamidol	ug/L	92.40000	92.20000	93.00000	0	0.02	0
Perfluorobutanoic acid	ug/L	!! 68.00NC	86.00000NC	118.80000	0	0.02	0
Perfluorobutane Sulfonate (PFBS)	ug/L	106.20000	102.80000	91.80000	0	0.02	0
Perfluorodecane Sulfonate	ug/L	99.60000	92.20000	92.00000	0	0.02	0
Perfluoroheptanoic Acid (PFHpA)	ug/L	101.6000NC	95.60000NC	102.00000	0	0.02	0
Perfluoroheptane sulfonate	ug/L	117.8000NC	97.80000NC	113.00000	0	0.02	0
Perfluorohexanoic Acid (PFHxA)	ug/L	82.00000NC	!! 62.00NC	98.40000	0	0.02	0
Perfluorohexane Sulfonate (PFHxS)	ug/L	82.00000NC	78.00000NC	93.40000	0	0.02	0
Perfluorononanoic Acid (PFNA)	ug/L	103.70000	100.90000	92.80000	0	0.02	0
Perfluorooctane Sulfonamide (PFOSA)	ug/L	105.80000	103.80000	90.20000	0	0.02	0
Perfluoropentanoic Acid (PFPeA)	ug/L	109.8000NC	89.80000NC	88.60000	0	0.02	0
Perfluorotetradecanoic Acid	ug/L	95.40000	99.60000	103.80000	0	0.02	0
Perfluorotridecanoic Acid	ug/L	105.80000	109.40000	95.20000	0	0.02	0
Perfluoroundecanoic Acid (PFUnA)	ug/L	92.40000	87.20000	85.20000	0	0.02	0
Perfluorodecanoic Acid (PFDA)	ug/L	104.62000	108.02000	98.80000	0	0.02	0
Perfluorododecanoic Acid (PFDoA)	ug/L	102.60000	111.80000	102.40000	0	0.02	0
Perfluoro-n-Octanoic Acid (PFOA)	ug/L	!! 20.00NC	!! 68.00NC	100.60000	0	0.02	0
Perfluorooctane Sulfonate (PFOS)	ug/L	!! 58.00NC	!! 12.00NC	97.60000	0	0.02	0
13C2-6:2 Fluorotelomer sulfonate	ug/L	85.9	78.7	86.9	79.4		87.9
13C2-8:2 Fluorotelomer sulfonate	ug/L	90.1	82.1	93.5	83.7		82.8
13C2-perfluorotetradecanoic acid	ug/L	87.7	78.1	73.7	70.5		82.6
13C4-Perfluorobutanoic acid	ug/L	87.8	75.6	80.5	91.4		96.6
13C6-Perfluorohexanoic Acid	ug/L	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-methyl-d3-perfluorooctane sulfona	ug/L	79.2	70.4	70.2	80.1		87.4
N-ethyl-d5-perfluorooctane sulfonam	ug/L	80.9	71.3	63.3	79.5		94.3
13C2-Perfluorodecanoic acid	ug/L	88.5	79.8	77.8	87.4		108.
13C2-Perfluorododecanoic acid	ug/L	85.9	81.4	70.3	90.6		88.9
13C2-Perfluorohexanoic acid	ug/L	79.0	77.0	86.2	84.2		85.9
13C2-Perfluoroundecanoic acid	ug/L	86.6	87.4	80.1	84.4		99.0
13C4-Perfluoroheptanoic acid	ug/L	80.8	75.9	85.7	87.8		83.4
13C5-Perfluorononanoic acid	ug/L	84.6	76.7	91.7	89.0		85.6
13C4-Perfluorooctanoic acid	ug/L	73.9	77.4	93.6	89.1		88.6
13C4-Perfluorooctanesulfonate	ug/L	70.6	71.4	88.2	86.8		97.4
13C5-Perfluoropentanoic acid	ug/L	85.1	87.0	94.3	88.7		95.4
13C8-Perfluorooctane Sulfonamide	ug/L	81.9	81.1	69.9	74.7		105.
18O2-Perfluorohexanesulfonate	ug/L	85.1	80.2	92.0	83.2		92.3

Worksheet Number: 4989765

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B797633 EJK050	DL	B797633 EJK051	DL	B797633 EJK052	DL
6:2 Fluorotelomer sulfonate	0.02	4.20000	0.2	1.02000	0.2	0	0.02
8:2 Fluorotelomer sulfonate	0.02	0	0.2	0.23800	0.2	0	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
EtFOSAA	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
N-methylperfluorooctane sulfonamide	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
MeFOSAA	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
N-methylperfluorooctanesulfonamidol	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
Perfluorobutanoic acid	0.02	5.19000	0.2	2.32000	0.2	0	0.02
Perfluorobutane Sulfonate (PFBS)	0.02	7.54000	0.2	3.25000	0.2	0	0.02
Perfluorodecane Sulfonate	0.02	0	0.2	0	0.2	0	0.02
Perfluoroheptanoic Acid (PFHpA)	0.02	1.97000	0.2	0.63800	0.2	0	0.02
Perfluoroheptane sulfonate	0.02	N/A*****	0.2	N/A*****	0.2	N/A*****	0.02
Perfluorohexanoic Acid (PFHxA)	0.02	13.90000	2.0	8.20000	0.2	0	0.02
Perfluorohexane Sulfonate (PFHxS)	0.02	53.10000	2.0	17.90000	2.0	0	0.02
Perfluorononanoic Acid (PFNA)	0.02	0.07550	0.2	0.07580	0.2	0	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.02	0	0.2	0.10100	0.2	0	0.02
Perfluoropentanoic Acid (PFPeA)	0.02	13.60000	2.0	5.21000	0.2	0	0.02
Perfluorotetradecanoic Acid	0.02	0	0.2	0	0.2	0	0.02
Perfluorotridecanoic Acid	0.02	0	0.2	0	0.2	0	0.02
Perfluoroundecanoic Acid (PFUnA)	0.02	0	0.2	0	0.2	0	0.02
Perfluorodecanoic Acid (PFDA)	0.02	0	0.2	0	0.2	0	0.02
Perfluorododecanoic Acid (PFDoA)	0.02	0	0.2	0	0.2	0	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02	2.67000	0.2	1.04000	0.2	0	0.02
Perfluorooctane Sulfonate (PFOS)	0.02	38.80000	2.0	54.50000	2.0	0	0.02
13C2-6:2 Fluorotelomer sulfonate		96.8		126.		93.2	
13C2-8:2 Fluorotelomer sulfonate		108.		89.8		97.7	
13C2-perfluorotetradecanoic acid		76.6		85.6		77.7	
13C4-Perfluorobutanoic acid		102.		115.		83.9	
13C6-Perfluorohexanoic Acid		N/A*****		N/A*****		N/A*****	
13C9-Perfluorodecanoic Acid		N/A*****		N/A*****		N/A*****	
N-methyl-d3-perfluorooctane sulfona		78.9		93.5		84.4	
N-ethyl-d5-perfluorooctane sulfonam		80.7		101.		76.2	
13C2-Perfluorodecanoic acid		94.6		111.		96.0	
13C2-Perfluorododecanoic acid		80.3		101.		83.2	
13C2-Perfluorohexanoic acid		103.		105.		81.6	
13C2-Perfluoroundecanoic acid		84.3		120.		84.9	
13C4-Perfluoroheptanoic acid		91.4		121.		84.8	
13C5-Perfluorononanoic acid		93.3		106.		84.2	
13C4-Perfluorooctanoic acid		104.		107.		81.0	
13C4-Perfluorooctanesulfonate		110.		97.0		88.8	
13C5-Perfluoropentanoic acid		101.		111.		81.9	
13C8-Perfluorooctane Sulfonamide		82.6		95.4		88.0	
18O2-Perfluorohexanesulfonate		99.5		88.3		81.5	

Worksheet Number: 4989765

PFOS and PFOA in water - Water
ug/L

Parameter Name	B797633 EJK053	DL	B799808 EJU281	B799808 EJU282	B799808 EJU283	DL	B799808 EJU284
6:2 Fluorotelomer sulfonate	50.90000	2.0	N/A*****	N/A*****	N/A*****	0.02	N/A*****
8:2 Fluorotelomer sulfonate	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
N-ethylperfluorooctane sulfonamide	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
EtFOSAA	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
N-ethylperfluorooctane sulfonamide	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
N-methylperfluorooctane sulfonamide	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
MeFOSAA	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
N-methylperfluorooctanesulfonamidol	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorobutanoic acid	7.21000	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorobutane Sulfonate (PFBS)	3.17000	0.2	0	0.00600	0.00648	0.02	0.11800
Perfluorodecane Sulfonate	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluoroheptanoic Acid (PFHpA)	2.64000	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluoroheptane sulfonate	N/A*****	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorohexanoic Acid (PFHxA)	33.70000	2.0	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorohexane Sulfonate (PFHxS)	8.30000	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorononanoic Acid (PFNA)	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorooctane Sulfonamide (PFOSA)	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluoropentanoic Acid (PFPeA)	19.50000	2.0	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorotetradecanoic Acid	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorotridecanoic Acid	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluoroundecanoic Acid (PFUnA)	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorodecanoic Acid (PFDA)	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluorododecanoic Acid (PFDoA)	0	0.2	N/A*****	N/A*****	N/A*****	0.02	N/A*****
Perfluoro-n-Octanoic Acid (PFOA)	1.66000	0.2	0	0.03160	0.03280	0.02	7.32000
Perfluorooctane Sulfonate (PFOS)	1.11000	0.2	0	0.13000	0.17000	0.02	7.05000
13C2-6:2 Fluorotelomer sulfonate	79.7		116.	110.	115.		98.6
13C2-8:2 Fluorotelomer sulfonate	87.9		139.	80.1	134.		97.6
13C2-perfluorotetradecanoic acid	78.0		72.7	80.0	89.8		74.7
13C4-Perfluorobutanoic acid	79.3		90.3	94.1	144.		94.0
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	63.7		81.6	72.7	90.4		82.2
N-ethyl-d5-perfluorooctane sulfonam	72.5		75.8	81.5	87.9		83.1
13C2-Perfluorodecanoic acid	77.8		88.2	101.	102.		94.6
13C2-Perfluorododecanoic acid	76.6		87.3	93.4	94.1		84.1
13C2-Perfluorohexanoic acid	80.0		111.	99.6	116.		92.5
13C2-Perfluoroundecanoic acid	72.1		81.3	98.7	94.5		91.9
13C4-Perfluoroheptanoic acid	89.8		93.4	84.9	131.		90.2
13C5-Perfluorononanoic acid	97.0		87.8	98.0	117.		89.7
13C4-Perfluorooctanoic acid	90.6		93.0	92.4	123.		113.
13C4-Perfluorooctanesulfonate	94.8		92.6	86.8	112.		108.
13C5-Perfluoropentanoic acid	73.4		84.1	88.0	109.		103.
13C8-Perfluorooctane Sulfonamide	81.0		78.9	95.4	87.4		92.1
18O2-Perfluorohexanesulfonate	98.8		90.1	91.8	115.		103.

Worksheet Number: 4989765

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B799808 EJU285	DL	B799814 EJU312	B799814 EJU313	DL	B799814 EJU314
6:2 Fluorotelomer sulfonate	0.02	N/A*****	0.02	0	0.55200	0.02	2.24000
8:2 Fluorotelomer sulfonate	0.02	N/A*****	0.02	0	0.05390	0.02	0.22200
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
EtFOSAA	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
N-methylperfluorooctane sulfonamide	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
MeFOSAA	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
N-methylperfluorooctanesulfonamidol	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
Perfluorobutanoic acid	0.02	N/A*****	0.02	0.00956	0.07620	0.02	0.10800
Perfluorobutane Sulfonate (PFBS)	0.02	0.03800	0.02	0	0.00705	0.02	0.01020
Perfluorodecane Sulfonate	0.02	N/A*****	0.02	0	0	0.02	0
Perfluoroheptanoic Acid (PFHpA)	0.02	N/A*****	0.02	0.00407	0.11400	0.02	0.16300
Perfluoroheptane sulfonate	0.02	N/A*****	0.02	N/A*****	N/A*****	0.02	N/A*****
Perfluorohexanoic Acid (PFHxA)	0.4	N/A*****	0.02	0.00606	0.23800	0.02	0.32900
Perfluorohexane Sulfonate (PFHxS)	0.4	N/A*****	0.4	0.01100	0.33400	0.02	0.18100
Perfluorononanoic Acid (PFNA)	0.02	N/A*****	0.02	0	0.01340	0.02	0.01160
Perfluorooctane Sulfonamide (PFOSA)	0.02	N/A*****	0.02	0	0	0.02	0
Perfluoropentanoic Acid (PFPeA)	0.02	N/A*****	0.02	0.01030	0.32700	0.02	0.55300
Perfluorotetradecanoic Acid	0.02	N/A*****	0.02	0	0	0.02	0
Perfluorotridecanoic Acid	0.02	N/A*****	0.02	0	0	0.02	0
Perfluoroundecanoic Acid (PFUnA)	0.02	N/A*****	0.02	0	0	0.02	0
Perfluorodecanoic Acid (PFDA)	0.02	N/A*****	0.02	0	0	0.02	0
Perfluorododecanoic Acid (PFDoA)	0.02	N/A*****	0.02	0	0	0.02	0
Perfluoro-n-Octanoic Acid (PFOA)	0.4	0.75100	0.02	0	0.09420	0.02	0.19000
Perfluorooctane Sulfonate (PFOS)	0.4	9.97000	0.4	0	0.16800	0.02	0.02490
13C2-6:2 Fluorotelomer sulfonate		116.		92.1	130.		99.4
13C2-8:2 Fluorotelomer sulfonate		138.		87.1	126.		98.3
13C2-perfluorotetradecanoic acid		91.6		68.3	68.7		61.4
13C4-Perfluorobutanoic acid		115.		112.	131.		95.7
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		93.3		91.6	89.9		83.7
N-ethyl-d5-perfluorooctane sulfonam		86.4		76.1	91.5		84.1
13C2-Perfluorodecanoic acid		106.		89.1	102.		93.7
13C2-Perfluorododecanoic acid		107.		76.2	105.		91.6
13C2-Perfluorohexanoic acid		102.		94.4	102.		86.4
13C2-Perfluoroundecanoic acid		114.		91.8	102.		81.1
13C4-Perfluoroheptanoic acid		110.		92.8	109.		87.8
13C5-Perfluorononanoic acid		113.		93.3	107.		90.6
13C4-Perfluorooctanoic acid		115.		104.	108.		91.2
13C4-Perfluorooctanesulfonate		99.8		100.	114.		97.2
13C5-Perfluoropentanoic acid		112.		98.9	111.		83.3
13C8-Perfluorooctane Sulfonamide		107.		92.9	104.		86.3
18O2-Perfluorohexanesulfonate		108.		108.	113.		93.0

PFOS and PFOA in water - Water
ug/L

Parameter Name	DL	B799814 EJU315	B799819 EJU327	B799819 EJU330	B799819 EJU331	DL	RDL
6:2 Fluorotelomer sulfonate	0.2	0	0	0	0	0.02	0.02
8:2 Fluorotelomer sulfonate	0.02	0.01130	0	0	0	0.02	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0	0	0	0.02	0.02
EtFOSAA	0.02	N/A*****	N/A*****	N/A*****	N/A*****	0.02	0.02
N-ethylperfluorooctane sulfonamide	0.02	N/A*****	0	0	0	0.02	0.02
N-methylperfluorooctane sulfonamide	0.02	N/A*****	0	0	0	0.02	0.02
MeFOSAA	0.02	N/A*****	N/A*****	N/A*****	N/A*****	0.02	0.02
N-methylperfluorooctanesulfonamidol	0.02	N/A*****	0	0	0	0.02	0.02
Perfluorobutanoic acid	0.02	0.01260	0	0	0	0.02	0.02
Perfluorobutane Sulfonate (PFBS)	0.02	0	0	0	0	0.02	0.02
Perfluorodecane Sulfonate	0.02	0	0	0	0	0.02	0.02
Perfluoroheptanoic Acid (PFHpA)	0.02	0.01120	0	0	0	0.02	0.02
Perfluoroheptane sulfonate	0.02	N/A*****	0	0	0	0.02	0.02
Perfluorohexanoic Acid (PFHxA)	0.02	0.01100	0	0	0	0.02	0.02
Perfluorohexane Sulfonate (PFHxS)	0.02	0.03620	0	0	0	0.02	0.02
Perfluorononanoic Acid (PFNA)	0.02	0	0	0	0	0.02	0.02
Perfluorooctane Sulfonamide (PFOSA)	0.02	0	0	0	0	0.02	0.02
Perfluoropentanoic Acid (PFPeA)	0.02	0.01410	0.00668	0	0	0.02	0.02
Perfluorotetradecanoic Acid	0.02	0	0	0	0	0.02	0.02
Perfluorotridecanoic Acid	0.02	0	0	0	0	0.02	0.02
Perfluoroundecanoic Acid (PFUnA)	0.02	0.00547	0	0	0	0.02	0.02
Perfluorodecanoic Acid (PFDA)	0.02	0	0	0	0	0.02	0.02
Perfluorododecanoic Acid (PFDoA)	0.02	0	0	0	0	0.02	0.02
Perfluoro-n-Octanoic Acid (PFOA)	0.02	0.01200	0	0	0	0.02	0.02
Perfluorooctane Sulfonate (PFOS)	0.02	0.00677	0	0	0	0.02	0.02
13C2-6:2 Fluorotelomer sulfonate		128.	130.	112.	106.		
13C2-8:2 Fluorotelomer sulfonate		111.	110.	109.	85.5		
13C2-perfluorotetradecanoic acid		82.3	82.3	69.9	80.8		
13C4-Perfluorobutanoic acid		92.9	125.	113.	98.2		
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		104.	80.2	81.3	92.6		
N-ethyl-d5-perfluorooctane sulfonam		89.7	78.4	79.5	93.6		
13C2-Perfluorodecanoic acid		99.0	91.7	93.6	105.		
13C2-Perfluorododecanoic acid		99.5	83.6	93.5	90.9		
13C2-Perfluorohexanoic acid		110.	113.	107.	103.		
13C2-Perfluoroundecanoic acid		103.	95.5	105.	95.0		
13C4-Perfluoroheptanoic acid		101.	98.1	114.	93.2		
13C5-Perfluorononanoic acid		103.	115.	112.	102.		
13C4-Perfluorooctanoic acid		98.2	117.	114.	110.		
13C4-Perfluorooctanesulfonate		93.8	112.	100.	100.		
13C5-Perfluoropentanoic acid		98.9	120.	109.	100.		
13C8-Perfluorooctane Sulfonamide		94.2	89.1	85.4	99.5		
18O2-Perfluorohexanesulfonate		96.5	112.	112.	108.		

PFOS and PFOA in water - Water
ug/L

Parameter Name	MDL	IDL					
6:2 Fluorotelomer sulfonate	0.0032	0					
8:2 Fluorotelomer sulfonate	0.0036	0					
N-ethylperfluorooctane sulfonamide	0.0058	0					
EtFOSAA	0.0036	0					
N-ethylperfluorooctane sulfonamide	0.0063	0					
N-methylperfluorooctane sulfonamide	0.0041	0					
MeFOSAA	0.0026	0					
N-methylperfluorooctanesulfonamidol	0.0043	0					
Perfluorobutanoic acid	0.0066	0					
Perfluorobutane Sulfonate (PFBS)	0.0048	0					
Perfluorodecane Sulfonate	0.0046	0					
Perfluoroheptanoic Acid (PFHpA)	0.0033	0					
Perfluoroheptane sulfonate	0.0048	0					
Perfluorohexanoic Acid (PFHxA)	0.0029	0					
Perfluorohexane Sulfonate (PFHxS)	0.0034	0					
Perfluorononanoic Acid (PFNA)	0.0046	0					
Perfluorooctane Sulfonamide (PFOSA)	0.0036	0					
Perfluoropentanoic Acid (PFPeA)	0.0027	0					
Perfluorotetradecanoic Acid	0.0038	0					
Perfluorotridecanoic Acid	0.0033	0					
Perfluoroundecanoic Acid (PFUnA)	0.0043	0					
Perfluorodecanoic Acid (PFDA)	0.004	0					
Perfluorododecanoic Acid (PFDoA)	0.0028	0					
Perfluoro-n-Octanoic Acid (PFOA)	0.0046	0					
Perfluorooctane Sulfonate (PFOS)	0.0026	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-Perfluorooctane Sulfonamide							
18O2-Perfluorohexanesulfonate							

■ PFC_Water_170519_4989765.rdb (PFOA 1): "Linear" Regression ("1/x" weighting): $y = 0.44x + -0.0112$ ($r = 0.9998$)

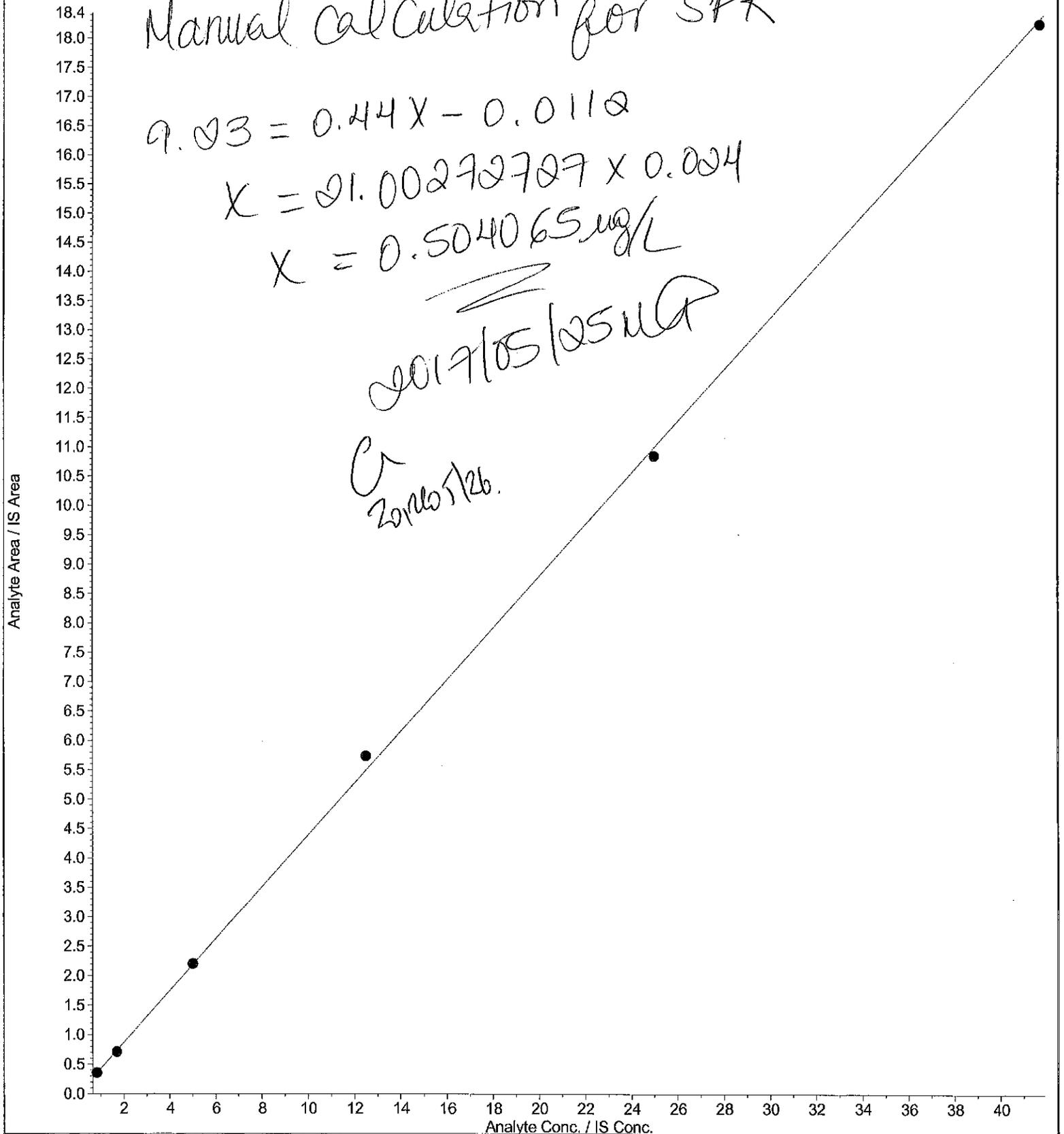
Manual calculation for SPK

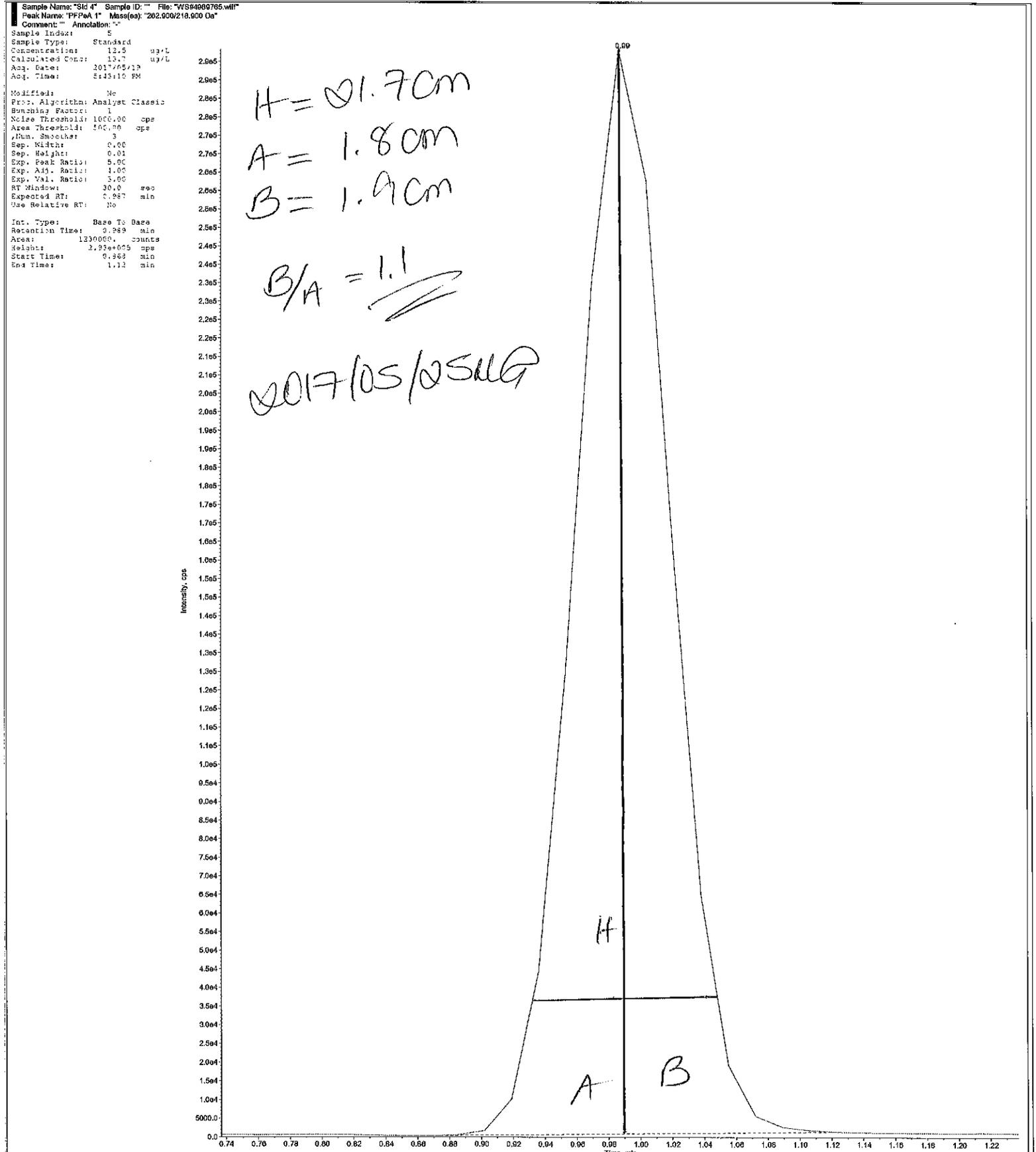
$$9.03 = 0.44x - 0.0112$$

$$x = \frac{9.03 + 0.0112}{0.44} \times 0.004$$

$$x = 0.504065 \text{ mg/L}$$

2017/05/25 UG
CR
2016/1/26.

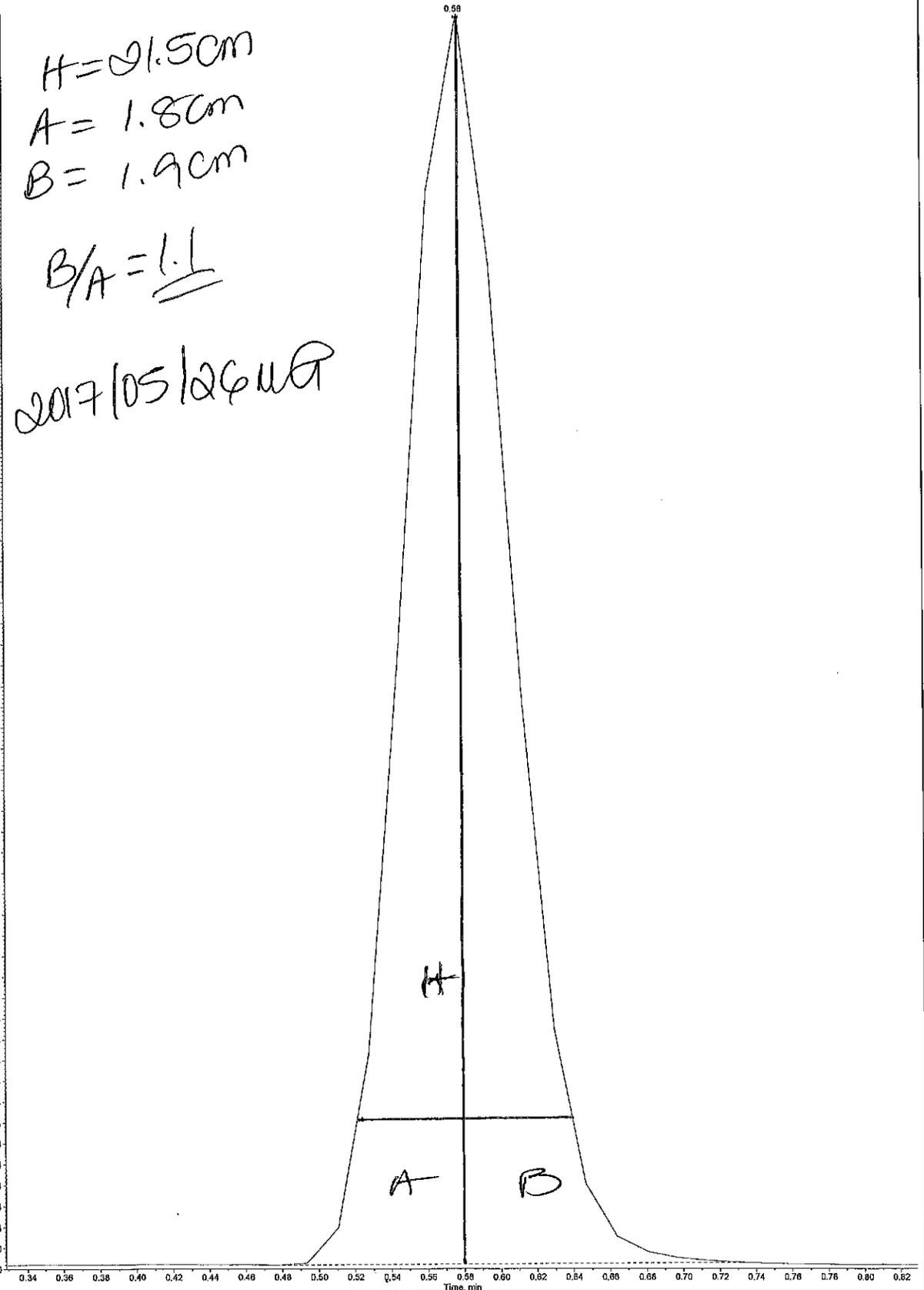




Sample Name: "Std 4" Sample ID: " File: "MS4488765.wif"
 Peak Name: "PFBA 1" Mass(es): "212.000/169.000 Da"
 Comment: " Annotation: ""
 Sample Index: 5
 Sample Type: Standard
 Concentration: 12.5 ug/L
 Calculated Conc: 10.9 ug/L
 Acq. Date: 2017/05/19
 Acq. Time: 5:43:10 PM
 Modified: No
 Proc. Algorithm: Analyst Classic
 Bunching Factor: 1
 Noise Threshold: 1200.00 cps
 Area Threshold: 200.00 cps
 Num. Smoother: 3
 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: 0.579 min
 Use Relative RT: No
 Int. Type: Base To Base
 Retention Time: 0.577 min
 Area: 1250060. counts
 Height: 3.01e+005 cps
 Start Time: 0.476 min
 End Time: 0.732 min

Intensity, cps
 3.0e5
 2.9e5
 2.8e5
 2.7e5
 2.6e5
 2.5e5
 2.4e5
 2.3e5
 2.2e5
 2.1e5
 2.0e5
 1.9e5
 1.8e5
 1.7e5
 1.6e5
 1.5e5
 1.4e5
 1.3e5
 1.2e5
 1.1e5
 1.0e5
 9.0e4
 8.0e4
 7.0e4
 6.0e4
 5.0e4
 4.0e4
 3.0e4
 2.0e4
 1.0e4
 5000.0

$H = 21.50\text{cm}$
 $A = 1.80\text{cm}$
 $B = 1.90\text{cm}$
 $B/A = 1.1$
 2017/05/26 UG



Report Name: Worksheet - Parameter Lists

Report Date: 2017/05/18

Test Code: **PFOSALCM-W**

Worksheet Number: **4989765**

<u>Sample Number</u>	<u>Parameter</u>
	Perfluorotridecanoic Acid
	Perfluoroundecanoic Acid (PFUnA)
EJU281-01	Perfluorobutane Sulfonate (PFBS)
EJU282-01	Perfluoro-n-Octanoic Acid (PFOA)
EJU283-01	Perfluorooctane Sulfonate (PFOS)
EJU284-01	
EJU285-01	

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

WorkSheet 4989765 Instrument Sequences

- 1. 
4989765:MTRX SPK
- 2. 
4989765:MTRX SPK:D1
- 3. 
4989765:SPIKE
- 4. 
4989765:BLANK
- 5. 
4989765:EGH865-01
- 6. 
4989765:EJK050-01
- 7. 
4989765:EJK051-01
- 8. 
4989765:EJK052-01
- 9. 
4989765:EJK053-01
- 10. 
4989765:EJU281-01
- 11. 
4989765:EJU282-01
- 12. 
4989765:EJU283-01
- 13. 
4989765:EJU284-01
- 14. 
4989765:EJU285-01
- 15. 
4989765:EJU312-01
- 16. 
4989765:EJU313-01
- 17. 
4989765:EJU314-01
- 18. 
4989765:EJU315-01
- 19. 
4989765:EJU327-01
- 20. 
4989765:EJU330-01
- 21. 
4989765:EJU331-01

MTRX SPK

MTRX SPK :D1

SPIKE

BLANK

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

QCFB-0517

06-MW30-0517

06-MW30-0517DUP

06-MW25-0517

06-MW26-0517

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Worksheet Reagent Tracking Record

Worksheet # 498765

Surrogate/Spike solutions	✓	Solution ID #	Conc.	Volume (µL)					
				B/k-Spk		MS		Samples	
				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 D-18 Internal Standard			0.10 ng/µL	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-5015-1	1ug/mL	75	21	62.5	75	21	62.5
PFC Internal Standard Solution	✓	SI-6439-3	50/125 ng/mL	200	100	150	200	100	150
PFC Injection IS	✓	SI-6423-2	100 ug/mL	20	20	20	20	20	20
ICV	✓	I-5015-1	1ug/mL			62.5			20
Solvent/Reagent	✓	Lot No.	Date Opened	Solvent/Reagent	✓	Lot No.	Date Opened/Prepared	*Spiked by:	
DCM				50% NaOH				SSU	
Ottawa Sand				o-Phosphoric Acid				Spike Date	
Methanol	✓	SM899002V217-5/18		Borax				2017/05/18	
2-Propanol (IPA)				Calcium Chloride				Spike Syringe/Pipette ID#	
Acetonitrile				EDTA				M224820	
Sodium Sulfate				Phosphate Buffer				Int. Std Syringe/Pipette ID#	
70:30 Methanol: Water				Sodium Thiosulphate				K196091	
60:40 Water: Methanol	✓	PRR104-73		DNPH				*Spiking Witnessed by:	
DCM:Ethyl Ether (75:25)				FMOC				652	
Hexane:IPA (98:2)				5M Acetate Buffer				Final pH	
2% Formic Acid	✓	PRR104-85		0.2% NH ₄ OH	✓	PRR104-99		X	
0.2% Formic Acid				Leachate Fluid					
0.05M KOH				Reagent Water	✓	56218 2017/05/18			
0.05M HCl									
Equipment & ID	✓	Equipment	ID#	✓	Equipment	Lot #	Bottle Tracking		
Pipettor	✓	SPE Cartridge	003137023A	✓	QC Balance ID		Bottle# 17359		
	✓	Filter			Thermometer ID & Temp		Cap# 17376		
Dispenser		Centrifuge					Systems plus Lot#		
		Sonicator					17/04/25		

Comments:

125ml Reference bottle MPLC

Worksheet: 4989765

Dilution and Column Cleanup Worksheet

Maxxam Analytics

Job Number	Sample ID	Sample: Initial Final Volume	Dilution Required	Sample added mL	Solvent Added mL	Int Stan Added uL	New Effective Final Volume	INITIAL SSV DATE	Column Clean Up
15797633	EJK050	—	X10	12.5	112.5	—	125	2017/05/18	—
	EJK050	—	X100	1.25	123.75	—	125	2017/05/18	—
	EJK051	—	X10	12.5	112.5	—	125	2017/05/18	—
	EJK051	—	X100	1.25	123.75	—	125	2017/05/18	—
	EJK053	—	X10	12.5	112.5	—	125	2017/05/18	—
	EJK053	—	X100	1.25	123.75	—	125	2017/05/18	—
15799808	EJ0284	—	X20	6.25	118.75	—	125	2017/05/18	—
	EJ0285	—	X20	6.25	118.75	—	125	2017/05/18	—
15799814	EJ0314	—	X10	12.5	112.5	—	125	2017/05/18	—

Project: D:\Analyst Data\Projects\Enviro\PFOS\Batch\PFC_170519A 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 Plate	1	*54VialPlate	1	1	PFC_170519AWS#4989765	1.000
2	Std 1	2 Well Plate	1	*54VialPlate	1	2	PFC_170519AWS#4989765	1.000
3	Std 2	2 Well Plate	1	*54VialPlate	1	3	PFC_170519AWS#4989765	1.000
4	Std 3	2 Well Plate	1	*54VialPlate	1	4	PFC_170519AWS#4989765	1.000
5	Std 4	2 Well Plate	1	*54VialPlate	1	5	PFC_170519AWS#4989765	1.000
6	Std 5	2 Well Plate	1	*54VialPlate	1	6	PFC_170519AWS#4989765	1.000
7	Std 6	2 Well Plate	1	*54VialPlate	1	7	PFC_170519AWS#4989765	1.000
8	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
9	ICV	2 Well Plate	1	*54VialPlate	1	9	PFC_170519AWS#4989765	1.000
10	ISC	2 Well Plate	1	*54VialPlate	1	2	PFC_170519AWS#4989765	1.000
11	4989765-BLANK	2 Well Plate	1	*54VialPlate	1	10	PFC_170519AWS#4989765	1.000
12	4989765-MTRX-SFK	2 Well Plate	1	*54VialPlate	1	11	PFC_170519AWS#4989765	1.000
13	4989765-MTRX-SFK-D1	2 Well Plate	1	*54VialPlate	1	12	PFC_170519AWS#4989765	1.000
14	4989765-SPKKE	2 Well Plate	1	*54VialPlate	1	13	PFC_170519AWS#4989765	1.000
15	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
16	4989765-E3-B65-01	2 Well Plate	1	*54VialPlate	1	14	PFC_170519AWS#4989765	1.000
17	4989765-EJK050-01:100x	2 Well Plate	1	*54VialPlate	1	15	PFC_170519AWS#4989765	1.000
18	4989765-EJK050-01:10x	2 Well Plate	1	*54VialPlate	1	16	PFC_170519AWS#4989765	1.000
19	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
20	4989765-EJK051-01:100x	2 Well Plate	1	*54VialPlate	1	17	PFC_170519AWS#4989765	1.000
21	4989765-EJK051-01:10x	2 Well Plate	1	*54VialPlate	1	18	PFC_170519AWS#4989765	1.000
22	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
23	4989765-EJK052-01	2 Well Plate	1	*54VialPlate	1	19	PFC_170519AWS#4989765	1.000
24	4989765-EJK053-01:100x	2 Well Plate	1	*54VialPlate	1	20	PFC_170519AWS#4989765	1.000
25	4989765-EJK053-01:10x	2 Well Plate	1	*54VialPlate	1	21	PFC_170519AWS#4989765	1.000
26	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
27	4989765-EJU281-01	2 Well Plate	1	*54VialPlate	1	22	PFC_170519AWS#4989765	1.000
28	4989765-EJU282-01	2 Well Plate	1	*54VialPlate	1	23	PFC_170519AWS#4989765	1.000
29	CCV	2 Well Plate	1	*54VialPlate	1	5	PFC_170519AWS#4989765	1.000
30	4989765-EJU283-01	2 Well Plate	1	*54VialPlate	1	24	PFC_170519AWS#4989765	1.000
31	4989765-EJU284-01:20x	2 Well Plate	1	*54VialPlate	1	25	PFC_170519AWS#4989765	1.000
32	4989765-EJU284-01	2 Well Plate	1	*54VialPlate	1	26	PFC_170519AWS#4989765	1.000
33	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
34	4989765-EJU285-01:20x	2 Well Plate	1	*54VialPlate	1	27	PFC_170519AWS#4989765	1.000
35	4989765-EJU285-01	2 Well Plate	1	*54VialPlate	1	28	PFC_170519AWS#4989765	1.000
36	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
37	4989765-EJU312-01	2 Well Plate	1	*54VialPlate	1	29	PFC_170519AWS#4989765	1.000
38	4989765-EJU313-01	2 Well Plate	1	*54VialPlate	1	30	PFC_170519AWS#4989765	1.000
39	4989765-EJU314-01:10x	2 Well Plate	1	*54VialPlate	1	31	PFC_170519AWS#4989765	1.000
40	4989765-EJU314-01	2 Well Plate	1	*54VialPlate	1	32	PFC_170519AWS#4989765	1.000
41	IB	2 Well Plate	1	*54VialPlate	1	8	PFC_170519AWS#4989765	1.000
42	4989765-EJU315-01	2 Well Plate	1	*54VialPlate	1	33	PFC_170519AWS#4989765	1.000
43	CCV	2 Well Plate	1	*54VialPlate	1	5	PFC_170519AWS#4989765	1.000
44	4989765-EJU327-01	2 Well Plate	1	*54VialPlate	1	34	PFC_170519AWS#4989765	1.000
45	4989765-EJU330-01	2 Well Plate	1	*54VialPlate	1	35	PFC_170519AWS#4989765	1.000
46	4989765-EJU331-01	2 Well Plate	1	*54VialPlate	1	36	PFC_170519AWS#4989765	1.000
47	CCV	2 Well Plate	1	*54VialPlate	1	5	PFC_170519AWS#4989765	1.000

Column # 173
 MPA: Sol# 93, TSREHN
 MPS: MOH, Signe
 Lot # SAB6900U

[Signature]
 2017/05/19

Vaped
 in
 2017/05/19

Sample ID	Sample Annotation	Acquisition Date	Acquisition Method	File Name	Rack Type	Rack Position	Vial Position	Plate Type	Plate Position	
1	Std 1	2017/05/19 5:27:59 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	2	*54VialPlate*	1	
2	Std 2	2017/05/19 5:33:03 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	3	*54VialPlate*	1	
3	Std 3	2017/05/19 5:38:07 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	4	*54VialPlate*	1	
4	Std 4	2017/05/19 5:43:10 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	5	*54VialPlate*	1	
5	Std 5	2017/05/19 5:48:14 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	6	*54VialPlate*	1	
6	Std 6	2017/05/19 5:53:16 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	7	*54VialPlate*	1	
7	IB	2017/05/19 5:58:20 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
8	ICV	2017/05/19 6:03:24 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	9	*54VialPlate*	1	
9	ISC	2017/05/19 6:48:56 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	2	*54VialPlate*	1	
10	4989765-BLANK	2017/05/19 7:04:08 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	10	*54VialPlate*	1	
11	4989765-MTRX SPK (EJU284)	2017/05/19 7:09:11 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	11	*54VialPlate*	1	
12	4989765-MTRX SPK:D1 (EJU284)	2017/05/19 7:14:15 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	12	*54VialPlate*	1	
13	4989765-SPIKE	2017/05/19 7:19:18 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	13	*54VialPlate*	1	
14	IB	2017/05/19 7:24:23 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
15	4989765-EGH865-01	2017/05/19 7:29:27 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	14	*54VialPlate*	1	
16	4989765-EJK050-01:100x	Reported for PFPeA, PFHxA, PFHxS, PFOS	2017/05/19 7:34:31 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	15	*54VialPlate*	1
17	4989765-EJK050-01:10x	Reported for ALL except PFPeA, PFHxA, PFHxS, PFOS	2017/05/19 7:39:34 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	16	*54VialPlate*	1
18	IB	2017/05/19 7:44:38 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
19	4989765-EJK051-01:100x	Reported for PFHxS, PFOS	2017/05/19 7:49:42 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	17	*54VialPlate*	1
20	4989765-EJK051-01:10x	Reported for ALL except PFHxS, PFOS	2017/05/19 7:54:46 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	18	*54VialPlate*	1
21	IB	2017/05/19 7:59:49 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
22	4989765-EJK052-01	-	2017/05/19 8:04:53 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	19	*54VialPlate*	1
23	4989765-EJK053-01:100x	Reported for PFPeA, PFHxA, 6:2FTS	2017/05/19 8:09:57 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	20	*54VialPlate*	1
24	4989765-EJK053-01:10x	Reported for ALL except PFPeA, PFHxA, 6:2FTS	2017/05/19 8:15:02 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	21	*54VialPlate*	1
25	IB	2017/05/19 8:20:05 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
26	4989765-EJU281-01	-	2017/05/19 8:25:09 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	22	*54VialPlate*	1
27	4989765-EJU282-01	-	2017/05/19 8:30:13 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	23	*54VialPlate*	1
28	CCV	2017/05/19 8:35:17 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	5	*54VialPlate*	1	
29	4989765-EJU283-01	-	2017/05/19 8:50:27 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	24	*54VialPlate*	1
30	4989765-EJU284-01:20x	Reported for PFOA & PFOS	2017/05/19 8:55:31 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	25	*54VialPlate*	1
31	4989765-EJU284-01	Reported for PFBS	2017/05/19 9:00:35 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	26	*54VialPlate*	1
32	IB	2017/05/19 9:05:40 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
33	4989765-EJU285-01:20x	Reported for PFOS	2017/05/19 9:10:44 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	27	*54VialPlate*	1
34	4989765-EJU285-01	Reported for PFBS & PFOA	2017/05/19 9:15:48 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	28	*54VialPlate*	1
35	IB	2017/05/19 9:20:52 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
36	4989765-EJU312-01	-	2017/05/19 9:25:56 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	29	*54VialPlate*	1
37	4989765-EJU313-01	-	2017/05/19 9:30:59 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	30	*54VialPlate*	1
38	4989765-EJU314-01:10x	Reported for 6:2FTS ONLY	2017/05/19 9:36:03 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	31	*54VialPlate*	1
39	4989765-EJU314-01	Reported for ALL except 6:2FTS.	2017/05/19 9:41:08 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	32	*54VialPlate*	1
40	IB	2017/05/19 9:46:13 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	8	*54VialPlate*	1	
41	4989765-EJU315-01	-	2017/05/19 9:51:17 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	33	*54VialPlate*	1
42	CCV	2017/05/19 9:56:22 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	5	*54VialPlate*	1	
43	4989765-EJU327-01	-	2017/05/19 10:11:32 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	34	*54VialPlate*	1
44	4989765-EJU330-01	-	2017/05/19 10:16:36 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	35	*54VialPlate*	1
45	4989765-EJU331-01	-	2017/05/19 10:21:40 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	36	*54VialPlate*	1
46	CCV	2017/05/19 10:28:44 PM	PFC_Water_Low.dam	PFC_170519A\WS#4989765.wiff	2 Well Plates	1	5	*54VialPlate*	1	

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5. Initial Calibration

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

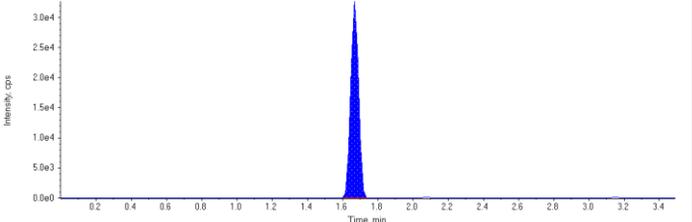
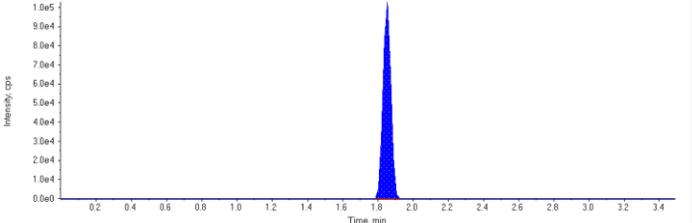
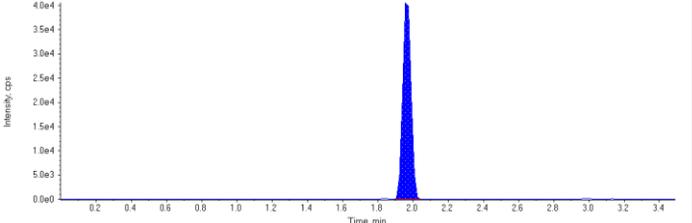
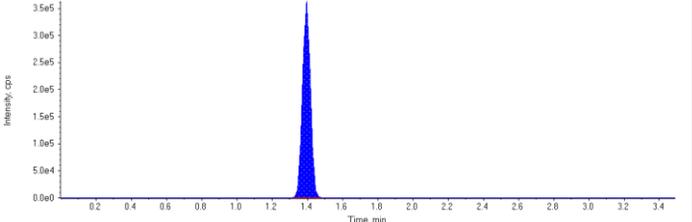
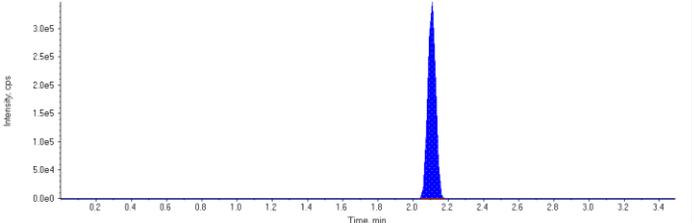


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Printed: 02/06/2017 1:46:52 PM

Sample ID	Std 1	Injection Volume (µL)	1
Sample Type	Standard	Injection Vial	2
Acquisition Date	2017/05/19 5:27:59 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro/PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	100000.	1.67	1.00	-
MPFOA	320000.	1.85	1.00	-
MPFOS	135000.	1.96	1.00	-
13C6-PFHxA IS	1130000.	1.39	1.00	-
13C9-PFDA IS	1080000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	84900	1.10	0.830	0.920	111.0
PFBS 2	53400	1.10	0.830	0.996	120.0
PFOA 1	114000	1.85	0.830	0.834	100.0
PFOA 2	47600	1.85	0.830	0.893	108.0
PFOS 1	52800	1.96	0.830	0.969	117.0
PFOS 2	18900	1.96	0.830	1.02	123.0
13C4-PFOA	320000	1.85	100.	105.	105.0
13C4-PFOS	135000	1.96	100.	94.3	94.3
13C8-PFOSA	329000	2.46	100.	105.	105.0
13C6-PFHxA	1130000	1.39	100.	100.	100.0
13C9-PFDA	1080000	2.11	100.	100.	100.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.920 µg/L</p> <p>Area Ratio: 0.846</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.996 µg/L</p> <p>Area Ratio: 0.532</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.834 µg/L</p> <p>Area Ratio: 0.356</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.893 µg/L</p> <p>Area Ratio: 0.149</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 0.969 µg/L</p> <p>Area Ratio: 0.392</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 1.02 µg/L</p> <p>Area Ratio: 0.140</p> <p>Sample Type: (Standard)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.282</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 94.3 µg/L</p> <p>Area Ratio: 0.119</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.305</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 100. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 100. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

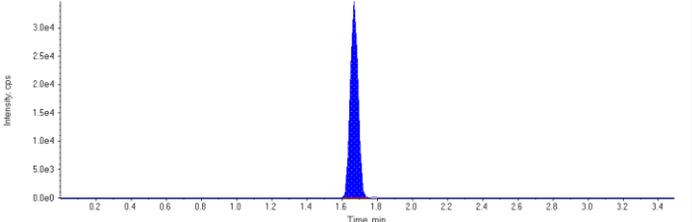
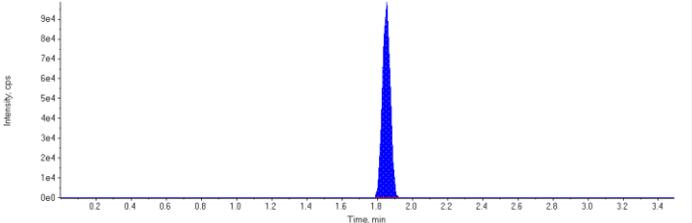
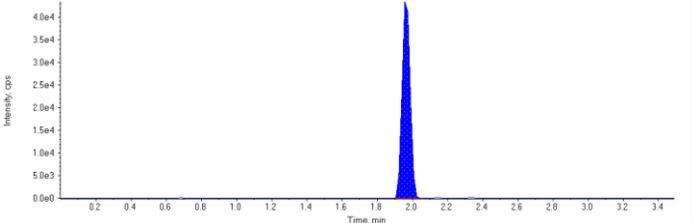
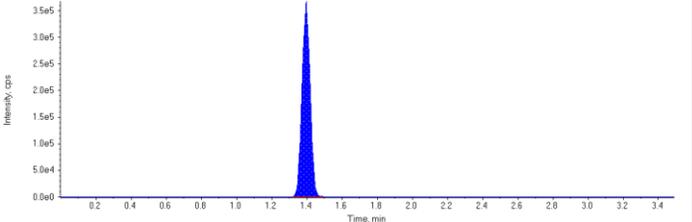
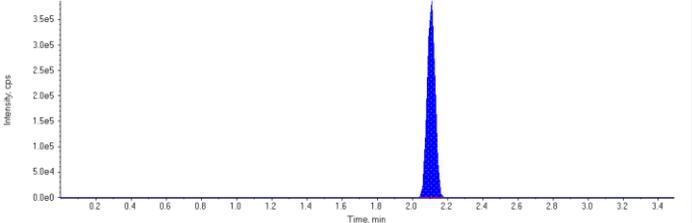


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Printed: 02/06/2017 1:46:52 PM

Sample ID	Std 2	Injection Volume (µL)	1
Sample Type	Standard	Injection Vial	3
Acquisition Date	2017/05/19 5:33:03 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

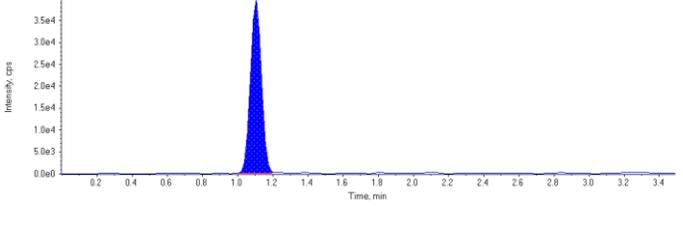
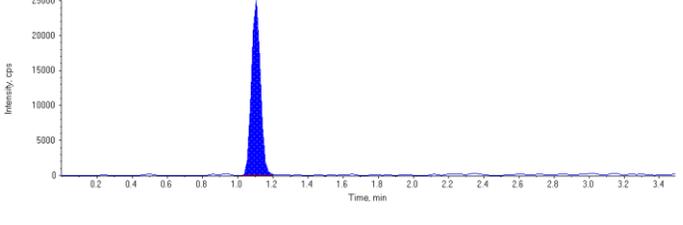
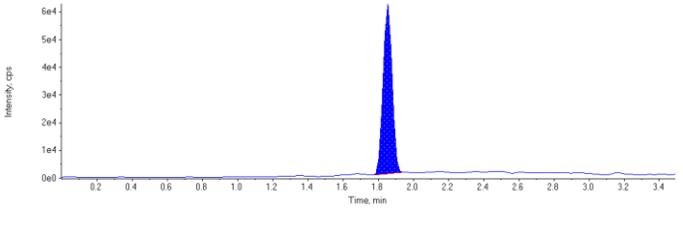
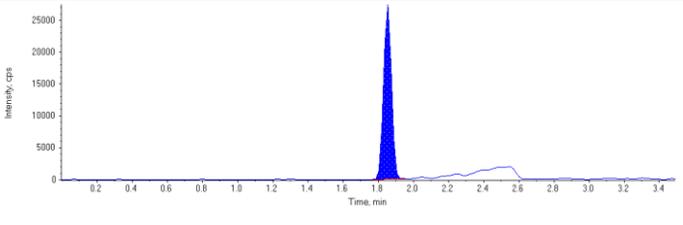
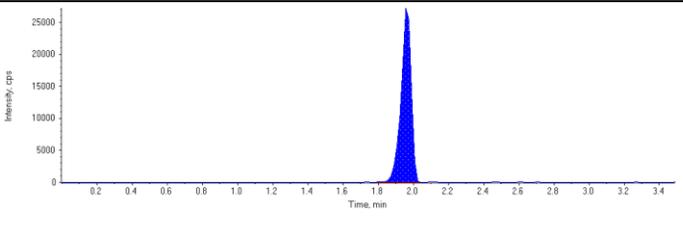
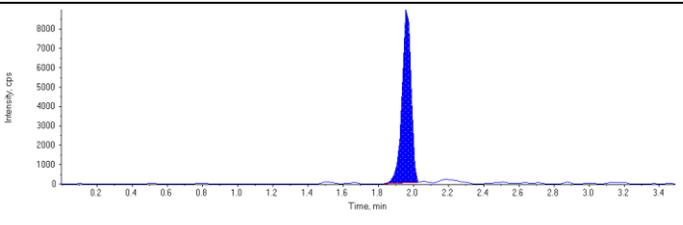
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	105000.	1.67	1.00	-
MPFOA	305000.	1.85	1.00	-
MPFOS	142000.	1.96	1.00	-
13C6-PFHxA IS	1170000.	1.39	1.00	-
13C9-PFDA IS	1200000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

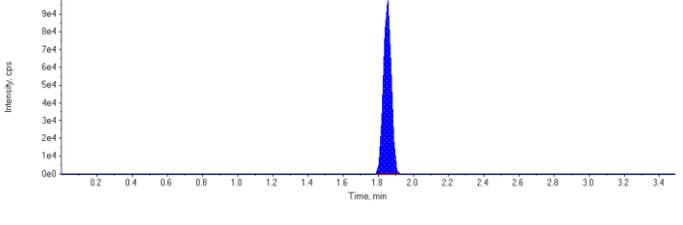
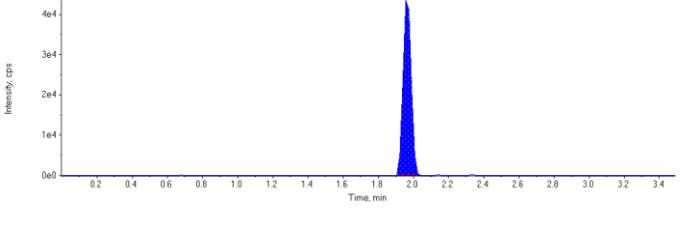
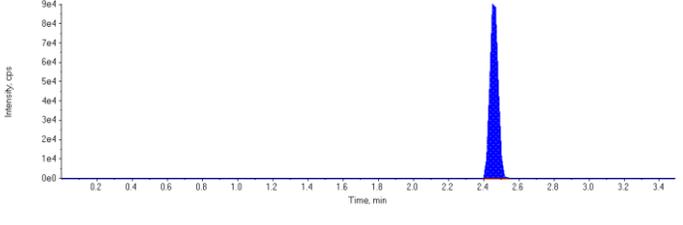
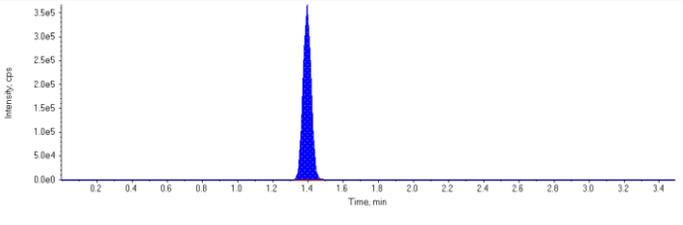
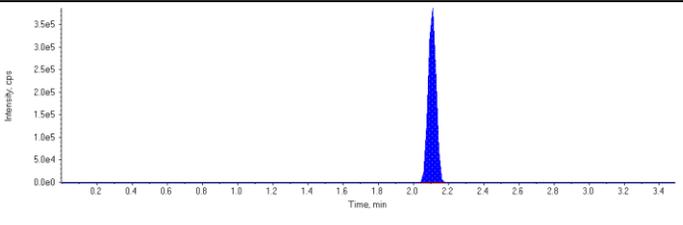
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	172000	1.10	1.70	1.63	96.1
PFBS 2	87000	1.10	1.70	1.53	89.8
PFOA 1	217000	1.85	1.70	1.64	96.4
PFOA 2	86100	1.85	1.70	1.64	96.6
PFOS 1	110000	1.96	1.70	1.72	101.0
PFOS 2	32000	1.96	1.70	1.55	90.9
13C4-PFOA	305000	1.85	100.	97.1	97.1
13C4-PFOS	142000	1.96	100.	96.1	96.1
13C8-PFOSA	298000	2.46	100.	85.8	85.8
13C6-PFHxA	1170000	1.39	100.	103.	103.0
13C9-PFDA	1200000	2.11	100.	112.	112.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 1.63 µg/L</p> <p>Area Ratio: 1.64</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 1.53 µg/L</p> <p>Area Ratio: 0.832</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 1.64 µg/L</p> <p>Area Ratio: 0.711</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 1.64 µg/L</p> <p>Area Ratio: 0.282</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 1.72 µg/L</p> <p>Area Ratio: 0.772</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 1.55 µg/L</p> <p>Area Ratio: 0.225</p> <p>Sample Type: (Standard)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 97.1 µg/L</p> <p>Area Ratio: 0.260</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 96.1 µg/L</p> <p>Area Ratio: 0.121</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 85.8 µg/L</p> <p>Area Ratio: 0.248</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 103. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 112. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

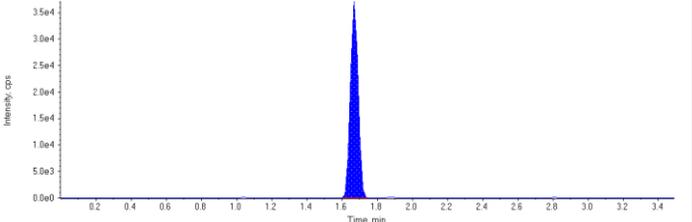
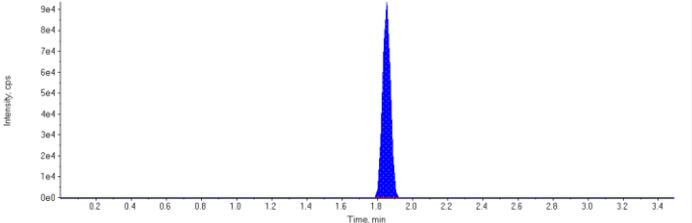
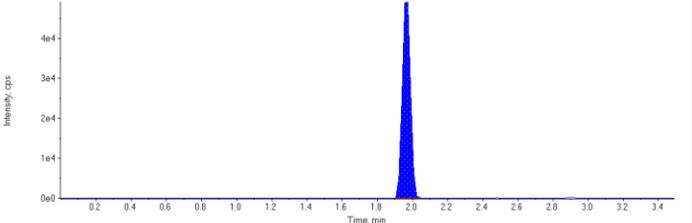
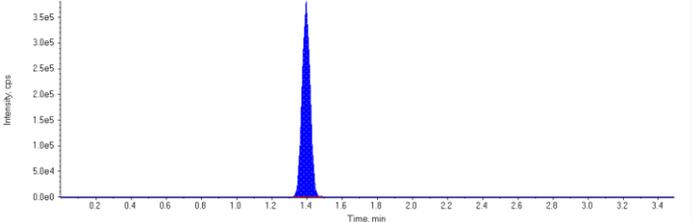
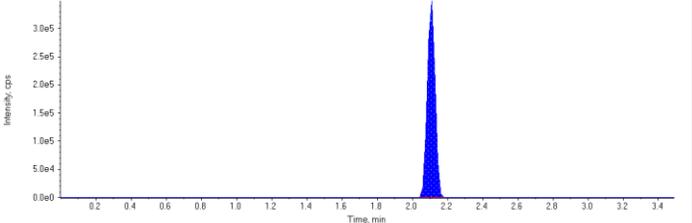


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Sample ID	Std 3	Injection Volume (µL)	1
Sample Type	Standard	Injection Vial	4
Acquisition Date	2017/05/19 5:38:07 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	113000.	1.67	1.00	-
MPFOA	292000.	1.85	1.00	-
MPFOS	164000.	1.97	1.00	-
13C6-PFHxA IS	1200000.	1.40	1.00	-
13C9-PFDA IS	1070000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	534000	1.10	5.00	4.41	88.2
PFBS 2	280000	1.10	5.00	4.44	88.8
PFOA 1	643000	1.85	5.00	5.03	101.0
PFOA 2	244000	1.85	5.00	4.75	95.0
PFOS 1	346000	1.96	5.00	4.36	87.2
PFOS 2	118000	1.97	5.00	4.56	91.3
13C4-PFOA	292000	1.85	100.	91.0	91.0
13C4-PFOS	164000	1.97	100.	109.	109.0
13C8-PFOSA	324000	2.46	100.	105.	105.0
13C6-PFHxA	1200000	1.40	100.	105.	105.0
13C9-PFDA	1070000	2.11	100.	99.9	99.9

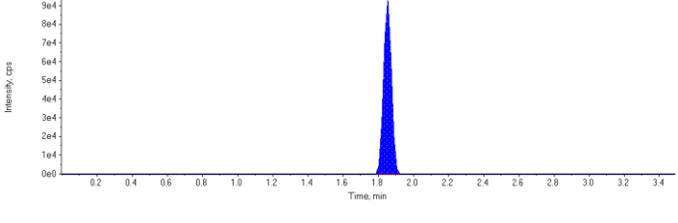
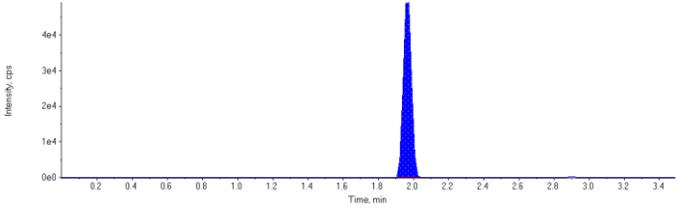
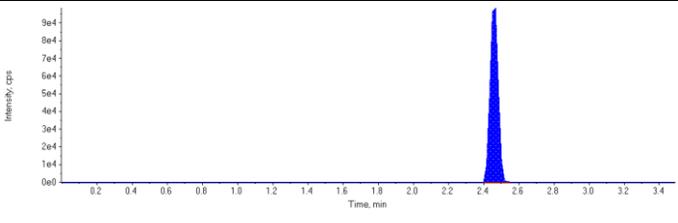
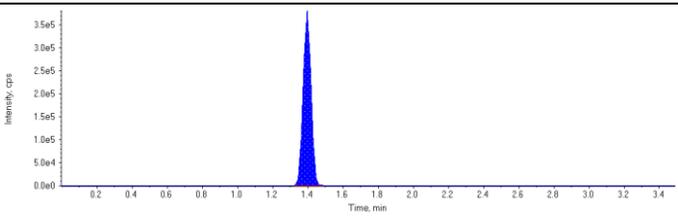
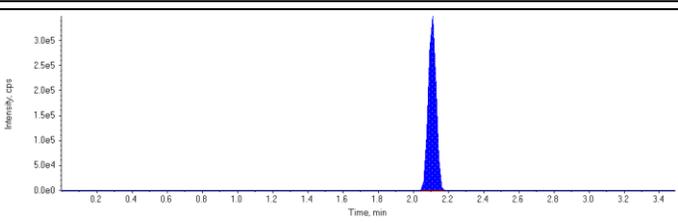
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 4.41 µg/L</p> <p>Area Ratio: 4.73</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 4.44 µg/L</p> <p>Area Ratio: 2.48</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 5.03 µg/L</p> <p>Area Ratio: 2.20</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 4.75 µg/L</p> <p>Area Ratio: 0.836</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 4.36 µg/L</p> <p>Area Ratio: 2.11</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 4.56 µg/L</p> <p>Area Ratio: 0.717</p> <p>Sample Type: (Standard)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 91.0 µg/L</p> <p>Area Ratio: 0.244</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 109. µg/L</p> <p>Area Ratio: 0.137</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.302</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 99.9 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

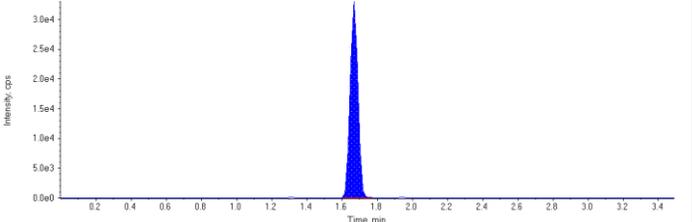
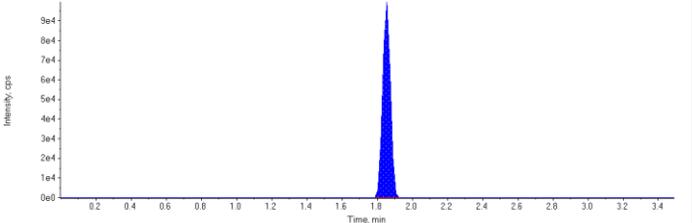
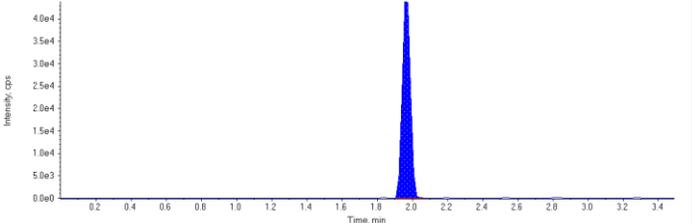
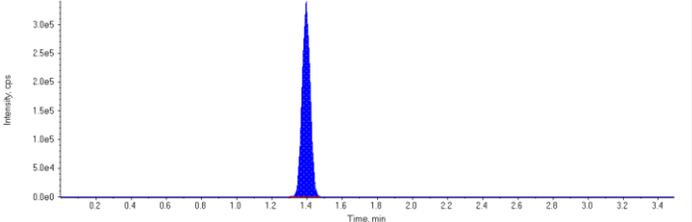
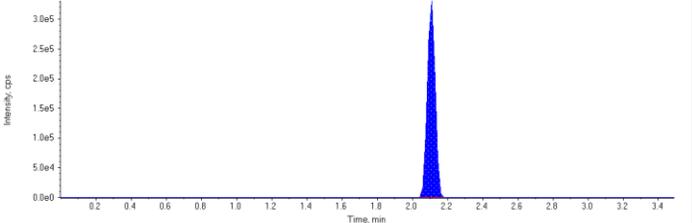


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Sample ID	Std 4	Injection Volume (µL)	1
Sample Type	Standard	Injection Vial	5
Acquisition Date	2017/05/19 5:43:10 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	101000.	1.67	1.00	-
MPFOA	305000.	1.85	1.00	-
MPFOS	147000.	1.97	1.00	-
13C6-PFHxA IS	1070000.	1.40	1.00	-
13C9-PFDA IS	1020000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

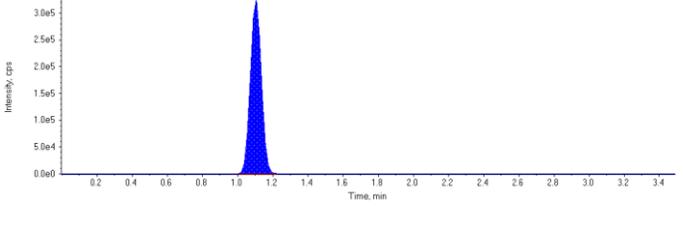
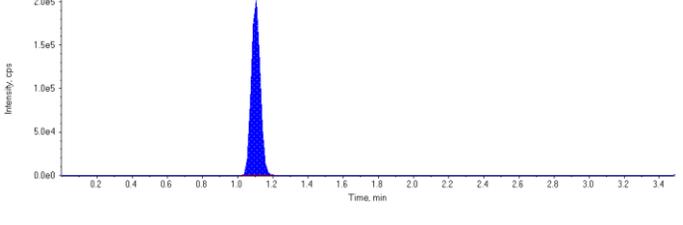
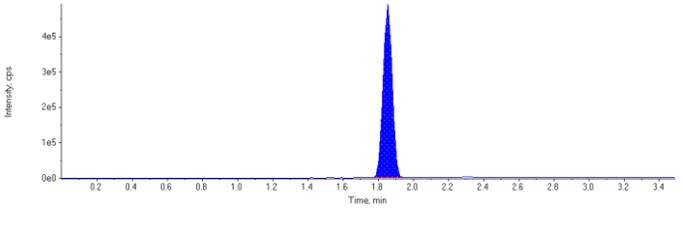
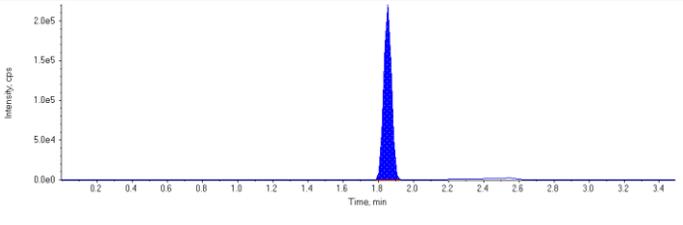
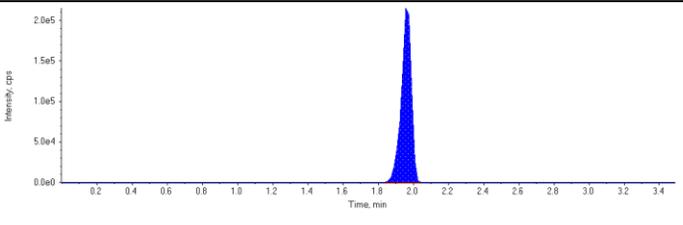
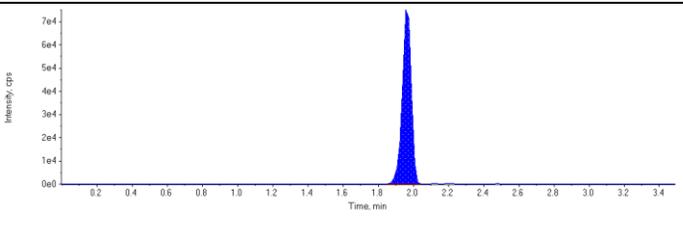
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	1410000	1.10	12.5	12.7	101.0
PFBS 2	705000	1.10	12.5	12.4	99.4
PFOA 1	1750000	1.85	12.5	13.0	104.0
PFOA 2	678000	1.85	12.5	12.5	100.0
PFOS 1	859000	1.96	12.5	11.8	94.4
PFOS 2	271000	1.96	12.5	11.5	91.9
13C4-PFOA	305000	1.85	100.	106.	106.0
13C4-PFOS	147000	1.97	100.	108.	108.0
13C8-PFOSA	302000	2.46	100.	102.	102.0
13C6-PFHxA	1070000	1.40	100.	94.8	94.8
13C9-PFDA	1020000	2.11	100.	95.3	95.3

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>

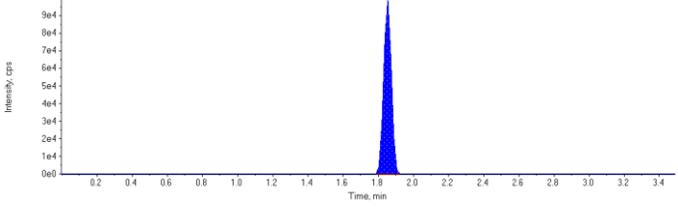
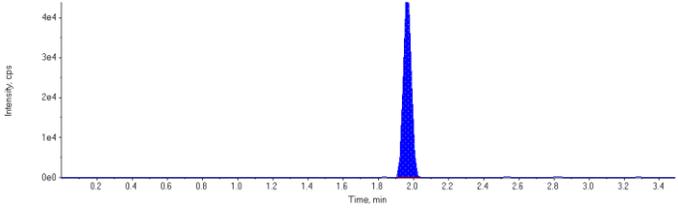
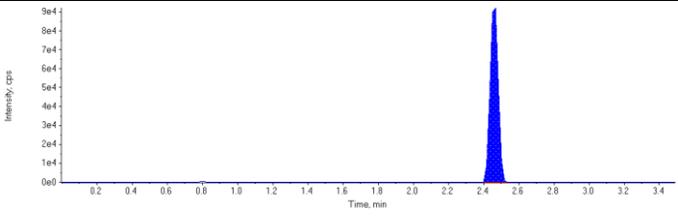
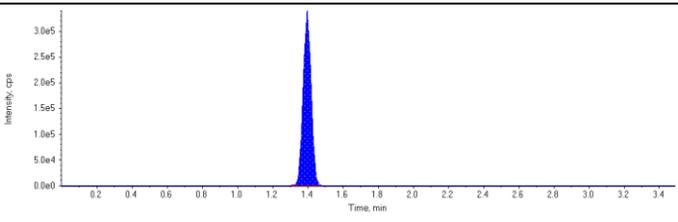
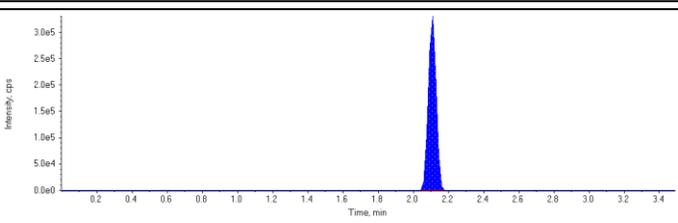


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<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 12.7 µg/L</p> <p>Area Ratio: 13.9</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 12.4 µg/L</p> <p>Area Ratio: 6.99</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 13.0 µg/L</p> <p>Area Ratio: 5.74</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 12.5 µg/L</p> <p>Area Ratio: 2.22</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 11.8 µg/L</p> <p>Area Ratio: 5.86</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 11.5 µg/L</p> <p>Area Ratio: 1.85</p> <p>Sample Type: (Standard)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 106. µg/L</p> <p>Area Ratio: 0.284</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 108. µg/L</p> <p>Area Ratio: 0.136</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 102. µg/L</p> <p>Area Ratio: 0.295</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 94.8 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 95.3 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

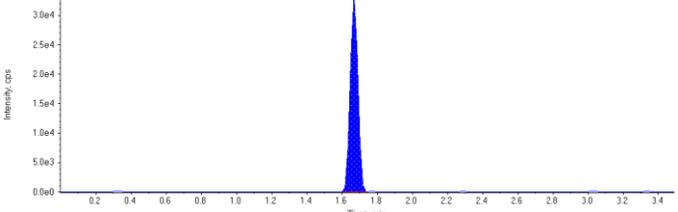
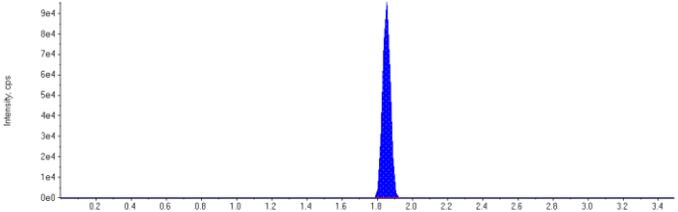
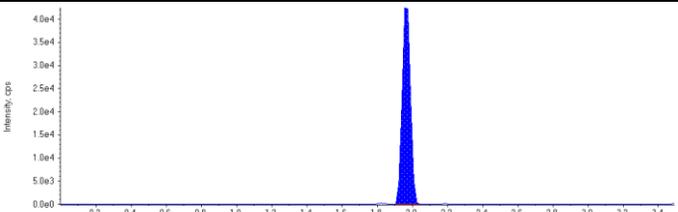
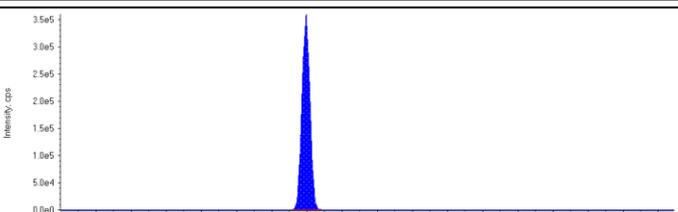
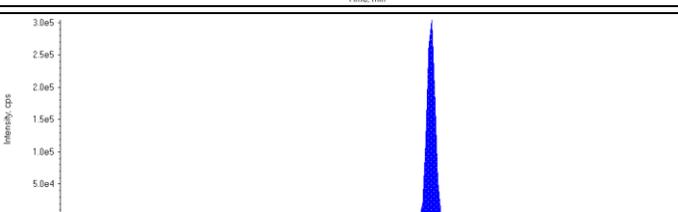


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Sample ID	Std 5	Injection Volume (µL)	1
Sample Type	Standard	Injection Vial	6
Acquisition Date	2017/05/19 5:48:14 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro/PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

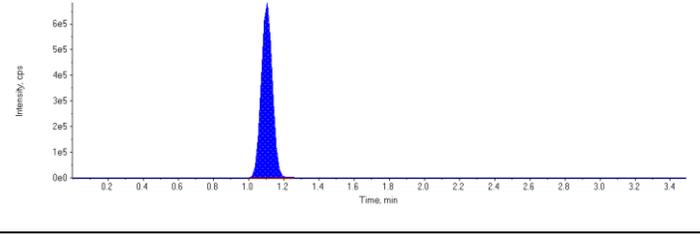
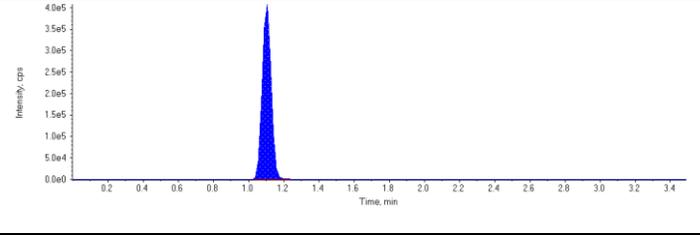
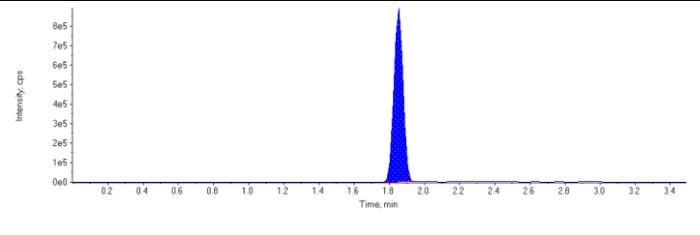
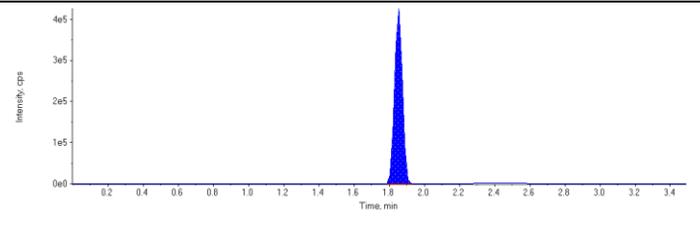
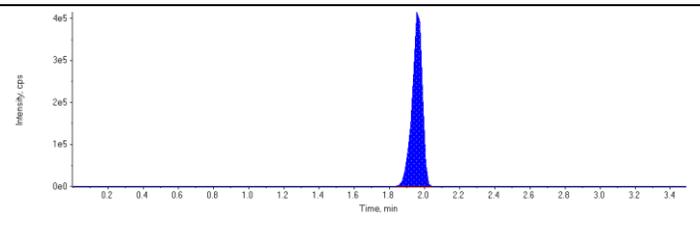
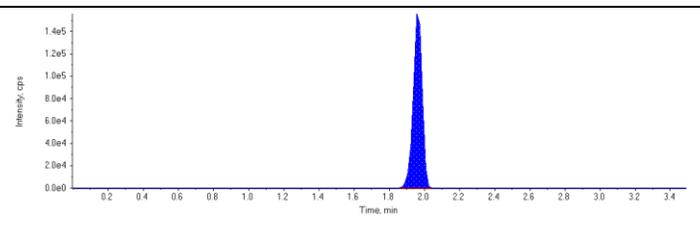
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	101000.	1.67	1.00	-
MPFOA	296000.	1.85	1.00	-
MPFOS	141000.	1.97	1.00	-
13C6-PFHxA IS	1140000.	1.39	1.00	-
13C9-PFDA IS	971000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

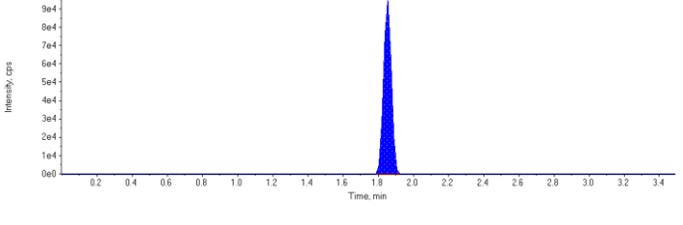
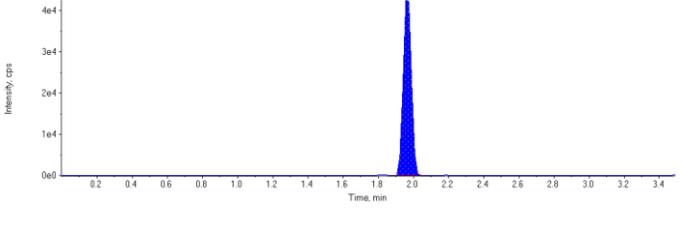
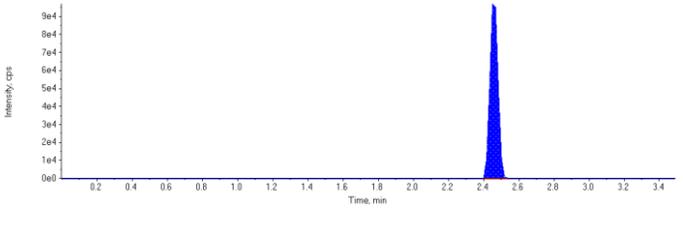
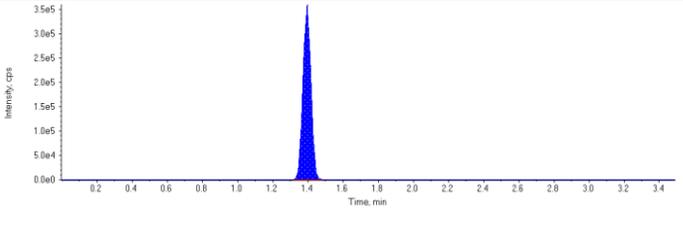
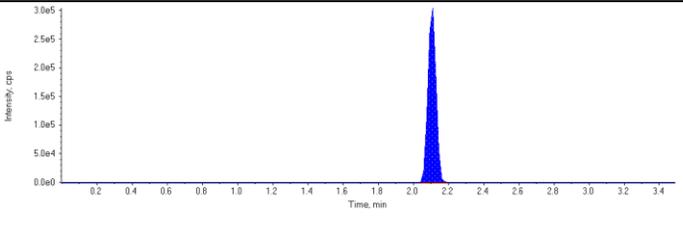
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2960000	1.10	25.0	26.5	106.0
PFBS 2	1440000	1.10	25.0	25.3	101.0
PFOA 1	3220000	1.85	25.0	24.7	98.6
PFOA 2	1320000	1.85	25.0	25.1	100.0
PFOS 1	1670000	1.96	25.0	23.5	94.0
PFOS 2	561000	1.96	25.0	24.5	98.0
13C4-PFOA	296000	1.85	100.	97.2	97.2
13C4-PFOS	141000	1.97	100.	98.6	98.6
13C8-PFOSA	319000	2.46	100.	114.	114.0
13C6-PFHxA	1140000	1.39	100.	100.	100.0
13C9-PFDA	971000	2.11	100.	90.4	90.4

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 26.5 µg/L</p> <p>Area Ratio: 29.3</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 25.3 µg/L</p> <p>Area Ratio: 14.3</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 24.7 µg/L</p> <p>Area Ratio: 10.9</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 25.1 µg/L</p> <p>Area Ratio: 4.46</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 23.5 µg/L</p> <p>Area Ratio: 11.8</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 24.5 µg/L</p> <p>Area Ratio: 3.97</p> <p>Sample Type: (Standard)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 97.2 µg/L</p> <p>Area Ratio: 0.261</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 98.6 µg/L</p> <p>Area Ratio: 0.124</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 114. µg/L</p> <p>Area Ratio: 0.328</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 100. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 90.4 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

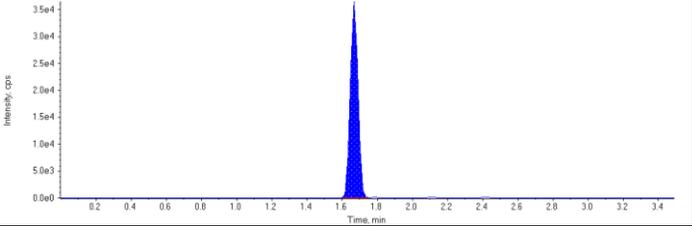
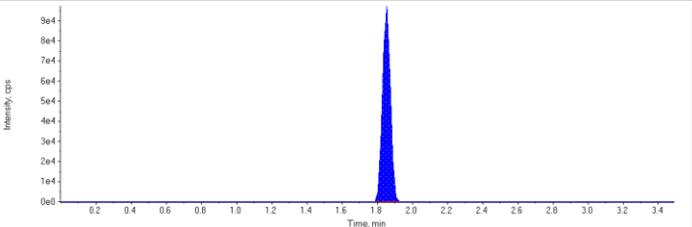
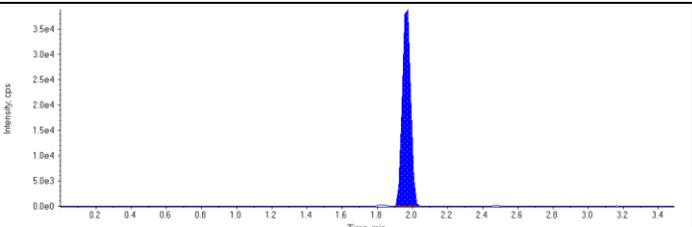
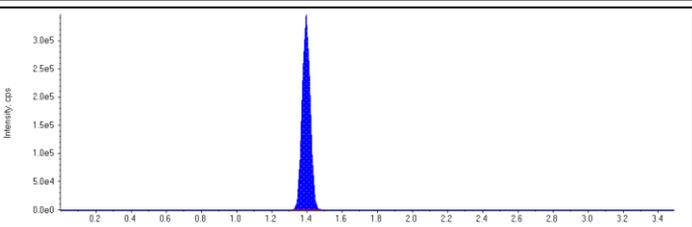
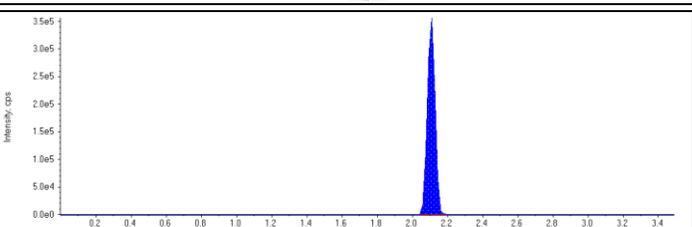


Created with Analyst Reporter
Printed: 02/06/2017 1:46:52 PM

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Sample Type	Standard	Injection Vial	7
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Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
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Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	111000.	1.67	1.00	-
MPFOA	304000.	1.85	1.00	-
MPFOS	129000.	1.97	1.00	-
13C6-PFHxA IS	1090000.	1.40	1.00	-
13C9-PFDA IS	1100000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

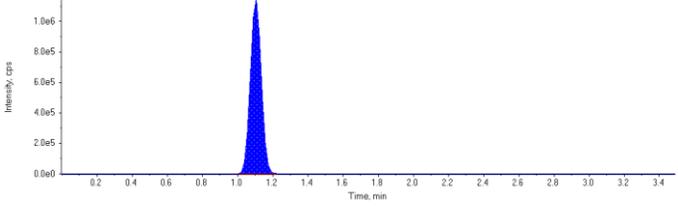
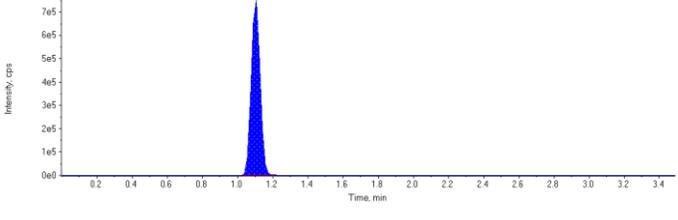
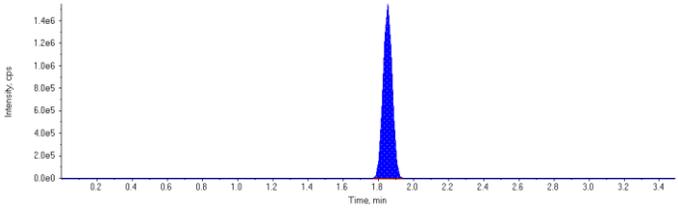
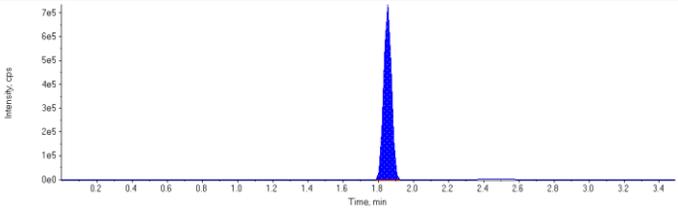
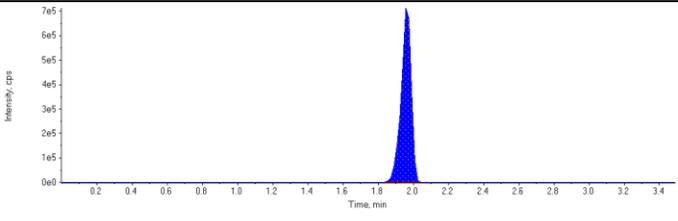
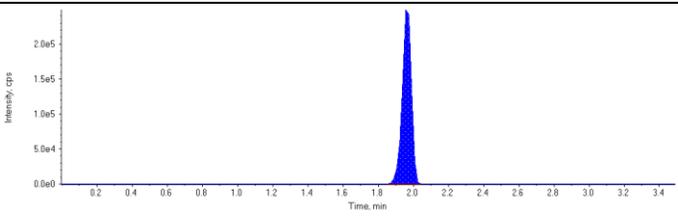
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
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PFBS 2	2630000	1.10	41.7	42.1	101.0
PFOA 1	5560000	1.85	41.7	41.5	99.6
PFOA 2	2270000	1.85	41.7	41.8	100.0
PFOS 1	2880000	1.96	41.7	44.4	106.0
PFOS 2	915000	1.96	41.7	43.6	105.0
13C4-PFOA	304000	1.85	100.	104.	104.0
13C4-PFOS	129000	1.97	100.	93.8	93.8
13C8-PFOSA	281000	2.46	100.	88.5	88.5
13C6-PFHxA	1090000	1.40	100.	96.3	96.3
13C9-PFDA	1100000	2.11	100.	102.	102.0

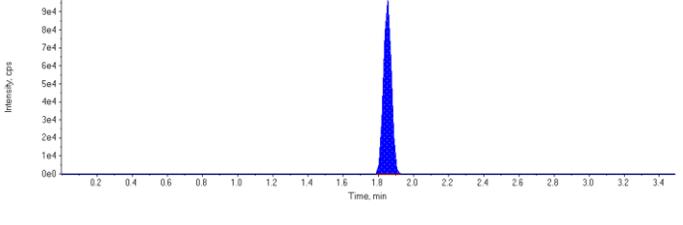
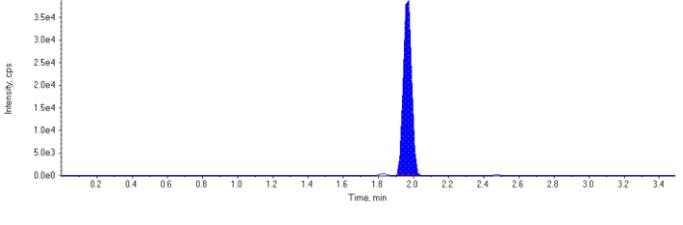
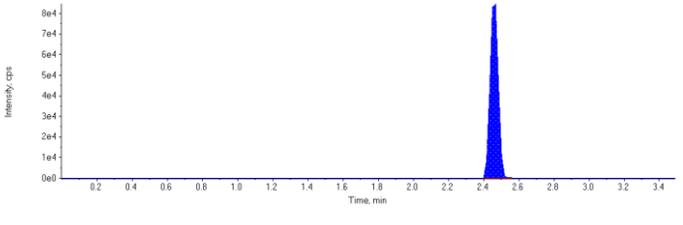
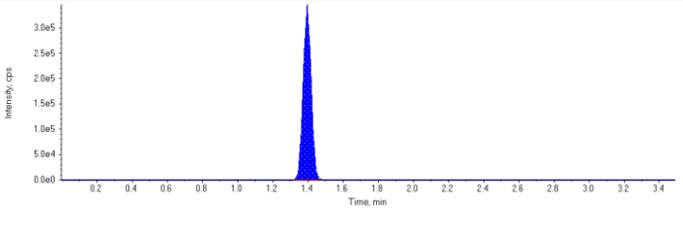
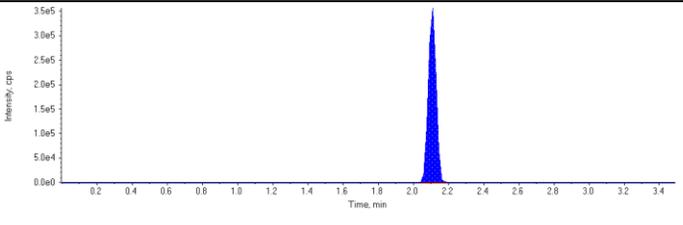
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Standard)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Standard)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Standard)</p>	<p>This image is not available</p>
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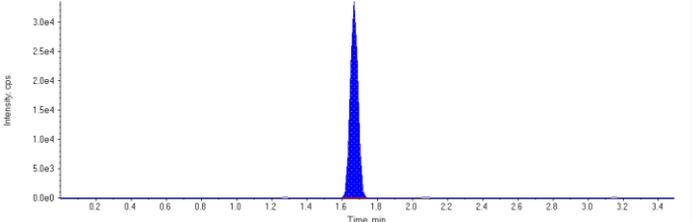
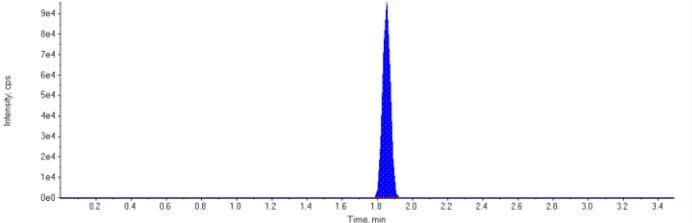
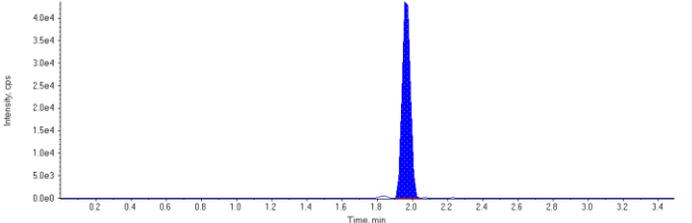
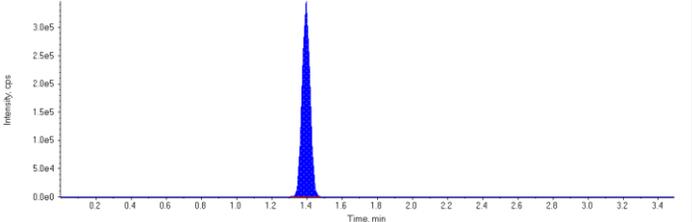
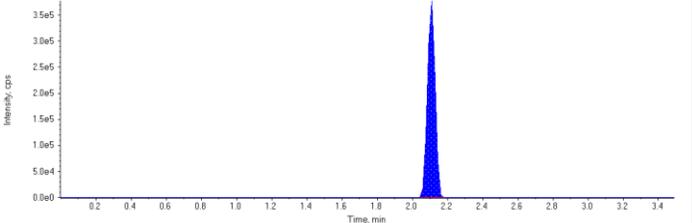
<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 40.6 µg/L</p> <p>Area Ratio: 45.0</p> <p>Sample Type: (Standard)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 42.1 µg/L</p> <p>Area Ratio: 23.8</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 41.5 µg/L</p> <p>Area Ratio: 18.3</p> <p>Sample Type: (Standard)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 41.8 µg/L</p> <p>Area Ratio: 7.45</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 44.4 µg/L</p> <p>Area Ratio: 22.3</p> <p>Sample Type: (Standard)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 43.6 µg/L</p> <p>Area Ratio: 7.08</p> <p>Sample Type: (Standard)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 104. µg/L</p> <p>Area Ratio: 0.279</p> <p>Sample Type: (Standard)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 93.8 µg/L</p> <p>Area Ratio: 0.118</p> <p>Sample Type: (Standard)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 88.5 µg/L</p> <p>Area Ratio: 0.256</p> <p>Sample Type: (Standard)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 96.3 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 102. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Standard)</p>	

Sample ID	ICV	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	9
Acquisition Date	2017/05/19 6:03:24 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

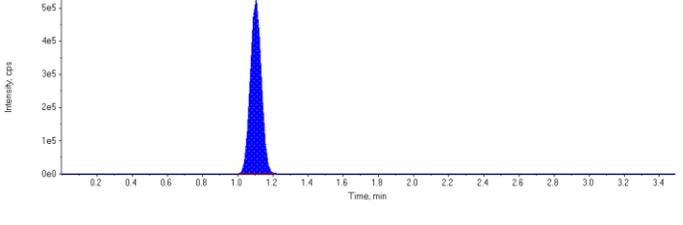
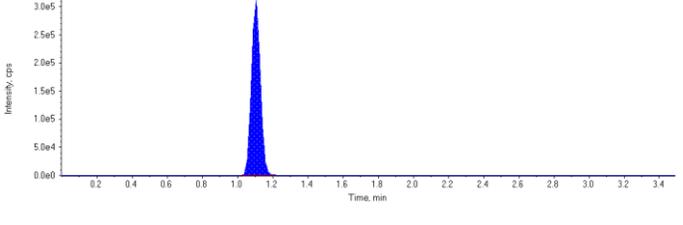
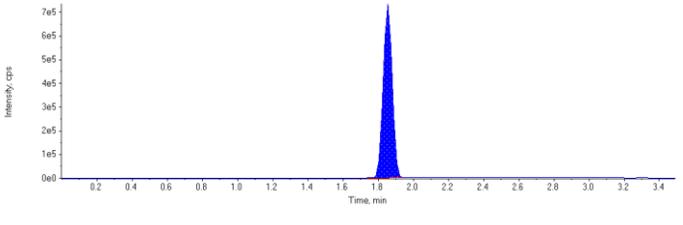
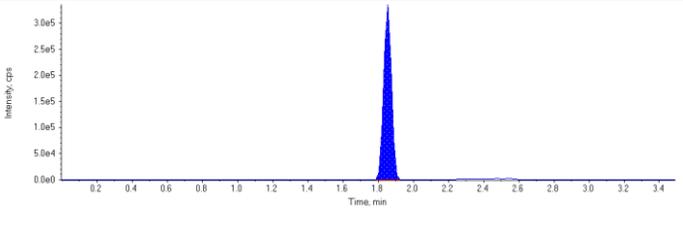
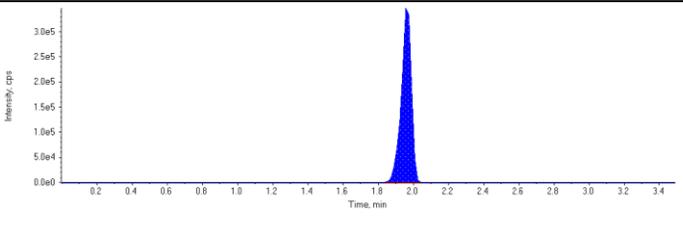
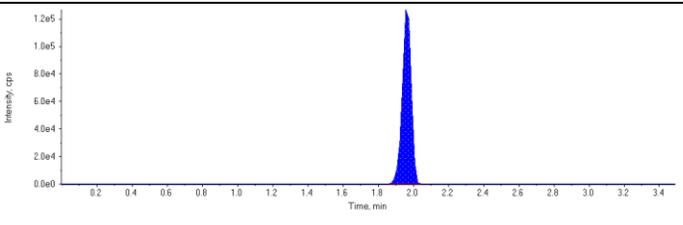
Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	100000.	1.67	1.00	-
MPFOA	294000.	1.85	1.00	-
MPFOS	144000.	1.96	1.00	-
13C6-PFHxA IS	1080000.	1.39	1.00	-
13C9-PFDA IS	1150000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
N/A	N/A	N/A	N/A	-

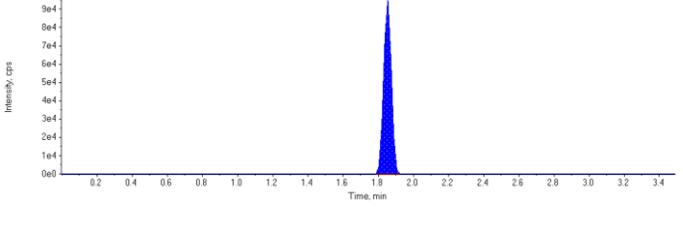
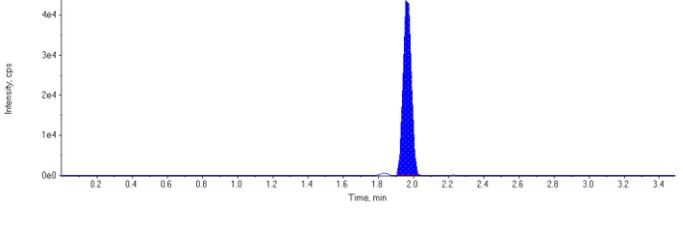
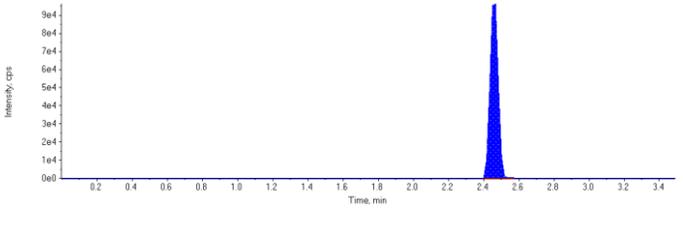
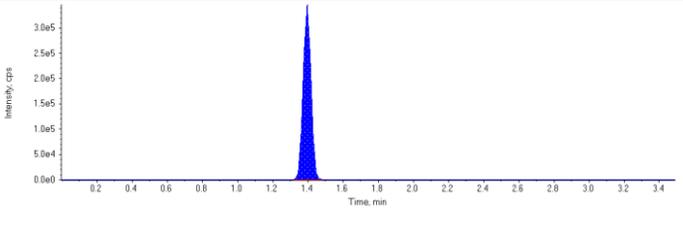
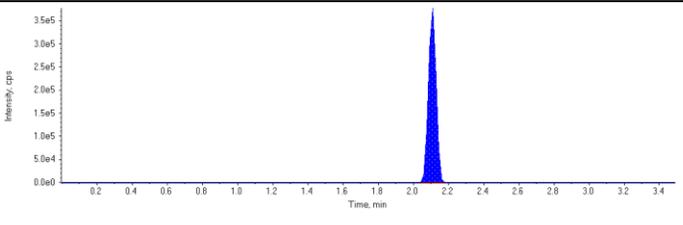
Target Analyte	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)	Accuracy (%)
PFBS 1	2280000	1.10	20.8	20.6	98.8
PFBS 2	1080000	1.10	20.8	19.1	92.1
PFOA 1	2620000	1.85	20.8	20.2	97.2
PFOA 2	1040000	1.85	20.8	19.8	95.3
PFOS 1	1400000	1.96	20.8	19.4	93.3
PFOS 2	456000	1.96	20.8	19.6	94.1
13C4-PFOA	294000	1.85	100.	102.	102.0
13C4-PFOS	144000	1.96	100.	106.	106.0
13C8-PFOSA	321000	2.46	100.	96.6	96.6
13C6-PFHxA	1080000	1.39	100.	94.8	94.8
13C9-PFDA	1150000	2.11	100.	107.	107.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.96(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 20.6 µg/L</p> <p>Area Ratio: 22.7</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 19.1 µg/L</p> <p>Area Ratio: 10.8</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 20.2 µg/L</p> <p>Area Ratio: 8.89</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 19.8 µg/L</p> <p>Area Ratio: 3.52</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 19.4 µg/L</p> <p>Area Ratio: 9.71</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 19.6 µg/L</p> <p>Area Ratio: 3.17</p> <p>Sample Type: (Quality Control)</p>	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 102. µg/L</p> <p>Area Ratio: 0.273</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.97) min</p> <p>Calculated Conc: 106. µg/L</p> <p>Area Ratio: 0.134</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 96.6 µg/L</p> <p>Area Ratio: 0.279</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 94.8 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 107. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

INJECTION INTERNAL STANDARD PEAK AREAS

Sample Name	Analyte	13C6-PFHxA	13C6-PFHxA	13C9-PFDA	13C9-PFDA
	Mass labeled IS	STD 4	ISC/CCV	STD 4	ISC/CCV
	IS Area	1070000	0	1020000	0
		IS Peak Area	IS Peak Area	IS Peak Area	IS Peak Area
Std 1		1130000		1080000	
Std 2		1170000		1200000	
Std 3		1200000		1070000	
Std 4		1070000		1020000	
Std 5		1140000		971000	
Std 6		1090000		1100000	
IB		1230000		1130000	
ICV		1080000		1150000	
ISC		1210000		1190000	
4989765~BLANK		1200000		1150000	
4989765~MTRX SPK		1220000		1090000	
4989765~MTRX SPK:D1		1210000		1060000	
4989765~SPIKE		1130000		1230000	
IB		1270000		1010000	
4989765~EGH865-01		1250000		1000000	
4989765~EJK050-01:100x		1010000		1120000	
4989765~EJK050-01:10x		1090000		1130000	
IB		1120000		1200000	
4989765~EJK051-01:100x		1150000		1160000	
4989765~EJK051-01:10x		980000		951000	
IB		1130000		1180000	
4989765~EJK052-01		1280000		1100000	
4989765~EJK053-01:100x		1310000		1320000	
4989765~EJK053-01:10x		1120000		1160000	
IB		1140000		1180000	
4989765~EJU281-01		1200000		1190000	
4989765~EJU282-01		1200000		1080000	
CCV		1130000		1110000	
4989765~EJU283-01		912000		1020000	
4989765~EJU284-01:20x		1020000		1020000	
4989765~EJU284-01		1170000		1090000	
IB		1190000		1210000	
4989765~EJU285-01:20x		1120000		1050000	
4989765~EJU285-01		989000		936000	
IB		1180000		1160000	
4989765~EJU312-01		1110000		1110000	
4989765~EJU313-01		1020000		1050000	
4989765~EJU314-01:10x		1130000		1030000	
4989765~EJU314-01		1160000		1080000	
IB		1190000		1120000	
4989765~EJU315-01		997000		915000	
CCV		996000		1020000	
4989765~EJU327-01		1050000		1120000	
4989765~EJU330-01		1030000		1060000	
4989765~EJU331-01		1150000		1020000	
CCV		1050000		1000000	



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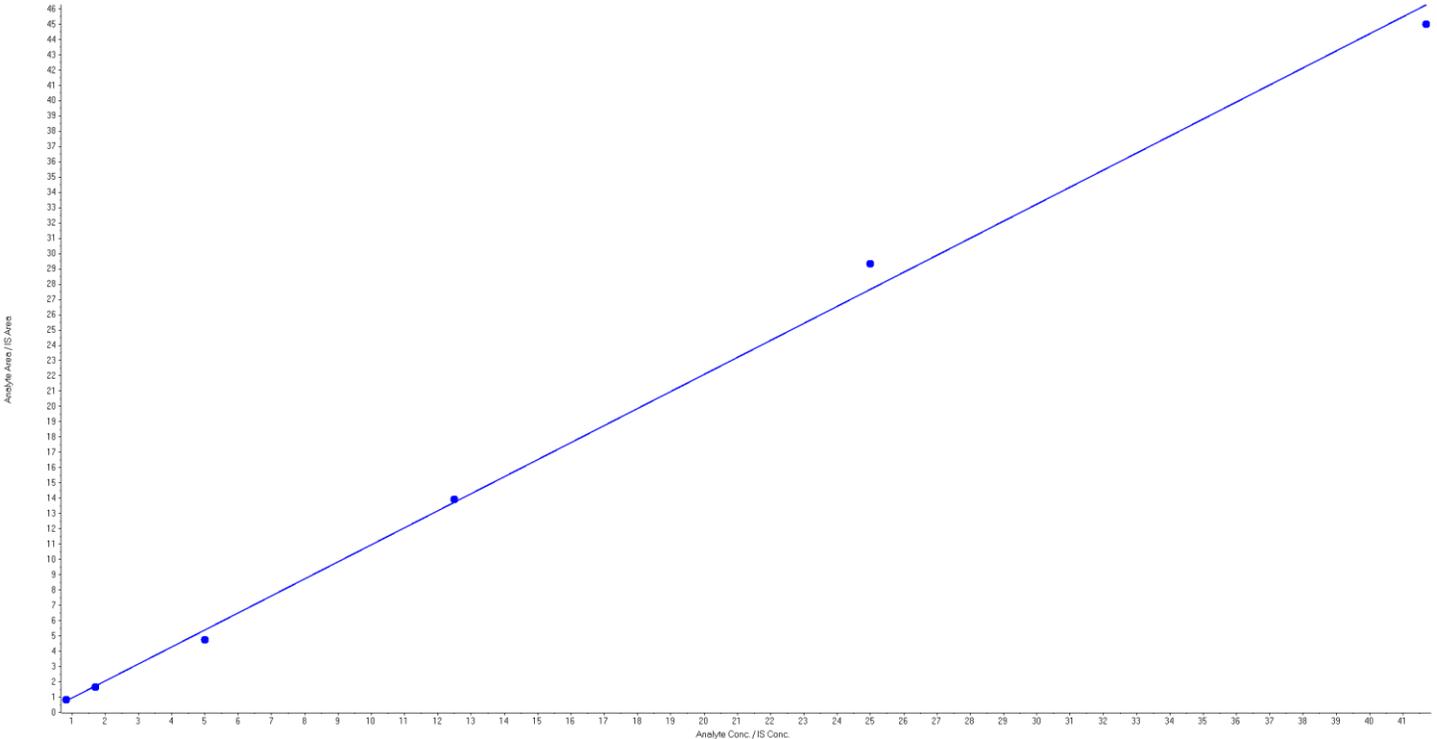
Analyte Name: PFBS 1
Internal Standard: MPFHxS

Data File	PFC_170519AWS#4989765.wiff	Result Table Project	PFC_Water_170519_4989765_EMAX.rdb
Acquisition Date	2017/05/19 5:27:59 PM	Instrument Name	LCMS03
Acquisition Method	PFC_Water_Low.dam		

Regression Equation: $y = 1.11 x + -0.179$ (r = 0.9985)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.83	1	0.92	110.9
1.7	1	1.63	96.1
5	1	4.41	88.2
12.5	1	12.68	101.5
25	1	26.51	106.0
41.7	1	40.58	97.3

Sample ID	Response Factor	S/N
Std 1	1.0200	158
Std 2	0.9650	449
Std 3	0.9460	1630
Std 4	1.1200	3620
Std 5	1.1700	9160
Std 6	1.0800	16700





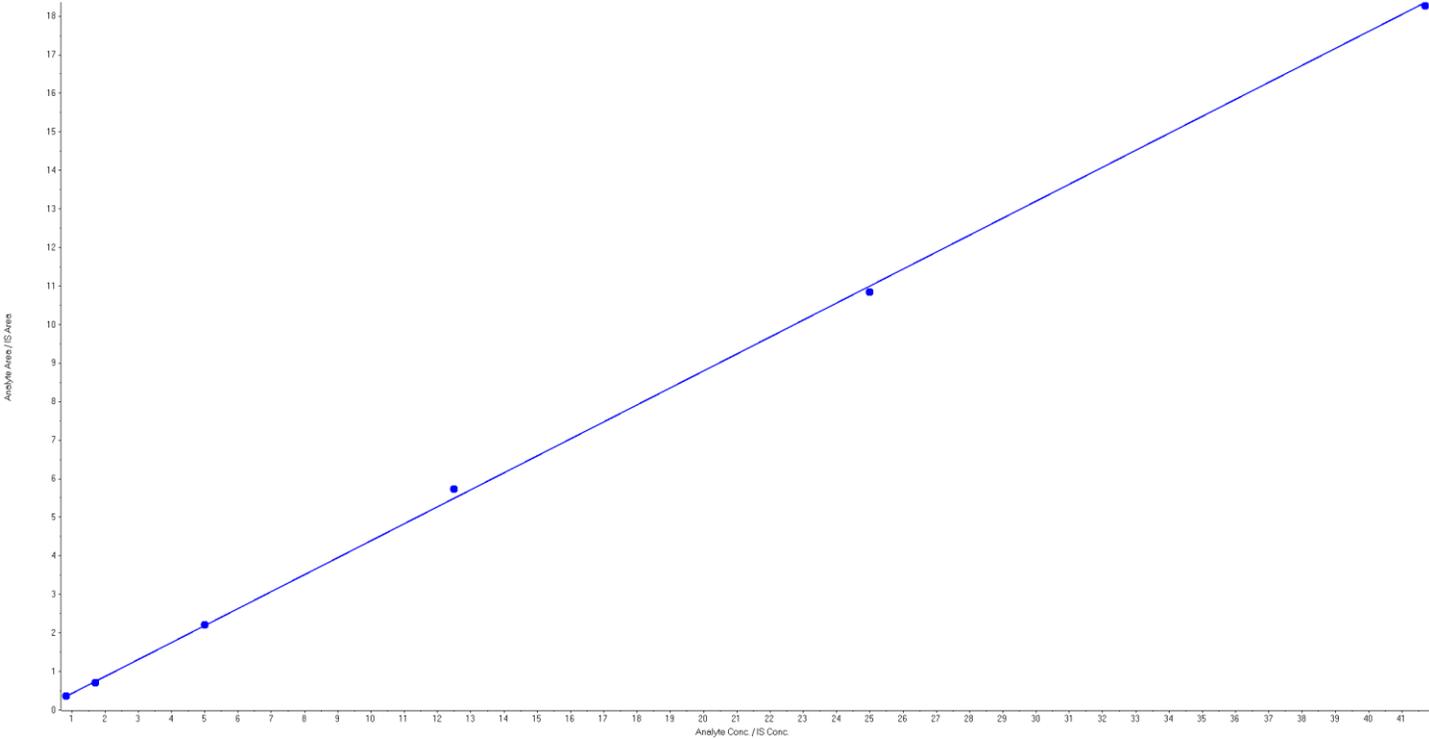
Analyte Name: PFOA 1
Internal Standard: MPFOA

Data File	PFC_170519A\WS#4989765.wiff	Result Table	PFC_Water_170519_4989765_EMAX.rdb
Acquisition Date	2017/05/19 5:27:59 PM	Project	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03

Regression Equation: $y = 0.44 x + -0.0112$ (r = 0.9998)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.83	1	0.83	100.4
1.7	1	1.64	96.4
5	1	5.03	100.6
12.5	1	13.05	104.4
25	1	24.66	98.6
41.7	1	41.52	99.6

Sample ID	Response Factor	S/N
Std 1	0.4290	233
Std 2	0.4180	258
Std 3	0.4410	844
Std 4	0.4590	3710
Std 5	0.4340	4690
Std 6	0.4380	4330





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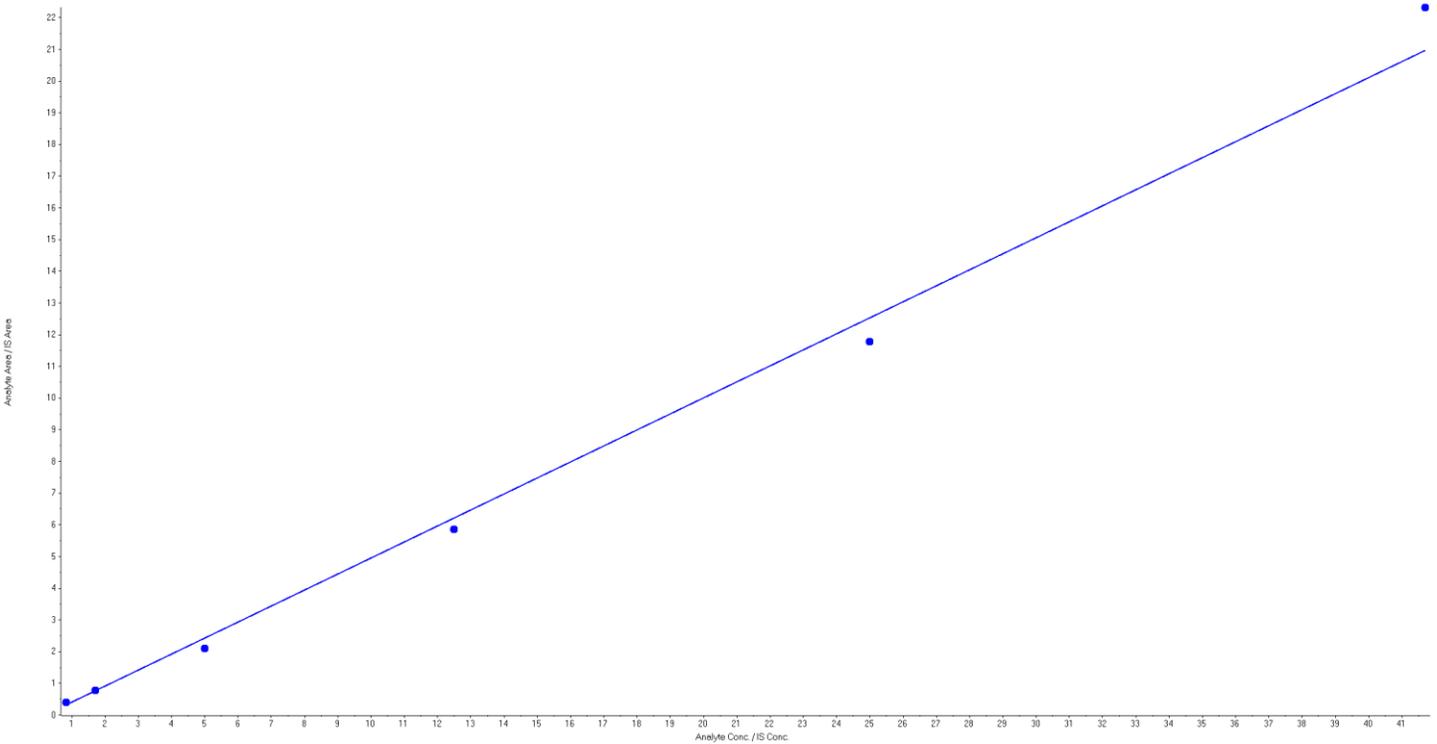
Analyte Name: PFOS 1
Internal Standard: MPFOS

Data File	PFC_170519A\WS#4989765.wiff	Result Table	PFC_Water_170519_4989765_EMAX.rdb
Acquisition Date	2017/05/19 5:27:59 PM	Project	Enviro\PFOS
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03

Regression Equation: $y = 0.505 x + -0.0977$ (r = 0.9971)

Expected Concentration (µg/L)	Number of Values	Calculated Concentration (µg/L)	% Accuracy
0.83	1	0.97	116.7
1.7	1	1.72	101.3
5	1	4.36	87.2
12.5	1	11.79	94.4
25	1	23.51	94.0
41.7	1	44.38	106.4

Sample ID	Response Factor	S/N
Std 1	0.4720	849
Std 2	0.4540	1310
Std 3	0.4210	3650
Std 4	0.4690	17100
Std 5	0.4710	9060
Std 6	0.5350	25100





6. Continuing Calibration

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



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Sample ID	ISC	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	2
Acquisition Date	2017/05/19 6:48:56 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	104000.	1.67	1.00	-
MPFOA	328000.	1.85	1.00	-
MPFOS	145000.	1.97	1.00	-
13C6-PFHxA IS	1210000.	1.39	1.00	-
13C9-PFDA IS	1190000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	92900	1.10	0.830	0.959	116.0
PFBS 2	50700	1.10	0.830	0.915	110.0
PFOA 1	103000	1.85	0.830	0.739	89.0
PFOA 2	39800	1.85	0.830	0.738	88.9
PFOS 1	52600	1.96	0.830	0.913	110.0
PFOS 2	18900	1.97	0.830	0.965	116.0
13C4-PFOA	328000	1.85	100.	101.	101.0
13C4-PFOS	145000	1.97	100.	94.7	94.7
13C8-PFOSA	318000	2.46	100.	92.3	92.3
13C6-PFHxA	1210000	1.39	100.	107.	107.0
13C9-PFDA	1190000	2.11	100.	111.	111.0

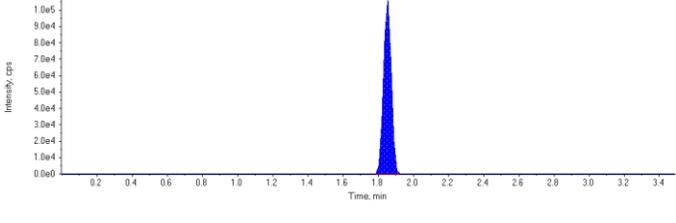
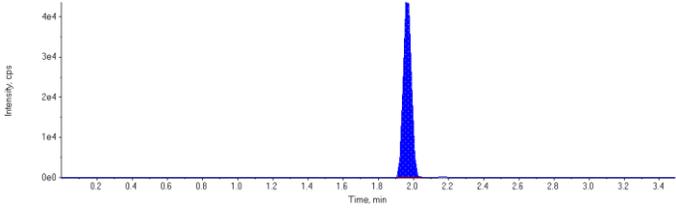
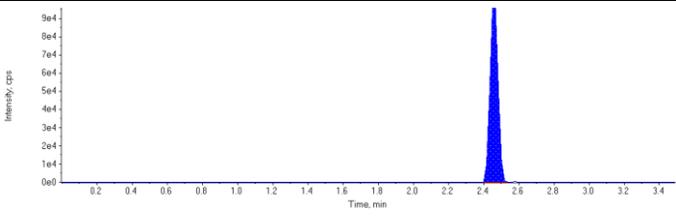
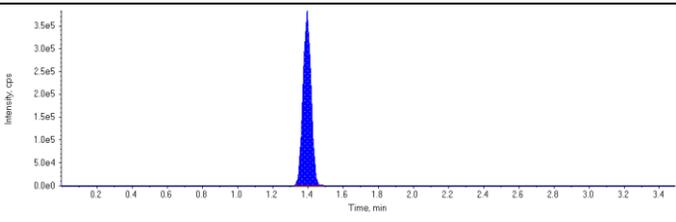
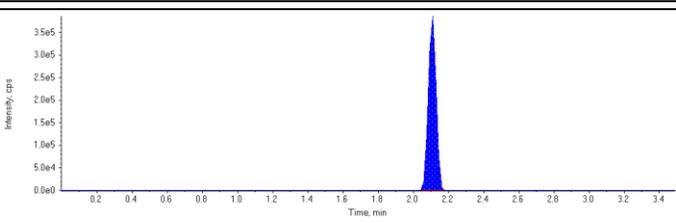
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.39(1.40) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.959 µg/L</p> <p>Area Ratio: 0.890</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.10 (1.11) min</p> <p>Calculated Conc: 0.915 µg/L</p> <p>Area Ratio: 0.486</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.739 µg/L</p> <p>Area Ratio: 0.314</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 0.738 µg/L</p> <p>Area Ratio: 0.121</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.96 (1.96) min</p> <p>Calculated Conc: 0.913 µg/L</p> <p>Area Ratio: 0.364</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 0.965 µg/L</p> <p>Area Ratio: 0.131</p> <p>Sample Type: (Quality Control)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 101. µg/L</p> <p>Area Ratio: 0.271</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 94.7 µg/L</p> <p>Area Ratio: 0.119</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 92.3 µg/L</p> <p>Area Ratio: 0.267</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.39 (1.40) min</p> <p>Calculated Conc: 107. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 111. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

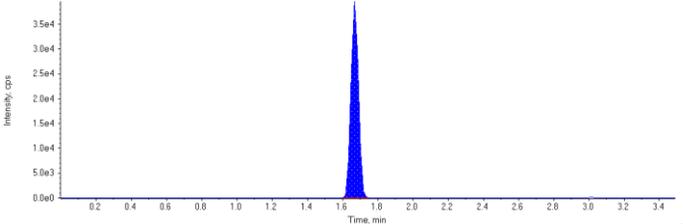
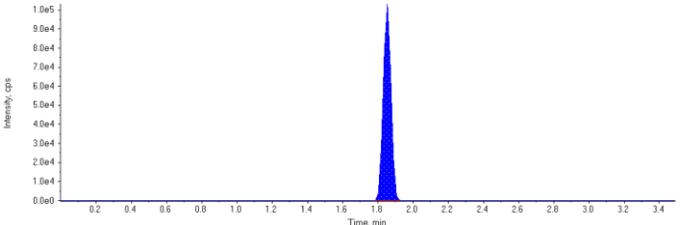
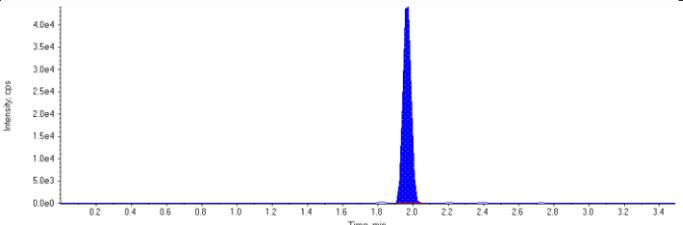
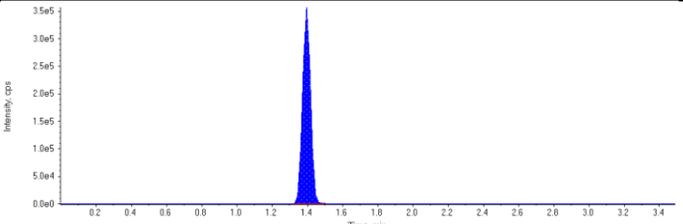
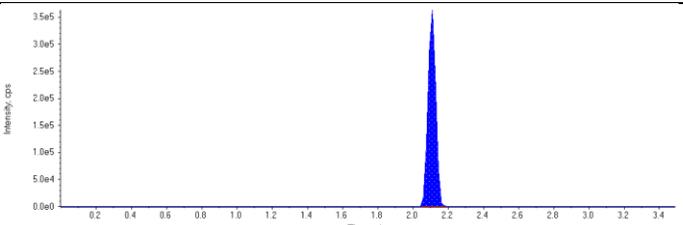


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Sample ID	CCV	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	5
Acquisition Date	2017/05/19 8:35:17 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	117000.	1.67	1.00	-
MPFOA	316000.	1.85	1.00	-
MPFOS	147000.	1.97	1.00	-
13C6-PFHxA IS	1130000.	1.40	1.00	-
13C9-PFDA IS	1110000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	1420000	1.10	12.5	11.1	88.9
PFBS 2	709000	1.10	12.5	10.8	86.3
PFOA 1	1680000	1.85	12.5	12.1	96.9
PFOA 2	690000	1.85	12.5	12.3	98.3
PFOS 1	854000	1.96	12.5	11.7	93.3
PFOS 2	283000	1.96	12.5	11.9	95.5
13C4-PFOA	316000	1.85	100.	104.	104.0
13C4-PFOS	147000	1.97	100.	103.	103.0
13C8-PFOSA	335000	2.46	100.	104.	104.0
13C6-PFHxA	1130000	1.40	100.	99.6	99.6
13C9-PFDA	1110000	2.11	100.	104.	104.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.10 (1.11) min Calculated Conc: 11.1 µg/L Area Ratio: 12.2 Sample Type: (Quality Control)	
PFBS 2 (298.900/98.900 Da) RT (Exp. RT): 1.10 (1.11) min Calculated Conc: 10.8 µg/L Area Ratio: 6.07 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.85 (1.85) min Calculated Conc: 12.1 µg/L Area Ratio: 5.32 Sample Type: (Quality Control)	
PFOA 2 (413.100/169.000 Da) RT (Exp. RT): 1.85 (1.85) min Calculated Conc: 12.3 µg/L Area Ratio: 2.18 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.96 (1.96) min Calculated Conc: 11.7 µg/L Area Ratio: 5.80 Sample Type: (Quality Control)	
PFOS 2 (498.900/98.900 Da) RT (Exp. RT): 1.96 (1.96) min Calculated Conc: 11.9 µg/L Area Ratio: 1.92 Sample Type: (Quality Control)	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 104. µg/L</p> <p>Area Ratio: 0.280</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 103. µg/L</p> <p>Area Ratio: 0.130</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 104. µg/L</p> <p>Area Ratio: 0.301</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 99.6 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 104. µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

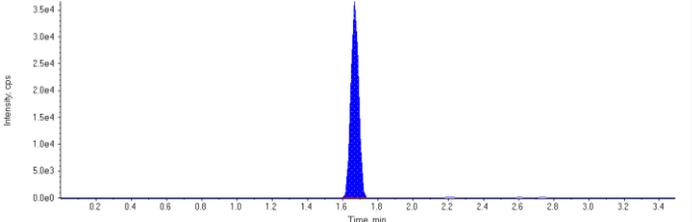
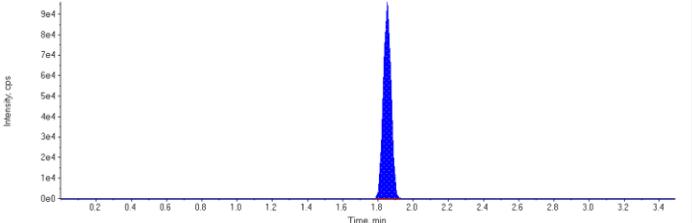
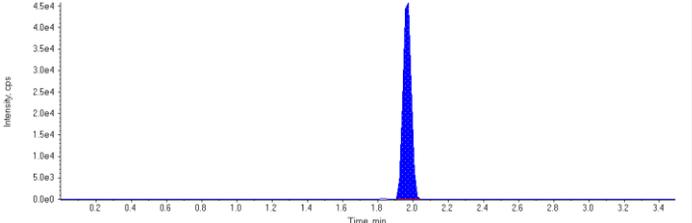
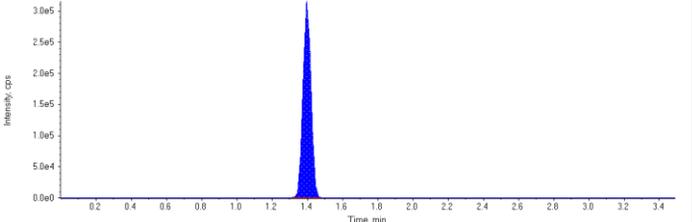
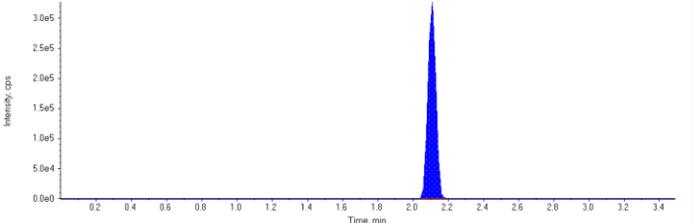


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Sample ID	CCV	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	5
Acquisition Date	2017/05/19 9:56:22 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	110000.	1.67	1.00	-
MPFOA	293000.	1.85	1.00	-
MPFOS	152000.	1.97	1.00	-
13C6-PFHxA IS	996000.	1.40	1.00	-
13C9-PFDA IS	1020000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	1400000	1.11	12.5	11.6	92.7
PFBS 2	742000	1.11	12.5	12.0	95.8
PFOA 1	1760000	1.85	12.5	13.7	109.0
PFOA 2	703000	1.85	12.5	13.5	108.0
PFOS 1	850000	1.97	12.5	11.3	90.1
PFOS 2	263000	1.97	12.5	10.8	86.3
13C4-PFOA	293000	1.85	100.	110.	110.0
13C4-PFOS	152000	1.97	100.	121.	121.0
13C8-PFOA	335000	2.46	100.	114.	114.0
13C6-PFHxA	996000	1.40	100.	87.8	87.8
13C9-PFDA	1020000	2.11	100.	95.0	95.0

<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



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Printed: 02/06/2017 1:51:00 PM

<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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<p>PFBS 1 (298.900/79.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 11.6 µg/L</p> <p>Area Ratio: 12.7</p> <p>Sample Type: (Quality Control)</p>	
<p>PFBS 2 (298.900/98.900 Da)</p> <p>RT (Exp. RT): 1.11 (1.11) min</p> <p>Calculated Conc: 12.0 µg/L</p> <p>Area Ratio: 6.74</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 1 (413.100/369.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 13.7 µg/L</p> <p>Area Ratio: 6.01</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOA 2 (413.100/169.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 13.5 µg/L</p> <p>Area Ratio: 2.40</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 1 (498.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 11.3 µg/L</p> <p>Area Ratio: 5.59</p> <p>Sample Type: (Quality Control)</p>	
<p>PFOS 2 (498.900/98.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.96) min</p> <p>Calculated Conc: 10.8 µg/L</p> <p>Area Ratio: 1.73</p> <p>Sample Type: (Quality Control)</p>	



<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 110. µg/L</p> <p>Area Ratio: 0.294</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 121. µg/L</p> <p>Area Ratio: 0.153</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 114. µg/L</p> <p>Area Ratio: 0.328</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 87.8 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 95.0 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	

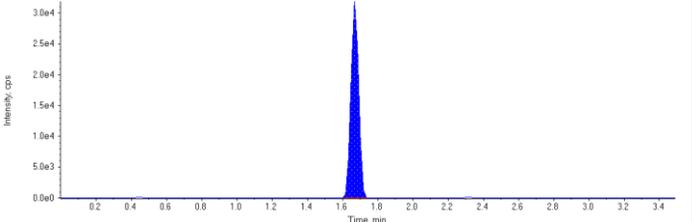
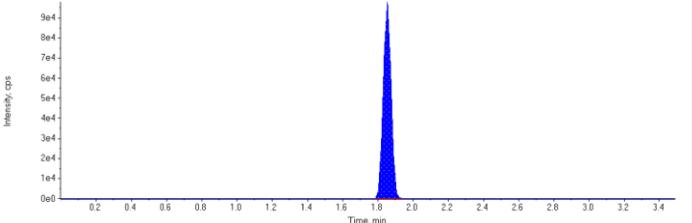
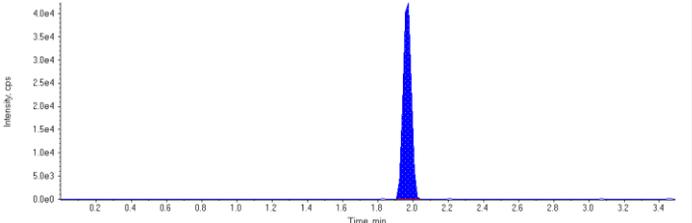
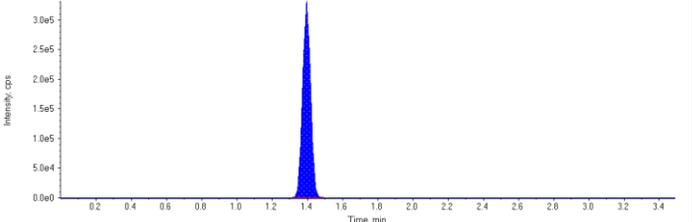
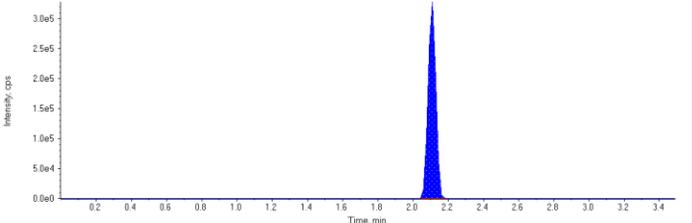


Created with Analyst Reporter
Printed: 02/06/2017 1:51:00 PM

Sample ID	CCV	Injection Volume (µL)	1
Sample Type	Quality Control	Injection Vial	5
Acquisition Date	2017/05/19 10:26:44 PM	Dilution Factor	1.00
Acquisition Method	PFC_Water_Low.dam	Instrument Name	LCMS03
Project	Enviro\PFOS	Algorithm Used	Analyst Classic
Data File	PFC_170519AWS#4989765.wiff		
Result Table	PFC_Water_170519_4989765_EMAX.rdb		
Samples Annotation	-		

Internal Standard	Area (cps)	RT (min)	Target Conc. (ug/L)	Calc. Conc. (ug/L)
MPFHxS	96800.	1.67	1.00	-
MPFOA	302000.	1.85	1.00	-
MPFOS	139000.	1.97	1.00	-
13C6-PFHxA IS	1050000.	1.40	1.00	-
13C9-PFDA IS	1000000.	2.11	1.00	-
N/A	N/A	N/A	N/A	-
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	1420000	1.10	12.5	13.3	107.0
PFBS 2	694000	1.10	12.5	12.7	102.0
PFOA 1	1680000	1.85	12.5	12.7	101.0
PFOA 2	691000	1.85	12.5	12.9	103.0
PFOS 1	852000	1.97	12.5	12.3	98.6
PFOS 2	265000	1.96	12.5	11.8	94.8
13C4-PFOA	302000	1.85	100.	107.	107.0
13C4-PFOS	139000	1.97	100.	105.	105.0
13C8-PFOSA	307000	2.46	100.	106.	106.0
13C6-PFHxA	1050000	1.40	100.	92.4	92.4
13C9-PFDA	1000000	2.11	100.	93.5	93.5

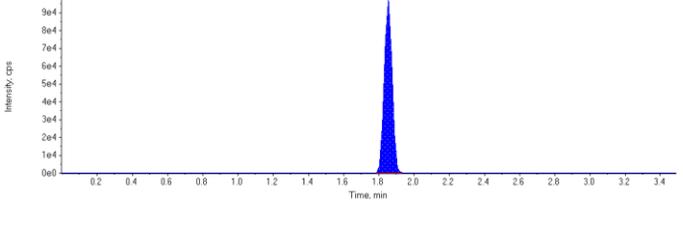
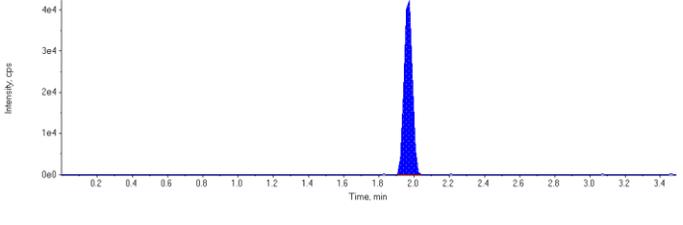
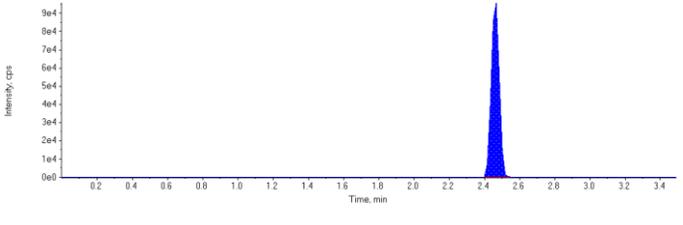
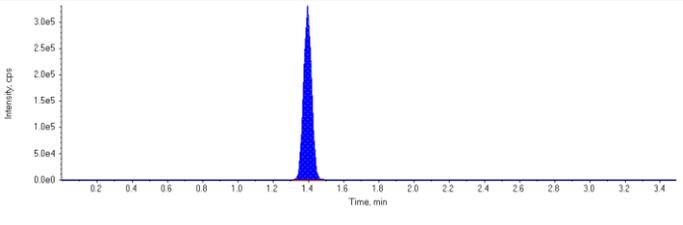
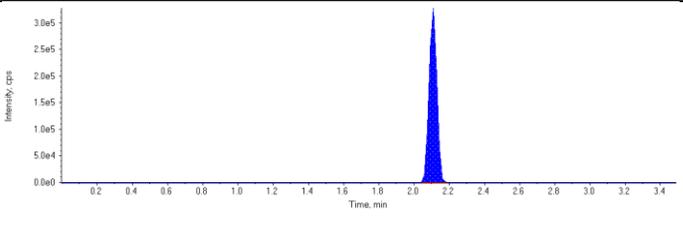
<p>MPFHxS (Internal Standard)</p> <p>RT (Exp. RT): 1.67(1.77) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOA (Internal Standard)</p> <p>RT (Exp. RT): 1.85(1.85) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>MPFOS (Internal Standard)</p> <p>RT (Exp. RT): 1.97(1.97) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA IS (Internal Standard)</p> <p>RT (Exp. RT): 1.40(1.40) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>13C9-PFDA IS (Internal Standard)</p> <p>RT (Exp. RT): 2.11(2.11) min Concentration: 1.00 ug/L Sample Type: (Quality Control)</p>	
<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min Concentration: N/A N/A Sample Type: (Quality Control)</p>	<p style="text-align: center;">This image is not available</p>



<p>N/A (Internal Standard)</p> <p>RT (Exp. RT): N/A(N/A) min</p> <p>Concentration: N/A N/A</p> <p>Sample Type: (Quality Control)</p>	<p>This image is not available</p>
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PFBS 1 (298.900/79.900 Da) RT (Exp. RT): 1.10 (1.11) min Calculated Conc: 13.3 µg/L Area Ratio: 14.7 Sample Type: (Quality Control)	
PFBS 2 (298.900/98.900 Da) RT (Exp. RT): 1.10 (1.11) min Calculated Conc: 12.7 µg/L Area Ratio: 7.17 Sample Type: (Quality Control)	
PFOA 1 (413.100/369.000 Da) RT (Exp. RT): 1.85 (1.85) min Calculated Conc: 12.7 µg/L Area Ratio: 5.57 Sample Type: (Quality Control)	
PFOA 2 (413.100/169.000 Da) RT (Exp. RT): 1.85 (1.85) min Calculated Conc: 12.9 µg/L Area Ratio: 2.29 Sample Type: (Quality Control)	
PFOS 1 (498.900/79.900 Da) RT (Exp. RT): 1.97 (1.96) min Calculated Conc: 12.3 µg/L Area Ratio: 6.13 Sample Type: (Quality Control)	
PFOS 2 (498.900/98.900 Da) RT (Exp. RT): 1.96 (1.96) min Calculated Conc: 11.8 µg/L Area Ratio: 1.90 Sample Type: (Quality Control)	

<p>13C4-PFOA (416.900/372.000 Da)</p> <p>RT (Exp. RT): 1.85 (1.85) min</p> <p>Calculated Conc: 107. µg/L</p> <p>Area Ratio: 0.288</p> <p>Sample Type: (Quality Control)</p>	
<p>13C4-PFOS (502.900/79.900 Da)</p> <p>RT (Exp. RT): 1.97 (1.97) min</p> <p>Calculated Conc: 105. µg/L</p> <p>Area Ratio: 0.133</p> <p>Sample Type: (Quality Control)</p>	
<p>13C8-PFOA (505.800/77.900 Da)</p> <p>RT (Exp. RT): 2.46 (2.50) min</p> <p>Calculated Conc: 106. µg/L</p> <p>Area Ratio: 0.306</p> <p>Sample Type: (Quality Control)</p>	
<p>13C6-PFHxA (318.900/274.000 Da)</p> <p>RT (Exp. RT): 1.40 (1.40) min</p> <p>Calculated Conc: 92.4 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	
<p>13C9-PFDA (521.900/477.100 Da)</p> <p>RT (Exp. RT): 2.11 (2.11) min</p> <p>Calculated Conc: 93.5 µg/L</p> <p>Area Ratio: 0.00</p> <p>Sample Type: (Quality Control)</p>	



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



LABORATORIES, INC.
 1835 W. 205th Street
 Torrance, CA 90501
 Tel: (310) 618-8889
 Fax: (310) 618-0818

Date: 05-25-2017
 EMAX Batch No.: 17E087

ATTN: SEVDA ALECKSON

NOREAS
 16361 SCIENTIFIC WAY
 IRVINE, CA 92618

Subject: Laboratory Report
 Project: TREASURE ISLAND, IR SITE 12

 Enclosed is the Laboratory report for samples received on 05/11/17.
 The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
12-MW31-0517	E087-01	05/10/17	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL TOTAL DISSOLVED SOLIDS TOTAL SUSPENDE SOLIDS MERCURY TOTAL METALS BY ICP-MS DISSOLVED MERCURY DISSOLVED METALS BY ICP-MS RADIUM-226
12-MW17-0517	E087-02	05/10/17	WATER	TOTAL DISSOLVED SOLIDS TOTAL SUSPENDE SOLIDS MERCURY TOTAL METALS BY ICP-MS DISSOLVED MERCURY DISSOLVED METALS BY ICP-MS RADIUM-226
12-MW34-0517	E087-03	05/10/17	WATER	CANCELLED
QCEB-0517	E087-04	05/10/17	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL MERCURY TOTAL METALS BY ICP-MS DISSOLVED MERCURY DISSOLVED METALS BY ICP-MS RADIUM-226
QCSB-0517	E087-05	05/10/17	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL MERCURY TOTAL METALS BY ICP-MS DISSOLVED MERCURY DISSOLVED METALS BY ICP-MS RADIUM-226

Note : RADIUM-226 were subcontracted to GEL Laboratories.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

 Caspar J. Pang
 Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912016-11
 L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
 California ELAP Accredited Certificate Number 2672



CHAIN-OF-CUSTODY RECORD

COC No. TI-00 2
PAGE 1 of 1

Project Name/No: Former Naval Station Treasure Island, San Francisco, CA		Purchase Order No. 17023		Laboratory SDG No. 17E087												
Project Location: IR Site 12 - 2017 Annual Groundwater Event		Laboratory Name: EMAX, Inc.		ANALYSES REQUIRED												
Company Name: NOREAS, Inc.		Laboratory Contact: Richard Beauvil														
Address: 16361 Scientific Way, Irvine, CA 92618		Laboratory Address: 1835 W. 205th Street, Torrance, CA 90501														
Project Manager: Hamlet Hamparsumian		Laboratory Phone: (310) 618-8889, ext. 118														
Phone/Fax No. (949) 877-3720		Airbill No. COURIER														
Project Contact: Sevda K. Aleckson																
Contact Phone: (949) 467-9117																
Sample ID	Sampling Location	Date	Time	Matrix	QC Level (3/4)	Unpreserved	Preserved	# of Containers	EPA 8015B - TPH-g	EPA 8015B - TPH-d/-mo	EPA 6020A/7470A - Total Metals	EPA 6020A/7470A - Dissolved Metals (Field Filtered)	SM2540C - TDS	SM2540D - TSS	EPA 903 - Radium-226	MS/MSD
1	12-MW31-0571	5/10/17	1100	W	3	2	6	8	X	X	X	X	X	X	X	
2	12-MW17-0517		1310	I	3	1	3	4			X	X	X	X	X	
3	12-MW34-0517		1340	I	3	2	6	8	X	X	X	X	X	X	X	
4	QCEB-0517		1400	I	3	1	6	7	X	X	X	X			X	
Special Instructions: All analytical and QC requirements specified in the Final Sampling and Analysis Plan (April 2017) must be followed.										Turnaround Time: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR						
Dissolved Metals Field Filtered										X STANDARD OR <input type="checkbox"/>						
Sampler(s) Name(s): Michael Pisco										Matrix: W: Groundwater or Drinking water; S: Soil; W: Waste						
Relinquished By (signature):		Date: 5/10/17		Received By (signature):		Date:										
Company: NOREAS, Inc.		Time: 1330		Company:		Time:										
Relinquished By (signature):		Date:		Received By (signature):		Date: 5/11/17										
Company:		Time:		Company: EMAX		Time: 0910										



CHAIN-OF-CUSTODY RECORD

COC No. TI-001

PAGE 1 of 1

Project Name/No: Former Naval Station Treasure Island, San Francisco, CA		Purchase Order No. 17023		Laboratory SDG No: <u>17E087</u>												
Project Location: IR Site 12 - 2017 Annual Groundwater Event		Laboratory Name: EMAX, Inc.		ANALYSES REQUIRED												
Company Name: NOREAS, Inc.		Laboratory Contact: Richard Beauvil														
Address: 16361 Scientific Way Irvine, CA 92618		Laboratory Address: 1835 W. 205th Street Torrance, CA 90501														
Project Manager: Hamlet Hamparsumian		Laboratory Phone: (310) 618-8889, ext. 118														
Phone/Fax No. (949) 877-3720		Airbill No. COURIER														
Project Contact: Sevda K. Aleckson																
Contact Phone: (949) 467-9117																
Sample ID	Sampling Location	Date	Time	Matrix	QC Level (3/4)	Unpreserved	Preserved	# of Containers	EPA 8015B - TPH-8	EPA 8015B - TPH-d/-mo	EPA 8020A/7470A - Total Metals	EPA 8020A/7470A - Dissolved Metals (Field Filtered)	SM2540C - TDS	SM2540D - TSS	EPA 903 - Radium-226	MS/MSD
5 QCSB-0571	Source Blank	5/10/17	0825	w	3	1	6	7	X	X	X	X			X	
<i>mp</i>																
Special Instructions: All analytical and QC requirements specified in the Final Sampling and Analysis Plan (April 2017) must be followed.										Turnaround Time: <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR						
Sampler(s) Name(s): <u>Michael Price</u>										X STANDARD OR <input type="checkbox"/>						
Relinquished By (signature): <u>[Signature]</u>		Date: <u>5/10/17</u>		Received By (signature): <u>[Signature]</u>		Date: <u>5/11/17</u>		Matrix: W: Groundwater or Drinking water; S: Soil; W: Waste								
Company: NOREAS, Inc.		Time: <u>1530</u>		Company: <u>EMAX</u>		Time: <u>0900</u>										

SAMPLE RECEIPT FORM 1

Reference: EMAX-SM02 Rev.8
Form: SM02F1

Type of Delivery <input checked="" type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others <input type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery	Airbill / Tracking Number 7865 2906 5163	ECN 17E087 Recipient Ne Date 5/11/17 Time 0910
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COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/PC	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Tel # / Fax #	<input type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input checked="" type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any)		<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required	

Note: Preservative not specified in COC. COC was loose in cooler, received wet

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input checked="" type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input type="checkbox"/> Cooler 1 _____ °C	<input checked="" type="checkbox"/> Cooler 2 3.7 °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N 130538505	B - S/N 150555522	C - S/N 140252067
			D - S/N 150555630

Comments: Temperature is out of range. PM was informed IMMEDIATELY.
Note: Insufficient Pack. is material in coolers

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1-5	1-3,7,8,12,13-15	D1		pH
↓	19,20,21-23,26,27	↓		
/				

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

<p>Code Description-Sample Management</p> <p>D1 Analysis is not indicated in Label</p> <p>D2 Analysis mismatch COC vs label</p> <p>D3 Sample ID mismatch COC vs label</p> <p>D4 Sample ID is not indicated in _____</p> <p>D5 Container -[improper] [leaking] [broken]</p> <p>D6 Date/Time is not indicated in _____</p> <p>D7 Date/Time mismatch COC vs label</p> <p>D8 Sample listed in COC is not received</p> <p>D9 Sample received is not listed in COC</p> <p>D10 No initial/date on corrections in COC/label</p> <p>D11 Container count mismatch COC vs received</p> <p>D12 Container size mismatch COC vs received</p>	<p>Code Description-Sample Management</p> <p>D13 Out of Holding Time</p> <p>D14 Bubble is >6mm</p> <p>D15 No trip blank in cooler</p> <p>D16 Preservation not indicated in _____</p> <p>D17 Preservation mismatch COC vs label</p> <p>D18 Insufficient chemical preservative</p> <p>D19 Insufficient Sample</p> <p>D20 No filtration info for dissolved analysis</p> <p>D21 No sample for moisture determination</p> <p>D22 _____</p> <p>D23 _____</p> <p>D24 _____</p>	<p><input type="checkbox"/> Continue to next page.</p> <p>Code Description-Sample Management</p> <p>R1 Proceed as indicated in <input type="checkbox"/> COC <input type="checkbox"/> Label</p> <p>R2 Refer to attached instruction</p> <p>R3 Cancel the analysis</p> <p>R4 Use vial with smallest bubble first</p> <p>R5 Log-in with latest sampling date and time+1 min</p> <p>R6 Adjust pH as necessary</p> <p>R7 Filter and preserved as necessary</p> <p>R8 Informed Client</p> <p>R9 _____</p> <p>R10 _____</p> <p>R11 _____</p> <p>R12 _____</p>
---	---	---

REVIEWS:

Sample Labeling Date: 5/11/17 [Signature]

SRF Date: 5/11/17 [Signature]

PM Date: 5/11/17 [Signature]

EMAX Laboratories, Inc. 1835 W. 205th St., Torrance, Ca 90501

Richard Beauvil

From: Sevda Aleckson [sevda.aleckson@NOREASINC.COM]
Sent: Friday, May 12, 2017 4:35 PM
To: Richard Beauvil; Cecilia Chavez
Cc: Michael Price; Hamlet Hamparsumian; Wendy Bryant
Subject: FW: Treasure Island COC and FedEx Tracking Info
Attachments: IR Site 12 COC JotNot_05-10-2017.pdf

Importance: High

Hi Richard,

If you have already logged in the samples on COC# TI-002, please cancel sample and all analyses for sample ID: 12-MW34-0517. Michael will be submitting a new sample from 12-MW34 tomorrow morning.

If you have any questions, please let me know.

Thanks,

Sevdâ K. Aleckson
QC Manager/Principal Scientist
 NOREAS, Inc.
 16361 Scientific Way
 Irvine, CA 92618
 949.467.9117 (Direct)
 949.510.8610 (Mobile)
 949.398.8758 (Fax)
www.noreasinc.com

From: Michael Price
Sent: Wednesday, May 10, 2017 9:13 PM
To: Wendy Bryant <wendy.bryant@NOREASINC.COM>; Cecilia Chavez <CChavez@emaxlabs.com>; Richard Beauvil (RBeauvil@emaxlabs.com) <RBeauvil@emaxlabs.com>
Cc: Sevda Aleckson <sevda.aleckson@NOREASINC.COM>; Hamlet Hamparsumian <hamlet.hamparsumian@NOREASINC.COM>
Subject: RE: Treasure Island COC and FedEx Tracking Info

Richard/Cecilia,

Here is the COC and the tracking number for the coolers: 786529065152 and 786529065163. Please let me now if you have any questions.

Thank you,

Michael Price

NOREAS
Engineering and Science

16361 Scientific Way
Irvine, CA 92618
(949) 877-3718 office
(949) 398-8758 fax
(949) 395-9506 mobile
www.noreasinc.com

ORIGIN ID: JBSA (949) 395-9506
NOREAS
NOREAS
16361 SCIENTIFIC

SHIP DATE: 10MAY17
ACTWT: 58.90 LB
CAD: 006994679/SSFE1801
DIMS: 24x14x13 IN

IRVINE, CA 92618
UNITED STATES US

BILL: THIRD PARTY

TO **EMAX INC.**
EMAX LABORATORIES INC
1835 W 205TH ST

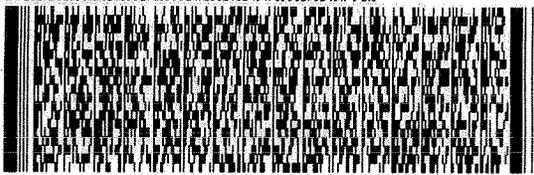
TORRANCE CA 90501

(310) 618-8888

REF:

INV:

DEPT:



FedEx
Express



Part # 158287V 13955498EXP98/18 22

2 of 2

MPS# 7865 2906 5163

0263

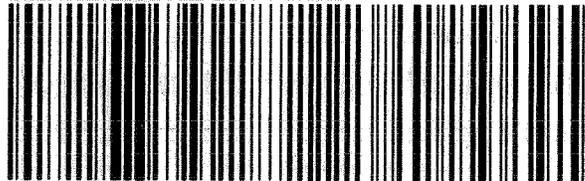
Mstr# 7865 2906 5152

0201

THU - 11 MAY 10:30A
PRIORITY OVERNIGHT

92 HHRA

90501
CA-US LAX



REPORTING CONVENTIONS**DATA QUALIFIERS:**

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

NOREAS

TREASURE ISLAND, IR SITE 12

METHOD SW5030B/8015B

TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

SDG#: 17E087

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SW5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

A total of three (3) water samples were received on 05/11/17 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method SW5030B/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. VG55E02Q - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. VG55E02L/VG55E02C were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG.

Surrogate

Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
 TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : NOREAS                                     SDG NO.      : 17E087
Project     : TREASURE ISLAND, IR SITE 12              Instrument ID : GCT055
=====
    
```

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	VG55E02Q	1	NA	05/11/1706:06	05/11/1706:06	UE10029A	UE10025A	VG55E02	Method Blank
LCS1W	VG55E02L	1	NA	05/11/1704:51	05/11/1704:51	UE10027A	UE10025A	VG55E02	Lab Control Sample (LCS)
LCD1W	VG55E02C	1	NA	05/11/1705:29	05/11/1705:29	UE10028A	UE10025A	VG55E02	LCS Duplicate
12-MW31-0517	E087-01	1	NA	05/11/1719:19	05/11/1719:19	UE10050A	UE10047A	VG55E02	Field Sample
QCEB-0517	E087-04	1	NA	05/11/1720:34	05/11/1720:34	UE10052A	UE10047A	VG55E02	Field Sample
QCSB-0517	E087-05	1	NA	05/11/1721:11	05/11/1721:11	UE10053A	UE10047A	VG55E02	Field Sample

FN - Filename
 % Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : NOREAS                      Date Collected: 05/10/17
Project    : TREASURE ISLAND, IR SITE 12  Date Received: 05/11/17
Batch No.  : 17E087                      Date Extracted: 05/11/17 19:19
Sample ID  : 12-MW31-0517                Date Analyzed: 05/11/17 19:19
Lab Samp ID: E087-01                     Dilution Factor: 1
Lab File ID: UE10050A                    Matrix          : WATER
Ext Btch ID: VG55E02                     % Moisture     : NA
Calib. Ref.: UE10047A                    Instrument ID   : GCT-055
=====

```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
GASOLINE	9.3J	100	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
4-BROMOFLUOROBENZENE	30.2	40.00	75.6	69-133

Parameter H-C Range
Gasoline C6-C10

METHOD SW5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : NOREAS                      Date Collected: 05/10/17
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.   : 17E087                     Date Extracted: 05/11/17 20:34
Sample ID:  QCEB-0517                   Date Analyzed: 05/11/17 20:34
Lab Samp ID: E087-04                    Dilution Factor: 1
Lab File ID: UE10052A                   Matrix          : WATER
Ext Btch ID: VG55E02                    % Moisture      : NA
Calib. Ref.: UE10047A                   Instrument ID   : GCT-055
=====

```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
GASOLINE	6.4J	100	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
4-BROMOFLUOROBENZENE	31.4	40.00	78.4	69-133

Parameter H-C Range
Gasoline C6-C10

METHOD SW5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : NOREAS                      Date Collected: 05/10/17
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.   : 17E087                     Date Extracted: 05/11/17 21:11
Sample ID:  QCSB-0517                   Date Analyzed: 05/11/17 21:11
Lab Samp ID: E087-05                    Dilution Factor: 1
Lab File ID: UE10053A                   Matrix          : WATER
Ext Btch ID: VG55E02                     % Moisture      : NA
Calib. Ref.: UE10047A                    Instrument ID   : GCT-055
=====

```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
GASOLINE	9.5J	100	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
4-BROMOFLUOROBENZENE	32.3	40.00	80.7	69-133

```

Parameter   H-C Range
Gasoline    C6-C10

```

QC SUMMARIES

METHOD SW5Q30B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : NOREAS                      Date Collected: NA
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.   : 17E087                     Date Extracted: 05/11/17 06:06
Sample ID   : MBLK1W                     Date Analyzed: 05/11/17 06:06
Lab Samp ID: VG55E02Q                   Dilution Factor: 1
Lab File ID: UE10029A                   Matrix          : WATER
Ext Btch ID: VG55E02                     % Moisture      : NA
Calib. Ref.: UE10025A                   Instrument ID   : GCT-055
=====

```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
GASOLINE	ND	100	5.0	10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
4-BROMOFLUOROBENZENE	31.6	40.00	78.9	69-133

Parameter H-C Range
Gasoline C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: NOREAS
PROJECT: TREASURE ISLAND, IR SITE 12
BATCH NO.: 17E087
METHOD: SW5030B/8015B

=====

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VG55E02Q VG55E02L VG55E02C
LAB FILE ID: UE10029A UE10027A UE10028A
DATE EXTRACTED: 05/11/1706:06 05/11/1704:51 05/11/1705:29 DATE COLLECTED: NA
DATE ANALYZED: 05/11/1706:06 05/11/1704:51 05/11/1705:29 DATE RECEIVED: 05/11/17
PREP. BATCH: VG55E02 VG55E02 VG55E02
CALIB. REF: UE10025A UE10025A UE10025A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	500	467	93	500	464	93	1	78-122	30

=====

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
4-Bromofluorobenzene	40.0	39.6	99	40.0	38.0	95	69-133

INITIAL CALIBRATIONS

INITIAL CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GC155
 GC Column : DB-5
 Column size ID : 30MX.53MM
 LFID & Datetime: UC29002A 03/29/17 17:28
 LFID & Datetime: UC29003A 03/29/17 18:06
 LFID & Datetime: UC29004A 03/29/17 18:43
 LFID & Datetime: UC29005A 03/29/17 19:21
 LFID & Datetime: UC29006A 03/29/17 19:58
 LFID & Datetime: UC29007A 03/29/17 20:36
 LFID & Datetime: UC29008A 03/29/17 21:13
 CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS							MEAN	%RSD
		1.00X	2.50X	5.00X	25.00X	50.00X	75.00X	100.00X		
Gasoline(TOTAL)	20.00	21809	21883	23140	24473	24270	24347	23645	23366.9	4.9
GRO(C6-C10)	20.00	16509	17569	17912	18837	18607	18755	18583	18110.3	4.7
GRO(C6-C12)	20.00	19106	20958	22604	24232	23961	24041	23403	22614.9	8.5
SURROGATE	X	1.00X	2.00X	3.00X	4.00X	5.00X	8.00X	10.00X	MEAN	%RSD
Bromofluorobenzene	10.00	8336	10077	11148	13067	13155	13967	13633	11911.7	17.7
1,1,1-Trifluorotoluene	10.00	18252	17180	17767	17859	18020	18550	18561	18026.8	2.7

VG55C29.MET

AS
03/31/2017

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
50308/MS015

Lab Name : EMAX Inc
 Instrument ID : GCT55
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: UC29005A 03/29/2017 19:21
 Conc Cont LFID & Datetime: UC29009A 03/29/2017 21:51
 CONC UNIT : ppb

COMPOUND	RT	RT WINDOW		TRUE CONC	AVERAGE	RESULT			QL	%D
	MINUTES	FROM	TO		CF	AREA	CONC	%D		
Gasoline(TOTAL)	NA	NA	NA	500.0	23366.9	11101759	475.11	-5		20
GRO(C6-C10)	NA	NA	NA	500.0	18110.3	8233163	454.61	-9		20
GRO(C6-C12)	NA	NA	NA	500.0	22614.9	9670553	427.62	-14		20
SURROGATE	MINUTES	FROM	TO	TRUECONC	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	12.967	12.896	13.038	40.0	11911.7	468112	39.30	-2		20
1,1,1-Trifluorotoluene	5.800	5.611	5.989	40.0	18026.8	716527	39.75	-1		20

VG55C29.MET

AA
03/31/2017

DAILY CALIBRATIONS

CONTINUE CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT55
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: UC29005A 03/29/2017 19:21
 Conc Cont LFID & Datetime: UE10025A 05/11/2017 03:37
 CONC UNIT : ppb

COMPOUND	RT	RT WINDOW		TRUE CONC	AVERAGE	RESULT		%D	QL	%D LIMITS
	MINUTES	FROM	TO		CF	AREA	CONC			
Gasoline(TOTAL)	NA	NA	NA	500.0	23366.9	11059805	473.31	-5		20
GRO(C6-C10)	NA	NA	NA	500.0	18110.3	8676454	479.09	-4		20
GRO(C6-C12)	NA	NA	NA	500.0	22614.9	11007111	486.72	-3		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	12.983	12.912	13.054	40.0	11911.7	497376	41.76	4		20
1,1,1-Trifluorotoluene	5.800	5.611	5.989	40.0	18026.8	671794	37.27	-7		20

CONTINUE CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT55
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: UC29005A 03/29/2017 19:21
 Conc Cont LFID & Datetime: UE10036A 05/11/2017 10:28
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
Gasoline(TOTAL)	NA	NA	NA	500.0	23366.9	10384384	444.41	-11		20
GRO(C6-C10)	NA	NA	NA	500.0	18110.3	8320959	459.46	-8		20
GRO(C6-C12)	NA	NA	NA	500.0	22614.9	10334631	456.98	-9		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	12.992	12.921	13.063	40.0	11911.7	471201	39.56	-1		20
1,1,1-Trifluorotoluene	5.833	5.644	6.022	40.0	18026.8	640326	35.52	-11		20

CONTINUE CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT55
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: UC29005A 03/29/2017 19:21
 Conc Cont LFID & Datetime: UE10047A 05/11/2017 17:27
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
Gasoline(TOTAL)	NA	NA	NA	500.0	23366.9	11714303	501.32	0		20
GRO(C6-C10)	NA	NA	NA	500.0	18110.3	8948916	494.13	-1		20
GRO(C6-C12)	NA	NA	NA	500.0	22614.9	11578318	511.98	2		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	12.967	12.896	13.038	40.0	11911.7	508086	42.65	7		20
1,1,1-Trifluorotoluene	5.775	5.586	5.964	40.0	18026.8	683382	37.91	-5		20

CONTINUE CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT55
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: UC29005A 03/29/2017 19:21
 Conc Cont LFID & Datetime: UE10059A 05/12/2017 00:55
 CONC UNIT : ppb

COMPOUND	RT	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
	MINUTES	FROM	TO			AREA	CONC			
Gasoline(TOTAL)	NA	NA	NA	500.0	23366.9	10822193	463.14	-7		20
GRO(C6-C10)	NA	NA	NA	500.0	18110.3	8618542	475.89	-5		20
GRO(C6-C12)	NA	NA	NA	500.0	22614.9	10758850	475.74	-5		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	12.975	12.904	13.046	40.0	11911.7	496687	41.70	4		20
1,1,1-Trifluorotoluene	5.783	5.594	5.972	40.0	18026.8	656428	36.41	-9		20

ANALYTICAL LOGS



ANALYSIS RUN LOG
for
PURGEABLE TPH

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Purge Volume = 5 ml

GASOLINE ICAL

VGSSCO1 (water): C180

Book #: A55-017

Instrument No.: 55

Analytical Sequence: VC29

Method File: VGSSC29

Analytical Batch: CVGSSC29.001

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-5030B	3
<input checked="" type="checkbox"/> EMAX-8015G	5
<input type="checkbox"/> EMAX-AK101	2
<input type="checkbox"/> EMAX-	

STANDARDS ID	Amt Added (µL)	Conc. (mg/L)
ICAL SV2-07-03-25	See Analytic Logbook	5000
ICV SV2-07-03-27	0.5µl	5000
DCC GAS SV2-07-03-25	0.5µl	5000
DCC STODDARD	-	-
BFB/TFT SV2-10-43-03	2µl	100
LCS/LCSD SV2-07-03-27	0.5µl	5000
MS/MSD SV2-07-03-27	↓	↓
GRO (HC-Chain) SV2-07-03-23	1µl	2000

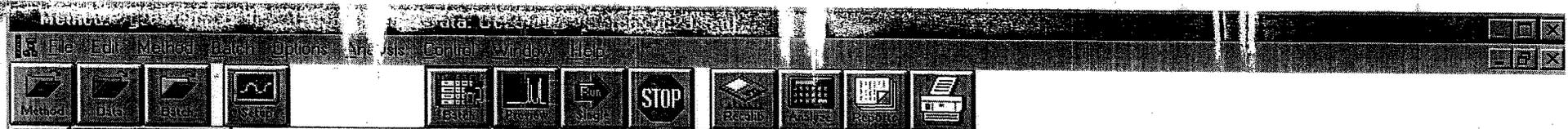
Solvent	ID/Lot #
Methanol	
Reagent Water	RW2-12-001
	Lot #
pH strip	HC681919

SYRINGES
<input checked="" type="checkbox"/> 5 mL - MSF-01-01-12
<input checked="" type="checkbox"/> 5 mL - MSF-01-01-13
<input type="checkbox"/> 1 mL - MSF-01-01-20
<input type="checkbox"/> 500 µL - MSF-01-01-21
<input type="checkbox"/> 250 µL - MSF-01-01-22
<input type="checkbox"/> 100 µL - MSF-01-02-16
<input type="checkbox"/> 50 µL - MSF-01-01-17
<input checked="" type="checkbox"/> 10 µL - MSF-01-03-03
<input checked="" type="checkbox"/> 10 µL - MSF-01-03-04
<input type="checkbox"/>

ELECTRONIC DATA ARCHIVAL	
Location	Date
<input type="checkbox"/> EZC-3-BTEX	

Analyzed By: SC

Date: 3/29/17



Run	Run Type	Sample ID	Method	Filename	Description
1	Unknown	IB55C2901	vg55c29.met	UC29.001	
2	Unknown	UG55C291 20/10 0.02ul ^{GAS} ICAL STD / 0.5ul surrogate	vg55c29.met	UC29.002	} GASOLINE ICAL
3	Unknown	UG55C292 50/20 0.05ul / 1ul	vg55c29.met	UC29.003	
4	Unknown	UG55C293 100/30 0.1ul / 1.5ul	vg55c29.met	UC29.004	
5	Unknown	UG55C294 500/40 0.5ul / 2ul	vg55c29.met	UC29.005	
6	Unknown	UG55C295 1000/50 1ul / 2.5ul	vg55c29.met	UC29.006	
7	Unknown	UG55C296 1500/80 1.5ul / 4ul	vg55c29.met	UC29.007	
8	Unknown	UG55C297 2000/100 2ul / 5ul	vg55c29.met	UC29.008	
9	Unknown	IUG55C2901 500/40 0.5ul ^{GAS} ICAL STD / 2ul surrogate	vg55c29.met	UC29.009	
10	Unknown	GR0	vg55c29.met	UC29.010	SU2-07-03-23
11	Unknown	PENTANE/NAPHTHALENE	vg55c29.met	UC29.011	
12	Unknown	UNDECANE/DODECANE	vg55c29.met	UC29.012	
13	Unknown	RINSE	vg55c29.met	UC29.013	
14	Unknown	IB55C2902	vg55c29.met	UC29.014	
15	Unknown	CUG55C29001 500/40	vg55c29.met	UC29.015	
16	Unknown	UG55C01L 5.0ML W	vg55c29.met	UC29.016	} CONC. 500/40
17	Unknown	UG55C01C 5.0ML W	vg55c29.met	UC29.017	
18	Unknown	UG55C01B 5.0ML W	vg55c29.met	UC29.018	
19	Unknown	UG55C01Q 5.0ML W NOT evaluated	vg55c29.met	UC29.019	
20	Unknown	17C180-01 5.0ML W	vg55c29.met	UC29.020	PH<2
21	Unknown	17C180-02 5.0ML W	vg55c29.met	UC29.021	PH<2
22	Unknown	17C180-03 5.0ML W	vg55c29.met	UC29.022	PH<2
23	Unknown	17C180-04 5.0ML W	vg55c29.met	UC29.023	PH<2
24	Unknown	17C180-05 5.0ML W	vg55c29.met	UC29.024	PH<2
25	Unknown	17C180-06 5.0ML W	vg55c29.met	UC29.025	PH<2
26	Unknown	CUG55C29002 500/40	vg55c29.met	UC29.026	
27	Unknown	17C180-06M 5.0ML W	vg55c29.met	UC29.027	PH<2
28	Unknown	17C180-06S 5.0ML W	vg55c29.met	UC29.028	PH<2
29	Unknown	17C180-07 5.0ML W	vg55c29.met	UC29.029	PH<2
30	Unknown	17C180-08 5.0ML W	vg55c29.met	UC29.030	PH<2
31	Unknown	17C180-09 5.0ML W	vg55c29.met	UC29.031	PH<2
32	Unknown	CUG55C29003 500/40	vg55c29.met	UC29.032	
33	Unknown	BB	vg55c29.met	UC29.033	
34	Unknown	BB	vg55c29.met	UC29.034	

FINAL



ANALYSIS RUN LOG
for
PURGEABLE TPH

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Purge Volume = 5 ml

VGSSE01 (water): E066

VGSSE02 (water): E070, E075, E087, E088

VGSSE03 (water): E066, E086,

SYRINGES
<input checked="" type="checkbox"/> 5 mL - MSF-01-01-12
<input checked="" type="checkbox"/> 5 mL - MSF-01-01-13
<input type="checkbox"/> 1 mL - MSF-01-01-20
<input type="checkbox"/> 500 µL - MSF-01-01-21
<input type="checkbox"/> 250 µL - MSF-01-01-22
<input checked="" type="checkbox"/> 100 µL - MSF-01-02-16
<input type="checkbox"/> 50 µL - MSF-01-01-17
<input checked="" type="checkbox"/> 10 µL - MSF-01-03-03
<input checked="" type="checkbox"/> 10 µL - MSF-01-03-04
<input type="checkbox"/>

Book #: A55-017

Instrument No.: 55

Analytical Sequence: ~~UE10~~ UE10

Method File:	<input checked="" type="checkbox"/> UE10 5/10/17
	<input checked="" type="checkbox"/> VGSSE029
	<input type="checkbox"/>

Analytical Batch: CVGSSE029024

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-5030B	3
<input checked="" type="checkbox"/> EMAX-8015G	5
<input type="checkbox"/> EMAX-AK101	2
<input type="checkbox"/> EMAX-	

STANDARDS ID	Amt Added (µL)	Conc. (mg/L)
ICAL		
ICV	sc	5/12/17
DCC GAS SV2-07-03-25	0.5ul	5000
DCC STODDARD		
BFB/TFT SV2-10-47-02	2ul	100
LCS/LCSD SV2-07-03-27	0.5ul	5000
MS/MSD	↓	↓
GRO (HC-Chain) SV2-07-03-23	1ul	2000

Solvent	ID/Lot #
Methanol	
Reagent Water	RW2-12-001
	Lot #
pH strip	HC681919

ELECTRONIC DATA ARCHIVAL	
Location	Date
<input checked="" type="checkbox"/> EZC-3-BTEX	

Analyzed By: SC

Date: 5/10/17

Method: Vg55c29.met Batch: Ue10.seq Data: Ue10.076 - [Batch: ue10.seq]

File Edit Method Batch Options Analysis Control Window Help

Method Data Batch Setup Batch Display Run Stop Recall Analyse Reports

Run	Run Type	Sample ID	Method	Filename	Description
1	Unknown	IB55E1001	vg55c29.met	UE10.001	
2	Unknown	GRO	vg55c29.met	UE10.002	SU2-07-03-23
3	Unknown	CUG55C29024 500/40	vg55c29.met	UE10.003	
4	Unknown	UG55E01B 5.0ML W	vg55c29.met	UE10.004	
5	Unknown	UG55E01L 5.0ML W	vg55c29.met	UE10.005	} Conc. 500/40
6	Unknown	UG55E01C 5.0ML W	vg55c29.met	UE10.006	
7	Unknown	17E066-01 5.0ML W	vg55c29.met	UE10.007	PH<2
8	Unknown	17E066-09 5.0ML W	vg55c29.met	UE10.008	PH<2
9	Unknown	17E066-16 5.0ML W	vg55c29.met	UE10.009	PH<2
10	Unknown	17E066-02I 1ML W DF=5	vg55c29.met	UE10.010	PH<2 STRONG ODOR
11	Unknown	17E066-11 5.0ML W	vg55c29.met	UE10.011	PH<2
12	Unknown	17E066-11M 5.0ML W	vg55c29.met	UE10.012	PH<2
13	Unknown	17E066-11S 5.0ML W	vg55c29.met	UE10.013	PH<2
14	Unknown	CUG55C29025 500/40	vg55c29.met	UE10.014	
15	Unknown	17E066-03 5.0ML W	vg55c29.met	UE10.015	PH<2
16	Unknown	17E066-04I 20uL W DF=250	vg55c29.met	UE10.016	PH<2 STRONG ODOR
17	Unknown	17E066-05I 20uL W DF=250	vg55c29.met	UE10.017	PH<2 STRONG ODOR
18	Unknown	17E066-06 5.0ML W RR to confirm	vg55c29.met	UE10.018	PH<2
19	Unknown	17E066-07 5.0ML W	vg55c29.met	UE10.019	PH<2
20	Unknown	17E066-08 5.0ML W } over range	vg55c29.met	UE10.020	PH<2
21	Unknown	17E066-10 5.0ML W }	vg55c29.met	UE10.021	PH<2
22	Unknown	17E066-12 5.0ML W	vg55c29.met	UE10.022	PH<2
23	Unknown	17E066-14 5.0ML W	vg55c29.met	UE10.023	PH<2
24	Unknown	17E066-15 5.0ML W	vg55c29.met	UE10.024	PH<2
25	Unknown	CUG55C29026 500/40	vg55c29.met	UE10.025	
26	Unknown	UG55E02B 5.0ML W Not evaluated	vg55c29.met	UE10.026	
27	Unknown	UG55E02L 5.0ML W	vg55c29.met	UE10.027	} Conc. 500/40
28	Unknown	UG55E02C 5.0ML W	vg55c29.met	UE10.028	
29	Unknown	UG55E02Q 5.0ML W	vg55c29.met	UE10.029	
30	Unknown	17E070-01 5.0ML W	vg55c29.met	UE10.030	PH<2
31	Unknown	17E070-03 5.0ML W	vg55c29.met	UE10.031	PH<2
32	Unknown	17E070-04 5.0ML W	vg55c29.met	UE10.032	PH<2
33	Unknown	17E070-05 5.0ML W	vg55c29.met	UE10.033	PH<2
34	Unknown	17E070-06 5.0ML W	vg55c29.met	UE10.034	PH<2

FINAL

Instrument 21 (055) - Run 17E066-12R 5.0ML W (Run 76)

Start EZChrom Chromat Method Vg55c29 Exploring Export Method Vg55c29 Untitled File Method Vg55c29

Method: Vg55c29.met Batch: Ue10.seq Data: Ue10.076 - [Batch: ue10.seq]

File Edit Method Batch Options Analysis Control Window Help

Method Data Batch STOP Batch Analyze Reports

Run	Run Type	Sample ID	Method	Filename	Description
35	Unknown	17E070-07 5.0ML W	vg55c29.met	UE10.035	PH<2
36	Unknown	CUG55C29027 500/40	vg55c29.met	UE10.036	
37	Unknown	17E070-07H 5.0ML W	vg55c29.met	UE10.037	PH<2
38	Unknown	17E070-07S 5.0ML W	vg55c29.met	UE10.038	PH<2
39	Unknown	17E070-08 5.0ML W	vg55c29.met	UE10.039	PH<2
40	Unknown	17E070-10 5.0ML W	vg55c29.met	UE10.040	PH<2
41	Unknown	17E070-11 5.0ML W	vg55c29.met	UE10.041	PH<2
42	Unknown	17E075-11 5.0ML W	vg55c29.met	UE10.042	PH<2
43	Unknown	17E075-03 5.0ML W	vg55c29.met	UE10.043	PH<2
44	Unknown	17E075-08 5.0ML W	vg55c29.met	UE10.044	PH<2
45	Unknown	17E075-09 5.0ML W	vg55c29.met	UE10.045	PH<2
46	Unknown	17E075-10 5.0ML W	vg55c29.met	UE10.046	PH<2
47	Unknown	CUG55C29028 500/40	vg55c29.met	UE10.047	
48	Unknown	17E075-10H 5.0ML W	vg55c29.met	UE10.048	PH<2
49	Unknown	17E075-10S 5.0ML W	vg55c29.met	UE10.049	PH<2
50	Unknown	17E087-01 5.0ML W	vg55c29.met	UE10.050	PH<2
51	Unknown	17E087-03 5.0ML W	vg55c29.met	UE10.051	PH<2
52	Unknown	17E087-04 5.0ML W	vg55c29.met	UE10.052	PH<2
53	Unknown	17E087-05 5.0ML W	vg55c29.met	UE10.053	PH<2
54	Unknown	17E088-01 5.0ML W	vg55c29.met	UE10.054	PH<2
55	Unknown	UG55E03L 5.0ML W	vg55c29.met	UE10.055	} Conc. 500/40
56	Unknown	UG55E03C 5.0ML W	vg55c29.met	UE10.056	
57	Unknown	UG55E03B 5.0ML W	vg55c29.met	UE10.057	
58	Unknown	UG55E03Q 5.0ML W NOT evaluates	vg55c29.met	UE10.058	
59	Unknown	CUG55C29029 500/40	vg55c29.met	UE10.059	
60	Unknown	17E066-06R 5.0ML W	vg55c29.met	UE10.060	PH<2
61	Unknown	17E066-08I 50uL W DF>100	vg55c29.met	UE10.061	PH<2
62	Unknown	17E066-10I 50uL W DF>100	vg55c29.met	UE10.062	PH<2
63	Unknown	17E086-01 5.0ML W	vg55c29.met	UE10.063	PH<2
64	Unknown	17E086-03 5.0ML W	vg55c29.met	UE10.064	PH<2
65	Unknown	17E086-04 5.0ML W	vg55c29.met	UE10.065	PH<2
66	Unknown	17E086-05 5.0ML W	vg55c29.met	UE10.066	PH<2
67	Unknown	17E086-06 5.0ML W	vg55c29.met	UE10.067	PH<2
68	Unknown	17E086-07 5.0ML W	vg55c29.met	UE10.068	PH<2

FINAL

Instrument: 21F-055 - Running: 17E066-12E 5.0ML W (Run 76)

LABORATORY REPORT FOR

NOREAS

TREASURE ISLAND, IR SITE 12

METHOD SW3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 17E087

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SW3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

A total of three (3) water samples were received on 05/11/17 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method SW3520C/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. DSE025WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. DSE025WL/DSE025WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG.

Surrogate

Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : NOREAS
Project     : TREASURE ISLAND, IR SITE 12
=====
SDG NO.    : 17E087
Instrument ID : D5
=====
  
```

WATER									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSE025WB	1	NA	05/16/1711:59	05/15/1712:15	LE16006A	LE16004A	DSE025W	Method Blank
LCS1W	DSE025WL	1	NA	05/16/1712:16	05/15/1712:15	LE16007A	LE16004A	DSE025W	Lab Control Sample (LCS)
LCD1W	DSE025WC	1	NA	05/16/1712:33	05/15/1712:15	LE16008A	LE16004A	DSE025W	LCS Duplicate
12-MW31-0517	E087-01	1.12	NA	05/16/1714:47	05/15/1712:15	LE16016A	LE16004A	DSE025W	Field Sample
QCEB-0517	E087-04	1.22	NA	05/16/1715:03	05/15/1712:15	LE16017A	LE16004A	DSE025W	Field Sample
QCSB-0517	E087-05	1	NA	05/16/1715:20	05/15/1712:15	LE16018A	LE16004A	DSE025W	Field Sample

FN - Filename
 % Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : NOREAS                      Date Collected: 05/10/17
Project    : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.  : 17E087                      Date Extracted: 05/15/17 12:15
Sample ID  : 12-MW31-0517                Date Analyzed: 05/16/17 14:47
Lab Samp ID: E087-01                     Dilution Factor: 1.12
Lab File ID: LE16016A                    Matrix          : WATER
Ext Btch ID: DSE025W                     % Moisture      : NA
Calib. Ref.: LE16004A                    Instrument ID   : D5
=====
    
```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
DIESEL	ND	560	28	56
MOTOR OIL	ND	560	28	56

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	848	1120	75.7	60-130
HEXACOSANE	266	280.0	95.1	60-130

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24
 Motor Oil C24-C36

METHOD SW3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : MOREAS                      Date Collected: 05/10/17
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.   : 17E087                     Date Extracted: 05/15/17 12:15
Sample ID   : QCEB-0517                  Date Analyzed: 05/16/17 15:03
Lab Samp ID: E087-04                     Dilution Factor: 1.22
Lab File ID: LE16017A                    Matrix          : WATER
Ext Btch ID: DSE025W                     % Moisture      : NA
Calib. Ref.: LE16004A                    Instrument ID   : D5
=====
    
```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
DIESEL	ND	610	30	61
MOTOR OIL	ND	610	30	61

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	882	1220	72.3	60-130
HEXACOSANE	281	305.0	92.3	60-130

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24
 Motor Oil C24-C36

METHOD SW3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : NOREAS                      Date Collected: 05/10/17
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
Batch No.   : 17E087                     Date Extracted: 05/15/17 12:15
Sample ID   : QCSB-0517                  Date Analyzed: 05/16/17 15:20
Lab Samp ID : E087-05                     Dilution Factor: 1
Lab File ID : LE16018A                   Matrix          : WATER
Ext Btch ID : DSE025W                     % Moisture     : NA
Calib. Ref. : LE16004A                   Instrument ID   : D5
=====

```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
DIESEL	ND	500	25	50
MOTOR OIL	ND	500	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	748	1000	74.8	60-130
HEXACOSANE	227	250.0	90.8	60-130

```

RL      : Reporting Limit
Parameter H-C Range
Diesel   C10-C24
Motor Oil C24-C36

```

QC SUMMARIES

METHOD SW3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : NOREAS                      Date Collected: NA
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/15/17
Batch No.   : 17E087                     Date Extracted: 05/15/17 12:15
Sample ID   : MBLK1W                     Date Analyzed: 05/16/17 11:59
Lab Samp ID: DSE025WB                   Dilution Factor: 1
Lab File ID: LE16006A                   Matrix          : WATER
Ext Btch ID: DSE025W                     % Moisture      : NA
Calib. Ref.: LE16004A                   Instrument ID   : D5
=====
    
```

PARAMETERS	RESULTS (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
DIESEL	ND	500	25	50
MOTOR OIL	ND	500	25	50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
BROMOBENZENE	697	1000	69.7	60-130
HEXACOSANE	206	250.0	82.5	60-130

RL : Reporting Limit
 Parameter H-C Range
 Diesel C10-C24
 Motor Oil C24-C36

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: NOREAS
PROJECT: TREASURE ISLAND, IR SITE 12
BATCH NO.: 17E087
METHOD: SW3520C/8015B

=====

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: DSE025WB DSE025WL DSE025WC
LAB FILE ID: LE16006A LE16007A LE16008A
DATE EXTRACTED: 05/15/1712:15 05/15/1712:15 05/15/1712:15 DATE COLLECTED: NA
DATE ANALYZED: 05/16/1711:59 05/16/1712:16 05/16/1712:33 DATE RECEIVED: 05/15/17
PREP. BATCH: DSE025W DSE025W DSE025W
CALIB. REF: LE16004A LE16004A LE16004A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	5000	4830	97	5000	4690	94	3	36-132	30

=====

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Bromobenzene	1000	744	74	1000	758	76	60-130
Hexacosane	250	228	91	250	234	93	60-130

INITIAL CALIBRATIONS

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 LFID & Datetime: LC28004A 03/29/17 19:14
 LFID & Datetime: LC28005A 03/29/17 19:30
 LFID & Datetime: LC28006A 03/29/17 19:47
 LFID & Datetime: LC28007A 03/29/17 20:04
 LFID & Datetime: LC28008A 03/29/17 20:21
 LFID & Datetime: LC28009A 03/29/17 20:37
 LFID & Datetime: LC28010A 03/29/17 20:54
 CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS				(AREA)/UNIT				MEAN	%RSD
		1.00X	2.00X	10.00X	20.00X	100.00X	300.00X	600.00X	11.00X		
DIESEL(TOTAL)	5.00	24541	22722	22488	25778	30053	30402	31466	26778.7	14.2	
DIESEL(C10-C24)	5.00	22416	21360	21504	24511	28250	28432	29417	25127.2	14.0	
DIESEL(C10-C28)	5.00	23159	21722	21578	24538	28379	28631	29636	25377.6	13.6	
DIESEL(C10-C25)	5.00	22753	21501	21542	24521	28322	28552	29550	25248.9	13.9	
DIESEL(C9-C24)	5.00	23365	22195	22149	25234	29254	29449	30463	26015.6	14.0	
DIESEL(C9-C25)	5.00	23702	22336	22187	25244	29327	29569	30596	26137.2	13.8	
DIESEL(C10-C36)	5.00	23159	21722	21578	24538	28415	28726	29737	25410.8	13.7	
DIESEL(C10-C40)	5.00	23159	21722	21578	24538	28415	28726	29737	25410.8	13.7	
SURROGATE	X	0.00X	1.00X	2.00X	3.00X	4.00X	5.00X	11.00X	MEAN	%RSD	
BROMOBENZENE	20.00	0	18130	17939	18670	20717	19114	19469	19006.4	5.4	
HEXACOSANE	5.00	0	21767	20750	22349	24398	21621	23042	22321.1	5.7	

DSD5C28.MET

Ds
05/31/2017

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 LFID & Datetime: LC28013A 03/29/17 21:44
 LFID & Datetime: LC28014A 03/29/17 22:01
 LFID & Datetime: LC28015A 03/29/17 22:18
 LFID & Datetime: LC28016A 03/29/17 22:35
 LFID & Datetime: LC28017A 03/29/17 22:51
 LFID & Datetime: LC28018A 03/29/17 23:08
 CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS					(AREA)/UNIT		MEAN	%RSD
		2.00X	10.00X	20.00X	100.00X	200.00X	300.00X			
JP5(C8-C18)	5.00	36729	31862	32627	33929	33996	31345	33414.6	5.8	
M.OIL(C18-C36)	5.00	26134	24905	22519	23869	23691	22023	23856.7	6.3	
M.OIL(C24-C36)	5.00	23315	21831	19343	20291	20233	18835	20641.3	8.0	
M.OIL(C24-C40)	5.00	23315	21831	19343	20291	20233	18835	20641.3	8.0	

DSD5C28.MET

Act
03/31/2017

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 Mid Conc Init LFID & Datetime: LC28007A 03/29/2017 20:04
 Conc Cont LFID & Datetime: LC28011A 03/29/2017 21:11
 CONC UNIT : ppm

COMPOUND	RT	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT			QL	%D LIMITS
	MINUTES	FROM	TO			AREA	CONC	%D		
DIESEL(TOTAL)	NA	NA	NA	500.0	26778.7	14542060	543.05	9		20
DIESEL(C10-C24)	NA	NA	NA	500.0	25127.2	13913905	553.74	11		20
DIESEL(C10-C28)	NA	NA	NA	500.0	25377.6	14024454	552.63	11		20
DIESEL(C10-C25)	NA	NA	NA	500.0	25248.9	13958042	552.82	11		20
DIESEL(C9-C24)	NA	NA	NA	500.0	26015.6	14132869	543.25	9		20
DIESEL(C9-C25)	NA	NA	NA	500.0	26137.2	14177006	542.41	8		20
DIESEL(C10-C36)	NA	NA	NA	500.0	25410.8	14134943	556.26	11		20
DIESEL(C10-C40)	NA	NA	NA	500.0	25410.8	14134943	556.26	11		20
SURROGATE	MINUTES	FROM	TO	TRUECONC	CF	AREA	CONC	%D	QL	LIMITS
BROMOBENZENE	1.745	1.735	1.755	80.0	19006.4	1550952	81.60	2		20
HEXACOSANE	4.911	4.717	5.105	20.0	22321.1	496166	22.23	11		20

DSD5C28.MET

NA
03/31/17

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : D5
GC Column : HP5
Column size ID : 30MX0.32MM 0.25UM
Mid Conc Init LFID & Datetime: LC28016A 03/29/2017 22:35
Conc Cont LFID & Datetime: LC28019A 03/29/2017 23:25
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
JP5(C8-C18)	NA	NA	NA	500.0	33414.6	15230110	455.79	-9		20
M.OIL(C18-C36)	NA	NA	NA	500.0	23856.7	11222013	470.39	-6		20
M.OIL(C24-C36)	NA	NA	NA	500.0	20641.3	9574274	463.84	-7		20
M.OIL(C24-C40)	NA	NA	NA	500.0	20641.3	9574274	463.84	-7		20

DSD5C28.MET

As
03/31/2017

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 Mid Conc Init LFID & Datetime: LC28016A 03/29/2017 22:35
 Conc Cont LFID & Datetime: LC28020A 03/29/2017 23:42
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
JP5(C8-C18)	NA	NA	NA	500.0	33414.6	14662745	438.81	-12		20
M.OIL(C18-C36)	NA	NA	NA	500.0	23856.7	10941015	458.61	-8		20
M.OIL(C24-C36)	NA	NA	NA	500.0	20641.3	8321980	403.17	-19		20
M.OIL(C24-C40)	NA	NA	NA	500.0	20641.3	8321980	403.17	-19		20

DSD5C28.MET

AS
03/31/2017

DAILY CALIBRATIONS

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 Mid Conc Init LFID & Datetime: LC28008A 03/29/2017 20:21
 Conc Cont LFID & Datetime: LE16004A 05/16/2017 11:26
 CONC UNIT : ppm

COMPOUND	RT	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
	MINUTES	FROM	TO			AREA	CONC			
DIESEL(TOTAL)	NA	NA	NA	500.0	26778.7	12240288	457.09	-9		20
DIESEL(C10-C24)	NA	NA	NA	500.0	25127.2	11660961	464.08	-7		20
DIESEL(C10-C28)	NA	NA	NA	500.0	25377.6	11678764	460.20	-8		20
DIESEL(C10-C25)	NA	NA	NA	500.0	25248.9	11660961	461.84	-8		20
DIESEL(C9-C24)	NA	NA	NA	500.0	26015.6	11882112	456.73	-9		20
DIESEL(C9-C25)	NA	NA	NA	500.0	26137.2	11882112	454.61	-9		20
DIESEL(C10-C36)	NA	NA	NA	500.0	25410.8	11678764	459.60	-8		20
DIESEL(C10-C40)	NA	NA	NA	500.0	25410.8	11678764	459.60	-8		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
BROMOBENZENE	1.712	1.702	1.722	80.0	19006.4	1427358	75.10	-6		20
HEXACOSANE	4.933	4.739	5.127	20.0	22321.1	424694	19.03	-5		20

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : D5
GC Column : HP5
Column size ID : 30MX0.32MM 0.25UM
Mid Conc Init LFID & Datetime: LC28016A 03/29/2017 22:35
Conc Cont LFID & Datetime: LE16005A 05/16/2017 11:43
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
JP5(C8-C18)	NA	NA	NA	500.0	33414.6	15311994	458.24	-8		20
M.OIL(C18-C36)	NA	NA	NA	500.0	23856.7	10645609	446.23	-11		20
M.OIL(C24-C36)	NA	NA	NA	500.0	20641.3	9076347	439.72	-12		20
M.OIL(C24-C40)	NA	NA	NA	500.0	20641.3	9076347	439.72	-12		20

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 Mid Conc Init LFID & Datetime: LC28008A 03/29/2017 20:21
 Conc Cont LFID & Datetime: LE16019A 05/16/2017 15:37
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
DIESEL(TOTAL)	NA	NA	NA	500.0	26778.7	12654456	472.56	-5		20
DIESEL(C10-C24)	NA	NA	NA	500.0	25127.2	12054276	479.73	-4		20
DIESEL(C10-C28)	NA	NA	NA	500.0	25377.6	12069341	475.59	-5		20
DIESEL(C10-C25)	NA	NA	NA	500.0	25248.9	12067815	477.95	-4		20
DIESEL(C9-C24)	NA	NA	NA	500.0	26015.6	12279062	471.99	-6		20
DIESEL(C9-C25)	NA	NA	NA	500.0	26137.2	12292601	470.31	-6		20
DIESEL(C10-C36)	NA	NA	NA	500.0	25410.8	12073985	475.15	-5		20
DIESEL(C10-C40)	NA	NA	NA	500.0	25410.8	12073985	475.15	-5		20
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
BROMOBENZENE	1.709	1.699	1.719	80.0	19006.4	1499197	78.88	-1		20
HEXACOSANE	4.915	4.721	5.109	20.0	22321.1	465439	20.85	4		20

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : D5
 GC Column : HP5
 Column size ID : 30MX0.32MM 0.25UM
 Mid Conc Init LFID & Datetime: LC28016A 03/29/2017 22:35
 Conc Cont LFID & Datetime: LE16020A 05/16/2017 15:54
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
JP5(C8-C18)	NA	NA	NA	500.0	33414.6	15189064	454.56	-9		20
M.OIL(C18-C36)	NA	NA	NA	500.0	23856.7	10922124	457.82	-8		20
M.OIL(C24-C36)	NA	NA	NA	500.0	20641.3	9340136	452.50	-10		20
M.OIL(C24-C40)	NA	NA	NA	500.0	20641.3	9340136	452.50	-10		20

ANALYTICAL LOGS



ANALYSIS RUN LOG
for
EXTRACTABLE TPH

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

ICAL
CDL & JPS/SW30 LC28002.dat - LC28022.dat
DSC040W 17C156
17C157
17C169
17C173
P&C 0415 17C169
17C170
17C173
DSC042S 17C183

SYRINGES
<input type="checkbox"/> 1 mL - MSF-01-01-05
<input checked="" type="checkbox"/> 500 µL - MSF-01-01-06
<input type="checkbox"/> 250 µL - MSF-01-01-09
<input type="checkbox"/> 100 µL - MSF-01-01-07
<input type="checkbox"/> 50 µL - MSF-01-01-08
<input type="checkbox"/> 10 µL - MSF-01-01-10
<input type="checkbox"/>

Book #: AD5-040
 Instrument No.: D5
 Analytical Sequence: LC28
 Method File: D3D508
 Analytical Batch: CD505080301

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-8015D	6
<input type="checkbox"/> EMAX-AK102/AK103	3
<input type="checkbox"/> EMAX-	

STANDARDS ID	Conc (mg/L)
ICAL	
<input checked="" type="checkbox"/> Diesel SS38-21-27-01	5-3000
<input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> JP5 SS38-21-27-03	10-1500
CH ₂ Cl ₂ 167784	pure
DSL DCC SS38-21-22-02	500/500
JP5/SW30 DCC SS38-21-22-03	500/500
^{DSL ZLV} Alaska DCC _{W2 3/28/17} SS38-21-27-02	500/500
Arizona DCC	
JP5/SW30 ZLV 1 SS38-21-25-01	500/500
JP5/SW30 ZLV 2 SS38-21-25-03	500/500
DR0 SS38-21-25-03	20

ELECTRONIC DATA ARCHIVAL	
Location	Date
<input type="checkbox"/> EZCHROM_GC6890N	
<input type="checkbox"/> External Hard Drive	

Analyzed By: W2
 Date: 3/28/17

Navigation	Run #	Run Type	Vial	Volume	Sample ID	Method	Filename	Action	Description
Method	1	Unknown	100		2:MECL2	DSD5C28.met	LC28001.dat		
Instrument Setup	2	Unknown	99		2:BD5C28001	DSD5C28.met	LC28002.dat		
Integration Events	3	Unknown	98		2:DR0-01	DSD5C28.met	LC28003.dat		
Peaks / Groups	4	Unknown	1		2:DSD5C28001 DSL 5PPM	DSD5C28.met	LC28004.dat		
Review Calibration	5	Unknown	2		2:DSD5C28002 DSL 10/20/5PPM	DSD5C28.met	LC28005.dat		
Advanced	6	Unknown	3		2:DSD5C28003 DSL 50/40/10PPM	DSD5C28.met	LC28006.dat		
Custom Report	7	Unknown	4		2:DSD5C28004 DSL 100/60/15PPM	DSD5C28.met	LC28007.dat		
System Suitability	8	Unknown	5		2:DSD5C28005 DSL 500/80/20PPM	DSD5C28.met	LC28008.dat		
Data	9	Unknown	6		2:DSD5C28006 DSL 1500/100/25PPM	DSD5C28.met	LC28009.dat		
Manual Integration Fxes	10	Unknown	7		2:DSD5C28007 DSL 3000/220/55PPM	DSD5C28.met	LC28010.dat		
Tiled Display	11	Unknown	8		2:DSD5C28001 DSL 500/80/20PPM	DSD5C28.met	LC28011.dat		
Integration Event	12	Unknown	99		2:BD5C28002	DSD5C28.met	LC28012.dat		
Peaks/Groups Table	13	Unknown	9		2:DSD5C28008 JP5/5W/30 10/10PPM	DSD5C28.met	LC28013.dat		
System Suitability	14	Unknown	10		2:DSD5C28009 JP5/5W/30 50/50PPM	DSD5C28.met	LC28014.dat		
Manual Integration	15	Unknown	11		2:DSD5C28010 JP5/5W/30 100/100PPM	DSD5C28.met	LC28015.dat		
	16	Unknown	12		2:DSD5C28011 JP5/5W/30 500/500PPM	DSD5C28.met	LC28016.dat		
	17	Unknown	13		2:DSD5C28012 JP5/5W/30 1000/1000PPM	DSD5C28.met	LC28017.dat		
	18	Unknown	14		2:DSD5C28013 JP5/5W/30 1500/1500PPM	DSD5C28.met	LC28018.dat		
	19	Unknown	15		2:DSD5C28002 JP5/5W/30 500/500PPM	DSD5C28.met	LC28019.dat		
	20	Unknown	16		2:DSD5C28003 JP5/5W/30 500/500PPM	DSD5C28.met	LC28020.dat		
	21	Unknown	96		2:CDSD5C280001 DSL 500/80/20PPM	DSD5C28.met	LC28021.dat		
	22	Unknown	97		2:CDSD5C280002 JP5/5W/30 500/500PPM	DSD5C28.met	LC28022.dat		
	23	Unknown	99		2:BD5C28003	DSD5C28.met	LC28023.dat		
	24	Unknown	98		2:DR0-02	DSD5C28.met	LC28024.dat		
	25	Unknown	17		2:DSC040WB	DSD5C28.met	LC28025.dat		
	26	Unknown	18		2:DSC040WL	DSD5C28.met	LC28026.dat		
	27	Unknown	19		2:DSC040WC	DSD5C28.met	LC28027.dat		
	28	Unknown	20		2:17C156-10	DSD5C28.met	LC28028.dat		
	29	Unknown	21		2:17C157-09	DSD5C28.met	LC28029.dat		
	30	Unknown	22		2:17C169-02	DSD5C28.met	LC28030.dat		
	31	Unknown	23		2:17C173-09	DSD5C28.met	LC28031.dat		
	32	Unknown	24		2:17C173-10	DSD5C28.met	LC28032.dat		
	33	Unknown	25		2:17C173-16	DSD5C28.met	LC28033.dat		
	34	Unknown	96		2:CDSD5C280003 DSL 500/80/20PPM	DSD5C28.met	LC28034.dat		
	35	Unknown	97		2:CDSD5C280004 JP5/5W/30 500/500PPM	DSD5C28.met	LC28035.dat		
	36	Unknown	26		2:DSC041SB	DSD5C28.met	LC28036.dat		
	37	Unknown	27		2:DSC041SL	DSD5C28.met	LC28037.dat		
	38	Unknown	28		2:DSC041SC	DSD5C28.met	LC28038.dat		
	39	Unknown	29		2:17C169-01	DSD5C28.met	LC28039.dat		
	40	Unknown	30		2:17C170-011 0.05/1.0ML	DSD5C28.met	LC28040.dat	BLACK, CLOUDY	
	41	Unknown	31		2:17C170-02	DSD5C28.met	LC28041.dat		
	42	Unknown	32		2:17C173-02	DSD5C28.met	LC28042.dat		
	43	Unknown	33		2:17C173-03	DSD5C28.met	LC28043.dat		
	44	Unknown	34		2:17C173-04	DSD5C28.met	LC28044.dat		
	45	Unknown	35		2:17C173-05	DSD5C28.met	LC28045.dat		
	46	Unknown	96		2:CDSD5C280005 DSL 500/80/20PPM	DSD5C28.met	LC28046.dat		
	47	Unknown	97		2:CDSD5C280006 JP5/5W/30 500/500PPM	DSD5C28.met	LC28047.dat		
	48	Unknown	36		2:17C173-11	DSD5C28.met	LC28048.dat		
	49	Unknown	37		2:17C173-12	DSD5C28.met	LC28049.dat		
	50	Unknown	38		2:17C173-12M	DSD5C28.met	LC28050.dat		
	51	Unknown	39		2:17C173-12S	DSD5C28.met	LC28051.dat		
	52	Unknown	40		2:17C173-13	DSD5C28.met	LC28052.dat		
	53	Unknown	41		2:17C173-14	DSD5C28.met	LC28053.dat		
	54	Unknown	96		2:CDSD5C280007 DSL 500/80/20PPM	DSD5C28.met	LC28054.dat		

FINAL

w2 3/30/17

Navigation	#	Run #	Run Type	Vol	Volume	Sample ID	Method	Filename	Action	Description
Method		54	Unknown	96	2	CDSD5C280007.DSL 500/80/20PPM	DSD5C28.met	LC28054.dat		
Instrument Setup		55	Unknown	97	2	CDSD5C280008.JP5/5W/30 500/500PPM	DSD5C28.met	LC28055.dat		
Integration Events		56	Unknown	98	2	DR0-03	DSD5C28.met	LC28056.dat		
Peaks / Groups		57	Unknown	42	2	DSC0425B	DSD5C28.met	LC28057.dat		
Review Calibration		58	Unknown	43	2	DSC0425L	DSD5C28.met	LC28058.dat		
Advanced		59	Unknown	44	2	DSC0425C	DSD5C28.met	LC28059.dat		
Custom Report		60	Unknown	45	2	17C183-01	DSD5C28.met	LC28060.dat		
System Suitability		61	Unknown	46	2	17C183-02	DSD5C28.met	LC28061.dat		
Data		62	Unknown	47	2	17C183-02M	DSD5C28.met	LC28062.dat		
Manual Integration Fixes		63	Unknown	48	2	17C183-02S	DSD5C28.met	LC28063.dat		
Tiled Display		64	Unknown	49	2	17C183-03	DSD5C28.met	LC28064.dat		
Integration Event		65	Unknown	50	2	17C183-04	DSD5C28.met	LC28065.dat		
Peaks/Groups Table		66	Unknown	51	2	17C183-05	DSD5C28.met	LC28066.dat		
System Suitability		67	Unknown	52	2	17C183-06	DSD5C28.met	LC28067.dat		
Manual Integration		68	Unknown	96	2	CDSD5C280009.DSL 500/80/20PPM	DSD5C28.met	LC28068.dat		
		69	Unknown	97	2	CDSD5C280010.JP5/5W/30 500/500PPM	DSD5C28.met	LC28069.dat		
		70	Unknown		2		DSD5C28.met	LC28070.dat		
		71	Unknown		2		DSD5C28.met	LC28071.dat		
		72	Unknown		2		DSD5C28.met	LC28072.dat		
		73	Unknown		2		DSD5C28.met	LC28073.dat		
		74	Unknown		2		DSD5C28.met	LC28074.dat		
		75	Unknown		2		DSD5C28.met	LC28075.dat		
		76	Unknown		2		DSD5C28.met	LC28076.dat		
		77	Unknown		2		DSD5C28.met	LC28077.dat		
		78	Unknown		2		DSD5C28.met	LC28078.dat		
		79	Unknown		2		DSD5C28.met	LC28079.dat		
		80	Unknown		2		DSD5C28.met	LC28080.dat		
		81	Unknown		2		DSD5C28.met	LC28081.dat		
		82	Unknown		2		DSD5C28.met	LC28082.dat		
		83	Unknown		2		DSD5C28.met	LC28083.dat		
		84	Unknown		2		DSD5C28.met	LC28084.dat		
		85	Unknown		2		DSD5C28.met	LC28085.dat		
		86	Unknown		2		DSD5C28.met	LC28086.dat		
		87	Unknown		2		DSD5C28.met	LC28087.dat		
		88	Unknown		2		DSD5C28.met	LC28088.dat		
		89	Unknown		2		DSD5C28.met	LC28089.dat		
		90	Unknown		2		DSD5C28.met	LC28090.dat		
		91	Unknown		2		DSD5C28.met	LC28091.dat		
		92	Unknown		2		DSD5C28.met	LC28092.dat		
		93	Unknown		2		DSD5C28.met	LC28093.dat		
		94	Unknown		2		DSD5C28.met	LC28094.dat		
		95	Unknown		2		DSD5C28.met	LC28095.dat		
		96	Unknown		2		DSD5C28.met	LC28096.dat		
		97	Unknown		2		DSD5C28.met	LC28097.dat		
		98	Unknown		2		DSD5C28.met	LC28098.dat		
		99	Unknown		2		DSD5C28.met	LC28099.dat		
		100	Unknown		2		DSD5C28.met	LC28100.dat		
		101	Unknown		2		DSD5C28.met	LC28101.dat		
		102	Unknown		2		DSD5C28.met	LC28102.dat		
		103	Unknown		2		DSD5C28.met	LC28103.dat		
		104	Unknown		2		DSD5C28.met	LC28104.dat		
		105	Unknown		2		DSD5C28.met	LC28105.dat		
		106	Unknown		2		DSD5C28.met	LC28106.dat		
		107	Unknown		2		DSD5C28.met	LC28107.dat		

FINAL

WZ 3/30/17

For Help, press F1



ANALYSIS RUN LOG
for
EXTRACTABLE TPH

Note: For samples and relevant QCs/Standards
analyzed, refer to attached analytical sequence.

Comments:

DSE02SW 17E075
17E081
17E087
17E088
17E089
17E096
17E094

Book #: AD5-040

Instrument No.: D5

Analytical Sequence: 1516

Method File: DSDJCT8

Analytical Batch: CDS0508053

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-8015D	6
<input type="checkbox"/> EMAX-AK102/AK103	3
<input type="checkbox"/> EMAX-	

STANDARDS ID	Conc (mg/L)
ICAL	
<input type="checkbox"/> Diesel	
<input type="checkbox"/> Motor Oil <input type="checkbox"/> JP5	
CH ₂ Cl ₂ 170110	pure
DSL DCC 5588-21-31-02	500/50/50
JP5/5W30 DCC 5588-41-22-03	500/500
Alaska DCC	
Arizona DCC	
Pf20 5588-21-25-03	20

SYRINGES
<input type="checkbox"/> 1 mL - MSF-01-01-05
<input type="checkbox"/> 500 µL - MSF-01-01-06
<input type="checkbox"/> 250 µL - MSF-01-01-09
<input type="checkbox"/> 100 µL - MSF-01-01-07
<input type="checkbox"/> 50 µL - MSF-01-01-08
<input type="checkbox"/> 10 µL - MSF-01-01-10
<input type="checkbox"/>

ELECTRONIC DATA ARCHIVAL	
Location	Date
<input type="checkbox"/> EZCHROM_GC6890N	
<input type="checkbox"/> External Hard Drive	

Analyzed By: W2

Date: 5/16/17

Run #	Run Type	Vol	Volume	Sample ID	Method	Filename	Action	Description
1	Unknown	100	2	MECL2	DSD5C28.met	LE16001.dat		
2	Unknown	95	2	1B05D5E16001	DSD5C28.met	LE16002.dat		
3	Unknown	96	2	DR0-01	DSD5C28.met	LE16003.dat		
4	Unknown	96	2	CDSD5C280253 DSL 500/80/20PPM	DSD5C28.met	LE16004.dat		
5	Unknown	97	2	CDSD5C280254 JP5/5w/30 500/500PPM	DSD5C28.met	LE16005.dat		
6	Unknown	1	2	DSE025wB	DSD5C28.met	LE16006.dat		
7	Unknown	2	2	DSE025wL	DSD5C28.met	LE16007.dat		
8	Unknown	3	2	DSE025wC	DSD5C28.met	LE16008.dat		
9	Unknown	4	2	17E075-03	DSD5C28.met	LE16009.dat		
10	Unknown	5	2	17E075-08	DSD5C28.met	LE16010.dat		
11	Unknown	6	2	17E075-09	DSD5C28.met	LE16011.dat		
12	Unknown	7	2	17E075-10	DSD5C28.met	LE16012.dat		
13	Unknown	8	2	17E075-11	DSD5C28.met	LE16013.dat		
14	Unknown	9	2	17E081-02	DSD5C28.met	LE16014.dat		YELLOWISH
15	Unknown	10	2	17E081-03	DSD5C28.met	LE16015.dat		YELLOWISH
16	Unknown	11	2	17E087-01	DSD5C28.met	LE16016.dat		
17	Unknown	12	2	17E087-04	DSD5C28.met	LE16017.dat		
18	Unknown	13	2	17E087-05	DSD5C28.met	LE16018.dat		
19	Unknown	96	2	CDSD5C280255 DSL 500/80/20PPM	DSD5C28.met	LE16019.dat		
20	Unknown	97	2	CDSD5C280256 JP5/5w/30 500/500PPM	DSD5C28.met	LE16020.dat		
21	Unknown	14	2	17E088-01	DSD5C28.met	LE16021.dat		
22	Unknown	15	2	17E089-02	DSD5C28.met	LE16022.dat		YELLOWISH
23	Unknown	16	2	17E089-02M	DSD5C28.met	LE16023.dat		YELLOWISH
24	Unknown	17	2	17E089-02S	DSD5C28.met	LE16024.dat		YELLOWISH
25	Unknown	18	2	17E089-05	DSD5C28.met	LE16025.dat		YELLOWISH
26	Unknown	19	2	17E089-07	DSD5C28.met	LE16026.dat		YELLOWISH
27	Unknown	20	2	17E089-08	DSD5C28.met	LE16027.dat		YELLOWISH
28	Unknown	21	2	17E096-04	DSD5C28.met	LE16028.dat		YELLOWISH
29	Unknown	22	2	17E104-05	DSD5C28.met	LE16029.dat		YELLOWISH
30	Unknown	23	2	17E104-11	DSD5C28.met	LE16030.dat		
31	Unknown	96	2	CDSD5C280257 DSL 500/80/20PPM	DSD5C28.met	LE16031.dat		
32	Unknown	97	2	CDSD5C280258 JP5/5w/30 500/500PPM	DSD5C28.met	LE16032.dat		
33	Unknown	2:8			DSD5C28.met	LE16033.dat		
34	Unknown	2:8			DSD5C28.met	LE16034.dat		
35	Unknown	2:8			DSD5C28.met	LE16035.dat		
36	Unknown	2:8			DSD5C28.met	LE16036.dat		
37	Unknown	2:8			DSD5C28.met	LE16037.dat		
38	Unknown	2:8			DSD5C28.met	LE16038.dat		
39	Unknown	2:8			DSD5C28.met	LE16039.dat		
40	Unknown	2:8			DSD5C28.met	LE16040.dat		
41	Unknown	2:8			DSD5C28.met	LE16041.dat		
42	Unknown	2:8			DSD5C28.met	LE16042.dat		
43	Unknown	2:8			DSD5C28.met	LE16043.dat		
44	Unknown	2:8			DSD5C28.met	LE16044.dat		
45	Unknown	2:8			DSD5C28.met	LE16045.dat		
46	Unknown	2:8			DSD5C28.met	LE16046.dat		
47	Unknown	2:8			DSD5C28.met	LE16047.dat		
48	Unknown	2:8			DSD5C28.met	LE16048.dat		
49	Unknown	2:8			DSD5C28.met	LE16049.dat		
50	Unknown	2:8			DSD5C28.met	LE16050.dat		
51	Unknown	2:8			DSD5C28.met	LE16051.dat		
52	Unknown	2:8			DSD5C28.met	LE16052.dat		
53	Unknown	2:8			DSD5C28.met	LE16053.dat		
54	Unknown	2:8			DSD5C28.met	LE16054.dat		

W2 5/17/17

FINAL

EXTRACTION LOGS



EXTRACTION LOG
for
TPH

SOP	Rev. #
<input checked="" type="checkbox"/> EMAX-3520	5
<input type="checkbox"/> EMAX-3540	2
<input type="checkbox"/> EMAX-3550	5
<input type="checkbox"/> EMAX-3580	2
<input type="checkbox"/> EMAX-8015AZ	2
<input type="checkbox"/> EMAX-AK 102/103	3
<input type="checkbox"/> EMAX-AKSGC	0

Note: For samples and relevant QCs/Standards extracted, refer to attached extraction sequence.
 MS/MSD can not be extracted due to insufficient amount of samples

Lab Sample ID	Sonicator #	Concentrator #
DSE025WB		3
-W2		3
-WC		3
E075-03		3
-08		3
-09		3
-10		4
-11		4
E081-02		5
-03		5
E087-01		5
-04		4
-05		4
E088-01		5
E089-02		5
-02M		5
-025		6
-05		6
-07		6
-08		4
E096-04		6
E104-05		6
-11		4

Book #: EDS-081
Preparation Batch: DSE025W
Matrix: Water
Micropipette ID: 100µl: PE00-03 ✓
Micropipette ID: 100µl: PE97C-03 ✓

Standards	ID	Amount Added (ml)
Surrogate		
Surrogate	<u>SS3-009-11-25-</u>	<u>0.5</u> ✓
LCS/MS (DSL)	<u>SS3-009-11-23</u>	<u>0.1</u> ✓
LCS/MS		

Reagent	Lot # / ID
CH ₂ Cl ₂	<u>170110</u>
Na ₂ SO ₄	<u>SW1B-003-22-09</u>
HCl	<u>4116040</u>
Silica Sand	
Silica Gel	
Reagent Water	<u>SW1A-006-05-17</u>
pH strip	<u>HC693124</u>
Filter Paper	<u>9792770</u>

TUNING	
Sonicator #	Reading

Concentrator	Water Bath Temperature Setting (°C)	Thermometer Reading (°C)
1		
2		
3	<u>35</u>	<u>35</u>
4	<u>35</u>	<u>35</u>
5	<u>35</u>	<u>35</u>
6	<u>35</u>	<u>35</u>

Comments:

Test thermometer = SVOC-T1
Prepared By: NNC/A.L. Standard Added By: NNC
Witnessed By: A.L. Checked By: ML
Extract Received By: W2 5/16/11 Extraction Location: SE06 #50
Disposal Date: _____ Disposed By: _____



EXTRACTION LOG FOR EXTRACTABLE TPH

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Ve(ml)	ExpAmt	ExpVe(ml)	PrepFctr	Comments
17DSE025W01	DSE025WB ✓	1000	ml	5/15/17 13:01	10	1000	10	1	
17DSE025W02	DSE025WL ✓	1000	ml	5/15/17 13:01	10	1000	10	1	DSL
17DSE025W03	DSE025WC ✓	1000	ml	5/15/17 13:01	10	1000	10	1	DSL
17DSE025W04	E075-03 ✓	930	ml	5/15/17 13:04	10	1000	10	1.08	Light Yellow
17DSE025W05	E075-08 ✓	890	ml	5/15/17 13:04	10	1000	10	1.12	Light Yellow
17DSE025W06	E075-09 ✓	810	ml	5/15/17 13:04	10	1000	10	1.23	Light Yellow, Turbid w/ Soil Sedi
17DSE025W07	E075-10 ✓	870	ml	5/15/17 13:05	10	1000	10	1.15	Light Yellow, Turbid w/ Soil Sedi
17DSE025W08	E075-11 ✓	850	ml	5/15/17 13:05	10	1000	10	1.18	
17DSE025W09	E081-02 ✓	890	ml	5/15/17 13:05	10	1000	10	1.12	Light Yellow, Cloudy
17DSE025W10	E081-03 ✓	940	ml	5/15/17 13:05	10	1000	10	1.06	Yellow, Cloudy
17DSE025W11	E087-01 ✓	890	ml	5/15/17 13:05	10	1000	10	1.12	
17DSE025W12	E087-04 ✓	820	ml	5/15/17 13:05	10	1000	10	1.22	
17DSE025W13	E087-05 ✓	1000	ml	5/15/17 13:05	10	1000	10	1	
17DSE025W14	E088-01 ✓	870	ml	5/15/17 13:05	10	1000	10	1.15	Light Yellow, Turbid
17DSE025W15	E089-02 ✓	910	ml	5/15/17 13:05	10	1000	10	1.1	Light Yellow, Turbid
17DSE025W16	E089-02M ✓	840	ml	5/15/17 13:05	10	1000	10	1.19	DSL, Light Yellow, Turbid
17DSE025W17	E089-02S ✓	820	ml	5/15/17 13:05	10	1000	10	1.22	DSL, Light Yellow, Turbid
17DSE025W18	E089-05 ✓	870	ml	5/15/17 13:05	10	1000	10	1.15	Light Yellow
17DSE025W19	E089-07 ✓	860	ml	5/15/17 13:05	10	1000	10	1.16	Light Yellow
17DSE025W20	E089-08 ✓	810	ml	5/15/17 13:05	10	1000	10	1.23	
17DSE025W21	E096-04 ✓	960	ml	5/15/17 13:05	10	1000	10	1.04	Yellow
17DSE025W22	E104-05 ✓	860	ml	5/15/17 13:05	10	1000	10	1.16	Light Yellow
17DSE025W23	E104-11 ✓	970	ml	5/15/17 13:05	10	1000	10	1.03	

Ve=extract volume PrepFctr=(ExpAmt/Aliquot)(Ve/ExpVe)

Extraction Started @ 5/15/17 12:15 ✓

Prepared By: NCrist/ALY

Extraction Ended @ 5/16/17 6:15 ✓

Checked By: ML

Comments: Volume entered after extraction started, pH adjusted to pH <2.

Date 5/16/17

LABORATORY REPORT FOR

NOREAS

TREASURE ISLAND, IR SITE 12

METALS / MERCURY

SDG#: 17E087

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SW6020A
TOTAL AND DISSOLVED METALS BY ICP-MS

A total of four (4) water samples were received on 05/11/17 to be analyzed for Total and Dissolved Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time

Samples were digested and analyzed within the prescribed holding time.

Calibration

Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria. MRL was analyzed as required by the project.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. IME011WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. IME011WL/IME011WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Nickel result in sample E087-04 for Dissolved was suspected from lab contamination.

LAB CHRONICLE
METALS BY ICP-MS

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12

SDG NO. : 17E087
Instrument ID : T-I98

WATER									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
12-MW17-0517	E087-02	1.00	NA	05/12/1719:19	05/12/1711:25	98E10051	98E10043	IME011W	Field Sample
MBLK1W	IME011WB	1.00	NA	05/15/1716:24	05/12/1711:25	98E11018	98E11016	IME011W	Method Blank
LCS1W	IME011WL	1.00	NA	05/15/1716:29	05/12/1711:25	98E11019	98E11016	IME011W	Lab Control Sample (LCS)
LCD1W	IME011WC	1.00	NA	05/15/1716:33	05/12/1711:25	98E11020	98E11016	IME011W	LCS Duplicate
12-MW31-0517	E087-01N	1.00	NA	05/15/1716:52	05/12/1711:25	98E11024	98E11016	IME011W	Field Sample
QCEB-0517	E087-04N	1.00	NA	05/15/1716:57	05/12/1711:25	98E11025	98E11016	IME011W	Field Sample
QCSB-0517	E087-05N	1.00	NA	05/15/1717:01	05/12/1711:25	98E11026	98E11016	IME011W	Field Sample
12-MW17-0517	E087-02K	100.00	NA	05/15/1717:57	05/12/1711:25	98E11038	98E11027	IME011W	Diluted Sample
12-MW17-0517	E087-02I	5.00	NA	05/15/1718:15	05/12/1711:25	98E11042	98E11039	IME011W	Diluted Sample

FN - Filename

% Moist - Percent Moisture

METHOD SW6020A
METALS BY ICP-MS

Client	: NOREAS	Date Collected:	05/10/17 11:00
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	05/11/17
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	12-MW31-0517	Date Analyzed:	05/15/17 16:52
Lab Samp ID:	E087-01N	Dilution Factor:	1
Lab File ID:	98E11024	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11016	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	73.6J	100	10.0	20.0
Antimony	0.439J	1.00	0.250	0.500
Arsenic	0.712J	1.00	0.100	0.200
Barium	43.5	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	0.121J	1.00	0.100	0.200
Calcium	24200	100	13.0	25.0
Chromium	0.473J	1.00	0.100	0.200
Cobalt	0.316J	1.00	0.100	0.200
Copper	11.4	1.00	0.250	0.500
Iron	395	100	5.00	10.0
Lead	3.54	1.00	0.0500	0.100
Magnesium	4520	100	5.00	10.0
Manganese	68.6	1.00	0.100	0.200
Molybdenum	0.645J	2.00	0.250	0.500
Nickel	1.24	1.00	0.100	0.200
Potassium	889	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	18000	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	0.646J	1.00	0.250	0.500
Zinc	17.9J	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml Final Volume:50ml
Prepared by : CCapul Analyzed by:CCapul

METHOD SW6020A
METALS BY ICP-MS

Client : NOREAS Date Collected: 05/10/17 13:10
 Project : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
 SDG NO. : 17E087 Date Extracted: 05/12/17 11:25
 Sample ID: 12-MW17-0517 Date Analyzed: 05/12/17 19:19
 Lab Samp ID: E087-02 Dilution Factor: 1
 Lab File ID: 98E10051 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E10043 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	16.3J	100	10.0	20.0
Arsenic	37.8	1.00	0.100	0.200
Chromium	2.69	1.00	0.100	0.200
Cobalt	1.18	1.00	0.100	0.200
Copper	258	1.00	0.250	0.500
Iron	3680	100	5.00	10.0
Lead	0.346J	1.00	0.0500	0.100
Manganese	2480	1.00	0.100	0.200
Nickel	2.84	1.00	0.100	0.200
Selenium	0.417J	1.00	0.150	0.300
Thallium	ND	1.00	0.100	0.200
Vanadium	2.26	1.00	0.250	0.500
Zinc	12.7J	20.0	5.00	10.0

Sample ID: 12-MW17-0517 Date Analyzed: 05/15/17 18:15
 Lab Samp ID: E087-02I Dilution Factor: 5
 Lab File ID: 98E11042 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E11039 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Antimony	ND	5.00	1.25	2.50
Barium	96.1	5.00	1.25	2.50
Beryllium	ND	5.00	0.250	0.500
Cadmium	ND	5.00	0.500	1.00
Calcium	226000	500	65.0	125
Molybdenum	11.5	10.0	1.25	2.50
Potassium	174000	500	50.0	100
Silver	ND	5.00	0.500	1.00

Sample ID: 12-MW17-0517 Date Analyzed: 05/15/17 17:57
 Lab Samp ID: E087-02K Dilution Factor: 100
 Lab File ID: 98E11038 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E11027 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Magnesium	500000	10000	500	1000
Sodium	4320000	10000	2500	5000

Sample Amount : 50ml Final Volume: 50ml
 Prepared by : CCapul Analyzed by: CCapul

METHOD SW6020A
METALS BY ICP-MS

Client	: NOREAS	Date Collected:	05/10/17 13:10
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	05/11/17
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	12-MW17-0517	Date Analyzed:	05/12/17 19:19
Lab Samp ID:	E087-02	Dilution Factor:	1
Lab File ID:	98E10051	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E10043	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	16.3J	100	10.0	20.0
Antimony	1.05E	1.00	0.250	0.500
Arsenic	37.8	1.00	0.100	0.200
Barium	91.7E	1.00	0.250	0.500
Beryllium	NDE	1.00	0.0500	0.100
Cadmium	NDE	1.00	0.100	0.200
Calcium	217000E	100	13.0	25.0
Chromium	2.69	1.00	0.100	0.200
Cobalt	1.18	1.00	0.100	0.200
Copper	258	1.00	0.250	0.500
Iron	3680	100	5.00	10.0
Lead	0.346J	1.00	0.0500	0.100
Magnesium	NDE	100	5.00	10.0
Manganese	2480	1.00	0.100	0.200
Molybdenum	11.1E	2.00	0.250	0.500
Nickel	2.84	1.00	0.100	0.200
Potassium	167000E	100	10.0	20.0
Selenium	0.417J	1.00	0.150	0.300
Silver	NDE	1.00	0.100	0.200
Sodium	NDE	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	2.26	1.00	0.250	0.500
Zinc	12.7J	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CCapul	Analyzed by:	CCapul

METHOD SW6020A
METALS BY-ICP-MS

Client	: NOREAS	Date Collected:	05/10/17 13:10
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	05/11/17
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	12-MW17-0517	Date Analyzed:	05/15/17 18:15
Lab Samp ID:	E087-02I	Dilution Factor:	5
Lab File ID:	98E11042	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11039	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	500	50.0	100
Antimony	ND	5.00	1.25	2.50
Arsenic	40.2	5.00	0.500	1.00
Barium	96.1	5.00	1.25	2.50
Beryllium	ND	5.00	0.250	0.500
Cadmium	ND	5.00	0.500	1.00
Calcium	226000	500	65.0	125
Chromium	2.88J	5.00	0.500	1.00
Cobalt	1.29J	5.00	0.500	1.00
Copper	319	5.00	1.25	2.50
Iron	4380	500	25.0	50.0
Lead	0.445J	5.00	0.250	0.500
Magnesium	515000E	500	25.0	50.0
Manganese	2900	5.00	0.500	1.00
Molybdenum	11.5	10.0	1.25	2.50
Nickel	3.53J	5.00	0.500	1.00
Potassium	174000	500	50.0	100
Selenium	ND	5.00	0.750	1.50
Silver	ND	5.00	0.500	1.00
Sodium	4520000E	500	125	250
Thallium	ND	5.00	0.500	1.00
Vanadium	2.50J	5.00	1.25	2.50
Zinc	ND	100	25.0	50.0

Note: Detection limits are reported relative to sample result significant figures.
 Sample Amount : 50ml Final Volume:50ml
 Prepared by : CCapu1 Analyzed by:CCapu1

METHOD SW6020A
METALS BY ICP-MS

```

Client      : NOREAS                      Date Collected: 05/10/17 13:10
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.    : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID: 12-MW17-0517                  Date Analyzed: 05/15/17 17:57
Lab Samp ID: E087-02K                    Dilution Factor: 100
Lab File ID: 98E11038                     Matrix: WATER
Ext Btch ID: IME011W                      % Moisture: NA
Calib. Ref.: 98E11027                     Instrument ID: 98
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	L0D (ug/L)
Aluminum	ND	10000	1000	2000
Antimony	NDE	100	25.0	50.0
Arsenic	44.0J	100	10.0	20.0
Barium	97.5JE	100	25.0	50.0
Beryllium	NDE	100	5.00	10.0
Cadmium	NDE	100	10.0	20.0
Calcium	234000E	10000	1300	2500
Chromium	ND	100	10.0	20.0
Cobalt	ND	100	10.0	20.0
Copper	362	100	25.0	50.0
Iron	4920J	10000	500	1000
Lead	ND	100	5.00	10.0
Magnesium	500000	10000	500	1000
Manganese	3170	100	10.0	20.0
Molybdenum	NDE	200	25.0	50.0
Nickel	ND	100	10.0	20.0
Potassium	165000E	10000	1000	2000
Selenium	ND	100	15.0	30.0
Silver	NDE	100	10.0	20.0
Sodium	4320000	10000	2500	5000
Thallium	ND	100	10.0	20.0
Vanadium	ND	100	25.0	50.0
Zinc	ND	2000	500	1000

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml
Prepared by : CCapul Analyzed by:CCapul

METHOD SW6020A
METALS BY ICP-MS

```

Client       : NOREAS                      Date Collected: 05/10/17 14:00
Project      : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.     : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID   : QCEB-0517                  Date Analyzed: 05/15/17 16:57
Lab Samp ID : E087-04N                   Dilution Factor: 1
Lab File ID : 98E11025                   Matrix: WATER
Ext Btch ID : IME011W                    % Moisture: NA
Calib. Ref. : 98E11016                   Instrument ID: 98
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	20.3J	100	13.0	25.0
Chromium	0.224J	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	1.95	1.00	0.250	0.500
Iron	5.01J	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	ND	100	5.00	10.0
Manganese	0.172J	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	0.176J	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	28.1J	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml
Prepared by : CCapu1 Analyzed by:CCapu1

METHOD SW6020A
METALS BY ICP-MS

Client	: NOREAS	Date Collected:	05/10/17 08:25
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	05/11/17
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	QCSB-0517	Date Analyzed:	05/15/17 17:01
Lab Samp ID:	E087-05N	Dilution Factor:	1
Lab File ID:	98E11026	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11016	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	L0D (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	18.1J	100	13.0	25.0
Chromium	0.201J	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	2.07	1.00	0.250	0.500
Iron	ND	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	ND	100	5.00	10.0
Manganese	ND	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	0.137J	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	28.4J	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CCapu1	Analyzed by:	CCapu1

METHOD SW6020A
METALS BY ICP-MS

Client	: NOREAS	Date Collected:	NA
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	NA
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	MBLK1W	Date Analyzed:	05/15/17 16:24
Lab Samp ID:	IME011WB	Dilution Factor:	1
Lab File ID:	98E11018	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11016	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	L0D (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	ND	100	13.0	25.0
Chromium	ND	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	ND	1.00	0.250	0.500
Iron	ND	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	ND	100	5.00	10.0
Manganese	ND	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	ND	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	ND	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.
 Sample Amount : 50ml Final Volume:50ml
 Prepared by : CCapul Analyzed by:CCapul

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E087
METHOD : SW6020A

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1.00 1.00 1.00
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : IME011WB IME011WL IME011WC
LAB FILE ID : 98E11018 98E11019 98E11020
DATE PREPARED : 05/12/17 11:25 05/12/17 11:25 05/12/17 11:25
DATE ANALYZED : 05/15/17 16:24 05/15/17 16:29 05/15/17 16:33
PREP BATCH : IME011W IME011W IME011W
CALIBRATION REF: 98E11016 98E11016 98E11016

ACCESSION:

PARAMETERS	MResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2880	96	3000	2910	97	1	84-117	20
Antimony	ND	30	29.7	99	30	29.7	99	0	85-117	20
Arsenic	ND	30	30.3	101	30	30.4	101	0	84-116	20
Barium	ND	30	30.8	103	30	30.8	103	0	86-114	20
Beryllium	ND	30	30.2	101	30	29.9	100	1	83-121	20
Cadmium	ND	30	31.0	103	30	30.9	103	0	87-115	20
Calcium	ND	3000	2960	99	3000	3060	102	3	87-118	20
Chromium	ND	30	30.5	102	30	30.4	101	0	85-116	20
Cobalt	ND	30	31.7	106	30	31.6	105	0	86-115	20
Copper	ND	30	32.4	108	30	31.8	106	2	85-118	20
Iron	ND	3000	3120	104	3000	3180	106	2	87-118	20
Lead	ND	30	30.3	101	30	29.8	99	2	88-115	20
Magnesium	ND	3000	2940	98	3000	2960	99	1	83-118	20
Manganese	ND	30	31.2	104	30	31.2	104	0	87-115	20
Molybdenum	ND	30	28.9	96	30	29.1	97	1	83-115	20
Nickel	ND	30	32.2	107	30	31.9	106	1	85-117	20
Potassium	ND	3000	2940	98	3000	2980	99	1	87-115	20
Selenium	ND	30	31.5	105	30	31.2	104	1	80-120	20
Silver	ND	30	30.2	101	30	30.0	100	1	85-116	20
Sodium	ND	3000	2870	96	3000	2920	97	2	85-117	20
Thallium	ND	30	31.9	106	30	31.8	106	0	82-116	20
Vanadium	ND	30	29.9	100	30	29.7	99	1	86-115	20
Zinc	ND	60	65.9	110	60	65.4	109	1	83-119	20

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12

SDG NO. : 17E087
Instrument ID : T-I98

WATER									
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.	
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes
12-MW17-0517	E087-02	1.00	NA	05/12/1718:56	05/12/1711:25	98E10046	98E10043	IME011W	Field Sample
MBLK1W	IME011WB	1.00	NA	05/15/1716:24	05/12/1711:25	98E11018	98E11016	IME011W	Method Blank
LCS1W	IME011WL	1.00	NA	05/15/1716:29	05/12/1711:25	98E11019	98E11016	IME011W	Lab Control Sample (LCS)
LCD1W	IME011WC	1.00	NA	05/15/1716:33	05/12/1711:25	98E11020	98E11016	IME011W	LCS Duplicate
12-MW31-0517	E087-01N	1.00	NA	05/15/1716:38	05/12/1711:25	98E11021	98E11016	IME011W	Field Sample
QCEB-0517	E087-04N	1.00	NA	05/15/1716:43	05/12/1711:25	98E11022	98E11016	IME011W	Field Sample
QCSB-0517	E087-05N	1.00	NA	05/15/1716:47	05/12/1711:25	98E11023	98E11016	IME011W	Field Sample
12-MW17-0517	E087-02K	100.00	NA	05/15/1717:52	05/12/1711:25	98E11037	98E11027	IME011W	Diluted Sample
12-MW17-0517	E087-02I	5.00	NA	05/15/1718:11	05/12/1711:25	98E11041	98E11039	IME011W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

```

Client      : NOREAS
Project     : TREASURE ISLAND, IR SITE 12
SDG NO.    : 17E087
Sample ID   : 12-MW31-0517
Lab Samp ID: E087-01N
Lab File ID: 98E11021
Ext Btch ID: IME011W
Calib. Ref.: 98E11016

Date Collected: 05/10/17 11:00
Date Received: 05/11/17
Date Extracted: 05/12/17 11:25
Date Analyzed: 05/15/17 16:38
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: 98
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	16.7J	100	10.0	20.0
Antimony	0.401J	1.00	0.250	0.500
Arsenic	0.396J	1.00	0.100	0.200
Barium	36.4	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	23800	100	13.0	25.0
Chromium	0.324J	1.00	0.100	0.200
Cobalt	0.117J	1.00	0.100	0.200
Copper	3.21	1.00	0.250	0.500
Iron	94.7J	100	5.00	10.0
Lead	0.522J	1.00	0.0500	0.100
Magnesium	4410	100	5.00	10.0
Manganese	17.7	1.00	0.100	0.200
Molybdenum	0.699J	2.00	0.250	0.500
Nickel	0.551J	1.00	0.100	0.200
Potassium	861	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	18000	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	0.332J	1.00	0.250	0.500
Zinc	7.60J	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml
Prepared by : CCapu1 Analyzed by:CCapu1

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client : NOREAS Date Collected: 05/10/17 13:10
 Project : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
 SDG NO. : 17E087 Date Extracted: 05/12/17 11:25
 Sample ID: 12-MW17-0517 Date Analyzed: 05/12/17 18:56
 Lab Samp ID: E087-02 Dilution Factor: 1
 Lab File ID: 98E10046 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E10043 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOQ (ug/L)
Aluminum	ND	100	10.0	20.0
Arsenic	29.7	1.00	0.100	0.200
Chromium	0.683J	1.00	0.100	0.200
Cobalt	1.12	1.00	0.100	0.200
Copper	39.1	1.00	0.250	0.500
Iron	2610	100	5.00	10.0
Lead	0.0853J	1.00	0.0500	0.100
Manganese	2390	1.00	0.100	0.200
Nickel	1.94	1.00	0.100	0.200
Selenium	0.339J	1.00	0.150	0.300
Thallium	ND	1.00	0.100	0.200
Vanadium	0.687J	1.00	0.250	0.500
Zinc	6.90J	20.0	5.00	10.0

Sample ID: 12-MW17-0517 Date Analyzed: 05/15/17 18:11
 Lab Samp ID: E087-02I Dilution Factor: 5
 Lab File ID: 98E11041 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E11039 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Antimony	ND	5.00	1.25	2.50
Barium	90.9	5.00	1.25	2.50
Beryllium	ND	5.00	0.250	0.500
Cadmium	ND	5.00	0.500	1.00
Calcium	232000	500	65.0	125
Molybdenum	11.6	10.0	1.25	2.50
Potassium	171000	500	50.0	100
Silver	ND	5.00	0.500	1.00

Sample ID: 12-MW17-0517 Date Analyzed: 05/15/17 17:52
 Lab Samp ID: E087-02K Dilution Factor: 100
 Lab File ID: 98E11037 Matrix: WATER
 Ext Btch ID: IME011W % Moisture: NA
 Calib. Ref.: 98E11027 Instrument ID: 98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Magnesium	516000	10000	500	1000
Sodium	4370000	10000	2500	5000

Sample Amount : 50ml Final Volume: 50ml
 Prepared by : CCapu1 Analyzed by: CCapu1

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

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=====
Client      : NOREAS                      Date Collected: 05/10/17 13:10
Project    : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.    : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID  : 12-MW17-0517                Date Analyzed: 05/12/17 18:56
Lab Samp ID: E087-02                     Dilution Factor: 1
Lab File ID: 98E10046                    Matrix: WATER
Ext Btch ID: IME011W                     % Moisture: NA
Calib. Ref.: 98E10043                    Instrument ID: 98
=====
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	L0D (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	0.401JE	1.00	0.250	0.500
Arsenic	29.7	1.00	0.100	0.200
Barium	87.5E	1.00	0.250	0.500
Beryllium	NDE	1.00	0.0500	0.100
Cadmium	NDE	1.00	0.100	0.200
Calcium	219000E	100	13.0	25.0
Chromium	0.683J	1.00	0.100	0.200
Cobalt	1.12	1.00	0.100	0.200
Copper	39.1	1.00	0.250	0.500
Iron	2610	100	5.00	10.0
Lead	0.0853J	1.00	0.0500	0.100
Magnesium	NDE	100	5.00	10.0
Manganese	2390	1.00	0.100	0.200
Molybdenum	11.0E	2.00	0.250	0.500
Nickel	1.94	1.00	0.100	0.200
Potassium	168000E	100	10.0	20.0
Selenium	0.339J	1.00	0.150	0.300
Silver	NDE	1.00	0.100	0.200
Sodium	NDE	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	0.637J	1.00	0.250	0.500
Zinc	6.90J	20.0	5.00	10.0

```

=====
Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml          Final Volume:50ml
Prepared by   : CCapul       Analyzed by:CCapul
    
```

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

```

Client      : NOREAS                      Date Collected: 05/10/17 13:10
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.    : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID   : 12-MW17-0517              Date Analyzed: 05/15/17 18:11
Lab Samp ID: E087-02I                   Dilution Factor: 5
Lab File ID: 98E11041                   Matrix: WATER
Ext Btch ID: IME011W                     % Moisture: NA
Calib. Ref.: 98E11039                   Instrument ID: 98
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	500	50.0	100
Antimony	ND	5.00	1.25	2.50
Arsenic	30.9	5.00	0.500	1.00
Barium	90.9	5.00	1.25	2.50
Beryllium	ND	5.00	0.250	0.500
Cadmium	ND	5.00	0.500	1.00
Calcium	232000	500	65.0	125
Chromium	0.720J	5.00	0.500	1.00
Cobalt	1.20J	5.00	0.500	1.00
Copper	44.6	5.00	1.25	2.50
Iron	3020	500	25.0	50.0
Lead	ND	5.00	0.250	0.500
Magnesium	517000E	500	25.0	50.0
Manganese	2760	5.00	0.500	1.00
Molybdenum	11.6	10.0	1.25	2.50
Nickel	4.03J	5.00	0.500	1.00
Potassium	171000	500	50.0	100
Selenium	ND	5.00	0.750	1.50
Silver	ND	5.00	0.500	1.00
Sodium	4550000E	500	125	250
Thallium	ND	5.00	0.500	1.00
Vanadium	ND	5.00	1.25	2.50
Zinc	ND	100	25.0	50.0

Note: Detection limits are reported relative to sample result significant figures.

```

Sample Amount : 50ml                      Final Volume:50ml
Prepared by   : CCapu1                    Analyzed by:CCapu1
    
```

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: NOREAS	Date Collected:	05/10/17 13:10
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	05/11/17
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	12-MW17-0517	Date Analyzed:	05/15/17 17:52
Lab Samp ID:	E087-02K	Dilution Factor:	100
Lab File ID:	98E11037	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11027	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	10000	1000	2000
Antimony	NDE	100	25.0	50.0
Arsenic	32.7J	100	10.0	20.0
Barium	91.1JE	100	25.0	50.0
Beryllium	NDE	100	5.00	10.0
Cadmium	NDE	100	10.0	20.0
Calcium	234000E	10000	1300	2500
Chromium	ND	100	10.0	20.0
Cobalt	ND	100	10.0	20.0
Copper	54.5J	100	25.0	50.0
Iron	3440J	10000	500	1000
Lead	ND	100	5.00	10.0
Magnesium	516000	10000	500	1000
Manganese	3000	100	10.0	20.0
Molybdenum	NDE	200	25.0	50.0
Nickel	ND	100	10.0	20.0
Potassium	167000E	10000	1000	2000
Selenium	ND	100	15.0	30.0
Silver	NDE	100	10.0	20.0
Sodium	4370000	10000	2500	5000
Thallium	ND	100	10.0	20.0
Vanadium	ND	100	25.0	50.0
Zinc	ND	2000	500	1000

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CCapul	Analyzed by:	CCapul

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

```

=====
Client      : NOREAS                      Date Collected: 05/10/17 14:00
Project     : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.    : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID: QCEB-0517                     Date Analyzed: 05/15/17 16:43
Lab Samp ID: E087-04N                    Dilution Factor: 1
Lab File ID: 9BE11022                     Matrix: WATER
Ext Btch ID: IME011W                     % Moisture: NA
Calib. Ref.: 98E11016                    Instrument ID: 98
=====

```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	34.5J	100	13.0	25.0
Chromium	0.173J	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	2.70	1.00	0.250	0.500
Iron	5.51J	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	5.15J	100	5.00	10.0
Manganese	0.315J	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	1.25	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	35.6J	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.

```

Sample Amount : 50ml          Final Volume:50ml
Prepared by   : CCapul       Analyzed by:CCapul

```

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

```

Client      : NOREAS                      Date Collected: 05/10/17 08:25
Project    : TREASURE ISLAND, IR SITE 12 Date Received: 05/11/17
SDG NO.    : 17E087                      Date Extracted: 05/12/17 11:25
Sample ID  : QCSB-0517                   Date Analyzed: 05/15/17 16:47
Lab Samp ID: E087-05N                    Dilution Factor: 1
Lab File ID: 98E11023                    Matrix: WATER
Ext Btch ID: IME011W                     % Moisture: NA
Calib. Ref.: 98E11016                    Instrument ID: 98
    
```

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	19.0J	100	13.0	25.0
Chromium	0.176J	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	1.92	1.00	0.250	0.500
Iron	ND	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	ND	100	5.00	10.0
Manganese	0.102J	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	0.150J	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	ND	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml
Prepared by : CCapu1 Analyzed by:CCapu1

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: NOREAS	Date Collected:	NA
Project	: TREASURE ISLAND, IR SITE 12	Date Received:	NA
SDG NO.	: 17E087	Date Extracted:	05/12/17 11:25
Sample ID:	MBLK1W	Date Analyzed:	05/15/17 16:24
Lab Samp ID:	IME011WB	Dilution Factor:	1
Lab File ID:	98E11018	Matrix:	WATER
Ext Btch ID:	IME011W	% Moisture:	NA
Calib. Ref.:	98E11016	Instrument ID:	98

PARAMETERS	Result (ug/L)	LOQ (ug/L)	DL (ug/L)	L0D (ug/L)
Aluminum	ND	100	10.0	20.0
Antimony	ND	1.00	0.250	0.500
Arsenic	ND	1.00	0.100	0.200
Barium	ND	1.00	0.250	0.500
Beryllium	ND	1.00	0.0500	0.100
Cadmium	ND	1.00	0.100	0.200
Calcium	ND	100	13.0	25.0
Chromium	ND	1.00	0.100	0.200
Cobalt	ND	1.00	0.100	0.200
Copper	ND	1.00	0.250	0.500
Iron	ND	100	5.00	10.0
Lead	ND	1.00	0.0500	0.100
Magnesium	ND	100	5.00	10.0
Manganese	ND	1.00	0.100	0.200
Molybdenum	ND	2.00	0.250	0.500
Nickel	ND	1.00	0.100	0.200
Potassium	ND	100	10.0	20.0
Selenium	ND	1.00	0.150	0.300
Silver	ND	1.00	0.100	0.200
Sodium	ND	100	25.0	50.0
Thallium	ND	1.00	0.100	0.200
Vanadium	ND	1.00	0.250	0.500
Zinc	ND	20.0	5.00	10.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: CCapul	Analyzed by:	CCapul

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E0B7
METHOD : SW6020A

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1.00 1.00 1.00
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : IME011WB IME011WL IME011WC
LAB FILE ID : 98E11018 98E11019 98E11020
DATE PREPARED : 05/12/17 11:25 05/12/17 11:25 05/12/17 11:25
DATE ANALYZED : 05/15/17 16:24 05/15/17 16:29 05/15/17 16:33
PREP BATCH : IME011W IME011W IME011W
CALIBRATION REF: 98E11016 98E11016 98E11016

ACCESSION:

PARAMETERS	M8Result (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2880	96	3000	2910	97	1	84-117	20
Antimony	ND	30	29.7	99	30	29.7	99	0	85-117	20
Arsenic	ND	30	30.3	101	30	30.4	101	0	84-116	20
Barium	ND	30	30.8	103	30	30.8	103	0	86-114	20
Beryllium	ND	30	30.2	101	30	29.9	100	1	83-121	20
Cadmium	ND	30	31.0	103	30	30.9	103	0	87-115	20
Calcium	ND	3000	2960	99	3000	3060	102	3	87-118	20
Chromium	ND	30	30.5	102	30	30.4	101	0	85-116	20
Cobalt	ND	30	31.7	106	30	31.6	105	0	86-115	20
Copper	ND	30	32.4	108	30	31.8	106	2	85-118	20
Iron	ND	3000	3120	104	3000	3180	106	2	87-118	20
Lead	ND	30	30.3	101	30	29.8	99	2	88-115	20
Magnesium	ND	3000	2940	98	3000	2960	99	1	83-118	20
Manganese	ND	30	31.2	104	30	31.2	104	0	87-115	20
Molybdenum	ND	30	28.9	96	30	29.1	97	1	83-115	20
Nickel	ND	30	32.2	107	30	31.9	106	1	85-117	20
Potassium	ND	3000	2940	98	3000	2980	99	1	87-115	20
Selenium	ND	30	31.5	105	30	31.2	104	1	80-120	20
Silver	ND	30	30.2	101	30	30.0	100	1	85-116	20
Sodium	ND	3000	2870	96	3000	2920	97	2	85-117	20
Thallium	ND	30	31.9	106	30	31.8	106	0	82-116	20
Vanadium	ND	30	29.9	100	30	29.7	99	1	86-115	20
Zinc	ND	60	65.9	110	60	65.4	109	1	83-119	20

ICP-MS QC CHECK TABLE

QC	S4	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0



ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 5/12/17 14:41

End Date: 5/12/17 10:05

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: LA

1 CCV2, CCV5 Re failed
0 6087.0 Pils - In #3 is failed
1 CCV5 Re 15 failed

Book #: A98-043

Instrument No.: 98

Analytical Batch: 128E10

Analytical Sequence: 98E10

Method File: EML602HR

Micropipette ID: 142781004

Micropipette ID: ICP-06

Micropipette ID: 339362028

Micropipette ID: GFAA-07

Micropipette ID:

Micropipette ID:

Micropipette ID:

Micropipette ID:

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-6020	9
<input type="checkbox"/> EMAX-200.8	5
<input type="checkbox"/> EMAX-	
<input type="checkbox"/> EMAX-	
<input type="checkbox"/> EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SMU5011-02-01	MRL1 (1)	SMU5011-03-04
S1	- 02-04	MRL2 (0.5)	↓ 1 (0.05)
S2	- 02-05	MRL3 (0.5)	↓ 1 (0.01)
S3	- 03-01	MRL4	NA
S4	↓ - 03-02	MRL5	↓
S5	LA	MRL6	↓
S6	↓	Internal Standard	SMU510-10-06
S7	↓	Post-Spike 1	SMU510-07-04/6
ICV	SMU5011-01-01	Post-Spike 2	↓ 04-02
CCV	03-03	Post-Spike 3	LA
ICSA	02-04	Post-Spike 4	↓
ICSAB	02-05		
6020 TUNE SOLN.	SMU510-04-04		
200.8 TUNE SOLN.	↓ 04-05		

Analyzed By:
Date: 5/12/17

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : METHOD SW6020A
 Sequence : I98E10
 InstrumentID: 98

Lab Samp ID : ICV ICSA ICSAB
 QC Limit : %R:90-110/RSD:<5 %R:80-120/<LOD %R:80-120
 Lab File ID : 98E10009 98E10013 98E10014
 Date Analyzed : 05/12/1715:09 05/12/1715:27 05/12/1715:32

Parameter	Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium	27.78	30	0.92	93	.4793	0	>0	19.78	20	99
Beryllium	T 29.68	30	1.41	99	.01112	0	<0.1	21.69	20	108
Boron	29.24	30	0.59	97	.913	0	<5.0	20.72	20	104
Sodium	T 29740	30000	0.51	99	95880	100000	96	94180	100000	94
Magnesium	T 29100	30000	1.00	97	93250	100000	93	93350	100000	93
Aluminum	T 29480	30000	1.32	98	94790	100000	95	94300	100000	94
Silicon	3023	3000	0.19	101	8.449	0	<20	9.269	200	5*
Phosphorus	295.4	300	1.19	98	101700	100000	102	100100	100000	100
Potassium	T 30210	30000	0.78	101	98770	100000	99	100200	100000	100
Calcium	T 29530	30000	0.44	98	99120	100000	99	96810	100000	97
Titanium	291.9	300	0.75	97	.2125	2000	106	2158	2000	108
Vanadium	T 290.9	300	0.51	97	.02771	0	<0.5	20.36	20	102
Chromium	T 294.2	300	0.74	98	1.338	0	>0.2	21.57	20	108
Manganese	T 1835	2000	1.16	92	.4214	0	>0.2	19.56	20	98
Iron	T 29170	30000	0.50	97	93600	100000	94	94690	100000	95
Cobalt	T 290.9	300	1.18	97	.1493	0	<0.2	19.87	20	99
Nickel	T 292	300	0.72	97	.1472	0	<0.2	20.01	20	100
Copper	T 290.8	300	0.90	97	.5841	0	>0.5	20.16	20	101
Zinc	T 278.1	300	0.81	93	1.866	0	<10	20.97	20	105
Arsenic	T 293.1	300	0.96	98	.129	0	<0.2	20.93	20	105
Selenium	T 294.6	300	0.85	98	.05176	0	<0.3	22.4	20	112
Strontium	290.2	300	0.81	97	.648	0	<1.0	20.3	20	101
Zirconium	26.16	30	0.67	87*	-.2659	0	<2.0	5.827	20	29*
Molybdenum	T 300.6	300	1.30	100	2089	2000	104	2095	2000	105
Silver	T 28.39	30	0.55	95	.01679	0	<0.2	18.66	20	93
Cadmium	T 288.7	300	1.45	96	.1655	0	<0.2	19.54	20	98
Tin	301.8	300	1.48	101	.04123	0	<0.2	18.95	20	95
Antimony	T 61.05	60	0.32	102	.05244	0	<0.5	19.73	20	99
Barium	T 300.9	300	0.79	100	.07623	0	<0.5	19.37	20	97
Tungsten	29.84	30	0.91	99	.1293	0	<1.0	19.45	20	97
Thallium	T 289.1	300	0.70	96	.007854	0	<0.2	18.66	20	93
Lead	T 292.5	300	0.59	98	.1983	0	>0.1	18.66	20	93
Uranium	295.5	300	1.18	98	.003567	0	<0.1	19.84	20	99

Unit: ug/L
 T: Target analyte
 EV: Expected Value
 Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : METHOD SW6020A
 Sequence : I98E10
 Instrument ID: 98

CCV SampleID	CCV1				CCV4			CCV5		
CCV DataFileID	98E10016				98E10043			98E10055		
CCV Date/Time	05/12/17 15:41				05/12/17 18:42			05/12/17 19:37		
PARAMETER	CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium	25	23.8	95	2.03	23.7	95	0.92	22.7	91	1.65
Beryllium	T 25	25.6	102	5.96	26.3	105	2.42	19.9	80*	1.28
Boron	50	52.4	105	11.24	51.9	104	3.17	43.8	88*	1.90
Sodium	T 25000	23400	93	0.79	23800	95	0.62	25000	100	1.41
Magnesium	T 25000	22500	90	5.90	22900	92	1.96	26200	105	0.25
Aluminum	T 25000	23100	93	4.89	23500	94	1.97	26500	106	0.37
Silicon	2500	2380	95	0.97	2310	92	1.40	2510	101	1.25
Phosphorus	250	234	94	2.32	241	96	1.80	268	107	0.36
Potassium	T 25000	25500	102	1.62	26500	106	0.43	26700	107	1.69
Calcium	T 25000	24800	99	0.48	25300	101	0.77	24700	99	0.48
Titanium	250	244	97	0.43	243	97	0.97	243	97	0.45
Vanadium	T 250	254	102	1.60	248	99	0.83	245	98	0.75
Chromium	T 250	258	103	1.63	249	100	0.61	244	98	0.52
Manganese	T 1500	1480	98	1.05	1490	99	1.18	1410	94	0.83
Iron	T 25000	24600	99	0.83	24800	99	0.35	24100	96	0.74
Cobalt	T 250	252	101	2.23	259	103	2.16	245	98	1.00
Nickel	T 250	257	103	1.77	244	98	0.91	239	96	0.99
Copper	T 250	256	103	1.77	242	97	0.79	237	95	0.49
Zinc	T 250	233	93	1.21	231	92	0.48	232	93	0.85
Arsenic	T 250	253	101	3.47	247	99	1.05	252	101	1.03
Selenium	T 250	254	101	0.67	264	105	0.67	256	103	0.47
Strontium	250	260	104	1.19	268	107	0.41	256	103	0.28
Zirconium	25	25.3	101	3.69	23.5	94	0.31	22.6	90	1.05
Molybdenum	T 250	259	103	5.18	254	102	0.46	258	103	0.49
Silver	T 25	24.2	97	3.43	24.4	98	0.16	24.2	97	0.45
Cadmium	T 250	241	97	0.93	243	97	0.35	241	96	0.55
Tin	250	255	102	1.35	254	102	0.60	250	100	0.27
Antimony	T 50	49.8	100	2.42	48.9	98	0.47	48.1	96	0.89
Barium	T 500	511	102	4.12	507	101	1.17	506	101	1.06
Tungsten	25	25.4	102	1.07	25.0	100	0.36	24.1	96	1.09
Thallium	T 250	250	100	3.51	251	100	2.03	238	95	0.76
Lead	T 250	250	100	5.27	248	99	1.09	239	96	0.86
Uranium	250	257	103	2.19	247	99	0.36	231	92	0.59

Unit: ug/L
 T: Target analyte
 %Rec QC Limit: 90-110
 RSD QC Limit: <5
 CCV EV: CCV Expected Value ug/L
 Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : SW6020A
 Sequence : I98E10
 Instrument ID: 98

CB SampleID : ICB CCB1 CCB4 CCB5
 CB DataFileID : 98E10010 98E10017 98E10044 98E10056
 CB DateTime : 05/12/1715:13 05/12/1715:46 05/12/1718:47 05/12/1719:42

PARAMETER	LOD	RESULT	< LOD >						
Lithium	0	0.07	>0	0.007	>0	0.005	>0	0.4	>0
Beryllium T	0.1	0.002	<0.1	0.0002	<0.1	0.001	<0.1	0.001	<0.1
Boron	5.0	0.2	<5.0	0.2	<5.0	0.6	<5.0	3	<5.0
Sodium T	50	8	<50	10	<50	10	<50	40	<50
Magnesium T	10	0.4	<10	0.3	<10	0.4	<10	0.8	<10
Aluminum T	20	0.4	<20	0.3	<20	0.4	<20	0.4	<20
Silicon	20	1	<20	0.6	<20	0.7	<20	0.8	<20
Phosphorus	25	3	<25	3	<25	1	<25	0.6	<25
Potassium T	20	2	<20	2	<20	2	<20	0.5	<20
Calcium T	25	1.0	<25	0.6	<25	0.8	<25	0.6	<25
Titanium	0.5	0.01	<0.5	0.02	<0.5	0.01	<0.5	0.02	<0.5
Vanadium T	0.5	0.006	<0.5	0.004	<0.5	0.002	<0.5	0.008	<0.5
Chromium T	0.2	0.02	<0.2	0.0001	<0.2	0.005	<0.2	0.007	<0.2
Manganese T	0.2	0.05	<0.2	0.02	<0.2	0.05	<0.2	0.06	<0.2
Iron T	10	2	<10	2	<10	2	<10	2	<10
Cobalt T	0.2	0.007	<0.2	0.001	<0.2	0.001	<0.2	0.001	<0.2
Nickel T	0.2	0.006	<0.2	0.005	<0.2	0.001	<0.2	0.004	<0.2
Copper T	0.5	0.002	<0.5	0.003	<0.5	0.02	<0.5	0.02	<0.5
Zinc T	10	0.02	<10	0.001	<10	0.05	<10	0.04	<10
Arsenic T	0.2	0.04	<0.2	0.02	<0.2	0.005	<0.2	0.02	<0.2
Selenium T	0.3	0.05	<0.3	0.03	<0.3	0.03	<0.3	0.03	<0.3
Strontium	1.0	0.004	<1.0	0.002	<1.0	0.01	<1.0	0.02	<1.0
Zirconium	2.0	0.5	<2.0	0.5	<2.0	0.5	<2.0	0.5	<2.0
Molybdenum T	0.5	0.05	<0.5	0.05	<0.5	0.03	<0.5	0.03	<0.5
Silver T	0.2	0.001	<0.2	0.0008	<0.2	0.0004	<0.2	0.0006	<0.2
Cadmium T	0.2	0.005	<0.2	0.006	<0.2	0.007	<0.2	0.01	<0.2
Tin	0.2	0.07	<0.2	0.03	<0.2	0.04	<0.2	0.04	<0.2
Antimony T	0.5	0.006	<0.5	0.009	<0.5	0.03	<0.5	0.02	<0.5
Barium T	0.5	0.02	<0.5	0.02	<0.5	0.02	<0.5	0.02	<0.5
Tungsten	1.0	0.01	<1.0	0.006	<1.0	0.002	<1.0	0.003	<1.0
Thallium T	0.2	0.03	<0.2	0.02	<0.2	0.01	<0.2	0.008	<0.2
Lead T	0.1	0.02	<0.1	0.007	<0.1	0.006	<0.1	0.002	<0.1
Uranium	0.1	0.02	<0.1	0.01	<0.1	0.02	<0.1	0.01	<0.1

Unit: ug/L
 CB: Calibration Blank
 T: Target analyte
 Acceptance Criteria: CCB Result <LOD
 Comment:

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	Final WT or Vol	Sample WT or Vol	Dil Multiplier	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE									
2	C:\ICPCHEM\1\METHODS\ITN6020_C.M	Tun6	1301	98E10001	6020lunchk		1.000							
3	C:\ICPCHEM\1\METHODS\ITN200_8C.M	Tun2	1302	98E10002	2008lunchk		1.000							
4		Keyword		TUNEND	End of TUNE									
5		Keyword		CALBEG	Start of CALIB									
6	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalBlk	1101	98E10003	BLNK						Level 1			
7	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalBlk	1202	98E10004	S0						Level 1			
8	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalStd	1104	98E10005	S1 0.5						Level 2			
9	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalStd	1105	98E10006	S2 50						Level 3			
10	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalStd	1106	98E10007	S3 250						Level 4			
11	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CalStd	1107	98E10008	S4 500						Level 5			
12	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	ICV1	1204	98E10009	ICV						1.000			
13	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	ICB	1202	98E10010	ICB						1.000			
14	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	1305	98E10011	MRLE1201	1/100/10 ppb					1.000			
15	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	1306	98E10012	MRLE1202	0.5/50/4 ppb					1.000			
16	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	ICS-A	1303	98E10013	ICSA						1.000			
17	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	ICS-AB	1304	98E10014	ICSAB						1.000			
18	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	1207	98E10015	MRLE1203	CAT 500 ppb					1.000			
19	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCV	1206	98E10016	CCV1						1.000			
20	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCB	1202	98E10017	CCB1						1.000			
21		Keyword		CALEND	End of CALIB									
22		Keyword		SMPLBEG	Start of SMPL									
23	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	MBW	2101	98E10018	IME011WB						1.000			
24	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	LCS	2102	98E10019	IME011WL						1.000			
25	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	LCS	2103	98E10020	IME011WC						1.000			
26	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2104	98E10021	TXE007SB						1.000			
27	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2105	98E10022	E060-01M						1.000			
28	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2106	98E10023	E060-01S	<i>Re failed w/ Arix</i>					1.000			
29	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2107	98E10024	E060-01A						1.000			
30	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2108	98E10025	E060-01						1.000			
31	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2109	98E10026	E060-01J						5.000			
32	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCV	1206	98E10027	CCV2	<i>Re failed</i>					1.000			
33	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCB	1202	98E10028	CCB2						1.000			
34	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2110	98E10029	E059-02						1.000			
35	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2111	98E10030	E059-03M						1.000			
36	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2112	98E10031	E059-03S						1.000			
37	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2201	98E10032	E059-03A						1.000			
38	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2202	98E10033	E059-03						1.000			
39	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2203	98E10034	E059-03J						5.000			
40	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2204	98E10035	E059-04						1.000			
41	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2205	98E10036	E059-05						1.000			
42	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2206	98E10037	E059-06						1.000			
43	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2207	98E10038	E059-07						1.000			
44	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCV	1206	98E10039	CCV3						1.000			
45	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCB	1202	98E10040	CCB3						1.000			
46	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2208	98E10041	E059-08						1.000			
47	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2209	98E10042	E088-01	TOTAL					1.000			
48	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCV	1206	98E10043	CCV4						1.000			
49	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	CCB	1202	98E10044	CCB4						1.000			
50	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2210	98E10045	E087-01	DISS					1.000			
51	C:\ICPCHEM\1\METHODS\SIEM6020HR.M	Sample	2211	98E10046	E087-02	DISS <i>in N.A.M.S</i>					1.000			<i>K. Gao, Ho, By, Et, Sp, on IS failed</i>

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	Final WT or Vol	Sample WT or Vol	Dil Multiplier	ISTD Conc	Action on Failure	Skip	Result
52	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2212	98E10047	E087-03	DISS	1.000							
53	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2301	98E10048	E087-04	DISS	1.000							
54	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2302	98E10049	E087-05	DISS	1.000							
55	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2303	98E10050	E087-01	TOTAL <i>LCat</i>	1.000							
56	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2304	98E10051	E087-02	TOTAL	1.000							
57	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2305	98E10052	E087-03	TOTAL	1.000							
58	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2306	98E10053	E087-04	TOTAL	1.000							
59	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	Sample	2307	98E10054	E087-05	TOTAL	1.000							
60	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	CCV	1206	98E10055	CCV5	<i>Re failed</i>	1.000							
61	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	CCB	1202	98E10056	CCB5	<i>Re failed</i>	1.000							
62	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	MBW	2101	98E10057	IME011WB		1.000							
63	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	LCS	2102	98E10058	IME011WL		1.000							
64	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	LCS	2103	98E10059	IME011WC		1.000							
65	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	CCV	1206	98E10060	CCV6		1.000							
66	C:\NCP\CHEM1\METHODS\SIEM6020HR.M	CCB	1202	98E10061	CCB6		1.000							
67		Keyword		StandBy										
68		Keyword		SMPLND	End of SMPL									
69		Keyword		End	End of Sequence									
70		Keyword		CCVBEG	Start of CCV									
71		Keyword		CCVEND	End of CCV									
72		Keyword		BLKBEG	Start of BLANK									
73		Keyword		BLKEND	End of BLANK									
74		Keyword		ERRBEG	Start of ERRTERM									
75		Keyword		ERREND	End of ERRTERM									

Calibration - d:\DATA\1982017\EM\98E10.B\EM6020HR.C

Last Calib: May 12, 2017 03:07 pm
 Calibration Type: External Calibration Method
 Calibration Title:
 Weighting Method: 1/(SD*SD)
 Mass Interpolation Fit for VIS: Point to Point
 Method: C:\ICPCHEM\1\METHODS\EM6020HR.M
 Multi Tune: #1 h2.u
 #2 he.u
 #3 norm.u

=== Standard Files ===
 <Data Correction>

Bkg File: --
 Rejected Masses: --
 Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	d:\data\1982017\em\98e10.b\98e10004.d\98e10004.d#	S0	May 12 2017 02:46 pm
2	d:\data\1982017\em\98e10.b\98e10005.d\98e10005.d#	S1 0.5	May 12 2017 02:51 pm
3	d:\data\1982017\em\98e10.b\98e10006.d\98e10006.d#	S2 50	May 12 2017 02:55 pm
4	d:\data\1982017\em\98e10.b\98e10007.d\98e10007.d#	S3 250	May 12 2017 03:00 pm
5	d:\data\1982017\em\98e10.b\98e10008.d\98e10008.d#	S4 500	May 12 2017 03:04 pm
6	---		
7	---		
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

Calibration - d:\DATA\1982017\E\198E10.B\EM6020HR.C

=== ISTD Table ===

Fix ISTD Conc:

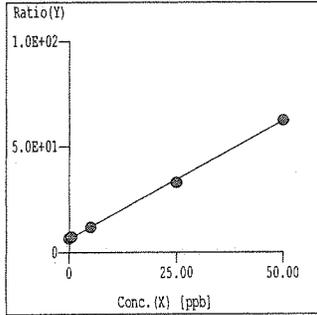
ON

	Step	Mass	Element	VIS	Units	All Levels
1	3	6	Li		ppb	100.0
2	1	45	Sc		ppb	100.0
3	2	45	Sc		ppb	100.0
4	3	45	Sc		ppb	100.0
5	1	72	Ge		ppb	100.0
6	2	72	Ge		ppb	100.0
7	3	72	Ge		ppb	100.0
8	3	115	In		ppb	100.0
9	3	159	Tb		ppb	100.0
10	3	209	Bi		ppb	100.0

Calibration - d:\DATA\1982017\EN\98E10.B\EM6020HR.C

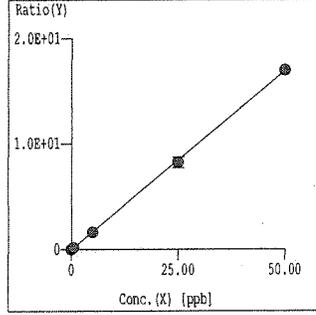
=== Graph Detail ===

Step Mass Element (3) 7 Li ISTD 6 Unit ppb



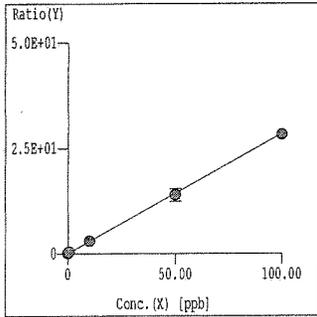
Curve Fit: $Y=aX+b$
 $r = 0.9996$
 $Y = 1.115E+000 * X + 6.552E+000$
 $X = 8.968E-001 * Y - 5.876E+000$
DL = 4.630E-02 ppb
BEC = 5.876 ppb

Step Mass Element (3) 9 Be ISTD 6 Unit ppb



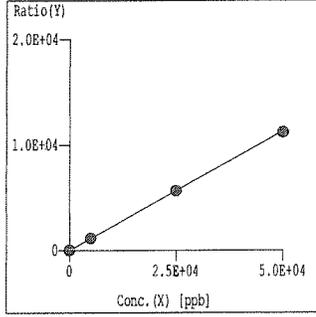
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 3.383E-001 * X + 1.602E-003$
 $X = 2.956E+000 * Y - 4.736E-003$
DL = 4.624E-03 ppb
BEC = 4.736E-03 ppb

Step Mass Element (3) 11 B ISTD 6 Unit ppb



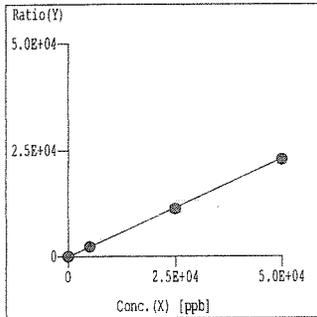
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 2.840E-001 * X + 1.236E-001$
 $X = 3.521E+000 * Y - 4.354E-001$
DL = 9.764E-02 ppb
BEC = 4.354E-01 ppb

Step Mass Element (1) 23 Na ISTD 45 Unit ppb



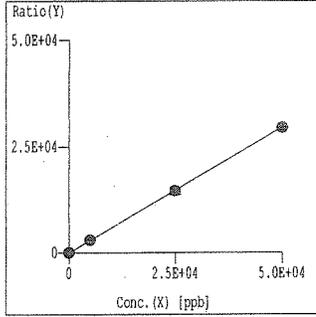
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.262E-001 * X + 5.685E+000$
 $X = 4.420E+000 * Y - 2.513E+001$
DL = 8.890E-01 ppb
BEC = 25.13 ppb

Step Mass Element (3) 24 Mg ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 4.616E-001 * X + 3.257E-001$
 $X = 2.166E+000 * Y - 7.056E-001$
DL = 5.766E-02 ppb
BEC = 7.056E-01 ppb

Step Mass Element (3) 27 Al ISTD 45 Unit ppb

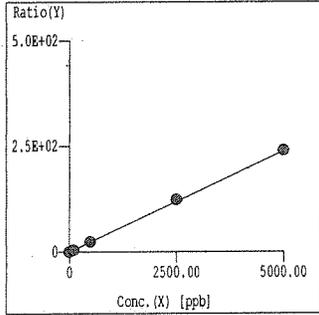


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.911E-001 * X + 2.131E-001$
 $X = 1.692E+000 * Y - 3.604E-001$
DL = 1.512E-02 ppb
BEC = 3.604E-01 ppb

Calibration - d:\DATA\1982017\EI\198E10.B\EM6020HR.C

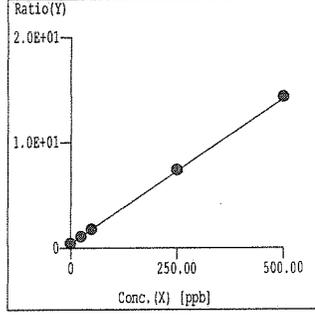
=== Graph Detail ===

Step Mass Element (1) 28 Si ISTD 45 Unit ppb



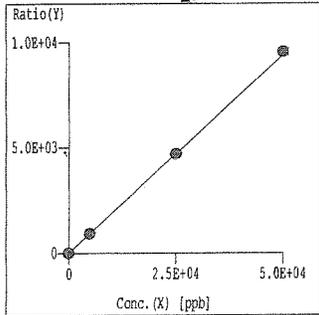
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 4.755E-002 * X + 6.914E-002$
 $X = 2.103E+001 * Y - 1.454E+000$
DL = 1.746E-01 ppb
BEC = 1.454 ppb

Step Mass Element (3) 31 P ISTD 45 Unit ppb



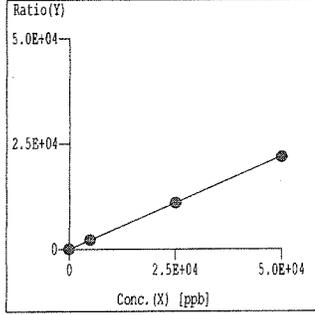
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.747E-002 * X + 4.200E-001$
 $X = 3.640E+001 * Y - 1.529E+001$
DL = 8.690E-01 ppb
BEC = 15.29 ppb

Step Mass Element (2) 39 K ISTD 45 Unit ppb



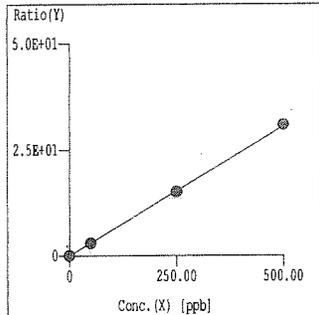
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.879E-001 * X + 4.196E+000$
 $X = 5.323E+000 * Y - 2.233E+001$
DL = 1.756 ppb
BEC = 22.33 ppb

Step Mass Element (1) 40 Ca ISTD 45 Unit ppb



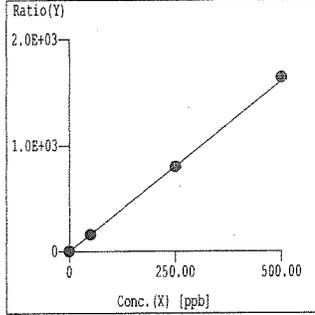
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 4.394E-001 * X + 2.971E+000$
 $X = 2.276E+000 * Y - 6.761E+000$
DL = 2.505E-01 ppb
BEC = 6.761 ppb

Step Mass Element (3) 47 Ti ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 6.120E-002 * X + 2.028E-003$
 $X = 1.634E+001 * Y - 3.313E-002$
DL = 7.908E-03 ppb
BEC = 3.313E-02 ppb

Step Mass Element (2) 51 V ISTD 45 Unit ppb

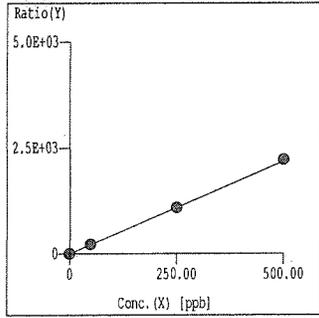


Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 3.219E+000 * X + 1.399E-001$
 $X = 3.107E-001 * Y - 4.348E-002$
DL = 2.178E-03 ppb
BEC = 4.348E-02 ppb

Calibration - d:\DATA\1982017\1\198E10.B\1EM6020HR.C

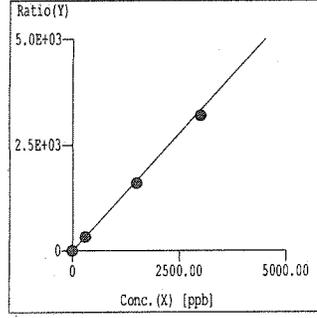
=== Graph Detail ===

Step Mass Element (2) 52 Cr ISTD 45 Unit ppb



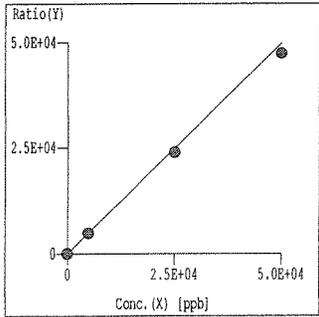
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 4.369E+000 * X + 3.285E-001$
 $X = 2.289E-001 * Y - 7.518E-002$
DL = 1.809E-03 ppb
BEC = 7.518E-02 ppb

Step Mass Element (3) 55 Mn ISTD 45 Unit ppb



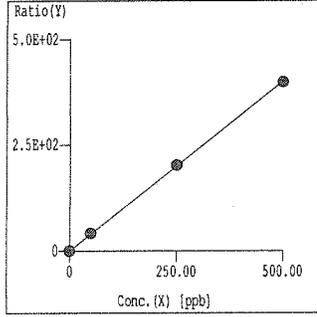
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.112E+000 * X + 7.618E-002$
 $X = 8.997E-001 * Y - 6.854E-002$
DL = 3.831E-03 ppb
BEC = 6.854E-02 ppb

Step Mass Element (1) 56 Fe ISTD 45 Unit ppb



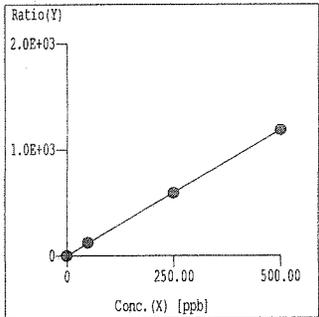
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 9.958E-001 * X + 6.415E-001$
 $X = 1.004E+000 * Y - 6.442E-001$
DL = 6.661E-02 ppb
BEC = 6.442E-01 ppb

Step Mass Element (3) 59 Co ISTD 45 Unit ppb



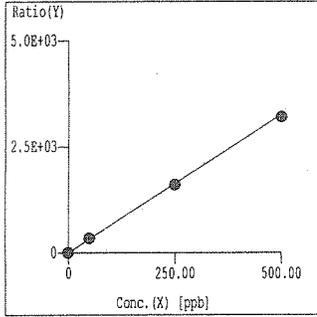
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 8.011E-001 * X + 1.686E-002$
 $X = 1.248E+000 * Y - 2.104E-002$
DL = 5.672E-03 ppb
BEC = 2.104E-02 ppb

Step Mass Element (2) 60 Ni ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.376E+000 * X + 6.392E-002$
 $X = 4.208E-001 * Y - 2.690E-002$
DL = 1.112E-02 ppb
BEC = 2.690E-02 ppb

Step Mass Element (2) 63 Cu ISTD 45 Unit ppb

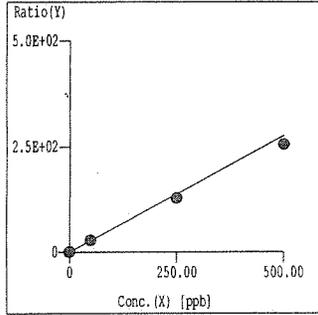


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 6.528E+000 * X + 4.708E-001$
 $X = 1.532E-001 * Y - 7.212E-002$
DL = 9.652E-03 ppb
BEC = 7.212E-02 ppb

Calibration - d:\DATA\1982017\1E\198E10.B\EM6020HR.C

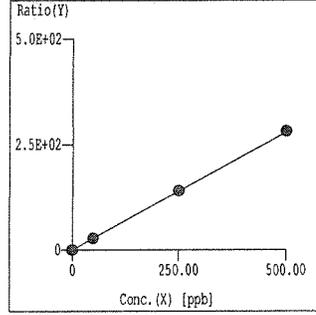
=== Graph Detail ===

Step Mass Element (3) 66 Zn ISTD 72 Unit ppb



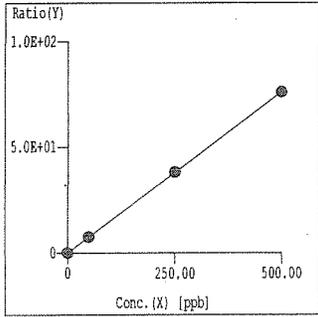
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.526E-001*X + 2.046E-001$
 $X = 1.810E+000*Y - 3.703E-001$
DL = 6.011E-02 ppb
BEC = 3.703E-01 ppb

Step Mass Element (2) 75 As ISTD 72 Unit ppb



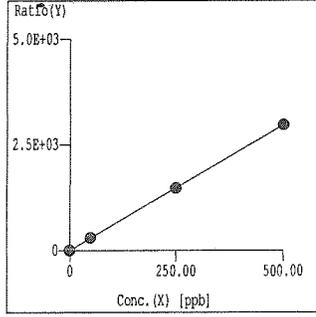
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.600E-001*X + 7.329E-003$
 $X = 1.786E+000*Y - 1.309E-002$
DL = 4.303E-02 ppb
BEC = 1.309E-02 ppb

Step Mass Element (1) 78 Se ISTD 72 Unit ppb



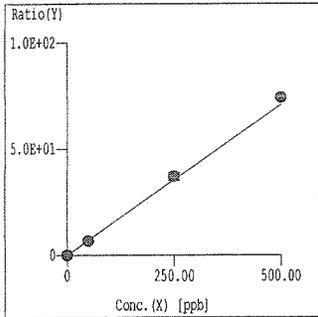
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.520E-001*X + 1.482E-003$
 $X = 6.581E+000*Y - 9.756E-003$
DL = 7.030E-03 ppb
BEC = 9.756E-03 ppb

Step Mass Element (3) 88 Sr ISTD 72 Unit ppb



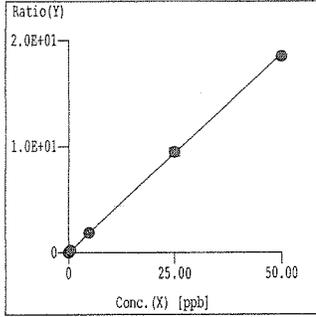
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.937E+000*X + 9.336E-002$
 $X = 1.684E-001*Y - 1.572E-002$
DL = 1.349E-03 ppb
BEC = 1.572E-02 ppb

Step Mass Element (3) 95 Mo ISTD 115 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.418E-001*X + 4.647E-004$
 $X = 7.050E+000*Y - 3.276E-003$
DL = 1.592E-03 ppb
BEC = 3.276E-03 ppb

Step Mass Element (3) 107 Ag ISTD 115 Unit ppb

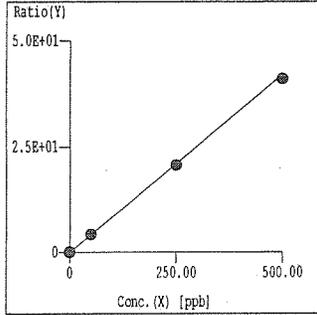


Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 3.748E-001*X + 1.311E-003$
 $X = 2.668E+000*Y - 3.498E-003$
DL = 2.167E-03 ppb
BEC = 3.498E-03 ppb

Calibration - d:\DATA\1982017\1E\198E10.B\EM6020HR.C

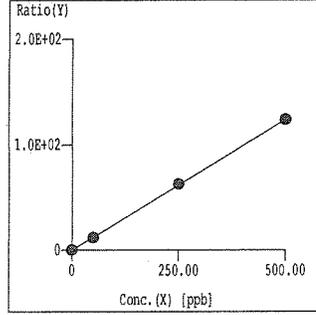
=== Graph Detail ===

Step Mass Element (3) 111 Cd ISTD 115 Unit ppb



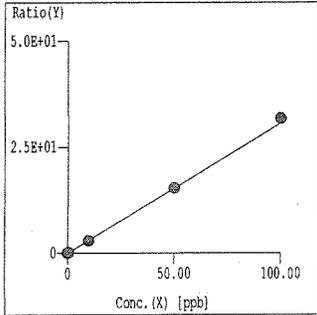
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 8.420E-002 * X + 1.606E-003$
 $X = 1.188E+001 * Y - 1.907E-002$
DL = 1.690E-02 ppb
BEC = 1.907E-02 ppb

Step Mass Element (3) 118 Sn ISTD 115 Unit ppb



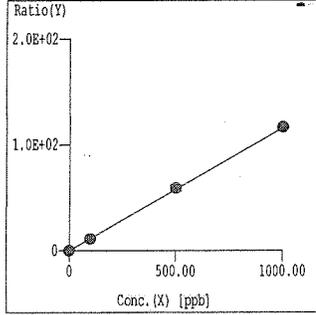
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.476E-001 * X + 1.343E-003$
 $X = 4.039E+000 * Y - 5.423E-003$
DL = 4.519E-03 ppb
BEC = 5.423E-03 ppb

Step Mass Element (3) 121 Sb ISTD 115 Unit ppb



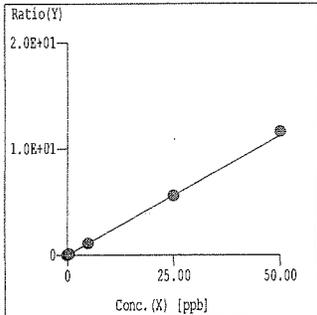
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 3.065E-001 * X + 2.469E-003$
 $X = 3.262E+000 * Y - 8.055E-003$
DL = 4.352E-03 ppb
BEC = 8.055E-03 ppb

Step Mass Element (3) 137 Ba ISTD 115 Unit ppb



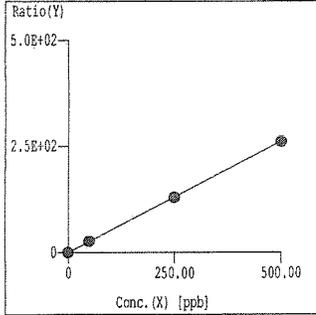
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.160E-001 * X + 3.796E-003$
 $X = 8.622E+000 * Y - 3.273E-002$
DL = 9.817E-03 ppb
BEC = 3.273E-02 ppb

Step Mass Element (3) 182 W ISTD 159 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9998$
 $Y = 2.248E-001 * X + 1.112E-003$
 $X = 4.449E+000 * Y - 4.947E-003$
DL = 2.258E-03 ppb
BEC = 4.947E-03 ppb

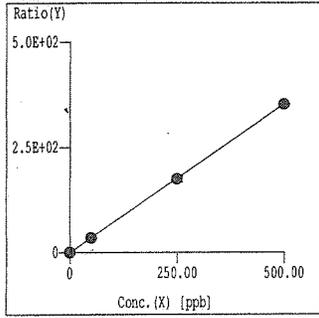
Step Mass Element (3) 205 Tl ISTD 159 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.238E-001 * X + 4.008E-003$
 $X = 1.909E+000 * Y - 7.651E-003$
DL = 7.675E-05 ppb
BEC = 7.651E-03 ppb

=== Graph Detail ===

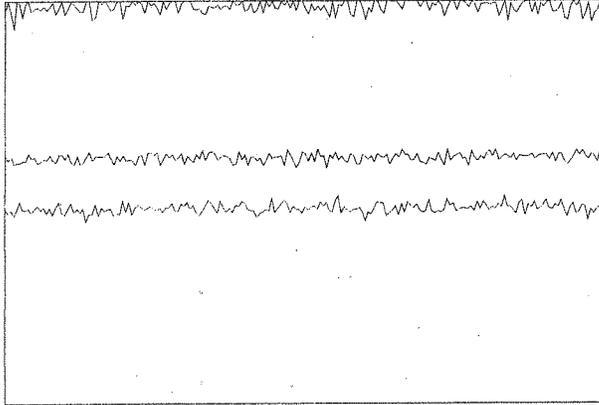
Step	Mass Element	ISTD	Unit
(3)	208 Pb	159	ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 7.060E-001 * X + 1.985E-002$
 $X = 1.416E+000 * Y - 2.811E-002$
DL = 6.642E-03 ppb
BEC = 2.811E-02 ppb

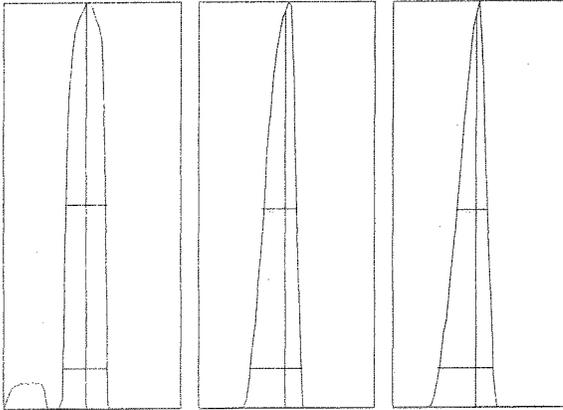
Tune Report

Tune File : NORM.U
Comment : I98E10



Integration Time: 0.1000 sec
Sampling Period: 0.6200 sec
n: 200
Oxide: 156/140 1.714%
Doubly Charged: 70/140 0.723%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	24190.0	24243.5	2.39	1.40
89	100,000	62146.0	61036.4	1.72	2.40
205	50,000	50290.0	49456.8	1.98	4.10
156/140	5	1.859%	1.753%	5.00	
70/140	2	0.729%	0.766%	6.01	



m/z:	7	89	205
Height:	23,916	61,207	48,397
Axis:	6.95	89.00	204.95
W-50%:	0.70	0.60	0.55
W-10%:	0.7500	0.900	0.9500

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Tune Report

Tune File : NORM.U
 Comment : I98E10

Tuning Parameters

===Plasma Condition===

RF Power : 1500 W
 RF Matching : 1.78 V
 Smpl Depth : 8 mm
 Torch-H : 0.7 mm
 Torch-V : 0.3 mm
 Carrier Gas : 0.9 L/min
 Makeup Gas : 0.15 L/min
 Optional Gas : --- %
 Nebulizer Pump : 0.1 rps
 Sample Pump : --- rps
 S/C Temp : 2 degC

===Ion Lenses===

Extract 1 : 0 V
 Extract 2 : -110 V
 Omega Bias-ce : -30 V
 Omega Lens-ce : 1.4 V
 Cell Entrance : -26 V
 QP Focus : 1 V
 Cell Exit : -30 V

===Q-Pole Parameters===

AMU Gain : 133
 AMU Offset : 126
 Axis Gain : 1.0004
 Axis Offset : -0.03
 QP Bias : -3 V

===Detector Parameters===

Discriminator : 8 mV
 Analog HV : 1970 V
 Pulse HV : 1040 V

===Octopole Parameters===

OctP RF : 170 V
 OctP Bias : -6 V

===Reaction Cell===

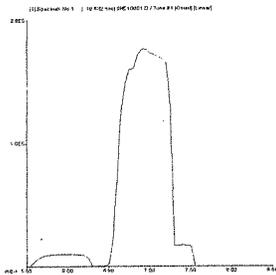
Reaction Mode : OFF
 H2 Gas : 0 mL/min He Gas : 0 mL/min Optional Gas : --- %

D:\DATA\I982017\E\I98E10.B\98E10001.D

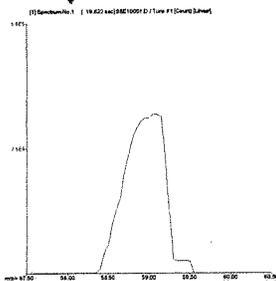
6020 QC Tune Report

Data File: D:\DATA\I982017\E\I98E10.B\98E10001.D
 Date Acquired: May 12 2017 02:33 pm
 Acq. Method: TN6020_C.M
 Operator: CCapul
 Sample Name: 6020tunchk
 Misc Info:
 Vial Number: 1301
 Current Method: C:\ICPCHEM\1\METHODS\TN6020_C.M

RSD (%)	Element	Actual	Required	Flag
	7 Li	1.03	5.00	
	59 Co	1.85	5.00	
	115 In	0.67	5.00	
	205 Tl	1.08	5.00	

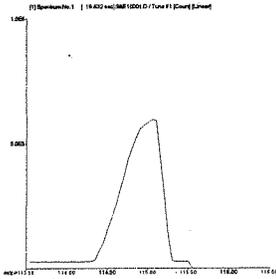


7 Li
 Mass Calib.
 Actual: 6.95
 Required: 6.90 - 7.10
 Flag:
 Peak Width-10%
 Actual: 0.65
 Limit: 0.90
 Flag:

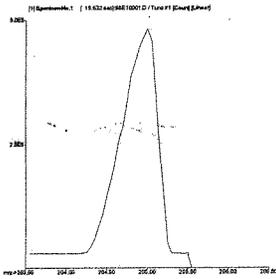


59 Co
 Mass Calib.
 Actual: 59.05
 Required: 58.90 - 59.10
 Flag:
 Peak Width-10%
 Actual: 0.70
 Limit: 0.90
 Flag:

D:\DATA\I982017\E\I98E10.B\98E10001.D



115 In
Mass Calib.
Actual: 115.00
Required: 114.90 - 115.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



205 T1
Mass Calib.
Actual: 204.95
Required: 204.90 - 205.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



ANALYSIS RUN LOG

for ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 5/15/17 14:48

End Date: 5/15/17 20:15

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: 1A

Book #: A98-043

Instrument No.: 98

Analytical Batch: 198E11

Analytical Sequence: 98E11

Method File: EMIC020HR

Micropipette ID: 142781004

Micropipette ID: ICP-06

Micropipette ID: 339362028

Micropipette ID: GFAA-07

Micropipette ID:

Micropipette ID:

Micropipette ID:

Micropipette ID:

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-6020	9
<input checked="" type="checkbox"/> EMAX-200.8	5
<input type="checkbox"/> EMAX-	
<input type="checkbox"/> EMAX-	
<input type="checkbox"/> EMAX-	

STANDARDS ID	STANDARDS ID
S0	MRL1 (1) (CALIB 011.01.01)
S1	MRL2 (1) (CALIB 011.01.01)
S2	MRL3 (1) (CALIB 011.01.01)
S3	MRL4 (1) (CALIB 011.01.01)
S4	MRL5 (1) (CALIB 011.01.01)
S5	MRL6 (1) (CALIB 011.01.01)
S6	Internal Standard (CALIB 011.01.01)
S7	Post-Spike 1 (CALIB 011.01.01)
ICV	Post-Spike 2 (CALIB 011.01.01)
CCV	Post-Spike 3 (CALIB 011.01.01)
ICSA	Post-Spike 4 (CALIB 011.01.01)
ICSAB	(CALIB 011.01.01)
6020 TUNE SOLN.	(CALIB 011.01.01)
200.8 TUNE SOLN.	(CALIB 011.01.01)

Analyzed By: [Signature]

Date: 5/15/17

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : METHOD SW6020A
 Sequence : I98E11
 InstrumentID: 98

Lab Samp ID : ICV ICSA ICSAB
 QC Limit : %R:90-110/RSD:<5 %R:80-120/<LOD %R:80-120
 Lab File ID : 98E11009 98E11013 98E11014
 DateAnalyzed : 05/15/1715:15 05/15/1715:34 05/15/1715:39

Parameter	Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium	27.97	30	1.64	93	.3901	0	>0	19.67	20	98
Beryllium	T 29.4	30	1.55	98	.01361	0	<0.1	20.73	20	104
Boron	27.2	30	2.19	91	.3457	0	<5.0	18.27	20	91
Sodium	T 28790	30000	0.95	96	96980	100000	97	96430	100000	96
Magnesium	T 28590	30000	1.14	95	93980	100000	94	93700	100000	94
Aluminum	T 28640	30000	0.37	95	92620	100000	93	92730	100000	93
Silicon	2956	3000	0.92	99	6.138	0	<20	189.5	200	95
Phosphorus	288.1	300	0.65	96	99140	100000	99	97770	100000	98
Potassium	T 30180	30000	2.00	101	99060	100000	99	98610	100000	99
Calcium	T 29150	30000	1.08	97	99300	100000	99	100000	100000	100
Titanium	291.9	300	0.84	97	2153	2000	108	2172	2000	109
Vanadium	T 293.1	300	1.74	98	.02063	0	<0.5	19.84	20	99
Chromium	T 292.1	300	1.47	97	1.312	0	>0.2	20.93	20	105
Manganese	T 1867	2000	0.54	93	.3058	0	>0.2	19.89	20	99
Iron	T 30140	30000	0.57	100	98130	100000	98	103200	100000	103
Cobalt	T 290.2	300	0.34	97	.1488	0	<0.2	19.6	20	98
Nickel	T 296.2	300	1.86	99	.1318	0	<0.2	19.86	20	99
Copper	T 290.7	300	1.22	97	.5956	0	>0.5	19.62	20	98
Zinc	T 288.4	300	0.41	96	1.943	0	<10	22.27	20	111
Arsenic	T 290.5	300	1.54	97	.08029	0	<0.2	21.75	20	109
Selenium	T 296.7	300	0.25	99	.05282	0	<0.3	22.91	20	115
Strontium	288.1	300	1.15	96	.6502	0	<1.0	20.49	20	102
Zirconium	26.3	30	0.68	88*	.2969	0	<2.0	17.82	20	89
Molybdenum	T 300.7	300	0.86	100	2095	2000	105	2079	2000	104
Silver	T 28.18	30	1.06	94	.01629	0	<0.2	18.49	20	92
Cadmium	T 294.1	300	0.27	98	.144	0	<0.2	20.04	20	100
Tin	307.1	300	0.72	102	.03808	0	<0.2	19.88	20	99
Antimony	T 62.19	60	0.40	104	.0534	0	<0.5	20	20	100
Barium	T 313.1	300	0.62	104	.09208	0	<0.5	20.47	20	102
Tungsten	30.15	30	0.75	100	.1328	0	<1.0	19.47	20	97
Thallium	T 289.4	300	0.63	96	.005332	0	<0.2	18.74	20	94
Lead	T 290.1	300	1.13	97	.1998	0	>0.1	18.89	20	94
Uranium	301.7	300	0.88	101	.00474	0	<0.1	20.96	20	105

Unit: ug/L
 T: Target analyte
 EV: Expected Value
 Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : METHOD SW6020A
 Sequence : I98E11
 Instrument ID: 98

CCV SampleID	CCV1	CCV2	CCV3	CCV4									
CCV DataFileID	98E11016	98E11027	98E11039	98E11043									
CCV DateTime	05/15/17 16:15	05/15/17 17:06	05/15/17 18:01	05/15/17 18:27									
PARAMETER	CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium	25	23.9	96	1.64	23.6	95	0.54	23.1	92	1.97	23.9	96	1.28
Beryllium	T 25	25.4	102	2.95	25.4	101	1.21	23.4	94	1.60	25.1	100	1.40
Boron	50	48.7	97	1.40	48.6	97	1.91	46.0	92	3.00	49.3	99	1.46
Sodium	T 25000	23400	94	1.04	23800	95	1.47	24500	98	1.71	24900	100	1.21
Magnesium	T 25000	24300	97	1.03	23600	95	2.45	24900	100	1.76	23800	95	0.39
Aluminum	T 25000	23900	96	2.76	24000	96	2.14	24900	99	0.58	23700	95	0.82
Silicon	2500	2370	95	1.33	2400	96	1.05	2370	95	2.50	2780	111*	3.65
Phosphorus	250	243	97	1.38	244	98	1.29	250	100	0.60	237	95	0.53
Potassium	T 25000	25100	101	2.05	26000	104	1.43	26100	104	2.34	24900	100	0.68
Calcium	T 25000	24600	98	0.36	25100	100	1.15	24900	99	0.87	24900	100	1.75
Titanium	250	246	99	1.16	245	98	1.34	241	97	0.56	241	96	2.14
Vanadium	T 250	249	100	2.83	251	100	0.87	246	99	3.05	253	101	1.73
Chromium	T 250	249	100	2.19	250	100	0.84	245	98	2.47	253	101	0.89
Manganese	T 1500	1510	101	2.17	1480	99	2.00	1460	97	0.67	1500	100	1.86
Iron	T 25000	25300	101	0.10	25200	101	0.67	25200	101	1.05	25500	102	1.03
Cobalt	T 250	257	103	2.56	251	100	2.82	247	99	0.80	253	101	1.57
Nickel	T 250	253	101	2.21	252	101	0.97	245	98	3.05	258	103	1.60
Copper	T 250	249	100	2.56	246	98	1.29	239	96	2.58	254	102	1.06
Zinc	T 250	248	99	0.67	245	98	0.42	245	98	0.28	241	96	0.67
Arsenic	T 250	251	101	1.44	251	100	1.00	251	100	1.26	251	100	3.26
Selenium	T 250	254	102	0.70	256	102	0.06	258	103	0.72	245	98	2.29
Strontium	250	254	102	1.20	259	104	0.87	259	104	0.71	261	104	0.87
Zirconium	25	23.5	94	2.03	23.6	95	1.25	23.3	93	0.06	23.0	92	0.63
Molybdenum	T 250	260	104	0.53	261	104	1.29	257	103	2.36	253	101	0.10
Silver	T 25	24.8	99	2.97	24.5	98	1.04	23.9	95	2.58	24.0	96	0.48
Cadmium	T 250	250	100	1.74	249	100	1.01	246	98	0.81	246	99	0.52
Tin	250	260	104	0.86	261	104	0.27	261	104	1.27	261	104	0.76
Antimony	T 50	51.8	104	0.81	51.5	103	1.62	51.0	102	1.24	49.7	99	0.60
Barium	T 500	532	106	0.65	533	107	1.30	532	106	2.31	525	105	0.35
Tungsten	25	25.4	102	0.78	25.3	101	0.50	24.7	99	0.92	25.3	101	0.91
Thallium	T 250	250	100	1.53	247	99	0.39	243	97	1.38	253	101	0.43
Lead	T 250	249	100	1.85	246	98	0.14	245	98	1.53	252	101	0.79
Uranium	250	251	100	2.15	255	102	0.86	249	100	1.45	252	101	0.78

Unit: ug/L
 T: Target analyte
 %Rec QC Limit: 90-110
 RSD QC Limit: <5
 CCV EV: CCV Expected Value ug/L
 Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12
 SDG NO. : 17E087
 Method : SW6020A
 Sequence : I98E11
 Instrument ID: 98

CB SampleID : ICB CCB1 CCB2 CCB3 CCB4
 CB DataFileID : 98E11010 98E11017 98E11028 98E11040 98E11044
 CB DateTime : 05/15/1715:20 05/15/1716:20 05/15/1717:10 05/15/1718:06 05/15/1718:32

PARAMETER	LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium	0	0.02	>0	0.07	>0	0.10	>0	0.2	>0	0.2	>0
Beryllium T	0.1	0.001	<0.1	0.002	<0.1	0.0007	<0.1	0.002	<0.1	0.0010	<0.1
Boron	5.0	0.4	<5.0	0.2	<5.0	0.3	<5.0	0.2	<5.0	0.8	<5.0
Sodium T	50	6	<50	8	<50	9	<50	8	<50	0.7	<50
Magnesium T	10	0.8	<10	0.9	<10	0.4	<10	0.4	<10	1.0	<10
Aluminum T	20	0.8	<20	0.8	<20	0.4	<20	0.4	<20	0.5	<20
Silicon	20	1	<20	1	<20	0.7	<20	2	<20	2	<20
Phosphorus	25	2	<25	2	<25	0.6	<25	2	<25	0.4	<25
Potassium T	20	0.3	<20	0.3	<20	1.0	<20	0.3	<20	1	<20
Calcium T	25	0.8	<25	1	<25	0.9	<25	2	<25	1	<25
Titanium	0.5	0.01	<0.5	0.02	<0.5	0.002	<0.5	0.01	<0.5	0.02	<0.5
Vanadium T	0.5	0.01	<0.5	0.005	<0.5	0.003	<0.5	0.01	<0.5	0.003	<0.5
Chromium T	0.2	0.002	<0.2	0.006	<0.2	0.005	<0.2	0.001	<0.2	0.007	<0.2
Manganese T	0.2	0.09	<0.2	0.07	<0.2	0.06	<0.2	0.08	<0.2	0.09	<0.2
Iron T	10	2	<10	2	<10	2	<10	2	<10	2	<10
Cobalt T	0.2	0.02	<0.2	0.02	<0.2	0.01	<0.2	0.02	<0.2	0.02	<0.2
Nickel T	0.2	0.02	<0.2	0.01	<0.2	0.009	<0.2	0.003	<0.2	0.009	<0.2
Copper T	0.5	0.003	<0.5	0.00009	<0.5	0.008	<0.5	0.01	<0.5	0.008	<0.5
Zinc T	10	0.002	<10	0.0009	<10	0.02	<10	0.008	<10	0.005	<10
Arsenic T	0.2	0.02	<0.2	0.01	<0.2	0.02	<0.2	0.03	<0.2	0.04	<0.2
Selenium T	0.3	0.07	<0.3	0.04	<0.3	0.03	<0.3	0.03	<0.3	0.05	<0.3
Strontium	1.0	0.01	<1.0	0.01	<1.0	0.01	<1.0	0.01	<1.0	0.02	<1.0
Zirconium	2.0	0.1	<2.0	0.1	<2.0	0.1	<2.0	0.1	<2.0	0.1	<2.0
Molybdenum T	0.5	0.06	<0.5	0.04	<0.5	0.03	<0.5	0.04	<0.5	0.04	<0.5
Silver T	0.2	0.0002	<0.2	0.0008	<0.2	0.0006	<0.2	0.0010	<0.2	0.001	<0.2
Cadmium T	0.2	0.003	<0.2	0.001	<0.2	0.003	<0.2	0.005	<0.2	0.002	<0.2
Tin	0.2	0.07	<0.2	0.04	<0.2	0.03	<0.2	0.04	<0.2	0.04	<0.2
Antimony T	0.5	0.008	<0.5	0.01	<0.5	0.02	<0.5	0.02	<0.5	0.02	<0.5
Barium T	0.5	0.03	<0.5	0.02	<0.5	0.02	<0.5	0.02	<0.5	0.02	<0.5
Tungsten	1.0	0.01	<1.0	0.007	<1.0	0.005	<1.0	0.004	<1.0	0.004	<1.0
Thallium T	0.2	0.04	<0.2	0.02	<0.2	0.01	<0.2	0.01	<0.2	0.02	<0.2
Lead T	0.1	0.02	<0.1	0.010	<0.1	0.007	<0.1	0.006	<0.1	0.009	<0.1
Uranium	0.1	0.02	<0.1	0.02	<0.1	0.01	<0.1	0.01	<0.1	0.02	<0.1

Unit: ug/L
 CB: Calibration Blank
 T: Target analyte
 Acceptance Criteria: CCB Result <LOD
 Comment:

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	Final WT or Vol	Sample WT or Vol	Dil Multiplier	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE									
2	C:\NCPCHEM\1\METHODS\ITN6020_C.M	Tun6	1301	98E11001	6020lunchk		1.000							
3	C:\NCPCHEM\1\METHODS\ITN200_8C.M	Tun2	1302	98E11002	2008lunchk		1.000							
4		Keyword		TUNEND	End of TUNE									
5		Keyword		CALBEG	Start of CALIB									
6	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalBlk	1101	98E11003	BLNK		Level 1							
7	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalBlk	1202	98E11004	S0		Level 1							
8	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalStd	1104	98E11005	S1 0.5		Level 2							
9	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalStd	1105	98E11006	S2 50		Level 3							
10	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalStd	1106	98E11007	S3 250		Level 4							
11	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CalStd	1107	98E11008	S4 500		Level 5							
12	C:\NCPCHEM\1\METHODS\SEM6020HR.M	ICV1	1204	98E11009	ICV		1.000							
13	C:\NCPCHEM\1\METHODS\SEM6020HR.M	ICB	1202	98E11010	ICB		1.000							
14	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	1305	98E11011	MRLE1501	1/100/10 ppb	1.000							
15	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	1306	98E11012	MRLE1502	0.5/50/4 ppb	1.000							
16	C:\NCPCHEM\1\METHODS\SEM6020HR.M	ICS-A	1303	98E11013	ICSA		1.000							
17	C:\NCPCHEM\1\METHODS\SEM6020HR.M	ICS-AB	1304	98E11014	ICSAB		1.000							
18	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	1207	98E11015	MRLE1503	CAT 500 ppb	1.000							
19	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11016	CCV1		1.000							
20	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11017	CCB1		1.000							
21		Keyword		CALEND	End of CALIB									
22		Keyword		SMPLBEG	Start of SMPL									
23	C:\NCPCHEM\1\METHODS\SEM6020HR.M	MBW	2101	98E11018	IME011WB		1.000							
24	C:\NCPCHEM\1\METHODS\SEM6020HR.M	LCS	2102	98E11019	IME011WL		1.000							
25	C:\NCPCHEM\1\METHODS\SEM6020HR.M	LCS	2103	98E11020	IME011WC		1.000							
26	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2104	98E11021	E087-01N	DISS	1.000							
27	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2105	98E11022	E087-04N	DISS	1.000							
28	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2106	98E11023	E087-05N	DISS	1.000							
29	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2107	98E11024	E087-01N	TOTAL	1.000							
30	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2108	98E11025	E087-04N	TOTAL	1.000							
31	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2109	98E11026	E087-05N	TOTAL	1.000							
32	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11027	CCV2		1.000							
33	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11028	CCB2		1.000							
34	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2110	98E11029	TXE007SB		1.000							
35	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2111	98E11030	E060-01M		1.000							
36	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2112	98E11031	E060-01S		1.000							
37	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2201	98E11032	E060-01A		1.000							
38	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2202	98E11033	E060-01N		1.000							
39	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2203	98E11034	E060-01J		5.000							
40	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2204	98E11035	E087-02K	DISS	50.00							
41	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2205	98E11036	E087-02K	TOTAL	50.00							
42	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2206	98E11037	E087-02K	DISS	100.0							
43	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2207	98E11038	E087-02K	TOTAL	100.0							
44	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11039	CCV3		1.000							
45	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11040	CCB3		1.000							
46	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2208	98E11041	E087-02I	DISS	5.000							
47	C:\NCPCHEM\1\METHODS\SEM6020HR.M	Sample	2209	98E11042	E087-02I	TOTAL	5.000							
48	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11043	CCV4		1.000							
49	C:\NCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11044	CCB4		1.000							
50	C:\NCPCHEM\1\METHODS\SEM6020HR.M	MBW	2210	98E11045	IME012WB		1.000							
51	C:\NCPCHEM\1\METHODS\SEM6020HR.M	LCS	2211	98E11046	IME012WL		1.000							

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	Final WT or Vol	Sample WT or Vol	Dil Multiplier	ISTD Conc	Action on Failure	Skip	Result
52	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2212	98E11047	E063-01		1.000							
53	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2301	98E11048	E063-02M		1.000							
54	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample*	2302	98E11049	E063-02A		1.000							
55	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2303	98E11050	E063-02		1.000							
56	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2304	98E11051	E063-02J		5.000							
57	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11052	CCV5		1.000							
58	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11053	CCB5		1.000							
59	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2305	98E11054	E063-02D		1.000							
60	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2306	98E11055	E063-05		1.000							
61	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2307	98E11056	E063-06		1.000							
62	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2308	98E11057	E063-07		1.000							
63	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11058	CCV6		1.000							
64	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11059	CCB6		1.000							
65	C:\PCPCHEM\1\METHODS\SEM6020HR.M	MBW	2309	98E11060	IME007WB		1.000							
66	C:\PCPCHEM\1\METHODS\SEM6020HR.M	LCS	2310	98E11061	IME007WL		1.000							
67	C:\PCPCHEM\1\METHODS\SEM6020HR.M	LCS	2311	98E11062	IME007WC		1.000							
68	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2312	98E11063	E464-01		1.000							
69	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11064	CCV7		1.000							
70	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11065	CCB7		1.000							
71	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2401	98E11066	E465-01M		5.000							
72	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2402	98E11067	E465-01S		5.000							
73	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2403	98E11068	E465-01I		5.000							
74	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11069	CCV8		1.000							
75	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11070	CCB8		1.000							
76	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2404	98E11071	E447-01I		10.00							
77	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2405	98E11072	E447-02I		10.00							
78	C:\PCPCHEM\1\METHODS\SEM6020HR.M	Sample	2406	98E11073	MDL		1.000							
79	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCV	1206	98E11074	CCV9		1.000							
80	C:\PCPCHEM\1\METHODS\SEM6020HR.M	CCB	1202	98E11075	CCB9		1.000							
81		Keyword		StandBy										
82		Keyword		SMPLEND	End of SMPLE									
83		Keyword		End	End of Sequence									
84		Keyword		CCVBEG	Start of CCV									
85		Keyword		CCVEND	End of CCV									
86		Keyword		BLKBEG	Start of BLANK									
87		Keyword		BLKEND	End of BLANK									
88		Keyword		ERRBEG	Start of ERRTERM									
89		Keyword		ERRREND	End of ERRTERM									

Calibration - d:\DATA\982017\1E\98E11.B\EM6020HR.C

Last Calib: May 15, 2017 03:14 pm
 Calibration Type: External Calibration Method
 Calibration Title:
 Weighting Method: 1/(SD*SD)
 Mass Interpolation Fit for VIS: Point to Point
 Method: C:\CP\CHEM\1\METHODS\EM6020HR.M
 Multi Tune: #1 h2.u
 #2 he.u
 #3 norm.u

=== Standard Files ===
 <Data Correction>

Bkg File: --
 Rejected Masses: --
 Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	d:\data\982017\1e\98e11.b\98e11004.d\98e11004.d#	S0	May 15 2017 02:53 pm
2	d:\data\982017\1e\98e11.b\98e11005.d\98e11005.d#	S1 0.5	May 15 2017 02:57 pm
3	d:\data\982017\1e\98e11.b\98e11006.d\98e11006.d#	S2 50	May 15 2017 03:02 pm
4	d:\data\982017\1e\98e11.b\98e11007.d\98e11007.d#	S3 250	May 15 2017 03:06 pm
5	d:\data\982017\1e\98e11.b\98e11008.d\98e11008.d#	S4 500	May 15 2017 03:11 pm
6	--		
7	--		
8	--		
9	--		
10	--		
11	--		
12	--		
13	--		
14	--		
15	--		
16	--		
17	--		
18	--		
19	--		
20	--		

Calibration - d:\DATA\982017\EN\98E11.B\EM6020HR.C

=== ISTD Table ===

Fix ISTD Conc:

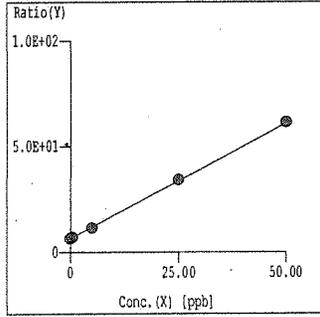
ON

	Step	Mass	Element	VIS	Units	All Levels
1	3	6	Li		ppb	100.0
2	1	45	Sc		ppb	100.0
3	2	45	Sc		ppb	100.0
4	3	45	Sc		ppb	100.0
5	1	72	Ge		ppb	100.0
6	2	72	Ge		ppb	100.0
7	3	72	Ge		ppb	100.0
8	3	115	In		ppb	100.0
9	3	159	Tb		ppb	100.0
10	3	209	Bi		ppb	100.0

Calibration - d:\DATA\1982017\EN\98E11.B\EM6020HR.C

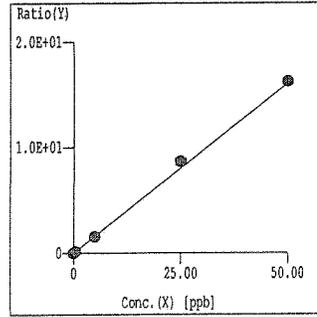
=== Graph Detail ===

Step Mass Element (3) 7 Li ISTD 6 Unit ppb



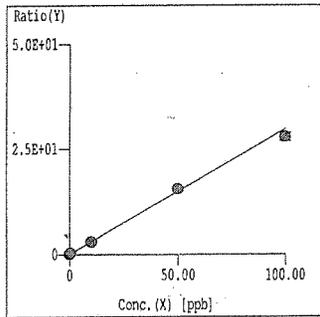
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 1.086E+000 * X + 6.567E+000$
 $X = 9.208E-001 * Y - 6.046E+000$
 DL = 1.311E-01 ppb
 BEC = 6.046 ppb

Step Mass Element (3) 9 Be ISTD 6 Unit ppb



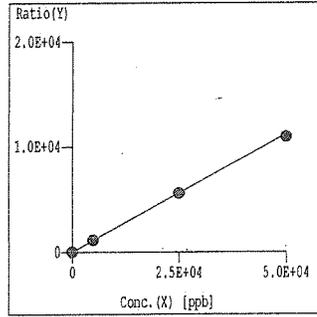
Curve Fit: $Y=aX+b$
 $r = 0.9994$
 $Y = 3.213E-001 * X + 1.124E-003$
 $X = 3.112E+000 * Y - 3.498E-003$
 DL = 7.961E-03 ppb
 BEC = 3.498E-03 ppb

Step Mass Element (3) 11 B ISTD 6 Unit ppb



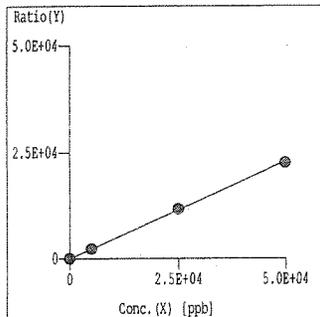
Curve Fit: $Y=aX+b$
 $r = 0.9987$
 $Y = 2.968E-001 * X + 8.195E-002$
 $X = 3.369E+000 * Y - 2.761E-001$
 DL = 1.761E-02 ppb
 BEC = 2.761E-01 ppb

Step Mass Element (1) 23 Na ISTD 45 Unit ppb



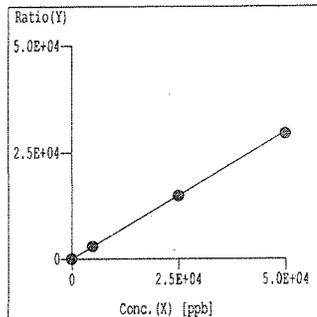
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.238E-001 * X + 5.351E+000$
 $X = 4.468E+000 * Y - 2.391E+001$
 DL = 4.137E-01 ppb
 BEC = 23.91 ppb

Step Mass Element (3) 24 Mg ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9998$
 $Y = 4.590E-001 * X + 2.641E-001$
 $X = 2.179E+000 * Y - 5.754E-001$
 DL = 5.649E-02 ppb
 BEC = 5.754E-01 ppb

Step Mass Element (3) 27 Al ISTD 45 Unit ppb

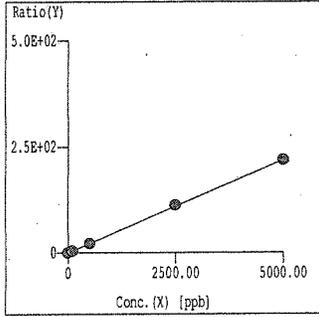


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.985E-001 * X + 1.852E-001$
 $X = 1.671E+000 * Y - 3.095E-001$
 DL = 8.013E-03 ppb
 BEC = 3.095E-01 ppb

Calibration - d:\DATA\1982017\EI\198E11.B\EM6020HR.C

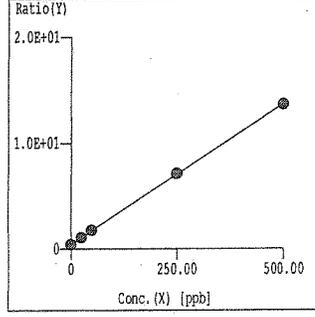
=== Graph Detail ===

Step Mass Element (1) 28 Si ISTD 45 Unit ppb



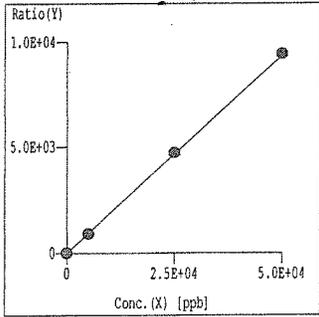
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 4.374E-002 * X + 4.976E-002$
 $X = 2.286E+001 * Y - 1.138E+000$
 DL = 2.446E-01 ppb
 BEC = 1.138 ppb

Step Mass Element (3) 31 P ISTD 45 Unit ppb



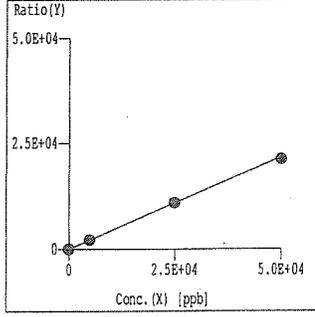
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.662E-002 * X + 4.171E-001$
 $X = 3.757E+001 * Y - 1.567E+001$
 DL = 4.830E-01 ppb
 BEC = 15.67 ppb

Step Mass Element (2) 39 K ISTD 45 Unit ppb



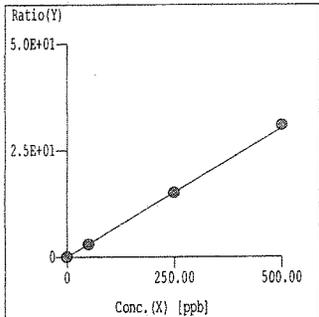
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.864E-001 * X + 3.702E+000$
 $X = 5.364E+000 * Y - 1.986E+001$
 DL = 2.417 ppb
 BEC = 19.86 ppb

Step Mass Element (1) 40 Ca ISTD 45 Unit ppb



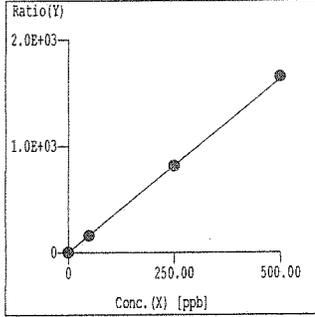
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 4.343E-001 * X + 2.216E+000$
 $X = 2.302E+000 * Y - 5.103E+000$
 DL = 3.835E-01 ppb
 BEC = 5.103 ppb

Step Mass Element (3) 47 Ti ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 6.048E-002 * X + 2.042E-003$
 $X = 1.654E+001 * Y - 3.377E-002$
 DL = 1.185E-02 ppb
 BEC = 3.377E-02 ppb

Step Mass Element (2) 51 V ISTD 45 Unit ppb

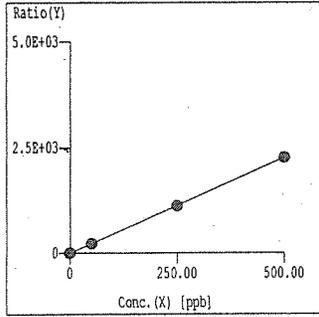


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 3.264E+000 * X + 1.512E-001$
 $X = 3.064E-001 * Y - 4.632E-002$
 DL = 2.768E-03 ppb
 BEC = 4.632E-02 ppb

Calibration - d:\DATA\1982017\EN\98E11.B\EM6020HR.C

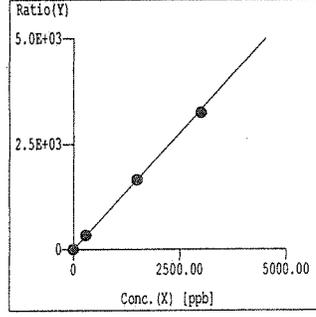
=== Graph Detail ===

Step Mass Element (2) 52 Cr ISTD 45 Unit ppb



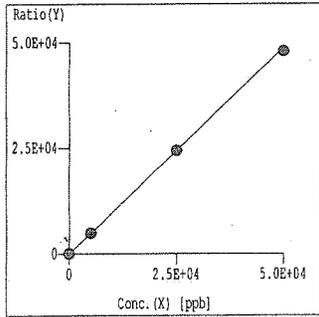
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 4.528E+000 * X + 2.740E-001$
 $X = 2.208E-001 * Y - 6.051E-002$
 DL = 1.209E-02 ppb
 BEC = 6.051E-02 ppb

Step Mass Element (3) 55 Mn ISTD 45 Unit ppb



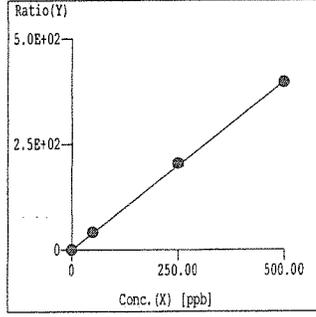
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 1.108E+000 * X + 5.147E-002$
 $X = 9.029E-001 * Y - 4.647E-002$
 DL = 7.127E-04 ppb
 BEC = 4.647E-02 ppb

Step Mass Element (1) 56 Fe ISTD 45 Unit ppb



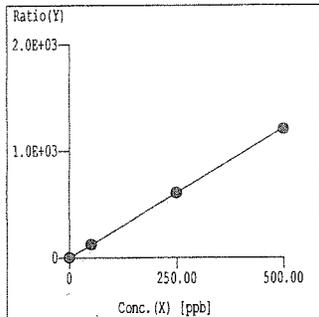
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 9.746E-001 * X + 4.200E-001$
 $X = 1.026E+000 * Y - 4.309E-001$
 DL = 2.808E-02 ppb
 BEC = 4.309E-01 ppb

Step Mass Element (3) 59 Co ISTD 45 Unit ppb



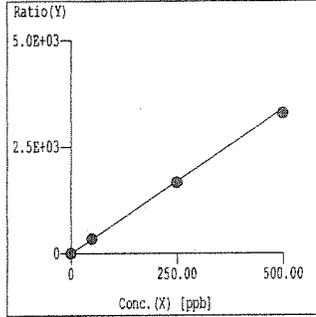
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 7.960E-001 * X + 1.039E-002$
 $X = 1.256E+000 * Y - 1.305E-002$
 DL = 4.997E-03 ppb
 BEC = 1.305E-02 ppb

Step Mass Element (2) 60 Ni ISTD 45 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.431E+000 * X + 4.852E-002$
 $X = 4.114E-001 * Y - 1.996E-002$
 DL = 2.819E-03 ppb
 BEC = 1.996E-02 ppb

Step Mass Element (2) 63 Cu ISTD 45 Unit ppb

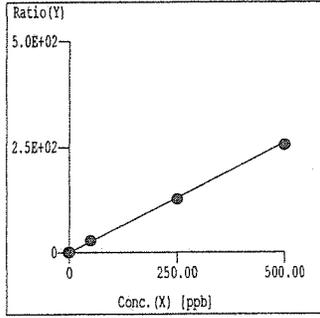


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 6.773E+000 * X + 4.365E-001$
 $X = 1.477E-001 * Y - 6.445E-002$
 DL = 8.808E-03 ppb
 BEC = 6.445E-02 ppb

Calibration - d:\DATA\1982017\1E\198E11.B\EM6020HR.C

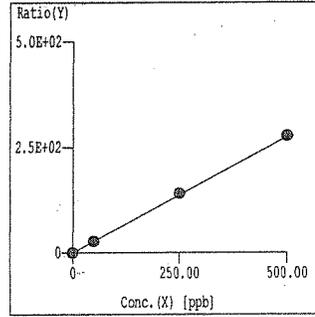
=== Graph Detail ===

Step Mass Element (3) 66 Zn ISTD 72 Unit ppb



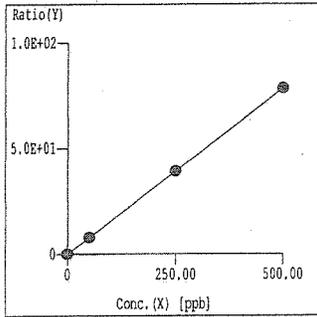
Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 5.211E-001*X + 1.491E-001$
 $X = 1.919E+000*Y - 2.862E-001$
DL = 2.222E-02 ppb
BEC = 2.862E-01 ppb

Step Mass Element (2) 75 As ISTD 72 Unit ppb



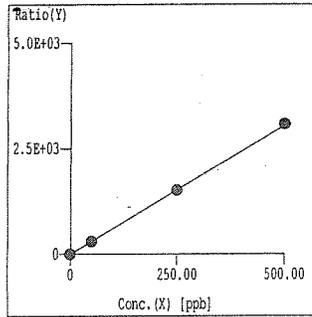
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.492E-001*X + 7.854E-003$
 $X = 1.821E+000*Y - 1.430E-002$
DL = 4.774E-02 ppb
BEC = 1.430E-02 ppb

Step Mass Element (1) 78 Se ISTD 72 Unit ppb



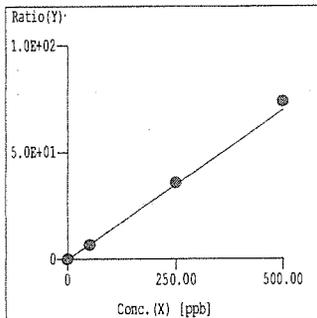
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.568E-001*X + 8.899E-004$
 $X = 6.379E+000*Y - 5.677E-003$
DL = 1.163E-02 ppb
BEC = 5.677E-03 ppb

Step Mass Element (3) 88 Sr ISTD 72 Unit ppb



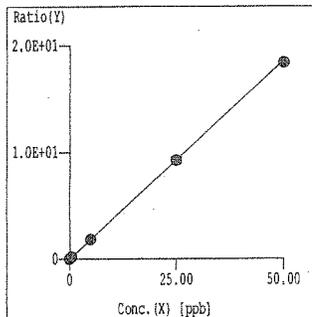
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 6.086E+000*X + 7.378E-002$
 $X = 1.643E-001*Y - 1.212E-002$
DL = 2.727E-03 ppb
BEC = 1.212E-02 ppb

Step Mass Element (3) 95 Mo ISTD 115 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 1.393E-001*X + 4.179E-004$
 $X = 7.180E+000*Y - 3.001E-003$
DL = 1.298E-03 ppb
BEC = 3.001E-03 ppb

Step Mass Element (3) 107 Ag ISTD 115 Unit ppb

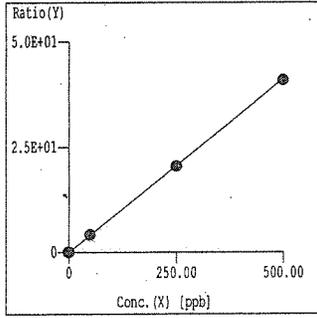


Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 3.720E-001*X + 1.405E-003$
 $X = 2.688E+000*Y - 3.776E-003$
DL = 3.398E-03 ppb
BEC = 3.776E-03 ppb

Calibration - d:\DATA\1982017\EI\198E11.B\EM6020HR.C

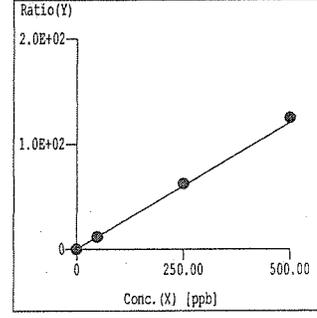
=== Graph Detail ===

Step Mass Element (3) 111 Cd ISTD 115 Unit ppb



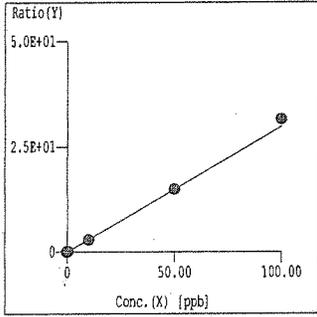
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 8.245E-002 * X + 9.286E-004$
 $X = 1.213E+001 * Y - 1.126E-002$
DL = 2.198E-02 ppb
BEC = 1.126E-02 ppb

Step Mass Element (3) 118 Sn ISTD 115 Unit ppb



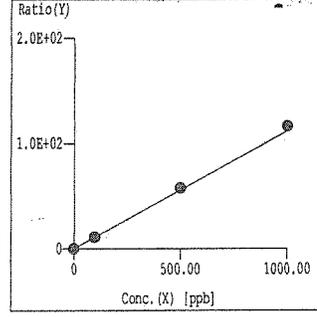
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 2.409E-001 * X + 1.695E-003$
 $X = 4.150E+000 * Y - 7.037E-003$
DL = 5.201E-04 ppb
BEC = 7.037E-03 ppb

Step Mass Element (3) 121 Sb ISTD 115 Unit ppb



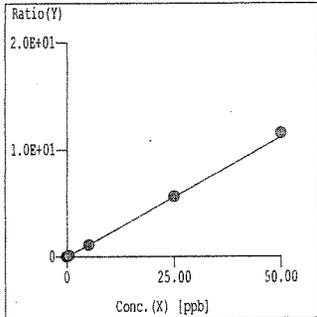
Curve Fit: $Y=aX+b$
 $r = 0.9996$
 $Y = 2.981E-001 * X + 1.474E-003$
 $X = 3.354E+000 * Y - 4.943E-003$
DL = 1.541E-03 ppb
BEC = 4.943E-03 ppb

Step Mass Element (3) 137 Ba ISTD 115 Unit ppb



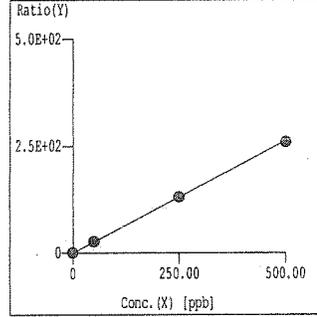
Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 1.119E-001 * X + 2.774E-003$
 $X = 8.937E+000 * Y - 2.479E-002$
DL = 8.064E-03 ppb
BEC = 2.479E-02 ppb

Step Mass Element (3) 182 W ISTD 159 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 0.9999$
 $Y = 2.239E-001 * X + 6.727E-004$
 $X = 4.466E+000 * Y - 3.004E-003$
DL = 2.682E-03 ppb
BEC = 3.004E-03 ppb

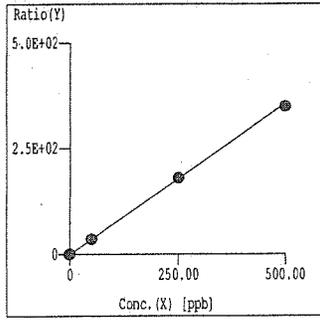
Step Mass Element (3) 205 Tl ISTD 159 Unit ppb



Curve Fit: $Y=aX+b$
 $r = 1.0000$
 $Y = 5.263E-001 * X + 3.087E-003$
 $X = 1.900E+000 * Y - 5.865E-003$
DL = 5.896E-04 ppb
BEC = 5.865E-03 ppb

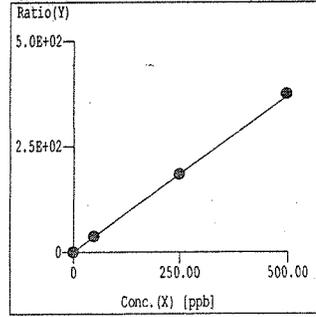
=== Graph Detail ===

Step Mass Element ISTD Unit
(3) 208 Pb 159 ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 7.123E-001*X +1.232E-002
X = 1.404E+000*Y -1.729E-002
DL = 1.597E-03 ppb
BEC = 1.729E-02 ppb

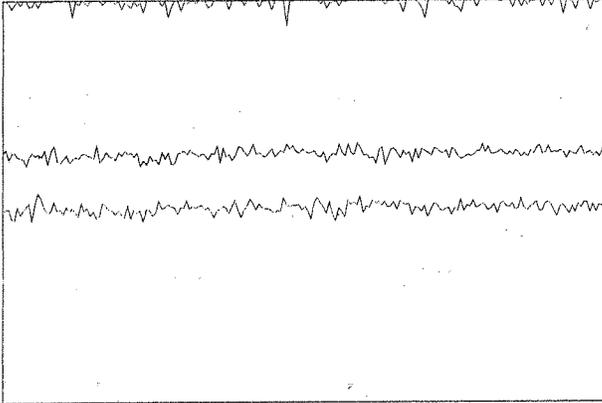
Step Mass Element ISTD Unit
(3) 238 U 159 ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 7.391E-001*X +9.083E-004
X = 1.353E+000*Y -1.229E-003
DL = 1.141E-03 ppb
BEC = 1.229E-03 ppb

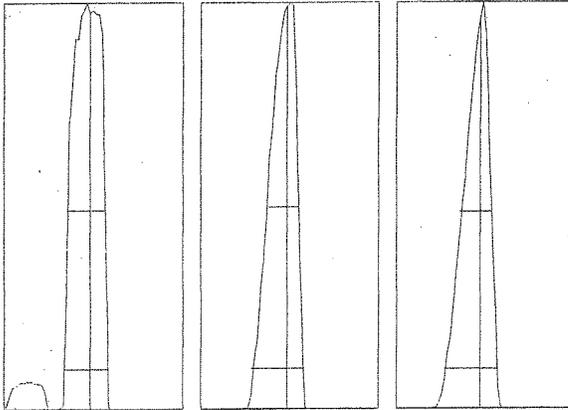
Tune Report

Tune File : NORM.U
Comment : I98E11



Integration Time: 0.1000 sec
Sampling Period: 0.6200 sec
n: 200
Oxide: 156/140 1.750%
Doubly Charged: 70/140 0.682%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	24015.0	24266.3	2.64	1.00
89	100,000	61286.0	61993.3	1.91	1.80
205	50,000	50499.0	50214.3	1.88	3.70
156/140	5	1.947%	1.838%	5.06	
70/140	2	0.768%	0.757%	5.55	



m/z:	7	89	205
Height:	23,681	62,391	48,140
Axis:	7.00	89.00	204.95
W-50%:	0.65	0.55	0.55
W-10%:	0.7500	0.900	0.900

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Tune Report

Tune File : NORM.U
 Comment : I98E11

Tuning Parameters

===Plasma Condition===

RF Power : 1500 W
 RF Matching : 1.78 V
 Smp1 Depth : 8 mm
 Torch-H : 0.5 mm
 Torch-V : 0.3 mm
 Carrier Gas : 0.9 L/min
 Makeup Gas : 0.15 L/min
 Optional Gas : --- %
 Nebulizer Pump : 0.1 rps
 Sample Pump : --- rps
 S/C Temp : 2 degC

===Ion Lenses===

Extract 1 : 0 V
 Extract 2 : -110 V
 Omega Bias-ce : -30 V
 Omega Lens-ce : 1.2 V
 Cell Entrance : -26 V
 QP Focus : 1 V
 Cell Exit : -30 V

===Q-Pole Parameters===

AMU Gain : 133
 AMU Offset : 126
 Axis Gain : 1.0004
 Axis Offset : -0.03
 QP Bias : -3 V

===Detector Parameters===

Discriminator : 8 mV
 Analog HV : 1970 V
 Pulse HV : 1040 V

===Octopole Parameters===

OctP RF : 170 V
 OctP Bias : -6 V

===Reaction Cell===

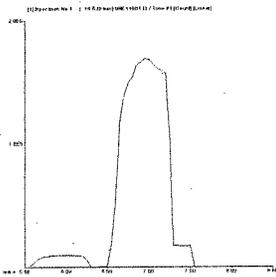
Reaction Mode : OFF
 H2 Gas : 0 mL/min He Gas : 0 mL/min Optional Gas : --- %

D:\DATA\I982017\E\I98E11.B\98E11001.D

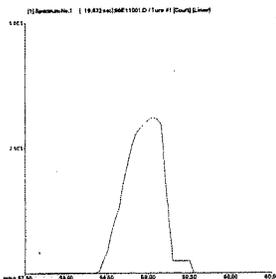
6020 QC Tune Report

Data File: D:\DATA\I982017\E\I98E11.B\98E11001.D
 Date Acquired: May 15 2017 02:40 pm
 Acq. Method: TN6020_C.M
 Operator: CCapul
 Sample Name: 6020tunchk
 Misc Info:
 Vial Number: 1301
 Current Method: C:\ICPCHEM\1\METHODS\TN6020_C.M

RSD (%)	Element	Actual	Required	Flag
	7 Li	2.07	5.00	
	59 Co	1.70	5.00	
	115 In	1.63	5.00	
	205 Tl	0.70	5.00	

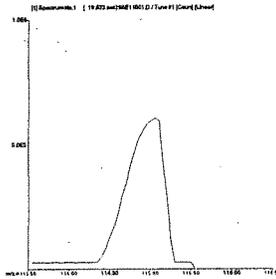


7 Li
 Mass Calib.
 Actual: 6.95
 Required: 6.90 - 7.10
 Flag:
 Peak Width-10%
 Actual: 0.65
 Limit 0.90
 Flag:

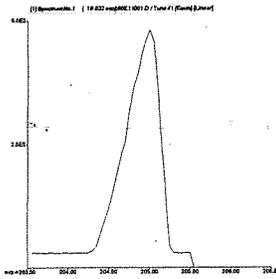


59 Co
 Mass Calib.
 Actual: 59.05
 Required: 58.90 - 59.10
 Flag:
 Peak Width-10%
 Actual: 0.70
 Limit 0.90
 Flag:

D:\DATA\I982017\E\I98E11.B\98E11001.D



115 In
Mass Calib.
Actual: 115.00
Required: 114.90 - 115.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



205 T1
Mass Calib.
Actual: 204.95
Required: 204.90 - 205.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



DIGESTION LOG

for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested,
refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 1501179 - 7A-021

all samples pH 2

Book #: EIM-064

Batch: JME011W

Matrix: WATER

Digester ID: E

SOP #	Rev. #
<input type="checkbox"/> EMAX-200.8	5
<input checked="" type="checkbox"/> EMAX-6020	9
<input type="checkbox"/> EMAX-	

Start	Temp	End	Temp
	93.0°C		91.4°C

Standards	ID	Amount Added (m/g)
LCS-1	SM6A-007-04-04	0.15
LCS-2	↓ CH-07	0.15
MS	JAME SPIKE SOIL LUGAR AK LES162	
Blank Soil (Bead)	LA	LA
Reagent	Lot# / ID	Amount Added (ml)
HNO ₃	SM6A-006-04-04	0.5 + 1.0
HCl	↓ 02.10	0.5 + 0.5
H ₂ O ₂	LA	LA
HNO ₃ (1:1)	LA	LA
pH Strip (0-14)	HCG 87919	

Digestate Location	MORXU
Extract Location	LA
<input checked="" type="checkbox"/> Reagent Water ID:	QMTA-03-0220
<input checked="" type="checkbox"/> Thermometer ID:	10590610/E28
<input checked="" type="checkbox"/> Pipette ID:	239360318
<input checked="" type="checkbox"/> Pipette ID:	142780307
<input type="checkbox"/> Pipette ID:	
<input type="checkbox"/> HNO ₃ dispenser checked @ 5.0 ml with Class A volumetric flask	
<input type="checkbox"/> HCl dispenser checked @ 5.0 ml with Class A volumetric flask	

Prepared By: CM

Standard Added By: CM

Witnessed By: NT

Extract Rcvd By: CM

Checked By: NT



DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
17IME011W01	IME011WB	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W02	IME011WL	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W03	IME011WC	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W04	TXE007SB	10	ml	5/12/17 9:50	50	50	50	5	
17IME011W05	E060-01	10	ml	5/12/17 9:50	50	50	50	5	
17IME011W06	E060-01M	10	ml	5/12/17 9:50	50	50	50	5	
17IME011W07	E060-01S	10	ml	5/12/17 9:50	50	50	50	5	
17IME011W08	E059-02	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W09	E059-03	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W10	E059-03M	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W11	E059-03S	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W12	E059-04	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W13	E059-05	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W14	E059-06	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W15	E059-07	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W16	E059-08	50	ml	5/12/17 9:50	50	50	50	1	
17IME011W17	E087-01	50	ml	5/12/17 9:50	50	50	50	1	DISSOLVED
17IME011W18	E087-02	50	ml	5/12/17 9:50	50	50	50	1	DISSOLVED
17IME011W19	E087-03	50	ml	5/12/17 9:50	50	50	50	1	DISSOLVED
17IME011W20	E087-04	50	ml	5/12/17 9:50	50	50	50	1	DISSOLVED
17IME011W21	E087-05	50	ml	5/12/17 9:50	50	50	50	1	DISSOLVED
17IME011W22	E087-01	50	ml	5/12/17 9:50	50	50	50	1	TOTAL
17IME011W23	E087-02	50	ml	5/12/17 9:50	50	50	50	1	TOTAL
17IME011W24	E087-03	50	ml	5/12/17 9:50	50	50	50	1	TOTAL
17IME011W25	E087-04	50	ml	5/12/17 9:50	50	50	50	1	TOTAL
17IME011W26	E087-05	50	ml	5/12/17 9:50	50	50	50	1	TOTAL
17IME011W27	E088-01	50	ml	5/12/17 9:50	50	50	50	1	

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

Digestion Started @ 5/12/17 11:25

Prepared By: CCapul

Digestion Ended @ 5/12/17 14:05

Checked By: *NT*

Date: *5/12/17*

Comments:

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SW7470A
TOTAL AND DISSOLVED MERCURY BY COLD VAPOR

A total of four (4) water samples were received on 05/11/17 to be analyzed for Total and Dissolved Mercury by Cold Vapor in accordance with Method SW7470A and project specific requirements.

Holding Time

Samples were digested and analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Mercury was not detected in HGE011WB. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. HGE011WL/HGE011WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
 MERCURY BY COLD VAPOR

Client : NOREAS
 Project : TREASURE ISLAND, IR SITE 12

SDG NO. : 17E087
 Instrument ID : 47

WATER										
Client	Laboratory	Dilution	%	Analysis	Extraction	Sample	Calibration	Prep.		
Sample ID	Sample ID	Factor	Moist	DateTime	DateTime	Data FN	Data FN	Batch	Notes	
MBLK1W	HGE011WB	1	NA	05/15/1719:32	05/15/1713:40	M47E009067	M47E009	HGE011W	Method Blank	
LCS1W	HGE011WL	1	NA	05/15/1718:34	05/15/1713:40	M47E009039	M47E009	HGE011W	Lab Control Sample (LCS)	
LCD1W	HGE011WC	1	NA	05/15/1718:36	05/15/1713:40	M47E009040	M47E009	HGE011W	LCS Duplicate	
12-MW31-0517	E087-01	1	NA	05/15/1719:06	05/15/1713:40	M47E009054	M47E009	HGE011W	Field Sample	
12-MW17-0517	E087-02	1	NA	05/15/1719:08	05/15/1713:40	M47E009055	M47E009	HGE011W	Field Sample	
QCEB-0517	E087-04	1	NA	05/15/1719:10	05/15/1713:40	M47E009056	M47E009	HGE011W	Field Sample	
QCSB-0517	E087-05	1	NA	05/15/1719:15	05/15/1713:40	M47E009059	M47E009	HGE011W	Field Sample	

FN - Filename
 % Moist - Percent Moisture

METHOD SW7470A
MERCURY BY COLD VAPOR

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12
Batch No. : 17E087

Matrix : WATER
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID (ug/L)	RESULTS	DIL*N FACTOR (%)	MOIST	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGE011WB	ND	1	NA	0.500	0.0540	0.100	05/15/1719:32	05/15/1713:40	M47E009067	M47E009	HGE011W	NA	NA
LCS1W	HGE011WL	2.72	1	NA	0.500	0.0540	0.100	05/15/1718:34	05/15/1713:40	M47E009039	M47E009	HGE011W	NA	NA
LCD1W	HGE011WC	2.62	1	NA	0.500	0.0540	0.100	05/15/1718:36	05/15/1713:40	M47E009040	M47E009	HGE011W	NA	NA
12-MW31-0517	E087-01	ND	1	NA	0.500	0.0540	0.100	05/15/1719:06	05/15/1713:40	M47E009054	M47E009	HGE011W	05/10/1711:00	05/11/17
12-MW17-0517	E087-02	ND	1	NA	0.500	0.0540	0.100	05/15/1719:08	05/15/1713:40	M47E009055	M47E009	HGE011W	05/10/1713:10	05/11/17
QCEB-0517	E087-04	ND	1	NA	0.500	0.0540	0.100	05/15/1719:10	05/15/1713:40	M47E009056	M47E009	HGE011W	05/10/1714:00	05/11/17
QCSB-0517	E087-05	ND	1	NA	0.500	0.0540	0.100	05/15/1719:15	05/15/1713:40	M47E009059	M47E009	HGE011W	05/10/1708:25	05/11/17

Note: Detection limits are reported relative to sample result significant figures.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E087
METHOD : SW7470A

MATRIX : WATER % MOISTURE: N/A
DILUTION FACTOR: I 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGE011WB HGE011WL HGE011WC
LAB FILE ID : M47E009067 M47E009039 M47E009040
DATE PREPARED : 05/15/1713:40 05/15/1713:40 05/15/1713:40
DATE ANALYZED : 05/15/1719:32 05/15/1718:34 05/15/1718:36
PREP BATCH : HGE011W HGE011W HGE011W
CALIBRATION REF: M47E009 M47E009 M47E009

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.72	109	2.50	2.62	105	4	82-119	20

LAB CHRONICLE
DISSOLVED MERCURY BY COLD VAPOR

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12

SDG NO. : 17E087
Instrument ID : 47

WATER									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGE011WB	1	NA	05/15/1719:32	05/15/1713:40	M47E009067	M47E009	HGE011W	Method Blank
LCS1W	HGE011WL	1	NA	05/15/1718:34	05/15/1713:40	M47E009039	M47E009	HGE011W	Lab Control Sample (LCS)
LCD1W	HGE011WC	1	NA	05/15/1718:36	05/15/1713:40	M47E009040	M47E009	HGE011W	LCS Duplicate
12-MW31-0517	E087-01	1	NA	05/15/1719:17	05/15/1713:40	M47E009060	M47E009	HGE011W	Field Sample
12-MW17-0517	E087-02	1	NA	05/15/1719:20	05/15/1713:40	M47E009061	M47E009	HGE011W	Field Sample
QCEB-0517	E087-04	1	NA	05/15/1719:22	05/15/1713:40	M47E009062	M47E009	HGE011W	Field Sample
QCSB-0517	E087-05	1	NA	05/15/1719:23	05/15/1713:40	M47E009063	M47E009	HGE011W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW7470A
DISSOLVED MERCURY BY COLD VAPOR

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12
Batch No. : 17E087

Matrix : WATER
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID (ug/L)	RESULTS	DIL'N FACTOR (%)	MOIST	LOQ (ug/L)	DL (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGE011WB	ND	1	NA	0.500	0.0540	0.100	05/15/1719:32	05/15/1713:40	M47E009067	M47E009	HGE011W	NA	NA
LCS1W	HGE011WL	2.72	1	NA	0.500	0.0540	0.100	05/15/1718:34	05/15/1713:40	M47E009039	M47E009	HGE011W	NA	NA
LCD1W	HGE011WC	2.62	1	NA	0.500	0.0540	0.100	05/15/1718:36	05/15/1713:40	M47E009040	M47E009	HGE011W	NA	NA
12-MW31-0517	E087-01	ND	1	NA	0.500	0.0540	0.100	05/15/1719:17	05/15/1713:40	M47E009060	M47E009	HGE011W	05/10/1711:00	05/11/17
12-MW17-0517	E087-02	0.0540J	1	NA	0.500	0.0540	0.100	05/15/1719:20	05/15/1713:40	M47E009061	M47E009	HGE011W	05/10/1713:10	05/11/17
QCEB-0517	E087-04	ND	1	NA	0.500	0.0540	0.100	05/15/1719:22	05/15/1713:40	M47E009062	M47E009	HGE011W	05/10/1714:00	05/11/17
QCSB-0517	E087-05	0.107J	1	NA	0.500	0.0540	0.100	05/15/1719:23	05/15/1713:40	M47E009063	M47E009	HGE011W	05/10/1708:25	05/11/17

Note: Detection limits are reported relative to sample result significant figures.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E087
METHOD : SW7470A

MATRIX : WATER % MOISTURE: N/A
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : HGE011WB HGE011WL HGE011WC
LAB FILE ID : M47E009067 M47E009039 M47E009040
DATE PREPARED : 05/15/1713:40 05/15/1713:40 05/15/1713:40
DATE ANALYZED : 05/15/1719:32 05/15/1718:34 05/15/1718:36
PREP BATCH : HGE011W HGE011W HGE011W
CALIBRATION REF: M47E009 M47E009 M47E009

ACCESSION:

PARAMETER	MB RESULT (ug/L)	SPIKE AMT (ug/L)	BS RESULT (ug/L)	BS REC (%)	SPIKE AMT (ug/L)	BSD RESULT (ug/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Mercury	ND	2.50	2.72	109	2.50	2.62	105	4	82-119	20



ANALYSIS RUN LOG
for
MERCURY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 5/15/17 Start Time: 17:14
End Date: 5/15/17 End Time: 19:46

Comments:
QC OK

Book #: A47-106

Instrument No.: 47

Analytical Sequence/Batch: H47E009

Method File: HG1

Micropipette ID: ICP DOE-1

Micropipette ID: HG-03

Micropipette ID: HG-04

Micropipette ID:

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-7470	8
<input type="checkbox"/> EMAX-7471	9
<input checked="" type="checkbox"/> EMAX-245.1	4
<input type="checkbox"/> EMAX-	

STANDARDS ID	
S1	BLANK
S2	SM3B-14-28-01
S3	↓
S4	
S5	
S6	
CCV	
ICV	SM3B-14-28-02
LCS	↓
Analytical Spike	SM3B-14-28-03 TV Spike

Analyzed By: NT

Date: 5/15/17

"M47E009"	EMAX1fid	EMAX1sid	cōnc	Raw_resp	rsd/rf	adatetime	DF
	M47E009001	STD01REP1	0	3262		05/15/1717:14	1
	M47E009002	STD02REP1	.2	10617		05/15/1717:16	1
	M47E009003	STD03REP1	.5	33394		05/15/1717:17	1
	M47E009004	STD04REP1	1	54031		05/15/1717:19	1
	M47E009005	STD05REP1	2	121680		05/15/1717:22	1
	M47E009006	STD06REP1	5	293420		05/15/1717:24	1
	M47E009007	ICV	2.1	124107	0	05/15/1717:27	1
	M47E009008	ICB	.009	586	0	05/15/1717:29	1
	M47E009009	CCV1	2	118331	0	05/15/1717:31	1
	M47E009010	CCB1	.036	3201	0	05/15/1717:33	1
	M47E009011	HGE010WB	-.047	-1651	0	05/15/1717:35	1
	M47E009012	HGE010WL	2.53	149392	0	05/15/1717:37	1
	M47E009013	HGE010WC	2.58	152221	0	05/15/1717:41	1
	M47E009014	TXE006SB	-.063	-2578	0	05/15/1717:43	1
	M47E009015	E462-06A	2.84	167666	0	05/15/1717:45	1
	M47E009016	E462-06	.025	2585	0	05/15/1717:47	1
	M47E009017	E462-06J	-.073	-3159	0	05/15/1717:49	5
	M47E009018	E462-06M	2.52	148885	0	05/15/1717:51	1
	M47E009019	E462-06S	2.65	156151	0	05/15/1717:53	1
	M47E009020	TXE007SB	.003	1287	0	05/15/1717:55	1
	M47E009021	CCV2	2.17	128000	0	05/15/1717:57	1
	M47E009022	CCB2	.085	6110	0	05/15/1717:59	1
	M47E009023	E060-01	.006	1474	0	05/15/1718:01	1
	M47E009024	TXE008SB	.008	1579	0	05/15/1718:03	1
	M47E009025	E074-01	-.011	445	0	05/15/1718:06	1
	M47E009026	E074-02	.062	4738	0	05/15/1718:08	1
	M47E009027	E074-03	.068	5085	0	05/15/1718:10	1
	M47E009028	E074-04	.008	1602	0	05/15/1718:12	1
	M47E009029	E074-05	-.096	-4493	0	05/15/1718:14	1
	M47E009030	E074-06	.03	2888	0	05/15/1718:16	1
	M47E009031	E074-07	.041	3514	0	05/15/1718:18	1
	M47E009032	E074-08	-.039	-1148	0	05/15/1718:20	1
	M47E009033	CCV3	2.14	126314	0	05/15/1718:22	1
	M47E009034	CCB3	-.024	-269	0	05/15/1718:25	1
	M47E009035	E074-09	-.008	656	0	05/15/1718:27	1
	M47E009036	E074-10	.003	1303	0	05/15/1718:29	1
	M47E009037	E074-11	.176	11441	0	05/15/1718:31	1
	M47E009038	HGE011WB	.118	8017	0	05/15/1718:33	1
	M47E009039	HGE011WL	2.72	160529	0	05/15/1718:34	1
	M47E009040	HGE011WC	2.62	154677	0	05/15/1718:36	1
	M47E009041	E465-01A	2.83	166848	0	05/15/1718:38	1
	M47E009042	E465-01	-.055	-2084	0	05/15/1718:40	1
	M47E009043	E465-01J	-.025	-351	0	05/15/1718:43	5
	M47E009044	E465-01M	2.69	158935	0	05/15/1718:45	1
	M47E009045	CCV4	2.21	130839	0	05/15/1718:46	1
	M47E009046	CCB4	-.057	-2235	0	05/15/1718:48	1
	M47E009047	E465-01S	2.72	160209	0	05/15/1718:50	1
	M47E009048	C025-01	-.05	-1803	0	05/15/1718:52	1
	M47E009049	E029-05	.143	9507	0	05/15/1718:54	1
	M47E009050	E029-06	.124	8378	0	05/15/1718:57	1
	M47E009051	E029-07	.067	5055	0	05/15/1718:59	1
	M47E009052	E038-01	-.034	-868	0	05/15/1719:02	1
	M47E009053	E085-01	.08	5777	0	05/15/1719:04	1
	M47E009054	E087-01	-.045	-1502	0	05/15/1719:06	1
	M47E009055	E087-02	-.037	-1044	0	05/15/1719:08	1
	M47E009056	E087-04	-.101	-4805	0	05/15/1719:10	1
	M47E009057	CCV5	2.17	128393	0	05/15/1719:12	1
	M47E009058	CCB5	.031	2899	0	05/15/1719:14	1
	M47E009059	E087-05	-.072	-3133	0	05/15/1719:15	1
	M47E009060	E087-01	-.04	-1221	0	05/15/1719:17	1
	M47E009061	E087-02	.054	4280	0	05/15/1719:20	1
	M47E009062	E087-04	.046	3831	0	05/15/1719:22	1
	M47E009063	E087-05	.107	7381	0	05/15/1719:23	1
	M47E009064	E099-02	.024	2527	0	05/15/1719:25	1
	M47E009065	E485-04	-.081	-3647	0	05/15/1719:27	1
	M47E009066	E485-05	-.089	-4118	0	05/15/1719:30	1
	M47E009067	HGE011WB	-.012	412	0	05/15/1719:32	1
	M47E009068	CCV6	2.1	124062	0	05/15/1719:34	1
	M47E009069	CCB6	.028	2772	0	05/15/1719:36	1
	M47E009070	E087-02N	.061	4679	0	05/15/1719:38	1
	M47E009071	E087-05N	.147	9747	0	05/15/1719:40	1
	M47E009072	CCV7	2.22	131004	0	05/15/1719:42	1
	M47E009073	CCV7	2.21	130705	0	05/15/1719:46	1

↑
↓
Diss

M47E009074	CCV7	2.07	122567	0	05/15/1719:49	1
M47E009075	CCB7	-.076	-3321	0-	05/15/1719:51	1
*****	*****	*****	*****	*****	*****	***
EMAX1fid	EMAX1sid	Xint	Yint	rrf	adatetime	DF
M47E009001	BLANK	-2.047119E-02	1198.188	.9994849	05/15/1719:51	1

147 E009

cup	sample ID	extended ID	weight	volume	? A D F P S U S C U I U S C 1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	CCV1		1.0000	1.0000	
4	CCB1		1.0000	1.0000	
5	HGE010WB		1.0000	1.0000	
6	HGE010WL		1.0000	1.0000	
7	HGE010WC		1.0000	1.0000	
8	TXE006SB	TCLP	1.0000	1.0000	
9	E462-06A	TCLP	1.0000	1.0000	
10	E462-06	TCLP	1.0000	1.0000	
11	E462-06J	TCLP	1.0000	1.0000	
12	E462-06M	TCLP	1.0000	1.0000	
13	E462-06S	TCLP	1.0000	1.0000	
14	TXE007SB	TCLP	1.0000	1.0000	
15	CCV2		1.0000	1.0000	
16	CCB2		1.0000	1.0000	
17	E060-01	TCLP	1.0000	1.0000	
18	TXE008SB	TCLP	1.0000	1.0000	
19	E074-01	TCLP	1.0000	1.0000	
20	E074-02	TCLP	1.0000	1.0000	
21	E074-03	TCLP	1.0000	1.0000	
22	E074-04	TCLP	1.0000	1.0000	
23	E074-05	TCLP	1.0000	1.0000	
24	E074-06	TCLP	1.0000	1.0000	
25	E074-07	TCLP	1.0000	1.0000	
26	E074-08	TCLP	1.0000	1.0000	
27	CCV3		1.0000	1.0000	
28	CCB3		1.0000	1.0000	
29	E074-09	TCLP	1.0000	1.0000	
30	E074-10	TCLP	1.0000	1.0000	
31	E074-11	TCLP	1.0000	1.0000	
32	HGE011WB		1.0000	1.0000	
33	HGE011WL		1.0000	1.0000	
34	HGE011WC		1.0000	1.0000	
35	E465-01A		1.0000	1.0000	
36	E465-01		1.0000	1.0000	
37	E465-01J		1.0000	1.0000	
38	E465-01M		1.0000	1.0000	
39	CCV4		1.0000	1.0000	
40	CCB4		1.0000	1.0000	
41	E465-01S		1.0000	1.0000	
42	C025-01		1.0000	1.0000	
43	E029-05		1.0000	1.0000	
44	E029-06		1.0000	1.0000	

NT 5/15/17

cup	sample ID	extended ID	weight	volume	? A D F P S U S C U I U S C 1..7
1	E029-07		1.0000	1.0000	
2	E038-01		1.0000	1.0000	
3	E085-01		1.0000	1.0000	
4	E087-01	TOT	1.0000	1.0000	
5	E087-02	TOT	1.0000	1.0000	
6	E087-04	TOT	1.0000	1.0000	
7	CCV5		1.0000	1.0000	
8	CCB5		1.0000	1.0000	
9	E087-05	TOT	1.0000	1.0000	
10	E087-01	DISS	1.0000	1.0000	
11	E087-02	DISS	1.0000	1.0000	
12	E087-04	DISS	1.0000	1.0000	
13	E087-05	DISS	1.0000	1.0000	
14	E099-02		1.0000	1.0000	
15	E485-04	TCLP	1.0000	1.0000	
16	E485-05	TCLP	1.0000	1.0000	
17	HGE011WB		1.0000	1.0000	
18	CCV6		1.0000	1.0000	
19	CCB6		1.0000	1.0000	
20	E087-02N	DISS	1.0000	1.0000	
21	E087-05N	DISS	1.0000	1.0000	
22	CCV7		1.0000	1.0000	
23	CCV7		1.0000	1.0000	
24	CCV7		1.0000	1.0000	
25	CCB7		1.0000	1.0000	
26			1.0000	1.0000	
27			1.0000	1.0000	
28			1.0000	1.0000	
29			1.0000	1.0000	
30			1.0000	1.0000	
31			1.0000	1.0000	
32			1.0000	1.0000	
33			1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	

NT 5/15/17

WinHg Database 1.3 [_] [□] [×]

File Utility Help

⌂ | RN ↵ | RN ↵ | ?

Protocol HG1 Dataset/Proto M47E009 /HG1

Protocol | Line info | Cal Curve | Report | Ctrl Chart | Viewer

Reset

Calib Coeffs

New Cal

Update Coeffs

Spike Coeffs

A

B 1.70675e-5

C -1.89567e-2

Rho .999485

Type Linear

Accept

Include S1 Rep 1

Rel. Abs. 293420

Accepted

New

S	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3
01	.00000	.037	.037	3263	0	3262		
02	.20000	.162	-.038	10617	0%	10617		
03	.50000	.551	-.051	33394	0%	33394		
04	1.0000	.903	-.097	54031	0%	54031		
05	2.0000	2.06	-.058	121680	0%	121680		
06	5.0000	4.99	-.011	293420	0%	293420		

Ready CAP NUM



DIGESTION LOG

for
MERCURY

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Book #: E47-104

Batch No.: HGE011W

Comments:

Matrix: Water

Digestion Vessel Lot #: 17816006

Samples PH = 6.2

ICAL on HGE011W

SOP #	Rev. #
<input checked="" type="checkbox"/> EMAX-7470	8
<input type="checkbox"/> EMAX-7471	9
<input checked="" type="checkbox"/> EMAX-245.1	4
<input type="checkbox"/> EMAX-	

Standards	ID	Conc. (µg/L)	Amount Added (ml)
ICAL	<u>SM3B-14-28-01</u>	<u>50</u>	<u>0.2, 0.5, 1, 2, 5</u>
CCV	↓		<u>2</u>
ICV	<u>SM3B-14-28-02</u>		<u>2</u>
LCS/MS	↓		<u>2.5</u>
Reagent	ID / Lot #		
HNO ₃	<u>SW1A-006-04-04</u>		
HCl	<u>N/A</u>		
H ₂ SO ₄	<u>SW1A-006-03-25</u>		
KMnO ₄	<u>SM5B-03-83-02</u>		
K ₂ S ₂ O ₈	<u>SM5B-03-83-03</u>		
NH ₂ OH•HCl•NaCl	<u>SM5B-03-81-02</u>		
SnCl ₂	<u>SM5B-03-82-03</u>		
Silica Sand	<u>N/A</u>		
Reagent Water	<u>SH5A-03-02-20</u>		
pH strip 0-14	<u>HC 681919</u>		
Digester ID/ Temp (°C)	<u>B</u>	<u>95.1</u>	
Thermometer ID/LOC:	<u>150590604 B9</u>		
Thermometer ID/LOC:	<u>N/A</u>		
Pipette ID:	<u>ICP 10E-1, HG HG-03, HG-04</u>		
<input type="checkbox"/> H ₂ SO ₄ dispenser checked @ 2.5 ml with Class A graduated cylinder <input type="checkbox"/> HCl dispenser checked @ ___ ml with Class A graduated cylinder <input type="checkbox"/> HNO ₃ dispenser checked @ ___ ml with Class A graduated cylinder			

Prepared By: NT
 Standard Added By: NT Witnessed By: W



DIGESTION LOG FOR MERCURY

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
17HGE011W01	HGE011WB	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W02	HGE011WL	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W03	HGE011WC	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W04	E458-04	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W05	E458-05	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W06	E465-01	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W07	E465-01M	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W08	E465-01S	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W09	C025-01	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W10	E029-05	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W11	E029-06	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W12	E029-07	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W13	E038-01	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W14	E085-01	50	ml	5/15/17 12:34	80	50	80	1	
17HGE011W15	E087-01	50	ml	5/15/17 12:34	80	50	80	1	TOTAL
17HGE011W16	E087-02	50	ml	5/15/17 12:34	80	50	80	1	TOTAL
17HGE011W17	E087-04	50	ml	5/15/17 12:34	80	50	80	1	TOTAL
17HGE011W18	E087-05	50	ml	5/15/17 12:34	80	50	80	1	TOTAL
17HGE011W19	E087-01	50	ml	5/15/17 12:34	80	50	80	1	DISSOLVED
17HGE011W20	E087-02	50	ml	5/15/17 12:34	80	50	80	1	DISSOLVED
17HGE011W21	E087-04	50	ml	5/15/17 12:34	80	50	80	1	DISSOLVED
17HGE011W22	E087-05	50	ml	5/15/17 12:34	80	50	80	1	DISSOLVED
17HGE011W23	E099-02	50	ml	5/15/17 12:34	80	50	80	1	

NT
5/15/17

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

Digestion Started @ 5/15/17 13:40

Prepared By: NTan

Digestion Ended @ 5/15/17 16:10

Checked By: NT

Date: 5/15/17

Comments:

LABORATORY REPORT FOR

NOREAS

TREASURE ISLAND, IR SITE 12

WET CHEMICAL ANALYSES

SDG#: 17E087

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

A total of two (2) water samples were received on 05/11/17 to be analyzed for Total Dissolved Solids in accordance with Method SM2540C and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Balance calibration verifications were carried out on a frequency specified by the method. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Total Dissolved Solids was not detected in TDE005WB. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) LCS was analyzed. Total Dissolved Solids in TDE005WL was within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12
Batch No. : 17E087

Matrix : WATER
InstrumentID : 402426

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	TDE005WB	ND	1	NA	10	10	10	05/15/1717:51	NA	17TDE00501	17TDE005	TDE005W	NA	NA
LCS1W	TDE005WL	1060	1	NA	10	10	10	05/15/1717:51	NA	17TDE00502	17TDE005	TDE005W	NA	NA
12-MW31-0517	E087-01	127	1	NA	10	10	10	05/15/1717:51	NA	17TDE00509	17TDE005	TDE005W	05/10/1711:00	05/11/17
12-MW17-0517	E087-02	14400	1	NA	10	10	10	05/15/1717:51	NA	17TDE00510	17TDE005	TDE005W	05/10/1713:10	05/11/17
12-MW17-0517DUP	E087-02D	14000	1	NA	10	10	10	05/15/1717:51	NA	17TDE00511	17TDE005	TDE005W	05/10/1713:10	05/11/17

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E087
METHOD : SM2540C

MATRIX : WATER
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : TDE005WB TDE005WL
LAB FILE ID : 17TDE00501 17TDE00502
DATE PREPARED : NA NA
DATE ANALYZED : 05/15/1717:51 05/15/1717:51
PREP BATCH : TDE005W TDE005W
CALIBRATION REF: 17TDE005 17TDE005

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	QC LIMIT (%)
TOTAL DISSOLVED SOLIDS	ND	1000	1060	106	80-120

EMAX QUALITY CONTROL DATA
 SAMPLE DUPLICATE ANALYSIS

CLIENT : NOREAS
 PROJECT : TREASURE ISLAND, IR SITE 12
 BATCH NO. : 17E087
 METHOD : SM2540C

MATRIX : WATER
 DILUTION FACTOR: 1 1
 SAMPLE ID : 12-MW17-0517 12-MW17-0517DUP
 LAB SAMPLE ID : E087-02 E087-02D
 LAB FILE ID : 17TDE00510 17TDE00511
 DATE PREPARED : NA NA
 DATE ANALYZED : 05/15/1717:51 05/15/1717:51
 PREP BATCH : TDE005W TDE005W
 CALIBRATION REF: 17TDE005 17TDE005

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
TOTAL DISSOLVED SOLIDS	14400	14000	3	20



TOTAL DISSOLVED SOLIDS

17TDE005

DataFileID	Sample ID	Sample Amt(ml)	Dish #	Dish (g)	1stDry Wt+Dish(g)	DateTime	2ndDry Wt+Dish(g)	DateTime	FinalDry Wt+Dish(g)	DateTime	Diff. of DryWt Rdgs(<0.5mg)	Solids (mg)	TDS (mg/L)	Result (mg/L)
17TDE00501	TDE005WB	100	B	86.0429	86.0426	5/16/17 16:52	86.0428	5/16/17 18:56			0.2	-0.1	-1	ND
17TDE00502	TDE005WL	20	L	25.91224	25.93351	5/16/17 16:53	25.93347	5/16/17 18:58			0.04	21.23	1061.5	1060
17TDE00503	E086-06	20	1	25.84567	25.86544	5/16/17 16:54	25.86547	5/16/17 18:59			0.03	19.8	990	990
17TDE00504	E086-07	20	2	25.88125	25.90899	5/16/17 16:54	25.90918	5/16/17 18:59			0.19	27.93	1396.5	1400
17TDE00505	E086-08	100	3	94.1333	94.1569	5/16/17 16:54	94.1572	5/16/17 19:00			0.3	23.9	239	239
17TDE00506	E086-09	10	4	25.68545	25.71301	5/16/17 16:55	25.71323	5/16/17 19:00			0.22	27.78	2778	2780
17TDE00507	E086-09D	10	5	25.65495	25.68378	5/16/17 16:55	25.68382	5/16/17 19:01			0.04	28.87	2887	2890
17TDE00508	E086-11	100	6	81.85596	81.91002	5/16/17 16:56	81.91009	5/16/17 19:03			0.07	54.13	541.3	541
17TDE00509	E087-01	100	7	80.14843	80.16107	5/16/17 16:56	80.16109	5/16/17 19:03			0.02	12.66	126.6	127
17TDE00510	E087-02	5	8	25.81815	25.89005	5/16/17 16:57	25.89026	5/16/17 19:04			0.21	72.11	14422	14400
17TDE00511	E087-02D	5	9	25.4509	25.52099	5/16/17 16:57	25.52089	5/16/17 19:04			0.1	69.99	13998	14000
17TDE00512	E496-01	50	10	84.3883	84.4164	5/16/17 16:57	84.4161	5/16/17 19:04			0.3	27.8	556	556
17TDE00513	E497-01	100	11	89.0089	89.0596	5/16/17 16:58	89.0598	5/16/17 19:05			0.2	50.9	509	509
17TDE00514	E498-01	20	12	25.85083	25.86243	5/16/17 16:58	25.86254	5/16/17 19:05			0.11	11.71	585.5	586
17TDE00515	E499-01	50	13	84.302	84.3226	5/16/17 16:59	84.3228	5/16/17 19:06			0.2	20.8	416	416
17TDE00516	E501-01	20	14	25.65295	25.66301	5/16/17 16:59	25.66312	5/16/17 19:06		UA 5/18/17	0.11	10.17	508.5	508
17TDE00517	E502-01	20	15	25.58982	25.60075	5/16/17 16:59	25.60104	5/16/17 19:07			0.29	11.22	561	561

Beginning Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.0999	5/15/17 17:51	PASSED
5	5.0001	5/15/17 17:51	PASSED
100	100.0105	5/15/17 17:51	PASSED
Ending Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	5/15/17 18:03	PASSED
5	5.0005	5/15/17 18:04	PASSED
100	100.0115	5/15/17 18:04	PASSED
Beginning Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	5/16/17 16:51	PASSED
5	5.0003	5/16/17 16:52	PASSED
100	100.0105	5/16/17 16:52	PASSED
Ending Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	5/16/17 19:08	PASSED
5	5.0003	5/16/17 19:09	PASSED
100	100.0105	5/16/17 19:09	PASSED

Balance ID: 402426 Weight ID: 62785/HN4977
 Acceptance Criteria: +/- 0.1% or +/- 0.5 mg whichever is greater

StandardID	Desc.	Conc. (mg/L)	ExpDate
RW1-17-001	MB	ND	NA
SW2-15-06-04	LCS	1000	04/17/18
HC693124	pH strip	0-14	04/27/27

LabSampleID	Result	Expected Value	QC Result
TDE005WB	-1	ND	MB Passed
TDE005WL	1061.5	1000	%R=106
#N/A	#N/A	#N/A	#N/A
E086-09D	2887	2778	%D=4
E087-02D	13999	14422	%D=3

Oven Drying	Thermometer ID:	T4690-17	Notes:
1st Drying			
<input checked="" type="checkbox"/> Start	5/16/17 15:01	Temp 180 °C	Samples were evaporated at 90°C (±5°C) and dried at 180°C (±2°C).
<input checked="" type="checkbox"/> End	5/16/17 16:01	Temp 180 °C	
2nd Drying			
<input checked="" type="checkbox"/> Start	5/16/17 17:02	Temp 180 °C	
<input checked="" type="checkbox"/> End	5/16/17 18:03	Temp 180 °C	
Final Drying			
<input type="checkbox"/> Start		Temp °C	
<input type="checkbox"/> End		Temp °C	

SOP Analyzed by: YAquin
 Checked by: UA
 Date: 5/18/17
 LOQ: 10 mg/L
 0.45 micron Filter Lot#: 20160617PDO18M-070
 Micropipette ID: 539380057

CASE NARRATIVE

Client : NOREAS

Project: TREASURE ISLAND, IR SITE 12

SDG : 17E087

METHOD SM2540D
TOTAL SUSPENDED SOLIDS

A total of two (2) water samples were received on 05/11/17 to be analyzed for Total Suspended Solids in accordance with Method SM2540D and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Balance calibration verifications were carried out on a frequency specified by the method. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Suspended Solids was not detected in SSE003WB. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. SSE003WL/SSE003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was designated on this SDG.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2540D
TOTAL SUSPENDED SOLIDS

Client : NOREAS
Project : TREASURE ISLAND, IR SITE 12
Batch No. : 17E087

Matrix : WATER
InstrumentID : 402426

CLIENT SAMPLE ID	EMAX SAMPLE ID (mg/L)	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	LOQ (mg/L)	DL (mg/L)	LOD (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATE
MBLK1W	SSE003WB	ND	1	NA	10	10	10	5/16/1712:23	NA	17SSE00301	17SSE003	SSE003W	NA	NA
LCS1W	SSE003WL	74.6	1	NA	10	10	10	5/16/1712:23	NA	17SSE00302	17SSE003	SSE003W	NA	NA
LCD1W	SSE003WC	78.6	1	NA	10	10	10	5/16/1712:23	NA	17SSE00303	17SSE003	SSE003W	NA	NA
12-MW31-0517	E087-01	ND	1	NA	10	10	10	5/16/1712:23	NA	17SSE00309	17SSE003	SSE003W	05/10/1711:00	05/11/17
12-MW17-0517	E087-02	16.5	1	NA	10	10	10	5/16/1712:23	NA	17SSE00310	17SSE003	SSE003W	05/10/1713:10	05/11/17

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : NOREAS
PROJECT : TREASURE ISLAND, IR SITE 12
BATCH NO. : 17E087
METHOD : SM2540D

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : SSE003WB SSE003WL SSE003WC
LAB FILE ID : 17SSE00301 17SSE00302 17SSE00303
DATE EXTRACTED : NA NA NA
DATE ANALYZED : 5/16/1712:23 5/16/1712:23 5/16/1712:23
PREP BATCH : SSE003W SSE003W SSE003W
CALIBRATION REF: 17SSE003 17SSE003 17SSE003

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
SUSPENDED SOLIDS	ND	80.8	74.6	92	80.8	78.6	97	5	80-120	20



TOTAL SUSPENDED SOLIDS

17SSE003

DataFileID	Sample ID	Sample Am(m)	Dish + Filter #	1stWT Dish+Filter(g)	2ndWT Dish+Filter(g)	1stDry Wt+Dish(g)	DateTime	2ndDry Wt+Dish(g)	DateTime	FinalDry Wt+Dish(g)	DateTime	Diff.of DryWt. Rdgs(<0.5mg)	Solids (mg)	TSS (mg/L)	Result (mg/L)
17SSE00301	SSE003WB	1000	B	1.1044	1.1044	1.1033	5/16/17 17:04	1.10316	5/16/17 18:46			0.14	-1.28	-1.28	ND
17SSE00302	SSE003WL	100	L	1.1078	1.1076	1.11509	5/16/17 17:05	1.11508	5/16/17 18:46			0.01	7.46	74.6	74.6
17SSE00303	SSE003WC	100	C	1.1099	1.1097	1.11764	5/16/17 17:05	1.11757	5/16/17 18:47			0.07	7.86	78.6	78.6
17SSE00304	E112-01	1000	1	1.096	1.0959	1.11216	5/16/17 17:05	1.11193	5/16/17 18:47			0.23	16.08	16.08	16.1
17SSE00305	E416-02	1000	2	1.3741	1.3738	1.38345	5/16/17 17:06	1.38306	5/16/17 18:47			0.39	9.28	9.28	ND
17SSE00306	E498-01	150	3	1.0989	1.0987	1.10997	5/16/17 17:06	1.10973	5/16/17 18:48			0.24	11.05	73.66666667	73.7
17SSE00307	E499-01	170	4	1.1079	1.1076	1.13052	5/16/17 17:07	1.13058	5/16/17 18:48			0.06	22.95	135	135
17SSE00308	E499-01D	170	5	1.1024	1.1022	1.12583	5/16/17 17:07	1.12573	5/16/17 18:49			0.1	23.49	138.1764706	138
17SSE00309	E087-01	140	6	1.1017	1.1015	1.10274	5/16/17 17:08	1.10267	5/16/17 18:49			0.07	1.14	8.142857143	ND
17SSE00310	E087-02	230	7	1.3769	1.3767	1.38058	5/16/17 17:08	1.38049	5/16/17 18:49			0.09	3.8	16.52173913	16.5
17SSE00311	E105-01	120	8	1.107	1.1069	1.10799	5/16/17 17:09	1.10797	5/16/17 18:50			0.02	1.07	8.916666667	ND
17SSE00312	E105-02	120	9	1.0981	1.0979	1.09782	5/16/17 17:09	1.0977	5/16/17 18:50			0.12	-0.23	-1.916666667	ND
17SSE00313	E105-03	120	10	1.097	1.0968	1.0969	5/16/17 17:09	1.0968	5/16/17 18:50			0.1	-0.04	-0.333333333	ND
17SSE00314	E105-05	120	11	1.1058	1.1057	1.10667	5/16/17 17:10	1.10644	5/16/17 18:51			0.23	0.78	6.5	ND
17SSE00315	E105-06	120	12	1.1083	1.1082	1.10906	5/16/17 17:10	1.1089	5/16/17 18:51			0.16	0.73	6.083333333	ND
17SSE00316	E105-07	120	13	1.1043	1.1041	1.10418	5/16/17 17:10	1.10411	5/16/17 18:51			0.07	-0.01	-0.083333333	ND
17SSE00317	E105-07D	120	14	1.3702	1.3701	1.37025	5/16/17 17:11	1.37009	5/16/17 18:52			0.16	0.04	0.333333333	ND

Std. Wt. (g)	Balance Rdg (g)	Date	Comments
0.1	0.0999	5/16/17 12:22	PASSED
5	5.0002	5/16/17 12:22	PASSED
100	100.0109	5/16/17 12:23	PASSED

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	5/16/17 18:52	PASSED
5	5.0004	5/16/17 18:53	PASSED
100	100.0106	5/16/17 18:53	PASSED

Balance ID: 402426 Weight ID: HN4977/62785

Acceptance Criteria: +/- 0.1% or 0.5 mg whichever is greater

StandardID	Desc.	Conc. (mg/L)	ExpDate
RW-17-001	MB	ND	NA
SW2-07-21-07	LCS	80.8	04/27/18
HC581117	pH Strip	0-14	01/12/26

LabSampleID	Result	Expected Value	QC Result
SSE003WB	ND	ND	MB Passed
SSE003WL	74.6	80.8	%R=92
SSE003WC	78.6	80.8	%R=97
E499-01D	138	135	%D=2
E105-07D	ND	ND	0.0

Oven Drying	Thermometer ID: 660330	Notes: Samples were overdried at 103-105°C.
1st Drying		
<input checked="" type="checkbox"/> Start	5/16/17 15:29	Temp 105 °C
Insufficient sample amount was provided for sample E087-01 and E105-01, -02, -03, -05, -06, -07.		
<input checked="" type="checkbox"/> End	5/16/17 16:29	Temp 105 °C
Minimum amount of solids were unable to be collected.		
2nd Drying		
<input checked="" type="checkbox"/> Start	5/16/17 17:12	Temp 105 °C
<input checked="" type="checkbox"/> End	5/16/17 18:12	Temp 105 °C
3rd Drying		
<input type="checkbox"/> Start		Temp °C
<input type="checkbox"/> End		Temp °C

SOP Analyzed by: GHerna
 EMAX-160.2 Rev. 6 Checked by: GH
 EMAX-25400 Rev. 4 Date: 5/19/17
 LOQ: 10 mg/L
 Filter Lot#: T61374
 Micropipette ID: NA

LABORATORY REPORT FOR

NOREAS

TREASURE ISLAND, IR SITE 12

RADIUM-226

SDG#: 17E087

May 23, 2017

Mr. Richard Beauvil
EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, California 90501

Re: Treasure Island, IR Site 12 NO_1702
Work Order: 423160
SDG: 17E087

Dear Mr. Beauvil:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 13, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4289.

Sincerely,

Julie Robinson
Project Manager

Chain of Custody: 17E087
Enclosures

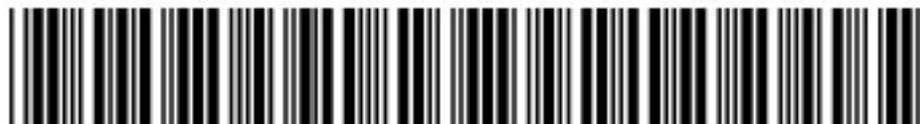


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DODQSM Cover Sheet

DOD-QSM Cover Sheet
Treasure Island, IR Site 12

May 23, 2017

GEL Laboratories, LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Project Manager: Julie Robinson
Phone Extension: 4289
Email: Julie.Robinson@gel.com

Contract Purchase Order: Quote

Work Order: 423160 **SDG:** 17E087

Client Contact:
Richard Beauvil
EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, California 90501

Project Identification: Treasure Island, IR Site 12 Treasure Island, IR

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

GEL appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 13, 2017. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures. If you have any questions, please do not hesitate to contact me at the phone number or e-mail address listed above.

Sincerely,



Julie Robinson
Project Manager

Case Narrative

**DODQSM Case Narrative
for
EMAX Laboratories, Inc.
SDG: 17E087
Work Order: 423160**

May 23, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 13, 2017 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
423160001	E087-01
423160002	E087-02
423160003	E087-04
423160004	E087-05

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Radiochemistry.



Julie Robinson
Project Manager

Chain of Custody and Supporting Documentation

CHAIN OF CUSTODY

423160



Tel#: 310-618-8889 FAX#: 310-618-0818
email: info@emaxlabs.com

EMAX CONTROL NO	17E087
PROJECT CODE	NO 1702
TURN-AROUND-TIME	10 BUS. DAYS

SEND REPORT TO:
EMAX LABORATORIES, INC.
1835 W. 205TH ST. CA 90501

CLIENT: NOREAS
PROJECT: Treasure Island, IR Site 12

SEND SAMPLES TO:

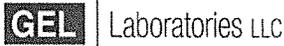
GEL
2040 Savage Road
Charleston, SC 29407
ATTN: Julie Robinson / Joann Hanley

ATTN: Richard Beauvil

EMAX Sample ID	Client Sample ID	Collection Date	CollectionTime	Matrix	Method	COMMENTS
E087-01	12-MW31-0517	5/10/2017	11:00:00 AM	WATER	E903.1 Radium-226	
E087-02	12-MW17-0517	5/10/2017	1:10:00 PM	WATER	E903.1 Radium-226	
E087-03	12-MW34-0517	5/10/2017	1:40:00 PM	WATER	E903.1 Radium-226	
E087-04	QCEB-0517	5/10/2017	2:00:00 PM	WATER	E903.1 Radium-226	
E087-05	QCSB-0517	5/10/2017	8:25:00 AM	WATER	E903.1 Radium-226	

INSTRUCTION: *Data Package: IHC mailed to EMAX and 1 PDF emailed to rbeauvil@emaxlabs.com* COOLER TEMPERATURE
EDDs: NEDI and EDF getracher (Specs sent via email on 5/12/17)

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>JEFF Y.</i>	<i>5/12/17</i>	<i>11:43</i>	<i>Joann</i>	<i>5/13/17</i>	<i>11:45</i>



SAMPLE RECEIPT & REVIEW FORM

Client:		SDG/AR/COC/Work Order: <u>423160</u>	
Received By: <u>ZKW</u>		Date Received: <u>5/15/17</u>	
Carrier and Tracking Number		Circle Applicable: <input checked="" type="radio"/> FedEx Express <input type="radio"/> FedEx Ground <input type="radio"/> UPS <input type="radio"/> Field Services <input type="radio"/> Courier <input type="radio"/> Other <u>7238 5258 2930</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="radio"/> CPM mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Preservation Method: <input checked="" type="radio"/> Wet Ice <input type="radio"/> Ice Packs <input type="radio"/> Dry ice <input type="radio"/> None <input type="radio"/> Other: *all temperatures are recorded in Celsius TEMP: <u>1°C</u>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input type="checkbox"/>			If Yes, Are Encores or Soil Kits present? Yes ___ No ___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ___ No ___ N/A ___ (If unknown, select No) VOA vials free of headspace? Yes ___ No ___ N/A ___ <input checked="" type="checkbox"/> Sample ID's and containers affected:
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials JR Date 5/15/17 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 23 May 2017

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122017-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-17-12
Utah NELAP	SC000122017-22
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

**Radiochemistry
 Technical Case Narrative
 EMAX Laboratories, Inc. (EMAX)
 SDG #: 17E087
 Work Order #: 423160**

Method/Analysis Information

Product: Lucas Cell, Ra226, Liquid

Analytical Method: EPA 903.1 Modified

Analytical Batch Number: 1665896

Sample ID	Client ID
423160001	E087-01
423160002	E087-02
423160003	E087-04
423160004	E087-05
1203791421	Method Blank (MB)
1203791424	Laboratory Control Sample (LCS)
1203791422	423282001(NonSDG) Sample Duplicate (DUP)
1203791423	423282001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-008 REV# 14.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 423282001 (NonSDG).

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required prep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:**Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike, 1203791423 (Non SDG 423282001MS), aliquot was reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Qualifier Definition Report
for**

EMAX006 EMAX Laboratories, Inc.

Client SDG: 17E087 GEL Work Order: 423160

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Kate Gellatly

Date: 22 MAY 2017

Title: Analyst I

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 22, 2017

Company : EMAX Laboratories, Inc.
 Address : 1835 W. 205th Street
 Torrance, California 90501
 Contact: Mr. Richard Beauvil
 Project: Treasure Island, IR Site 12NO_1702

Client Sample ID:	E087-01	Project:	EMAX00117
Sample ID:	423160001	Client ID:	EMAX006
Matrix:	Water		
Collect Date:	10-MAY-17 11:00		
Receive Date:	13-MAY-17		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.184	+/-0.240	0.411	1.00	pCi/L			MXH8	05/21/17	0945	1665896	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 903.1 Modified	

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 22, 2017

Company : EMAX Laboratories, Inc.
 Address : 1835 W. 205th Street
 Torrance, California 90501
 Contact: Mr. Richard Beauvil
 Project: Treasure Island, IR Site 12NO_1702

Client Sample ID: E087-02	Project: EMAX00117
Sample ID: 423160002	Client ID: EMAX006
Matrix: Water	
Collect Date: 10-MAY-17 13:10	
Receive Date: 13-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.618	+/-0.393	0.555	1.00	pCi/L			MXH8	05/21/17	0945	1665896	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 903.1 Modified	

Notes:
 Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
 2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 22, 2017

Company : EMAX Laboratories, Inc.
 Address : 1835 W. 205th Street

 Torrance, California 90501
 Contact: Mr. Richard Beauvil
 Project: Treasure Island, IR Site 12NO_1702

Client Sample ID:	E087-04	Project:	EMAX00117
Sample ID:	423160003	Client ID:	EMAX006
Matrix:	Water		
Collect Date:	10-MAY-17 14:00		
Receive Date:	13-MAY-17		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	-0.0335	+/-0.254	0.542	1.00	pCi/L			MXH8	05/21/17	0945	1665896	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 903.1 Modified	

Notes:
 Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
 DF: Dilution Factor Lc/LC: Critical Level
 DL: Detection Limit PF: Prep Factor
 MDA: Minimum Detectable Activity RL: Reporting Limit
 MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 22, 2017

Company : EMAX Laboratories, Inc.
 Address : 1835 W. 205th Street
 Torrance, California 90501
 Contact: Mr. Richard Beauvil
 Project: Treasure Island, IR Site 12NO_1702

Client Sample ID: E087-05	Project: EMAX00117
Sample ID: 423160004	Client ID: EMAX006
Matrix: Water	
Collect Date: 10-MAY-17 08:25	
Receive Date: 13-MAY-17	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.01	+/-0.479	0.602	1.00	pCi/L			MXH8	05/21/17	0945	1665896	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 903.1 Modified	

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC
 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: May 22, 2017

Page 1 of 2

EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, California

Contact: Mr. Richard Beauvil

Workorder: 423160

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Ra-226											
Batch	1665896										
QC1203791422	423282001	DUP									
Radium-226			1.11	1.03	pCi/L	7.92		(0% - 100%)	MXH8	05/21/17	10:15
	Uncertainty		+/-0.504	+/-0.436							
QC1203791424	LCS										
Radium-226	26.0			25.6	pCi/L		98.6	(75%-125%)		05/21/17	10:15
	Uncertainty			+/-1.85							
QC1203791421	MB										
Radium-226			U	0.184	pCi/L					05/21/17	09:45
	Uncertainty			+/-0.331							
QC1203791423	423282001	MS									
Radium-226	130		1.11	108	pCi/L		82.7	(75%-125%)		05/21/17	10:15
	Uncertainty		+/-0.504	+/-7.98							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M REMP Result > MDC/CL and < RDL
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 423160

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Lucas Cell Raw Data

21-May-2017

Batch# 1605896 Product: TCa-220 Date: 5/21/17

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay. For Drinking Water procedures the error is less than or equal to 100% of sample activity.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.			NA
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within contract or method limits or 75- 125% if none specified.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stated.	✓		
MS, LCS, and Duplicate RPD/RER values uploaded to LIMS and values verified	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			NA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			NA
Aliquot Correction completed if required.			NA
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

Primary Review Performed By: [Signature]
Secondary Review Performed By: [Signature]

EMAX 5/21/17

Radium-226 Queue Sheet

17-MAY-17

GEL Laboratories, Radiochemistry Division

Batch #: 1665896 Analyst: MXH8 First Client Due Date: 05/26/2017 Internal Due Date: 05/23/2017
 Spike Isotope: Radium-226 Spike Code: 1715B Expiration Date: 1/25/18 Vol: 0.1 End Initial/Degas Date/Time: AP 5/17/17 12:20
 LCS Isotope: Radium-226 LCS Code: 1715B Expiration Date: 1/25/18 Vol: 0.1 End LN De-em Date: 5/21/17
 Bkg Count Time: 30 (Min) Sample Count Time: 30 (Min) Start Count Date: 5/21/17
 Prep Date: 5/17/17 Pipet ID: 2766953 Balance ID: 2525214 Initials: TP Witness: N/A

Sample I	Client Description	Type	Hazard Code Matrix	Min CRDL	Client	Position (Label)	Aliquot (mL or g)	End LN De-em Time	Start Count Time	Cell #	Det #	Bkg counts	Total Counts
423160001-1	E087-01	SAMPLE	WATER	1 pCi/L	EMAX006	1	500	0630	0945	206	2	5	11
423160002-1	E087-02	SAMPLE	WATER	1 pCi/L	EMAX006	2	500	0630	0945	302	3	8	26
423160003-1	E087-04	SAMPLE	WATER	1 pCi/L	EMAX006	3	500	0630	0945	405	4	8	7
423160004-1	E087-05	SAMPLE	WATER	1 pCi/L	EMAX006	4	500	0630	0945	511	5	8	35
423282001-1	IR01MW60A-051017	SAMPLE	WASTE WATE	1 pCi/L	EMAX012	5	500	0630	0945	602	6	8	37
423282002-1	IR01MW64A-051117	SAMPLE	WASTE WATE	1 pCi/L	EMAX012	6	500	0630	0945	704	7	1	12
1203791421-1	MB for batch 1665896	MB	WATER	1 pCi/L	QC ACCOUNT	7	500	0630	0945	807	8	8	13
1203791422-1	IR01MW60A-051017(423282001)DUPDUP		WASTE WATE	1 pCi/L	QC ACCOUNT	8	500	0650	1015	107	1	8	40
1203791423-1	IR01MW60A-051017(423282001)MS		WASTE WATE	1 pCi/L	QC ACCOUNT	9	100	0650	1015	207	2	1	713
1203791424-1	LCS for batch 1665896	LCS	WATER	1 pCi/L	QC ACCOUNT	10	500	0650	1015	307	3	4	748

Comments: _____

Data Reviewed By: [Signature] 5/21/17

RA1665896

Radium-226 Liquid

Filename : RA226.XLS
 File type : Excel
 Version # : 1.3.2

Procedure Code : LUC26RAL
 Parmname : Radium-226

Required MDA : 1 pCi/L
 Halflife of Ra-226 : 1600 years
 Ra-226 Abundance : 1.00
 Halflife of Rn-222 : 3.8235 days

Batch : 1665896
 Analyst : MXH8
 Prep Date : 5/17/2017

Ra-226 Method Uncertainty : 0.073648

Batch counted on : LUCAS CELL DETECTOR
 BKG Count time : 30 min

Sample Characteristics					Count Raw Data						Background	
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Background Counts	Background CPM	Count Time (min.)	Cell Efficiency (cpm/dpm)
1	423160001.1	0.5000	2.0256E-05	5/10/2017 11:00	206	30	11	0.367	5	0.167	30	2.0360
2	423160002.1	0.5000	2.0256E-05	5/10/2017 13:10	302	30	26	0.867	8	0.267	30	1.8170
3	423160003.1	0.5000	2.0256E-05	5/10/2017 14:00	405	30	7	0.233	8	0.267	30	1.8630
4	423160004.1	0.5000	2.0256E-05	5/10/2017 8:25	511	30	35	1.167	8	0.267	30	1.6750
5	423282001.1	0.5000	2.0256E-05	5/10/2017 10:30	602	30	37	1.233	8	0.267	30	1.6280
6	423282002.1	0.5000	2.0256E-05	5/11/2017 10:35	704	30	12	0.400	1	0.033	30	2.1400
7	1203791421.1	0.5000	2.0256E-05	5/17/2017 0:00	807	30	13	0.433	8	0.267	30	1.6930
8	1203791422.1	0.5000	2.0256E-05	5/10/2017 10:30	107	30	40	1.333	8	0.267	30	1.9420
9	1203791423.1	0.1000	1.1370E-05	5/10/2017 10:30	207	30	713	23.767	1	0.033	30	2.0460
10	1203791424.1	0.5000	2.0256E-05	5/17/2017 0:00	307	30	748	24.933	4	0.133	30	1.8120

RA1665896

Pipet, 0.1 ml Stdev : +/- 0.000200 ml
 Pipet, 0.5 ml Stdev : +/- 0.001000 ml
 Pipet, 1 ml Stdev : +/- 0.002000 ml

Analytical SOP: GL-RAD-A-008
 Instrument SOP: GL-RAD-I-007

Cell Efficiency Error (%)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	Rn-222 Corrections			Ra-226 Decay
						De-Gas to Ingrowth	Ingrowth to Count	During Count	
4.900%	8/8/2016	7/31/2017	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
2.600%	3/31/2017	3/31/2018	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
3.500%	3/1/2017	2/28/2018	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
6.500%	10/4/2016	9/30/2017	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
7.800%	7/1/2016	6/30/2017	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
4.900%	10/26/2016	10/31/2017	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
1.100%	3/17/2017	3/31/2018	5/17/2017 12:20	5/21/2017 6:30	5/21/2017 9:45	0.494	0.976	1.002	1.000
2.100%	4/20/2017	4/30/2018	5/17/2017 12:20	5/21/2017 6:50	5/21/2017 10:15	0.495	0.975	1.002	1.000
4.300%	8/8/2016	7/31/2017	5/17/2017 12:20	5/21/2017 6:50	5/21/2017 10:15	0.495	0.975	1.002	1.000
3.100%	3/31/2017	3/31/2018	5/17/2017 12:20	5/21/2017 6:50	5/21/2017 10:15	0.495	0.975	1.002	1.000

RA1665896

Notes:

- 1 - Results are decay corrected to Sample Date/Time
- 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
- 3 - Spike Nominals are decay corrected to Sample Date/Time

Spike S/N : 1715-B
 Spike Exp Date : 1/25/2018
 Spike Activity (dpm/ml): 288.17
 Spike Volume Added: 0.10

LCS S/N : 1715-B
 LCS Exp Date : 1/25/2018
 LCS Activity (dpm/ml): 288.17
 LCS Volume Added: 0.10

Results Pos.	Decision	Critical	Required	Sample Act.		Sample Act.	Net Count	Net Count	2 SIGMA	2 SIGMA	Sample	Sample	RPD	RER	Nominal	Recovery
	Level	Level	MDA	MDA	Conc.	Error	Rate	Rate Error	Counting	Total Prop.						
	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	%	CPM	CPM	Uncertainty	Uncertainty						
1	0.2259	0.1595	1	0.4110	0.1840	66.85%	0.2000	0.1333	0.2404	0.2425		SAMPLE				
2	0.3202	0.2261	1	0.5552	0.6184	32.50%	0.6000	0.1944	0.3927	0.4039		SAMPLE				
3	0.3123	0.2205	1	0.5415	-0.0335	387.31%	-0.0333	0.1291	0.2544	0.2544		SAMPLE				
4	0.3474	0.2452	1	0.6023	1.0063	25.14%	0.9000	0.2186	0.4790	0.5167		SAMPLE				
5	0.3574	0.2523	1	0.6197	1.1120	24.41%	0.9667	0.2236	0.5042	0.5558		SAMPLE				
6	0.0961	0.0679	1	0.2232	0.3209	33.14%	0.3667	0.1202	0.2062	0.2135		SAMPLE				
7	0.3437	0.2426	1	0.5959	0.1844	91.66%	0.1667	0.1528	0.3312	0.3323		MB				
8	0.2992	0.2112	1	0.5188	1.0273	21.75%	1.0667	0.2309	0.4359	0.4624	423282001.1	DUP	7.9%			
9	0.5020	0.3544	1	1.1660	108.4797	5.71%	23.7333	0.8907	7.9795	19.8108	423282001.1	MS			129.8093	82.7%
10	0.2267	0.1601	1	0.4234	25.5986	4.82%	24.8000	0.9141	1.8493	4.4151		LCS			25.9617	98.6%

Continuing Calibration Data



Ludlum Alpha Scintillation Counter Checks for 21-MAY-2017

Short Name	Parmname	Run Time	Count Time	Counts	CPM	Stdev	Status	Comments
LUCAS1	EFF	05:45	1	1.28E+05	128006	-2.69		
LUCAS2	EFF	05:45	1	1.30E+05	129741	0.61		
LUCAS3	EFF	05:45	1	1.40E+05	139910	0.35		
LUCAS4	EFF	05:45	1	1.31E+05	130772	-0.9		
LUCAS5	EFF	05:45	1	1.35E+05	134987	-1.39		
LUCAS6	EFF	05:45	1	1.40E+05	140017	0.15		
LUCAS7	EFF	05:45	1	1.41E+05	140723	-1.38		
LUCAS8	EFF	05:45	1	1.38E+05	137611	-0.39		

Reviewed by:

Lyndsey Pace

Date: 21-MAY-17

GEL Laboratories LLC

Quality Control Charts

Data used for Lucas Cell - Ra226 Liquids 22-MAY-2017

Radium-226 BLANK: Limits LCL = -0.4 UCL = 0.7

Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1660752	1203778919	05-MAY-2017 08:10	DONE	0.11	-0.24	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1659635	1203776373	05-MAY-2017 09:15	DONE	-0.068	-1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1659635	1203775321	05-MAY-2017 09:15	DONE	0.17	0.05	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1659267	1203775624	05-MAY-2017 10:55	DONE	-0.041	-1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658521	1203773616	07-MAY-2017 08:20	DONE	0.26	0.56	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1661126	1203779920	07-MAY-2017 08:55	DONE	0.09	-0.32	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1661477	1203780676	07-MAY-2017 10:00	DONE	0.56	2.1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1661477	1203779791	07-MAY-2017 10:00	DONE	0.92	3.9	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658516	1203773592	07-MAY-2017 10:30	DONE	0.06	-0.49	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1662404	1203782949	08-MAY-2017 08:10	DONE	0.22	0.32	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658513	1203773585	08-MAY-2017 10:00	DONE	0.09	-0.34	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1656711	1203769347	08-MAY-2017 11:00	DONE	0.29	0.71	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1659636	1203776376	09-MAY-2017 08:10	DONE	0.17	0.1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660756	1203778934	09-MAY-2017 08:10	DONE	0.02	-0.69	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660754	1203778928	09-MAY-2017 09:45	DONE	0.19	0.16	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658520	1203773612	09-MAY-2017 10:50	DONE	-0.047	-1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1656712	1203769352	10-MAY-2017 09:15	DONE	0.34	0.93	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658519	1203773602	10-MAY-2017 10:50	DONE	0.2	0.23	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1659225	1203775509	11-MAY-2017 09:58	DONE	0.11	-0.24	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660758	1203778942	12-MAY-2017 09:20	DONE	0.02	-0.68	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663241	1203783251	12-MAY-2017 10:25	DONE	0.3	0.75	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1662796	1203784005	12-MAY-2017 10:25	DONE	-0.14	-2	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663241	1203785138	12-MAY-2017 12:05	DONE	0.2	0.22	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663288	1203785272	12-MAY-2017 13:15	DONE	0.51	1.8	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663925	1203786661	15-MAY-2017 08:10	DONE	0.15	-0.01	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660759	1203778946	15-MAY-2017 08:41	DONE	0.12	-0.2	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1658524	1203773624	15-MAY-2017 10:21	DONE	0.36	1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663679	1203786157	16-MAY-2017 09:15	DONE	0.19	0.2	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660777	1203779000	16-MAY-2017 11:05	DONE	0.06	-0.52	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660776	1203778996	17-MAY-2017 09:10	DONE	0	-0.8	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660778	1203779004	17-MAY-2017 10:50	DONE	0	-0.8	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660782	1203779014	18-MAY-2017 08:40	DONE	0.07	-0.44	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660780	1203779010	18-MAY-2017 10:55	DONE	0.06	-0.51	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1661480	1203780686	19-MAY-2017 08:50	DONE	0.13	-0.11	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1662990	1203784534	19-MAY-2017 09:25	DONE	0.04	-0.57	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1663684	1203786169	19-MAY-2017 10:40	DONE	-0.09	-1	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1662987	1203784526	19-MAY-2017 11:10	DONE	0.18	0.12	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1660775	1203778992	21-MAY-2017 09:10	DONE	0.08	-0.39	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19
1665896	1203791421	21-MAY-2017 09:45	DONE	0.18	0.15	pCi/L	0.16	-0.428	-0.234	0.55	0.74	0.19

Radium-226 DUP: Limits LCL = 0 UCL = 20.0

Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stddev
1656704	1203769319	01-MAY-2017 08:55	DONE	19.5	-0.31	percent	28.9	0	-32	89.5	20.0	30.3
1656706	1203769327	01-MAY-2017 10:06	DONE	35.6	0.22	percent	28.9	0	-32	89.5	20.0	30.3
1656707	1203769331	02-MAY-2017 08:50	DONE	68.3	1.3	percent	28.9	0	-32	89.5	20.0	30.3
1657301	1203770603	02-MAY-2017 10:55	DONE	3.63	-0.84	percent	28.9	0	-32	89.5	20.0	30.3
1656705	1203769323	03-MAY-2017 09:10	DONE	8.15	-0.69	percent	28.9	0	-32	89.5	20.0	30.3
1656708	1203769335	03-MAY-2017 10:10	DONE	0	-0.96	percent	28.9	0	-32	89.5	20.0	30.3
1660209	1203777508	04-MAY-2017 08:40	DONE	6.21	-0.75	percent	28.9	0	-32	89.5	20.0	30.3
1660488	1203778242	04-MAY-2017 09:10	DONE	36.4	0.25	percent	28.9	0	-32	89.5	20.0	30.3
1658511	1203773573	04-MAY-2017 10:50	DONE	11.8	-0.57	percent	28.9	0	-32	89.5	20.0	30.3
1660752	1203778920	05-MAY-2017 08:10	DONE	16.5	-0.41	percent	28.9	0	-32	89.5	20.0	30.3
1659636	1203776377	05-MAY-2017 10:20	DONE	86.8	1.9	percent	28.9	0	-32	89.5	20.0	30.3
1659267	1203775625	05-MAY-2017 10:55	DONE	46.9	0.59	percent	28.9	0	-32	89.5	20.0	30.3
1658521	1203773617	07-MAY-2017 08:20	DONE	37.7	0.29	percent	28.9	0	-32	89.5	20.0	30.3
1661126	1203779921	07-MAY-2017 08:55	DONE	0.95	-0.92	percent	28.9	0	-32	89.5	20.0	30.3
1658516	1203773593	07-MAY-2017 10:30	DONE	20.2	-0.29	percent	28.9	0	-32	89.5	20.0	30.3
1662404	1203782950	08-MAY-2017 08:10	DONE	0	-0.96	percent	28.9	0	-32	89.5	20.0	30.3
1658513	1203773586	08-MAY-2017 10:00	DONE	0	-0.96	percent	28.9	0	-32	89.5	20.0	30.3
1656711	1203769348	08-MAY-2017 11:00	DONE	4.38	-0.81	percent	28.9	0	-32	89.5	20.0	30.3
1660756	1203778935	09-MAY-2017 08:10	DONE	29.6	0.02	percent	28.9	0	-32	89.5	20.0	30.3
1660754	1203778929	09-MAY-2017 09:45	DONE	14.1	-0.49	percent	28.9	0	-32	89.5	20.0	30.3
1658520	1203773613	09-MAY-2017 10:50	DONE	0	-0.96	percent	28.9	0	-32	89.5	20.0	30.3
1656712	1203769353	10-MAY-2017 09:15	DONE	0.95	-0.92	percent	28.9	0	-32	89.5	20.0	30.3
1658519	1203773603	10-MAY-2017 10:50	DONE	51.2	0.74	percent	28.9	0	-32	89.5	20.0	30.3
1659225	1203775510	11-MAY-2017 12:05	DONE	90.9	2	percent	28.9	0	-32	89.5	20.0	30.3
1660758	1203778943	12-MAY-2017 09:20	DONE	37.9	0.3	percent	28.9	0	-32	89.5	20.0	30.3
1662796	1203784006	12-MAY-2017 10:25	DONE	68.1	1.3	percent	28.9	0	-32	89.5	20.0	30.3
1663288	1203785273	12-MAY-2017 11:00	DONE	7.17	-0.72	percent	28.9	0	-32	89.5	20.0	30.3
1660759	1203778947	15-MAY-2017 08:41	DONE	39.7	0.36	percent	28.9	0	-32	89.5	20.0	30.3
1663679	1203786158	16-MAY-2017 09:15	DONE	124	3.1	percent	28.9	0	-32	89.5	20.0	30.3
1660777	1203779001	16-MAY-2017 11:35	DONE	4.12	-0.82	percent	28.9	0	-32	89.5	20.0	30.3
1660776	1203778997	17-MAY-2017 09:10	DONE	29.8	0.03	percent	28.9	0	-32	89.5	20.0	30.3
1660778	1203779005	17-MAY-2017 10:50	DONE	4.38	-0.81	percent	28.9	0	-32	89.5	20.0	30.3
1660782	1203779015	18-MAY-2017 08:40	DONE	33.8	0.16	percent	28.9	0	-32	89.5	20.0	30.3
1660780	1203779011	18-MAY-2017 10:55	DONE	21.8	-0.24	percent	28.9	0	-32	89.5	20.0	30.3
1661480	1203780687	19-MAY-2017 08:50	DONE	74.8	1.5	percent	28.9	0	-32	89.5	20.0	30.3
1662990	1203784535	19-MAY-2017 09:25	DONE	12.6	-0.54	percent	28.9	0	-32	89.5	20.0	30.3
1663684	1203786172	19-MAY-2017 10:40	DONE	65.5	1.2	percent	28.9	0	-32	89.5	20.0	30.3
1662987	1203784527	19-MAY-2017 11:10	DONE	7.32	-0.71	percent	28.9	0	-32	89.5	20.0	30.3
1665896	1203791422	21-MAY-2017 10:15	DONE	7.92	-0.69	percent	28.9	0	-32	89.5	20.0	30.3

Radium-226 LCS: Limits LCL = 75.0 UCL = 125

Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1659635	1203776374	05-MAY-2017 09:15	DONE	80.8	-2	percent	100	75.0	83.3	117	125	8.33
1659635	1203776375	05-MAY-2017 09:15	DONE	91.5	-1	percent	100	75.0	83.3	117	125	8.33
1659267	1203775627	05-MAY-2017 10:55	DONE	83.5	-2	percent	100	75.0	83.3	117	125	8.33
1658521	1203773620	07-MAY-2017 08:55	DONE	93.3	-0.81	percent	100	75.0	83.3	117	125	8.33
1661126	1203779923	07-MAY-2017 08:55	DONE	79	-3	percent	100	75.0	83.3	117	125	8.33
1661477	1203780677	07-MAY-2017 10:00	DONE	95.4	-0.56	percent	100	75.0	83.3	117	125	8.33
1661477	1203780678	07-MAY-2017 10:00	DONE	91.7	-0.99	percent	100	75.0	83.3	117	125	8.33
1658516	1203773595	07-MAY-2017 10:30	DONE	77.2	-3	percent	100	75.0	83.3	117	125	8.33
1662404	1203782952	08-MAY-2017 08:10	DONE	97.9	-0.25	percent	100	75.0	83.3	117	125	8.33
1658513	1203773588	08-MAY-2017 10:00	DONE	81.1	-2	percent	100	75.0	83.3	117	125	8.33
1656711	1203769351	08-MAY-2017 11:30	DONE	81	-2	percent	100	75.0	83.3	117	125	8.33
1659636	1203776379	09-MAY-2017 08:10	DONE	103	0.38	percent	100	75.0	83.3	117	125	8.33
1660756	1203778937	09-MAY-2017 08:10	DONE	92.5	-0.9	percent	100	75.0	83.3	117	125	8.33
1660754	1203778932	09-MAY-2017 09:45	DONE	117	2.1	percent	100	75.0	83.3	117	125	8.33
1658520	1203773615	09-MAY-2017 10:50	DONE	84.9	-2	percent	100	75.0	83.3	117	125	8.33
1656712	1203769356	10-MAY-2017 09:15	DONE	91.1	-1	percent	100	75.0	83.3	117	125	8.33
1658519	1203773605	10-MAY-2017 10:50	DONE	87.5	-2	percent	100	75.0	83.3	117	125	8.33
1659225	1203775512	11-MAY-2017 12:05	DONE	75.7	-3	percent	100	75.0	83.3	117	125	8.33
1660758	1203778945	12-MAY-2017 09:20	DONE	93.3	-0.81	percent	100	75.0	83.3	117	125	8.33
1663241	1203785140	12-MAY-2017 10:25	DONE	83.5	-2	percent	100	75.0	83.3	117	125	8.33
1662796	1203784008	12-MAY-2017 11:00	DONE	97.5	-0.3	percent	100	75.0	83.3	117	125	8.33
1663288	1203785275	12-MAY-2017 11:30	DONE	103	0.38	percent	100	75.0	83.3	117	125	8.33
1663241	1203785139	12-MAY-2017 13:00	DONE	77	-3	percent	100	75.0	83.3	117	125	8.33
1663925	1203786664	15-MAY-2017 08:10	DONE	87.5	-1	percent	100	75.0	83.3	117	125	8.33
1660759	1203778949	15-MAY-2017 08:41	DONE	111	1.3	percent	100	75.0	83.3	117	125	8.33
1658524	1203773627	15-MAY-2017 10:55	DONE	88.9	-1	percent	100	75.0	83.3	117	125	8.33
1663679	1203786160	16-MAY-2017 09:55	DONE	91.8	-0.99	percent	100	75.0	83.3	117	125	8.33
1660777	1203779003	16-MAY-2017 11:35	DONE	94.8	-0.63	percent	100	75.0	83.3	117	125	8.33
1660776	1203778999	17-MAY-2017 09:10	DONE	92.1	-0.94	percent	100	75.0	83.3	117	125	8.33
1660778	1203779007	17-MAY-2017 10:50	DONE	82.4	-2	percent	100	75.0	83.3	117	125	8.33
1660782	1203779017	18-MAY-2017 09:15	DONE	87.5	-1	percent	100	75.0	83.3	117	125	8.33
1660780	1203779013	18-MAY-2017 10:55	DONE	76.4	-3	percent	100	75.0	83.3	117	125	8.33
1661480	1203780689	19-MAY-2017 08:50	DONE	75.4	-3	percent	100	75.0	83.3	117	125	8.33
1662990	1203784537	19-MAY-2017 09:25	DONE	80.5	-2	percent	100	75.0	83.3	117	125	8.33
1663684	1203786178	19-MAY-2017 10:40	DONE	87.5	-2	percent	100	75.0	83.3	117	125	8.33
1662987	1203784529	19-MAY-2017 11:10	DONE	97	-0.36	percent	100	75.0	83.3	117	125	8.33
1660775	1203778995	21-MAY-2017 09:10	DONE	79.4	-2	percent	100	75.0	83.3	117	125	8.33
1660775	1203784497	21-MAY-2017 09:45	DONE	88.9	-1	percent	100	75.0	83.3	117	125	8.33
1665896	1203791424	21-MAY-2017 10:15	DONE	98.6	-0.17	percent	100	75.0	83.3	117	125	8.33

Radium-226 LCSRPD: Limits LCL = 0 UCL = 20.0

Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1628598	1203701051	09-JAN-2017 08:10	DONE	3.01	-1	percent	11	0	-3.4	25.4	20.0	7.19
1629718	1203703902	12-JAN-2017 08:40	DONE	28.5	2.4	percent	11	0	-3.4	25.4	20.0	7.19
1629709	1203703860	15-JAN-2017 10:25	DONE	6.38	-0.64	percent	11	0	-3.4	25.4	20.0	7.19
1631101	1203707274	17-JAN-2017 08:10	DONE	7.16	-0.54	percent	11	0	-3.4	25.4	20.0	7.19
1629710	1203703865	19-JAN-2017 10:15	DONE	16.3	0.73	percent	11	0	-3.4	25.4	20.0	7.19
1631461	1203708202	20-JAN-2017 08:10	DONE	9.39	-0.22	percent	11	0	-3.4	25.4	20.0	7.19
1629708	1203703855	20-JAN-2017 10:15	DONE	11	-0.01	percent	11	0	-3.4	25.4	20.0	7.19
1632402	1203710637	22-JAN-2017 10:10	DONE	7.23	-0.53	percent	11	0	-3.4	25.4	20.0	7.19
1633874	1203714469	30-JAN-2017 09:42	DONE	4.4	-0.92	percent	11	0	-3.4	25.4	20.0	7.19
1635520	1203718879	07-FEB-2017 08:30	DONE	24.1	1.8	percent	11	0	-3.4	25.4	20.0	7.19
1637853	1203724580	14-FEB-2017 08:45	DONE	6.65	-0.61	percent	11	0	-3.4	25.4	20.0	7.19
1638853	1203727144	18-FEB-2017 08:30	DONE	18.4	1	percent	11	0	-3.4	25.4	20.0	7.19
1639625	1203728931	23-FEB-2017 11:15	DONE	1.08	-1	percent	11	0	-3.4	25.4	20.0	7.19
1636186	1203720462	26-FEB-2017 09:15	DONE	2.33	-1	percent	11	0	-3.4	25.4	20.0	7.19
1636174	1203720426	26-FEB-2017 11:25	DONE	15.6	0.64	percent	11	0	-3.4	25.4	20.0	7.19
1641169	1203732767	01-MAR-2017 10:25	DONE	24.3	1.8	percent	11	0	-3.4	25.4	20.0	7.19
1643158	1203737131	06-MAR-2017 10:01	DONE	3.83	-01	percent	11	0	-3.4	25.4	20.0	7.19
1646671	1203745480	17-MAR-2017 05:40	DONE	16.5	0.76	percent	11	0	-3.4	25.4	20.0	7.19
1646959	1203746255	18-MAR-2017 10:00	DONE	15	0.56	percent	11	0	-3.4	25.4	20.0	7.19
1646199	1203744470	20-MAR-2017 11:00	DONE	1.82	-1	percent	11	0	-3.4	25.4	20.0	7.19
1645404	1203746233	24-MAR-2017 10:41	DONE	31.9	2.9	percent	11	0	-3.4	25.4	20.0	7.19
1648901	1203750691	26-MAR-2017 11:00	DONE	6.51	-0.63	percent	11	0	-3.4	25.4	20.0	7.19
1648401	1203749408	27-MAR-2017 10:25	DONE	13.1	0.29	percent	11	0	-3.4	25.4	20.0	7.19
1646668	1203749466	28-MAR-2017 10:38	DONE	14	0.42	percent	11	0	-3.4	25.4	20.0	7.19
1650029	1203753431	29-MAR-2017 11:30	DONE	13.4	0.33	percent	11	0	-3.4	25.4	20.0	7.19
1649685	1203752485	02-APR-2017 09:05	DONE	9.48	-0.21	percent	11	0	-3.4	25.4	20.0	7.19
1652040	1203758262	03-APR-2017 11:26	DONE	9.46	-0.22	percent	11	0	-3.4	25.4	20.0	7.19
1651314	1203756410	05-APR-2017 10:42	DONE	8.4	-0.36	percent	11	0	-3.4	25.4	20.0	7.19
1652706	1203759709	06-APR-2017 11:26	DONE	17.4	0.9	percent	11	0	-3.4	25.4	20.0	7.19
1652044	1203758276	07-APR-2017 10:00	DONE	10.1	-0.13	percent	11	0	-3.4	25.4	20.0	7.19
1653643	1203762054	17-APR-2017 06:40	DONE	7.31	-0.51	percent	11	0	-3.4	25.4	20.0	7.19
1655151	1203765687	18-APR-2017 07:51	DONE	6.06	-0.69	percent	11	0	-3.4	25.4	20.0	7.19
1656237	1203768067	18-APR-2017 09:07	DONE	4.97	-0.84	percent	11	0	-3.4	25.4	20.0	7.19
1657300	1203770601	24-APR-2017 07:55	DONE	10.5	-0.07	percent	11	0	-3.4	25.4	20.0	7.19
1658802	1203774588	01-MAY-2017 10:36	DONE	8.17	-0.39	percent	11	0	-3.4	25.4	20.0	7.19
1659635	1203776375	05-MAY-2017 09:15	DONE	12.5	0.2	percent	11	0	-3.4	25.4	20.0	7.19
1661477	1203780678	07-MAY-2017 10:00	DONE	3.87	-0.99	percent	11	0	-3.4	25.4	20.0	7.19
1663241	1203785140	12-MAY-2017 10:25	DONE	8.08	-0.41	percent	11	0	-3.4	25.4	20.0	7.19
1660775	1203784497	21-MAY-2017 09:45	DONE	11.2	0.03	percent	11	0	-3.4	25.4	20.0	7.19

Radium-226 RER: Limits LCL = 0 UCL = 3.00

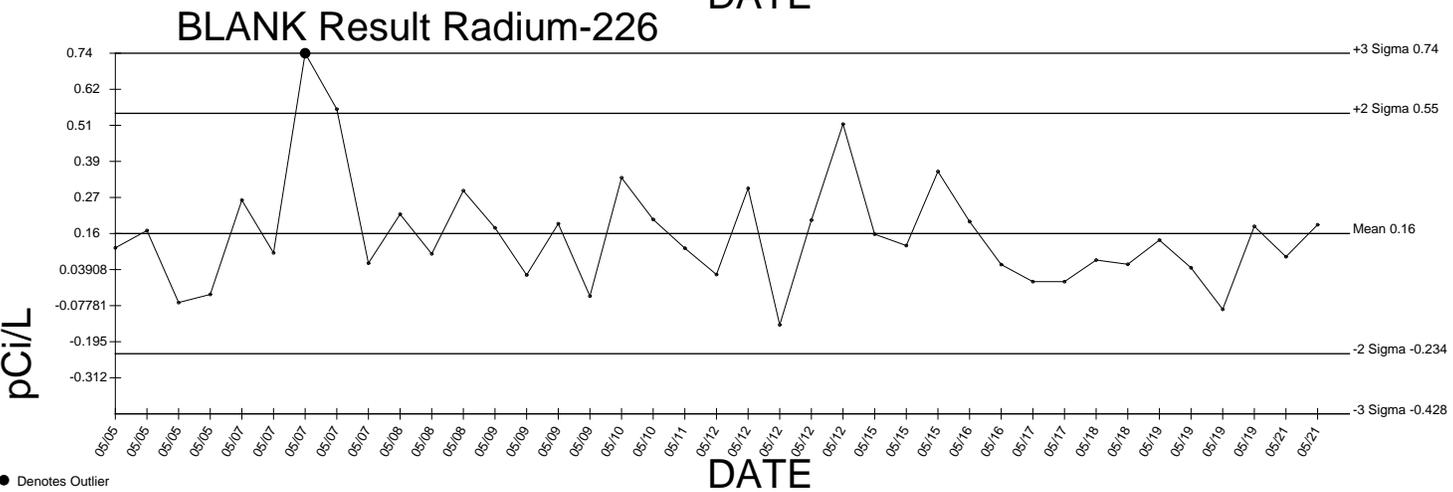
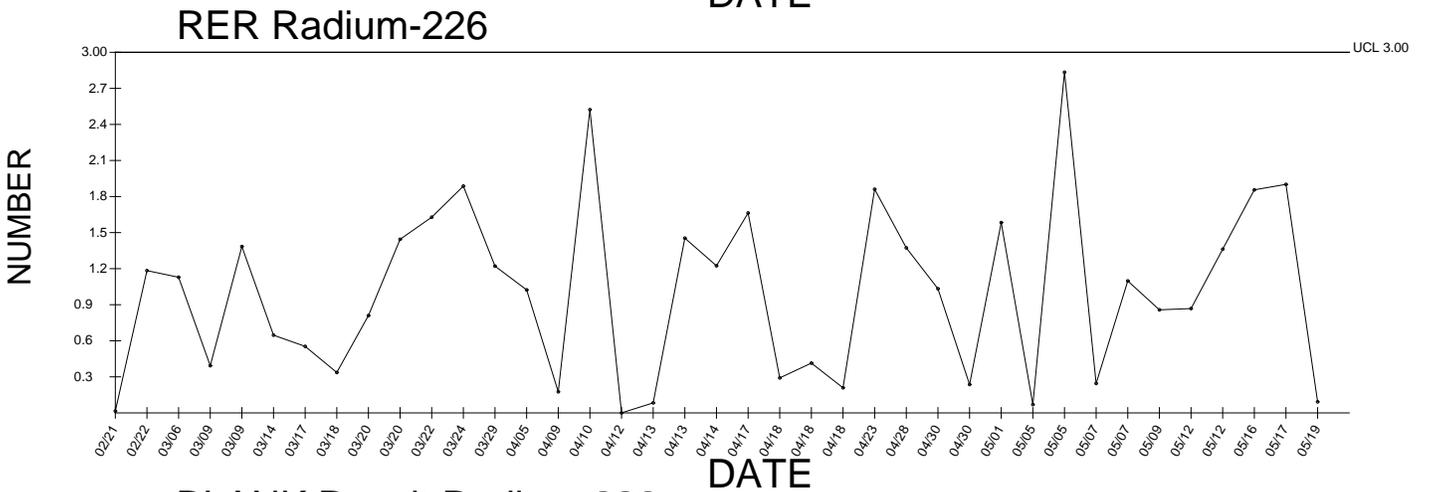
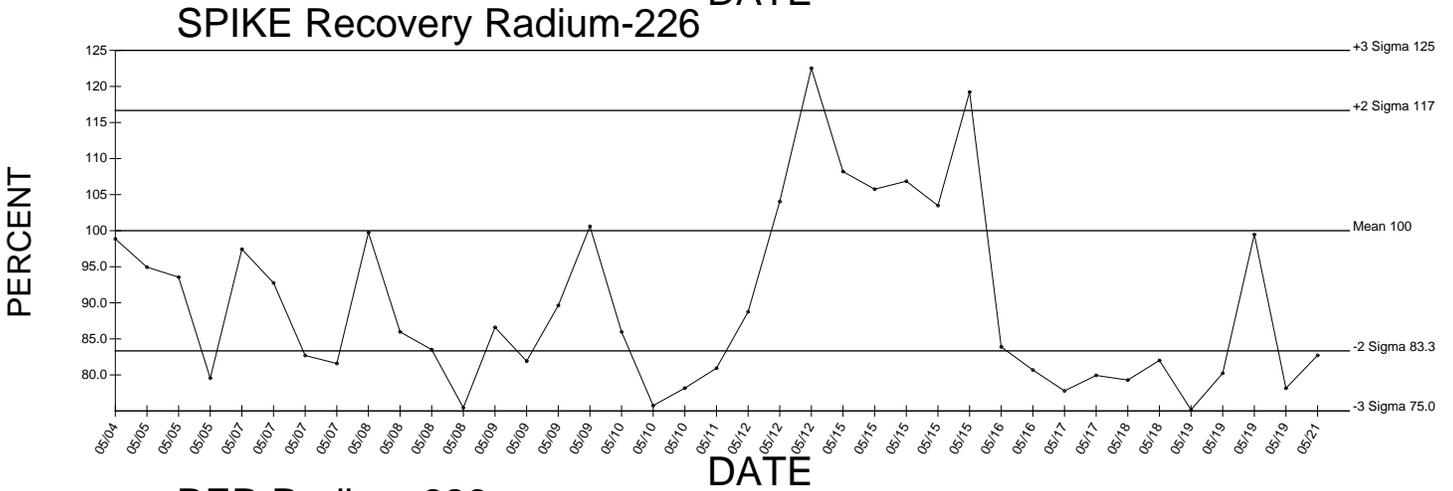
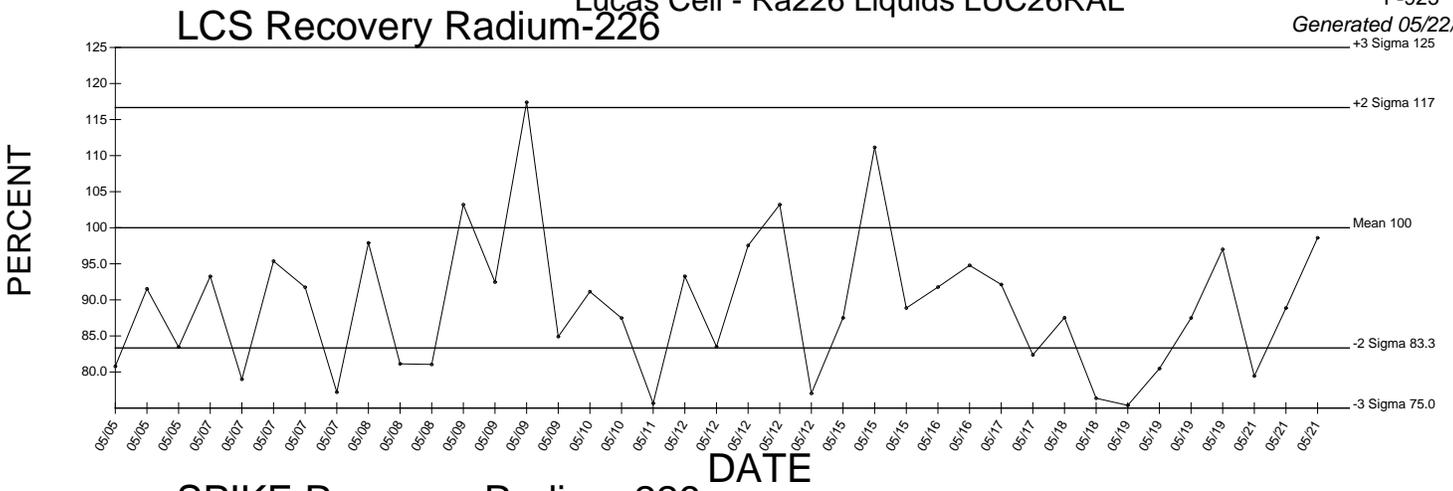
Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1637830	1203724500	21-FEB-2017 11:50	DONE	0.02	-1	dec	01	0	-0.449	2.45	3.00	0.72
1635018	1203717408	22-FEB-2017 11:30	DONE	1.18	0.26	dec	01	0	-0.449	2.45	3.00	0.72
1642403	1203735338	06-MAR-2017 10:37	DONE	1.13	0.18	dec	01	0	-0.449	2.45	3.00	0.72
1638857	1203727157	09-MAR-2017 10:40	DONE	0.39	-0.84	dec	01	0	-0.449	2.45	3.00	0.72
1643159	1203737133	09-MAR-2017 10:40	DONE	1.38	0.53	dec	01	0	-0.449	2.45	3.00	0.72
1644643	1203740654	14-MAR-2017 10:05	DONE	0.65	-0.49	dec	01	0	-0.449	2.45	3.00	0.72
1644189	1203739643	17-MAR-2017 08:55	DONE	0.55	-0.62	dec	01	0	-0.449	2.45	3.00	0.72
1644188	1203739639	18-MAR-2017 10:30	DONE	0.34	-0.92	dec	01	0	-0.449	2.45	3.00	0.72
1646684	1203745523	20-MAR-2017 09:50	DONE	0.81	-0.26	dec	01	0	-0.449	2.45	3.00	0.72
1646198	1203744461	20-MAR-2017 10:30	DONE	1.44	0.61	dec	01	0	-0.449	2.45	3.00	0.72
1644648	1203740672	22-MAR-2017 09:45	DONE	1.63	0.87	dec	01	0	-0.449	2.45	3.00	0.72
1645401	1203742583	24-MAR-2017 09:32	DONE	1.89	1.2	dec	01	0	-0.449	2.45	3.00	0.72
1645070	1203741803	29-MAR-2017 10:10	DONE	1.22	0.31	dec	01	0	-0.449	2.45	3.00	0.72
1646665	1203745466	05-APR-2017 11:15	DONE	1.02	0.03	dec	01	0	-0.449	2.45	3.00	0.72
1650033	1203753444	09-APR-2017 09:30	DONE	0.18	-1	dec	01	0	-0.449	2.45	3.00	0.72
1649722	1203752589	10-APR-2017 11:15	DONE	2.52	2.1	dec	01	0	-0.449	2.45	3.00	0.72
1652048	1203758283	12-APR-2017 10:20	DONE	00	-1	dec	01	0	-0.449	2.45	3.00	0.72
1651336	1203756478	13-APR-2017 09:40	DONE	0.08	-1	dec	01	0	-0.449	2.45	3.00	0.72
1651337	1203756482	13-APR-2017 11:50	DONE	1.45	0.63	dec	01	0	-0.449	2.45	3.00	0.72
1652046	1203758279	14-APR-2017 09:25	DONE	1.22	0.31	dec	01	0	-0.449	2.45	3.00	0.72
1652773	1203759866	17-APR-2017 09:00	DONE	1.66	0.92	dec	01	0	-0.449	2.45	3.00	0.72
1654765	1203764620	18-APR-2017 09:40	DONE	0.29	-0.98	dec	01	0	-0.449	2.45	3.00	0.72
1652792	1203759891	18-APR-2017 10:45	DONE	0.41	-0.81	dec	01	0	-0.449	2.45	3.00	0.72
1652792	1203759890	18-APR-2017 11:15	DONE	0.21	-1	dec	01	0	-0.449	2.45	3.00	0.72
1655153	1203765693	23-APR-2017 09:45	DONE	1.86	1.2	dec	01	0	-0.449	2.45	3.00	0.72
1654774	1203764653	28-APR-2017 07:57	DONE	1.37	0.52	dec	01	0	-0.449	2.45	3.00	0.72
1654778	1203764668	30-APR-2017 10:35	DONE	1.03	0.05	dec	01	0	-0.449	2.45	3.00	0.72
1656710	1203769339	30-APR-2017 11:05	DONE	0.24	-1	dec	01	0	-0.449	2.45	3.00	0.72
1656706	1203769327	01-MAY-2017 10:06	DONE	1.58	0.81	dec	01	0	-0.449	2.45	3.00	0.72
1660752	1203778920	05-MAY-2017 08:10	DONE	0.07	-1	dec	01	0	-0.449	2.45	3.00	0.72
1659267	1203775625	05-MAY-2017 10:55	DONE	2.83	2.5	dec	01	0	-0.449	2.45	3.00	0.72
1658521	1203773617	07-MAY-2017 08:20	DONE	0.25	-1	dec	01	0	-0.449	2.45	3.00	0.72
1658516	1203773593	07-MAY-2017 10:30	DONE	1.1	0.14	dec	01	0	-0.449	2.45	3.00	0.72
1660756	1203778935	09-MAY-2017 08:10	DONE	0.86	-0.2	dec	01	0	-0.449	2.45	3.00	0.72
1660758	1203778943	12-MAY-2017 09:20	DONE	0.87	-0.18	dec	01	0	-0.449	2.45	3.00	0.72
1662796	1203784006	12-MAY-2017 10:25	DONE	1.36	0.5	dec	01	0	-0.449	2.45	3.00	0.72
1663679	1203786158	16-MAY-2017 09:15	DONE	1.86	1.2	dec	01	0	-0.449	2.45	3.00	0.72
1660776	1203778997	17-MAY-2017 09:10	DONE	1.9	1.2	dec	01	0	-0.449	2.45	3.00	0.72
1662990	1203784535	19-MAY-2017 09:25	DONE	0.09	-1	dec	01	0	-0.449	2.45	3.00	0.72

Radium-226 SPIKE: Limits LCL = 75.0 UCL = 125

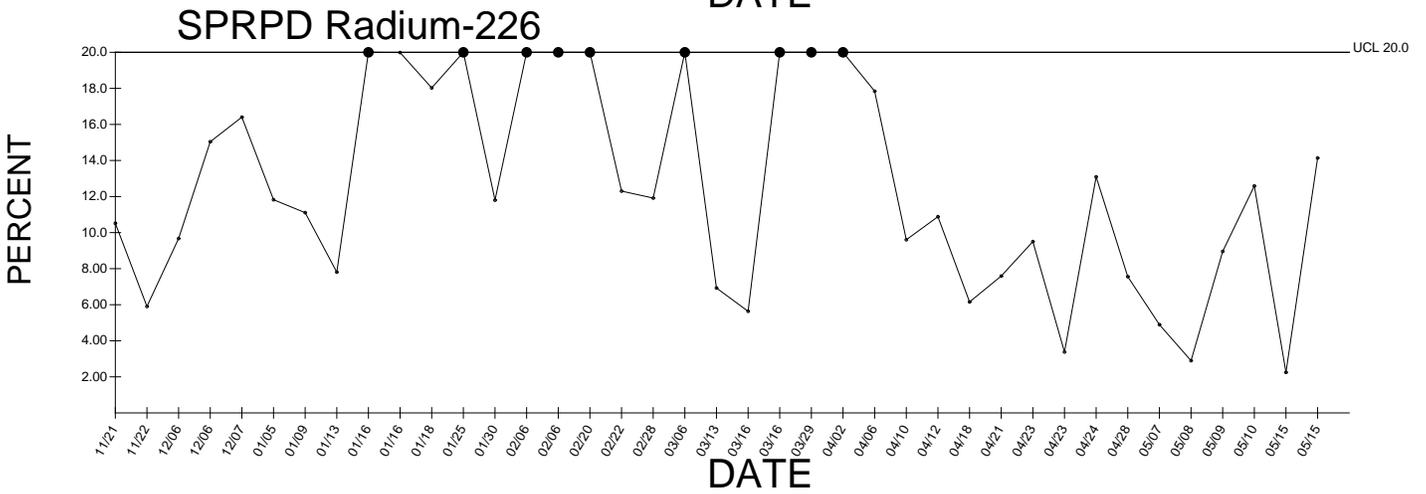
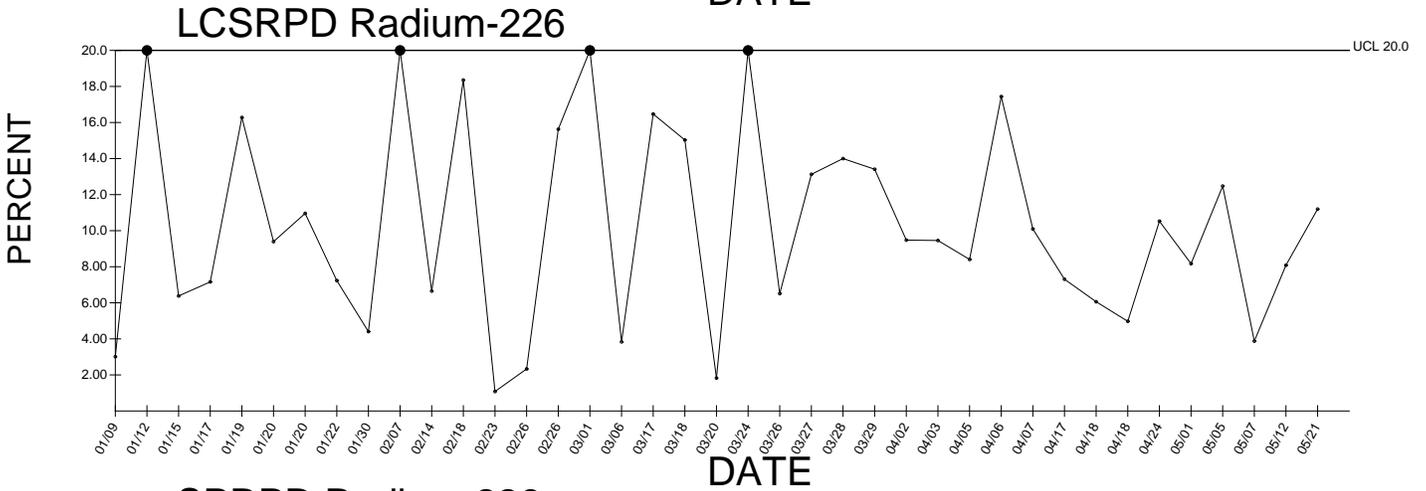
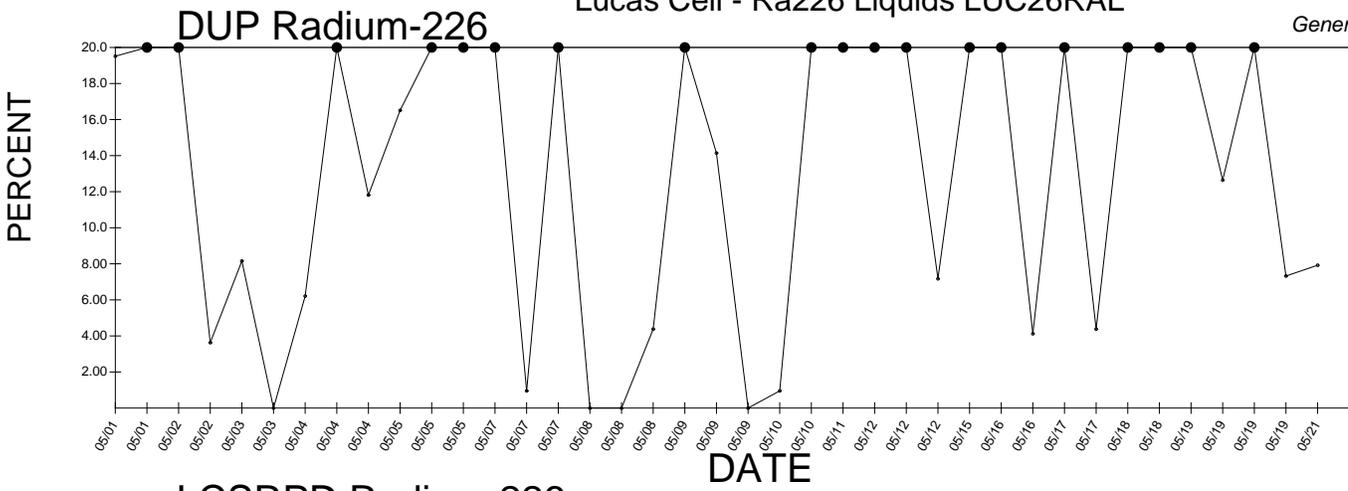
Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1658511	1203773574	04-MAY-2017 11:25	DONE	98.9	-0.14	percent	100	75.0	83.3	117	125	8.33
1660752	1203778921	05-MAY-2017 08:10	DONE	94.9	-0.61	percent	100	75.0	83.3	117	125	8.33
1659636	1203776378	05-MAY-2017 10:20	DONE	93.6	-0.77	percent	100	75.0	83.3	117	125	8.33
1659267	1203775626	05-MAY-2017 10:55	DONE	79.6	-2	percent	100	75.0	83.3	117	125	8.33
1658521	1203773618	07-MAY-2017 08:20	DONE	97.4	-0.31	percent	100	75.0	83.3	117	125	8.33
1658521	1203773619	07-MAY-2017 08:55	DONE	92.8	-0.87	percent	100	75.0	83.3	117	125	8.33
1661126	1203779922	07-MAY-2017 08:55	DONE	82.7	-2	percent	100	75.0	83.3	117	125	8.33
1658516	1203773594	07-MAY-2017 10:30	DONE	81.6	-2	percent	100	75.0	83.3	117	125	8.33
1658513	1203773587	08-MAY-2017 10:00	DONE	99.7	-0.03	percent	100	75.0	83.3	117	125	8.33
1656711	1203769349	08-MAY-2017 11:00	DONE	86	-2	percent	100	75.0	83.3	117	125	8.33
1656711	1203769350	08-MAY-2017 11:30	DONE	83.5	-2	percent	100	75.0	83.3	117	125	8.33
1662404	1203782951	08-MAY-2017 11:30	DONE	75.5	-3	percent	100	75.0	83.3	117	125	8.33
1660756	1203778936	09-MAY-2017 08:10	DONE	86.6	-2	percent	100	75.0	83.3	117	125	8.33
1660754	1203778930	09-MAY-2017 09:45	DONE	81.9	-2	percent	100	75.0	83.3	117	125	8.33
1660754	1203778931	09-MAY-2017 09:45	DONE	89.6	-1	percent	100	75.0	83.3	117	125	8.33
1658520	1203773614	09-MAY-2017 10:50	DONE	101	0.07	percent	100	75.0	83.3	117	125	8.33
1656712	1203769354	10-MAY-2017 09:15	DONE	86	-2	percent	100	75.0	83.3	117	125	8.33
1656712	1203769355	10-MAY-2017 09:15	DONE	75.7	-3	percent	100	75.0	83.3	117	125	8.33
1658519	1203773604	10-MAY-2017 10:50	DONE	78.2	-3	percent	100	75.0	83.3	117	125	8.33
1659225	1203775511	11-MAY-2017 12:05	DONE	80.9	-2	percent	100	75.0	83.3	117	125	8.33
1660758	1203778944	12-MAY-2017 09:20	DONE	88.8	-1	percent	100	75.0	83.3	117	125	8.33
1662796	1203784007	12-MAY-2017 11:00	DONE	104	0.48	percent	100	75.0	83.3	117	125	8.33
1663288	1203785274	12-MAY-2017 11:00	DONE	123	2.7	percent	100	75.0	83.3	117	125	8.33
1663925	1203786662	15-MAY-2017 08:10	DONE	108	0.98	percent	100	75.0	83.3	117	125	8.33
1663925	1203786663	15-MAY-2017 08:10	DONE	106	0.69	percent	100	75.0	83.3	117	125	8.33
1660759	1203778948	15-MAY-2017 08:41	DONE	107	0.82	percent	100	75.0	83.3	117	125	8.33
1658524	1203773625	15-MAY-2017 10:21	DONE	103	0.42	percent	100	75.0	83.3	117	125	8.33
1658524	1203773626	15-MAY-2017 10:21	DONE	119	2.3	percent	100	75.0	83.3	117	125	8.33
1663679	1203786159	16-MAY-2017 09:55	DONE	83.9	-2	percent	100	75.0	83.3	117	125	8.33
1660777	1203779002	16-MAY-2017 11:35	DONE	80.7	-2	percent	100	75.0	83.3	117	125	8.33
1660776	1203778998	17-MAY-2017 09:10	DONE	77.8	-3	percent	100	75.0	83.3	117	125	8.33
1660778	1203779006	17-MAY-2017 10:50	DONE	79.9	-2	percent	100	75.0	83.3	117	125	8.33
1660782	1203779016	18-MAY-2017 08:40	DONE	79.3	-2	percent	100	75.0	83.3	117	125	8.33
1660780	1203779012	18-MAY-2017 10:55	DONE	82	-2	percent	100	75.0	83.3	117	125	8.33
1661480	1203780688	19-MAY-2017 08:50	DONE	75.2	-3	percent	100	75.0	83.3	117	125	8.33
1662990	1203784536	19-MAY-2017 09:25	DONE	80.2	-2	percent	100	75.0	83.3	117	125	8.33
1663684	1203786176	19-MAY-2017 10:40	DONE	99.5	-0.06	percent	100	75.0	83.3	117	125	8.33
1662987	1203784528	19-MAY-2017 11:10	DONE	78.2	-3	percent	100	75.0	83.3	117	125	8.33
1665896	1203791423	21-MAY-2017 10:15	DONE	82.7	-2	percent	100	75.0	83.3	117	125	8.33

Radium-226 SPRPD: Limits LCL = 0 UCL = 20.0

Batch ID	Samp ID	Run Date	Status	Value	Deviation	Units	Mean	LCL	LWL	UWL	UCL	Stdev
1613960	1203664606	21-NOV-2016 10:45	DONE	10.5	-0.4	percent	13.5	0	-1.4	28.5	20.0	7.48
1616414	1203670608	22-NOV-2016 09:15	DONE	5.9	-1	percent	13.5	0	-1.4	28.5	20.0	7.48
1616870	1203671659	06-DEC-2016 09:10	DONE	9.67	-0.52	percent	13.5	0	-1.4	28.5	20.0	7.48
1616868	1203671651	06-DEC-2016 10:55	DONE	15	0.2	percent	13.5	0	-1.4	28.5	20.0	7.48
1620649	1203681524	07-DEC-2016 08:40	DONE	16.4	0.38	percent	13.5	0	-1.4	28.5	20.0	7.48
1625193	1203692767	05-JAN-2017 11:00	DONE	11.8	-0.23	percent	13.5	0	-1.4	28.5	20.0	7.48
1628611	1203701610	09-JAN-2017 09:50	DONE	11.1	-0.32	percent	13.5	0	-1.4	28.5	20.0	7.48
1626461	1203695987	13-JAN-2017 08:45	DONE	7.81	-0.77	percent	13.5	0	-1.4	28.5	20.0	7.48
1629712	1203703874	16-JAN-2017 08:55	DONE	27.1	1.8	percent	13.5	0	-1.4	28.5	20.0	7.48
1629711	1203703869	16-JAN-2017 10:00	DONE	20	0.86	percent	13.5	0	-1.4	28.5	20.0	7.48
1627650	1203698675	18-JAN-2017 10:55	DONE	18	0.6	percent	13.5	0	-1.4	28.5	20.0	7.48
1631099	1203707265	25-JAN-2017 09:20	DONE	27.5	1.9	percent	13.5	0	-1.4	28.5	20.0	7.48
1632908	1203711934	30-JAN-2017 10:55	DONE	11.8	-0.23	percent	13.5	0	-1.4	28.5	20.0	7.48
1633877	1203714481	06-FEB-2017 08:45	DONE	24.2	1.4	percent	13.5	0	-1.4	28.5	20.0	7.48
1633272	1203712854	06-FEB-2017 10:55	DONE	21.9	1.1	percent	13.5	0	-1.4	28.5	20.0	7.48
1635506	1203718840	20-FEB-2017 08:30	DONE	27.5	1.9	percent	13.5	0	-1.4	28.5	20.0	7.48
1637834	1203724527	22-FEB-2017 08:35	DONE	12.3	-0.16	percent	13.5	0	-1.4	28.5	20.0	7.48
1637219	1203723070	28-FEB-2017 09:15	DONE	11.9	-0.22	percent	13.5	0	-1.4	28.5	20.0	7.48
1638855	1203727148	06-MAR-2017 08:40	DONE	22.2	1.2	percent	13.5	0	-1.4	28.5	20.0	7.48
1642415	1203735388	13-MAR-2017 13:10	DONE	6.93	-0.88	percent	13.5	0	-1.4	28.5	20.0	7.48
1645066	1203741785	16-MAR-2017 07:45	DONE	5.64	-1	percent	13.5	0	-1.4	28.5	20.0	7.48
1642405	1203735348	16-MAR-2017 10:10	DONE	29.5	2.1	percent	13.5	0	-1.4	28.5	20.0	7.48
1645070	1203741805	29-MAR-2017 10:10	DONE	20.4	0.92	percent	13.5	0	-1.4	28.5	20.0	7.48
1647606	1203747690	02-APR-2017 10:05	DONE	21.4	1.1	percent	13.5	0	-1.4	28.5	20.0	7.48
1650130	1203753677	06-APR-2017 08:55	DONE	17.8	0.58	percent	13.5	0	-1.4	28.5	20.0	7.48
1649719	1203752586	10-APR-2017 09:38	DONE	9.6	-0.53	percent	13.5	0	-1.4	28.5	20.0	7.48
1649723	1203752595	12-APR-2017 09:45	DONE	10.9	-0.35	percent	13.5	0	-1.4	28.5	20.0	7.48
1651339	1203756488	18-APR-2017 10:45	DONE	6.16	-0.99	percent	13.5	0	-1.4	28.5	20.0	7.48
1652794	1203759895	21-APR-2017 10:40	DONE	7.59	-0.79	percent	13.5	0	-1.4	28.5	20.0	7.48
1655591	1203766688	23-APR-2017 08:15	DONE	9.5	-0.54	percent	13.5	0	-1.4	28.5	20.0	7.48
1655153	1203765695	23-APR-2017 09:45	DONE	3.38	-1	percent	13.5	0	-1.4	28.5	20.0	7.48
1652797	1203759900	24-APR-2017 10:45	DONE	13.1	-0.06	percent	13.5	0	-1.4	28.5	20.0	7.48
1658509	1203773570	28-APR-2017 09:35	DONE	7.56	-0.8	percent	13.5	0	-1.4	28.5	20.0	7.48
1658521	1203773619	07-MAY-2017 08:55	DONE	4.9	-1	percent	13.5	0	-1.4	28.5	20.0	7.48
1656711	1203769350	08-MAY-2017 11:30	DONE	2.9	-1	percent	13.5	0	-1.4	28.5	20.0	7.48
1660754	1203778931	09-MAY-2017 09:45	DONE	8.96	-0.61	percent	13.5	0	-1.4	28.5	20.0	7.48
1656712	1203769355	10-MAY-2017 09:15	DONE	12.6	-0.13	percent	13.5	0	-1.4	28.5	20.0	7.48
1663925	1203786663	15-MAY-2017 08:10	DONE	2.25	-2	percent	13.5	0	-1.4	28.5	20.0	7.48
1658524	1203773626	15-MAY-2017 10:21	DONE	14.1	0.08	percent	13.5	0	-1.4	28.5	20.0	7.48



● Denotes Outlier



● Denotes Outlier

Runlogs

Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR
Batch ID: 1665896

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
423160001	SAMPLE	MXH8	LUCAS2	MAY-21-17 09:45:00	DONE	Lucas Cell	08-AUG-16 00:00
423160002	SAMPLE	MXH8	LUCAS3	MAY-21-17 09:45:00	DONE	Lucas Cell	31-MAR-17 00:00
423160003	SAMPLE	MXH8	LUCAS4	MAY-21-17 09:45:00	DONE	Lucas Cell	01-MAR-17 00:00
423160004	SAMPLE	MXH8	LUCAS5	MAY-21-17 09:45:00	DONE	Lucas Cell	04-OCT-16 00:00
423282001	SAMPLE	MXH8	LUCAS6	MAY-21-17 09:45:00	DONE	Lucas Cell	01-JUL-16 00:00
423282002	SAMPLE	MXH8	LUCAS7	MAY-21-17 09:45:00	DONE	Lucas Cell	26-OCT-16 00:00
1203791421	MB	MXH8	LUCAS8	MAY-21-17 09:45:00	DONE	Lucas Cell	17-MAR-17 00:00
1203791422	DUP	MXH8	LUCAS1	MAY-21-17 10:15:00	DONE	Lucas Cell	20-APR-17 00:00
1203791423	MS	MXH8	LUCAS2	MAY-21-17 10:15:00	DONE	Lucas Cell	08-AUG-16 00:00
1203791424	LCS	MXH8	LUCAS3	MAY-21-17 10:15:00	DONE	Lucas Cell	31-MAR-17 00:00



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 05-19-2017
EMAX Batch No.: 17E088

ATTN: SEVDA ALECKSON

NOREAS
16361 SCIENTIFIC WAY
IRVINE, CA 92618

Subject: Laboratory Report
Project: TREASURE ISLAND, IR SITE 6

Enclosed is the Laboratory report for samples received on 05/11/17.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
06-MW34-0517	E088-01	05/10/17	WATER	VOLATILE ORGANICS BY GC/MS TPH GASOLINE TPH DIESEL & MOTOR OIL DISSOLVED METALS BY ICP-MS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912016-11
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

SAMPLE RECEIPT FORM 1

Reference: EMAX-SM02 Rev.8

Form: SM02F1

Type of Delivery <input checked="" type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others	Airbill / Tracking Number 7465 2906 5152	ECN 17E088
<input type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery	Recipient	Date 5/11/17 Time 0910

COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/PC	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Tel # / Fax #	<input type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input checked="" type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any)		<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required	

Note: Preservative not specified in COC. COC was loose in cooler, received wet

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input checked="" type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 3.4 °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N 130528505	B - S/N 150555522	C - S/N 140252067
			D - S/N 150555630

Comments: Temperature is out of range. PM was informed IMMEDIATELY.

Note: Insufficient packing material in cooler

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	1-8	D1		R8

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

Code Description-Sample Management

- D1 Analysis is not indicated in Label
- D2 Analysis mismatch COC vs label
- D3 Sample ID mismatch COC vs label
- D4 Sample ID is not indicated in _____
- D5 Container -[improper] [leaking] [broken]
- D6 Date/Time is not indicated in _____
- D7 Date/Time mismatch COC vs label
- D8 Sample listed in COC is not received
- D9 Sample received is not listed in COC
- D10 No initial/date on corrections in COC/label
- D11 Container count mismatch COC vs received
- D12 Container size mismatch COC vs received

Code Description-Sample Management

- D13 Out of Holding Time
- D14 Bubble is >6mm
- D15 No trip blank in cooler
- D16 Preservation not indicated in _____
- D17 Preservation mismatch COC vs label
- D18 Insufficient chemical preservative
- D19 Insufficient Sample
- D20 No filtration info for dissolved analysis
- D21 No sample for moisture determination
- D22 _____
- D23 _____
- D24 _____

Continue to next page.

Code Description-Sample Management

- R1 Proceed as indicated in COC Label
- R2 Refer to attached instruction
- R3 Cancel the analysis
- R4 Use vial with smallest bubble first
- R5 Log-in with latest sampling date and time+1 min
- R6 Adjust pH as necessary
- R7 Filter and preserved as necessary
- R8 informed client
- R9 _____
- R10 _____
- R11 _____
- R12 _____

REVIEWS:

Sample Labeling		SRF		PM	
Date	5/11/17	Date	5/11/17	Date	5/11/17

EMAX Laboratories, Inc. 1835 W. 205th St., Torrance, Ca 90501

ORIGIN ID: JBSA (949) 395-9506
NOREAS
NOREAS
16361 SCIENTIFIC
IRVINE, CA 92618
UNITED STATES US

SHIP DATE: 10MAY17
ACTWGT: 27.10 LB
CAD: 006994679/SSFE1801
DIMS: 24x14x13 IN
BILL THIRD PARTY

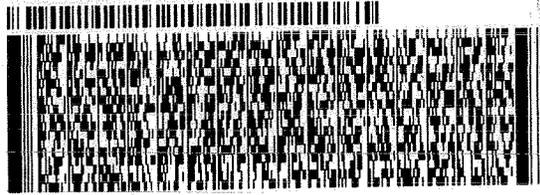
Part # 158287V-2687194187190019 ::

TO **EMAX INC.**
EMAX LABORATORIES INC ① 3.4
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8888
INV: PO:

REF: DEPT:



FedEx
Express



1 of 2

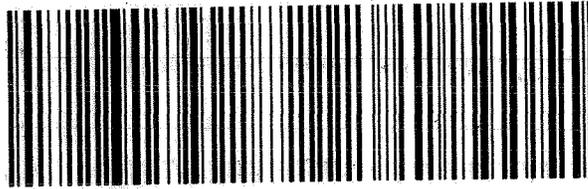
TRK# 7865 2906 5152
0201

MASTER

THU - 11 MAY 10:30A
PRIORITY OVERNIGHT

92 HHRA

90501
CA-US **LAX**



REPORTING CONVENTIONS**DATA QUALIFIERS:**

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.


LABORATORY DATA CONSULTANTS, INC.

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

NOREAS, Inc.
 16501 Scientific Way
 Irvine, CA 92618
 ATTN: Ms. Sevda Aleckson

February 7, 2018

SUBJECT: Treasure Island, IR Site 6, Data Validation

Dear Ms. Aleckson,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on May 31, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #38815:

SDG #

Fraction:

17E075/B799808 Volatiles, Dissolved Metals, TPH as Gasoline, TPH as Extractables, 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:

- Final SAP, Field Sampling Plan and Quality Assurance Project Plan, Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, 24, Former Naval Station Treasure Island, San Francisco, CA, April 2017
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA, National Functional Guidelines for Superfund Organic Methods Data Review, August 2014
- USEPA, National Functional Guidelines for Inorganic Superfund Data Review, August 2014
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

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

Sincerely,

Pei Geng
 Project Manager/Senior Chemist

LDC Report# 38815A1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Treasure Island, IR Site 6

LDC Report Date: June 20, 2017

Parameters: Volatiles

Validation Level: Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 17E075

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
QCTB-0517	17E075-02	Water	05/09/17
06-MW36-0517	17E075-03	Water	05/09/17
06-MW33-0517	17E075-08	Water	05/09/17
06-MW35-0517	17E075-09	Water	05/09/17
06-MW32-0517	17E075-10	Water	05/09/17
QCEB-0517	17E075-11	Water	05/09/17

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 the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, and 24, Former Naval Station Treasure Island, San Francisco, California (April 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and 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:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

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. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

Sample QCTB-0517 was identified as a trip blank. No contaminants were found.

Sample QCEB-0517 was identified as an equipment 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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

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.

**Treasure Island, IR Site 6
Volatiles - Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Volatiles - Laboratory Blank Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Volatiles - Field Blank Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

LDC #: 38815A1 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 17E075 Level III
 Laboratory: EMAX Laboratories, Inc.

Date: 6/8/17
 Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: JVL

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

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.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSO ≤ 1570. ICV ≤ 20/0
IV.	Continuing calibration / <i>endeig</i>	A	CCV ≤ 20/50/0
V.	Laboratory Blanks	A	
VI.	Field blanks	N/D	TB=1. EB=0
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/0
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	QCTB-0517	17E075-02	Water	05/09/17
2	06-MW36-0517	17E075-03	Water	05/09/17
3	06-MW33-0517	17E075-08	Water	05/09/17
4	06-MW35-0517	17E075-09	Water	05/09/17
5	06-MW32-0517	17E075-10	Water	05/09/17
6	QCEB-0517	17E075-11	Water	05/09/17
7				
8				
9				

Notes:

LDC Report# 38815A4a

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Treasure Island, IR Site 6

LDC Report Date: June 21, 2017

Parameters: Dissolved Metals

Validation Level: Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 17E075

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
06-MW36-0517	17E075-03	Water	05/09/17
06-MW33-0517	17E075-08	Water	05/09/17
06-MW35-0517	17E075-09	Water	05/09/17
06-MW32-0517	17E075-10	Water	05/09/17
QCEB-0517	17E075-11	Water	05/09/17

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 the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, and 24, Former Naval Station Treasure Island, San Francisco, California (April 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund 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:

Arsenic and Manganese by Environmental Protection Agency (EPA) SW 846 Method 6020A

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Manganese	0.118 ug/L	All samples in SDG 17E075

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

Sample QCEB-0517 was identified as an equipment blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

IX. Serial Dilution

Serial dilution was not performed for this SDG.

X. 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.

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

Raw data were not reviewed for Level III validation.

XIII. Sample Result Verification

Raw data were not reviewed for Level III validation.

XIV. 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.

**Treasure Island, IR Site 6
Dissolved Metals - Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Dissolved Metals - Field Blank Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

LDC #: 38815A4a

VALIDATION COMPLETENESS WORKSHEET

Date: 6-13-17

SDG #: 17E075

Level III

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: MG
2nd Reviewer: 

METHOD: Dissolved As & Mn (EPA SW 846 Method 6020A)

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.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	ND	EB = 5
VII.	Matrix Spike/Matrix Spike Duplicates	N	client specified
VIII.	Duplicate sample analysis	N	" "
IX.	Serial Dilution	N	not performed
X.	Laboratory control samples	A	LCS/LCSD
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	N	not reviewed for Level III
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

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

	Client ID	Lab ID	Matrix	Date
1	06-MW36-0517	17E075-03	Water	05/09/17
2	06-MW33-0517	17E075-08	Water	05/09/17
3	06-MW35-0517	17E075-09	Water	05/09/17
4	06-MW32-0517	17E075-10	Water	05/09/17
5	QCEB-0517	17E075-11	Water	05/09/17
6				
7				
8				
9				
10				
11				
12				
13	PBW			

Notes: _____

LDC #: 38815A4a

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6020A)

Sample Concentration units, unless otherwise noted: ug/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: all (>5x or ND)

Page: F-3654 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB ^a (mg/Kg)	Maximum PB ^a (ug/L)	Maximum ICB/CCB ^a (ug/L)	Action Limit	No Qual's.									
Mn		0.118		0.590										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC Report# 38815A7

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Treasure Island, IR Site 6

LDC Report Date: June 20, 2017

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 17E075

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
06-MW36-0517	17E075-03	Water	05/09/17
06-MW33-0517	17E075-08	Water	05/09/17
06-MW35-0517	17E075-09	Water	05/09/17
06-MW32-0517	17E075-10	Water	05/09/17
QCEB-0517	17E075-11	Water	05/09/17
06-MW32-0517MS	17E075-10MS	Water	05/09/17
06-MW32-0517MSD	17E075-10MSD	Water	05/09/17

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 the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, and 24, Former Naval Station Treasure Island, San Francisco, California (April 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and 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:

Total Petroleum Hydrocarbons (TPH) as Gasoline by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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 not 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.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

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. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

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

V. Field Blanks

Sample QCEB-0517 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Compound	Concentration	Associated Samples
QCEB-0517	05/09/17	TPH as gasoline	8.8 ug/L	06-MW36-0517 06-MW33-0517 06-MW35-0517 06-MW32-0517

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
06-MW36-0517	TPH as gasoline	7.3 ug/L	10U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
06-MW33-0517	TPH as gasoline	8.5 ug/L	10U ug/L
06-MW35-0517	TPH as gasoline	5.1 ug/L	10U ug/L

VI. Surrogates

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

VII. 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.

VIII. 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.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

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

Due to equipment blank contamination, data were qualified as not detected in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Treasure Island, IR Site 6**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

Treasure Island, IR Site 6**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

Treasure Island, IR Site 6**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 17E075**

Sample	Compound	Modified Final Concentration	A or P	Code
06-MW36-0517	TPH as gasoline	10U ug/L	A	6
06-MW33-0517	TPH as gasoline	10U ug/L	A	6
06-MW35-0517	TPH as gasoline	10U ug/L	A	6

LDC #: 38815A7 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 17E075 Level III
 Laboratory: EMAX Laboratories, Inc.

Date: 6/8/17
 Page: 2 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015B)

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.	Initial calibration/ICV	A-A	RSO ≤ 20% . 1CV = 20%
III.	Continuing calibration	A	CCV ≤ 20%
IV.	Laboratory Blanks	A	
V.	Field blanks	M	EB=5
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCSD
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	06-MW36-0517	17E075-03	Water	05/09/17
2	06-MW33-0517	17E075-08	Water	05/09/17
3	06-MW35-0517	17E075-09	Water	05/09/17
4	06-MW32-0517	17E075-10	Water	05/09/17
5	QCEB-0517	17E075-11	Water	05/09/17
6	06-MW32-0517MS	17E075-10MS	Water	05/09/17
7	06-MW32-0517MSD	17E075-10MSD	Water	05/09/17
8				
9				
10				
11				
12				

Notes:

LDC #: 388/5A7

VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1
Reviewer: Q
2nd Reviewer: DL

METHOD: GC/HPLC

N/A Field blanks were identified in this SDG.
 N/A Were target compounds detected in the field blanks?

Blank units: MS/L Associated sample units: MS/L

Sampling date: 5/9/17

Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: 1-4

Compound	Blank ID	Sample Identification							
		1	2	3					
<u>Gasoline</u>	<u>8.8</u>	<u>7.3/104</u>	<u>8.5/104</u>	<u>5.1/104</u>					

Blank units: _____ Associated sample units: _____

Sampling date: _____

Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification							
		1	2	3					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC Report# 38815A8

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Treasure Island, IR Site 6

LDC Report Date: June 20, 2017

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 17E075

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
06-MW36-0517	17E075-03	Water	05/09/17
06-MW33-0517	17E075-08	Water	05/09/17
06-MW35-0517	17E075-09	Water	05/09/17
06-MW32-0517	17E075-10	Water	05/09/17
QCEB-0517	17E075-11	Water	05/09/17

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 the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, and 24, Former Naval Station Treasure Island, San Francisco, California (April 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and 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:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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 not 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.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

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. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

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

V. Field Blanks

Sample QCEB-0517 was identified as an equipment blank. No contaminants were found.

VI. Surrogates

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

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. 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.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XII. 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.

**Treasure Island, IR Site 6
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -
SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data
Qualification Summary - SDG 17E075**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification
Summary - SDG 17E075**

No Sample Data Qualified in this SDG

LDC #: 38815A8 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 17E075 **Level III**
 Laboratory: EMAX Laboratories, Inc.

Date: 6/21/17
 Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: SVL

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

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.	Initial calibration/ICV	A/A	RSD ≤ 20% . 1CV ≤ 20%
III.	Continuing calibration	A	CCV ≤ 20%
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	ZB = 5
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/b
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	06-MW36-0517	17E075-03	Water	05/09/17
2	06-MW33-0517	17E075-08	Water	05/09/17
3	06-MW35-0517	17E075-09	Water	05/09/17
4	06-MW32-0517	17E075-10	Water	05/09/17
5	QCEB-0517	17E075-11	Water	05/09/17
6				
7				
8				
9				
10				
11				
12				

Notes:

LDC Report# 38815A96

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Treasure Island, IR Site 6

LDC Report Date: June 21, 2017

Parameters: Perfluorinated Alkyl Acids

Validation Level: Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 17E075/B799808

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
QCFB-0517	17E075-01/EJU281	Water	05/09/17
06-MW30-0517**	17E075-04/EJU282**	Water	05/09/17
06-MW30-0517-Dup	17E075-05/EJU283	Water	05/09/17
06-MW25-0517	17E075-06/EJU284	Water	05/09/17
06-MW26-0517	17E075-07/EJU285	Water	05/09/17
06-MW25-0517MS	17E075-06/EJU284MS	Water	05/09/17
06-MW25-0517MSD	17E075-06/EJU284MSD	Water	05/09/17

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 the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater and Soil Gas Monitoring at Installation Restoration Sites 6, 12, 21, and 24, Former Naval Station Treasure Island, San Francisco, California (April 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and 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 Modified

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.

Qualification Codes

- 1 Holding Times Exceeded
- 2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
- 3 Sample Custody Potentially Compromised Sample Integrity
- 4 Missing/Incomplete Deliverables
- 5 Calibration Did Not Meet Method Criteria
- 6 Equipment/Field Blank Contamination
- 7 Laboratory Method or Calibration Blank Contamination
- 8 Matrix Spike % Recovery Exceeded Acceptance Criteria
- 9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
- 10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
- 10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
- 11 ICP Interference Check Analysis Exceeded Method Criteria
- 12 RPD Between Two Columns (Pesticides/PCBs only)
- 13 Surrogate Recoveries Exceeded Acceptance Criteria
- 14 Field Duplicates RPD Exceeded Project Criteria
- 15 Peak Resolution did not meet method criteria
- 16 Serial Dilution Analysis Exceeded Method Criteria
- 17 Chemical Recoveries Exceeded Acceptance Criteria
- 18 Trip Blank Contamination
- 19 Internal Standards Did Not Meet Method Criteria
- 20 Calibration Range exceeded Method Criteria
- 21 Potential False Positives
- 22 Do not use, other result more technically sound (overall assessment)
- 23 Estimated Maximum Possible Concentration
- 24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
- 25 Other

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

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 25.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 25.0% 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

Sample QCFB-0517 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 not within the QC limits for 06-MW25-0517MS/MSD. No data were qualified since the parent sample results were greater than 4X the spiked concentration. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples 06-MW30-0517** and 06-MW30-0517-Dup 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
	06-MW30-0517**	06-MW30-0517-Dup			
Perfluorobutane Sulfonate	0.0060	0.0065	8 (≤ 30)	-	-
Perfluoro-n-Octanoic Acid	0.032	0.033	3 (≤ 30)	-	-
Perfluorooctane Sulfonate	0.13	0.17	27 (≤ 30)	-	-

XI. Internal Standards

All internal standard percent recoveries (%R) 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.

**Treasure Island, IR Site 6
Perfluorinated Alkyl Acids - Data Qualification Summary - SDG 17E075/B799808**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Perfluorinated Alkyl Acids - Laboratory Blank Data Qualification Summary - SDG
17E075/B799808**

No Sample Data Qualified in this SDG

**Treasure Island, IR Site 6
Perfluorinated Alkyl Acids - Field Blank Data Qualification Summary - SDG
17E075/B799808**

No Sample Data Qualified in this SDG

LDC #: 38815A96 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 17E075/B799808 Level III/IV
 Laboratory: EMAX Laboratories, Inc./Maxxam

Date: 6/8/17
 Page: 1 of 1
 Reviewer: _____
 2nd Reviewer: _____

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

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.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A	$REC \leq 25\%$, $1CV \leq 25\%$
IV.	Continuing calibration	A	$CCV \leq 25\%$
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	FB FB = 1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	W	REOUT > 4x SA
IX.	Laboratory control samples	A	LCS, ICS
X.	Field duplicates	W	D = 2 + 3
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 ND = No compounds detected D = Duplicate SB=Source blank
 N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
 SW = See worksheet FB = Field blank EB = Equipment blank

** Indicates sample was underwent Level IV review

	Client ID	Sub Lab ID	Lab ID	Matrix	Date
1	QCFB-0517	2JU 281	17E075-01	Water	05/09/17
2	06-MW30-0517**	282	17E075-04**	Water	05/09/17
3	06-MW30-0517-Dup	283	17E075-05	Water	05/09/17
4	06-MW25-0517	284	17E075-06	Water	05/09/17
5	06-MW26-0517	285	17E075-07	Water	05/09/17
6	06-MW25-0517MS	284 MS	17E075-06MS	Water	05/09/17
7	06-MW25-0517MSD	284 MSD	17E075-06MSD	Water	05/09/17
8					
9					
10					

Notes:

2989765 MB					

LDC #: 38815A96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
 Reviewer: [Signature]
 2nd Reviewer: _____

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?	/			
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) < 15%?			/	
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) < 15 %?	/			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) of the continuing calibration < 15 %?	/			
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				
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 #: 38815A96

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: Q
2nd Reviewer: _____

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

PFCs:

- A. Perfluorobutane Sulfonate (PFBS)
- B. Perfluoro-n-Octanoic Acid (PFOA)
- C. Perfluorooctane Sulfonate (PFOS)

LDC#: 38815A96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1Reviewer: 9

2nd Reviewer: _____

METHOD: PFCs (Method 537 mod)

Compound	Concentration (ug/L)		RPD (≤ 30)	Qual
	2	3		
A	0.0060	0.0065	8	
B	0.032	0.033	3	
C	0.13	0.17	27	

LDC#: 38815A96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: S
 2nd Reviewer: _____

Method: LC/MS/MS PFCs

Calibration Date	System	Compound	Standard	(Y) Response	(X) Concentration
5/19/2017	LCMS03	PFOA	0	0.3562500	0.83
			s1	0.7114754	1.70
			s2	2.2020547	5.00
			s3	5.7377049	12.50
			s4	10.878378	25.00
			s8	18.289473	41.70

Regression Output

Reported

Constant	0.033312	-0.011200
Std Err of Y Est		
R Squared	0.999717	0.999800
Degrees of Freedom		
X Coefficient(s)	0.437858	0.440000
Std Err of Coef.		
Correlation Coefficient	0.999859	
Coefficient of Determination (r ²)	0.999717	0.999800

VALIDATION FINDINGS WORKSHEET

Surrogate Results Verification

LDC #: 388/5A76

METHOD: GC HPLC/MS

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: 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	
13C4-PFOS		100	86.8	87	87	
13C4-PFOA		↓	92.4	92	92	
18O2-PFHxS				92	92	

Sample ID: _____

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

Sample ID: _____

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

LDC #: 38815A96

VALIDATION FINDINGS WORKSHEET

Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer:

METHOD: GC HPLC/MS

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

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

Where

SSC = Spiked sample concentration

SC = Sample concentration

SA = Spike added

MS = Matrix spike

MSD = Matrix spike duplicate

RPD = (((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD)) * 100

MS/MSD samples: 6/7

Compound	Spike Added (<u>MS/MSD</u>)		Sample Conc (<u>MS/MSD</u>)	Spike Sample Concentration (<u>MS/MSD</u>)		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						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)											
PFBS	<u>0.500</u>	<u>0.500</u>	<u>0.12</u>	<u>0.649</u>	<u>0.632</u>	<u>106</u>	<u>106</u>	<u>103</u>	<u>102</u>	<u>33</u>	<u>2.7</u>

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 0.0% of the recalculated results.

LDC #: 38815A96

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: _____

METHOD: GC HPLC [Signature]

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

Where: SSC = Spiked sample concentration

SC = Concentration

SA = Spike added

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

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 4989765

Compound	Spike Added		Spiked Sample Concentration		LCS		LCSD		LCS/LCSD	
	<u>[Signature]</u>		<u>[Signature]</u>		Percent Recovery		Percent Recovery		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)										
<u>PFBS</u>	<u>0.500</u>	<u>NA</u>	<u>0.459</u>	<u>NA</u>	<u>92</u>	<u>92</u>				

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 #: 38815A96

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: _____

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 = $\frac{(A)(F_v)(D_f)}{(RF)(V_s \text{ or } W_s)(\%S/100)}$

Example:

Sample ID. 2 Compound Name PTOA

- 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

Concentration = $\frac{(\frac{169000}{296000} + 0.0112)(3)}{(0.44)(125)}$

= 0.0317 $\mu\text{g/L}$

#	Sample ID	Compound	Reported Concentrations ($\mu\text{g/L}$)	Recalculated Results Concentrations ()	Qualifications
	<u>2</u>	<u>PTOA</u>	<u>0.032</u>		

Comments: _____

Treasure Island, IR Site 6 - LDC 38815

SDG: 17E075

Sample ID		06-MW32-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
6020A	ARSENIC	20170509	20170516	5.78	UG_L				0.200	0.100
6020A	MANGANESE	20170509	20170516	326	UG_L				0.200	0.100
8015B	TPH-GASOLINE RANGE C6-C10	20170509	20170511	10	UG_L	U	U		10	5.0
8015B	TPH-DIESEL RANGE	20170509	20170516	1600	UG_L				57	29
8015B	TPH-OIL RANGE	20170509	20170516	530	UG_L	J	J		57	29
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50

Sample ID		06-MW33-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
6020A	ARSENIC	20170509	20170516	23.9	UG_L				0.200	0.100
6020A	MANGANESE	20170509	20170516	135	UG_L				0.200	0.100
8015B	TPH-GASOLINE RANGE C6-C10	20170509	20170511	10	UG_L	J	U	6	10	5.0
8015B	TPH-DIESEL RANGE	20170509	20170516	56	UG_L	U	U		56	28
8015B	TPH-OIL RANGE	20170509	20170516	56	UG_L	U	U		56	28
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50

Sample ID		06-MW35-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
6020A	ARSENIC	20170509	20170516	20.8	UG_L				0.200	0.100
6020A	MANGANESE	20170509	20170516	58.7	UG_L				0.200	0.100
8015B	TPH-GASOLINE RANGE C6-C10	20170509	20170511	10	UG_L	J	U	6	10	5.0

SDG: 17E075

Sample ID		06-MW35-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
8015B	TPH-DIESEL RANGE	20170509	20170516	130	UG_L	J	J		62	31
8015B	TPH-OIL RANGE	20170509	20170516	290	UG_L	J	J		62	31
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50
Sample ID		06-MW36-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
6020A	ARSENIC	20170509	20170516	12.0	UG_L				0.200	0.100
6020A	MANGANESE	20170509	20170516	266	UG_L				0.200	0.100
8015B	TPH-GASOLINE RANGE C6-C10	20170509	20170511	10	UG_L	J	U	6	10	5.0
8015B	TPH-DIESEL RANGE	20170509	20170516	260	UG_L	J	J		54	27
8015B	TPH-OIL RANGE	20170509	20170516	240	UG_L	J	J		54	27
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50
Sample ID		QCEB-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
6020A	ARSENIC	20170509	20170516	0.200	UG_L	U	U		0.200	0.100
6020A	MANGANESE	20170509	20170516	0.200	UG_L	U	U		0.200	0.100
8015B	TPH-GASOLINE RANGE C6-C10	20170509	20170511	8.8	UG_L	J	J		10	5.0
8015B	TPH-DIESEL RANGE	20170509	20170516	59	UG_L	U	U		59	29
8015B	TPH-OIL RANGE	20170509	20170516	59	UG_L	U	U		59	29
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10

SDG: 17E075

Sample ID	QCEB-0517									
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50

Sample ID	QCTB-0517									
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
8260B	1,1,2-TRICHLOROETHANE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	BENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	ETHYLBENZENE	20170509	20170516	0.20	UG_L	U	U		0.20	0.10
8260B	NAPHTHALENE	20170509	20170516	1.0	UG_L	U	U		1.0	0.50

SDG: B799808

Sample ID		06-MW25-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
EPA537m	PERFLUOROBUTANESULFONIC ACID (PFBS)	20170509	20170519	0.12	UG_L				0.010	0.020
EPA537m	PERFLUOROOCTANE SULFONIC ACID	20170509	20170519	7.1	UG_L				0.20	0.40
EPA537m	PERFLUOROOCTANOIC ACID (PFOA)	20170509	20170519	7.3	UG_L				0.20	0.40

Sample ID		06-MW26-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
EPA537m	PERFLUOROBUTANESULFONIC ACID (PFBS)	20170509	20170519	0.038	UG_L				0.010	0.020
EPA537m	PERFLUOROOCTANE SULFONIC ACID	20170509	20170519	10	UG_L				0.20	0.40
EPA537m	PERFLUOROOCTANOIC ACID (PFOA)	20170509	20170519	0.75	UG_L				0.010	0.020

Sample ID		06-MW30-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
EPA537m	PERFLUOROBUTANESULFONIC ACID (PFBS)	20170509	20170519	0.0060	UG_L	J	J		0.010	0.020
EPA537m	PERFLUOROOCTANE SULFONIC ACID	20170509	20170519	0.13	UG_L				0.010	0.020
EPA537m	PERFLUOROOCTANOIC ACID (PFOA)	20170509	20170519	0.032	UG_L				0.010	0.020

Sample ID		06-MW30-0517DUP								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
EPA537m	PERFLUOROBUTANESULFONIC ACID (PFBS)	20170509	20170519	0.0065	UG_L	J	J		0.010	0.020
EPA537m	PERFLUOROOCTANE SULFONIC ACID	20170509	20170519	0.17	UG_L				0.010	0.020
EPA537m	PERFLUOROOCTANOIC ACID (PFOA)	20170509	20170519	0.033	UG_L				0.010	0.020

Sample ID		QCFB-0517								
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
EPA537m	PERFLUOROBUTANESULFONIC ACID (PFBS)	20170509	20170519	0.010	UG_L	U	U		0.010	0.020
EPA537m	PERFLUOROOCTANE SULFONIC ACID	20170509	20170519	0.010	UG_L	U	U		0.010	0.020
EPA537m	PERFLUOROOCTANOIC ACID (PFOA)	20170509	20170519	0.010	UG_L	U	U		0.010	0.020

LDC #: 38815

EDD POPULATION COMPLETENESS WORKSHEET

Date: 6/22
 Page: 1 of 1
 2nd Reviewer: AG

The LDC job number listed above was entered by JE

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	client
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	- Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	Y/Y	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	Y	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	+	
IIIg.	- Are there any discrepancies between the data packet and the EDD?	N	

Notes: *see discrepancy sheet

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
TREASURE_ISLAND_NS	SITE 00006	06-MW25	Monitoring well	6021163.016	2130486.964	06-MW25-0517A	Ground water	9-May-17	Perfluoroalkyl Compounds	B799808
TREASURE_ISLAND_NS	SITE 00006	06-MW30	Monitoring well	6021128.148	2130373.461	06-MW30-0517A	Ground water	9-May-17	Perfluoroalkyl Compounds	B799808
TREASURE_ISLAND_NS	SITE 00006	06-MW30	Monitoring well	6021128.148	2130373.461	06-MW30-0517DUP	Ground water	9-May-17	Perfluoroalkyl Compounds	B799808
TREASURE_ISLAND_NS	SITE 00006	06-MW26	Monitoring well	6021172.738	2130574.156	06-MW26-0517A	Ground water	9-May-17	Perfluoroalkyl Compounds	B799808
TREASURE_ISLAND_NS						QCFB-0517	Water for QC samples	9-May-17	Perfluoroalkyl Compounds	B799808