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DoD Type I Data Package

Prepared for:

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

Project: Moose Creek Drinking Water
Groundwater Samples
Collected on 08/11/16-08/14/16

SDG# MOO91

GROUP	SAMPLE NUMBERS
1695266	8528577-8528584

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

Authorized by: Dana M. Kauffman **Date:** **09/06/2016**

Dana M. Kauffman
Manager

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

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Sample Reference List for SDG Number MOO91
with a Data Package Type of I-DOD

30098 - EA Engineering, Science & Tech

Project: Moose Creek Drinking Water

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8528577	TW106-160	08/11/2016 14:55	08/16/2016 09:30
8528578	16MC-PW135-P5-0811	08/11/2016 14:20	08/16/2016 09:30
8528579	16MC-PW135-P4-0811	08/11/2016 14:22	08/16/2016 09:30
8528580	16MC-PW135-P1-0811	08/11/2016 14:24	08/16/2016 09:30
8528581	TW106-180	08/12/2016 11:00	08/16/2016 09:30
8528582	TW106-185	08/12/2016 15:50	08/16/2016 09:30
8528583	TW106-200	08/13/2016 13:15	08/16/2016 09:30
8528584	TW106-220	08/14/2016 17:15	08/16/2016 09:30

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Sample pH Log

SDG: MOO91

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #	Record Date	Employee
8528577	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 10:18:20AM	8044
8528577	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:03:32AM	8044
8528577	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:03:08AM	8044
8528577	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:29:33AM	8044
8528578	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:29:27AM	8044
8528579	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:28:50AM	8044
8528580	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:29:17AM	8044
8528581	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 10:18:27AM	8044
8528581	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:03:22AM	8044
8528581	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:03:02AM	8044
8528581	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:29:05AM	8044
8528582	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 10:18:34AM	8044
8528582	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:03:15AM	8044
8528582	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:02:55AM	8044
8528582	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:28:30AM	8044
8528583	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 10:18:13AM	8044
8528583	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:02:48AM	8044
8528583	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:02:31AM	8044
8528583	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:30:06AM	8044
8528584	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 10:18:04AM	8044
8528584	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:02:40AM	8044
8528584	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	8/16/2016 11:02:25AM	8044
8528584	201A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	N	NA	NA	8/16/2016 10:28:40AM	8044

Check Code Key

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

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00259 Mercury

The solution resulting from the mercury digestion is analyzed by Cold Vapor AA.

Reference: Method 245.1 (rev. 3), Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectroscopy, USEPA 600/R-94/111 May 1994.

05716 EPA 600 ICP Digest (tot rec)

The sample is digested with nitric acid and hydrochloric acid.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

07050 ICP/MS EPA-600 Digest

The sample is digested with nitric acid and hydrochloric acid.

Reference: Method 200.8 (rev 5.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Mass Spectrometry, USEPA 600/R-94/111 May 1994.

05714 PW/WW Hg Digest

The sample is heated at 95 c with nitric acid, sulfuric acid, potassium persulfate, and potassium permanganate. Excess potassium permanganate is reduced with sodium chloride/hydroxylamine hydrochloride. Mercuric ions are reduced to mercury metal using stannous chloride.

Reference: Method 245.1 (rev. 3), Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectroscopy, USEPA 600/R-94/111 May 1994.

06256 Total Hardness as CaCO3

The calcium result (mg/l) is multiplied by a factor of 2.497, the magnesium result is multiplied by a factor of 4.118, and the two values are added together for the hardness result.

Reference: Standard Methods for the Examination of Waters and Wastes, 18th ed., Method 2340B

01743 Aluminum
07046 Barium
07047 Beryllium
07049 Cadmium
01750 Calcium
07051 Chromium
07052 Cobalt
01754 Iron
01757 Magnesium
07058 Manganese
07061 Nickel
01762 Potassium
07066 Silver
01767 Sodium
07071 Vanadium
07072 Zinc

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

06024 Antimony
06025 Arsenic
06033 Copper
06035 Lead
06041 Selenium
06045 Thallium

The solution resulting from the metals digestion is analyzed by ICP/MS.

Reference: Method 200.8 (rev 5.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Mass Spectrometry, USEPA 600/R-94/111 May 1994.

00273 Total Organic Carbon

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

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

00212 Total Dissolved Solids

A well-mixed sample is filtered through a glass fiber filter. The filtrate is collected in a tared beaker, evaporated in a steam bath and dried in an oven at 180C +/- 2C to a constant weight. The increase in weight is the total dissolved solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 C-1997

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

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

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

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

Report Date: August 31, 2016

Project: Moose Creek Drinking Water

Submittal Date: 08/16/2016
Group Number: 1695266
SDG: MOO91
PO Number: 14218
State of Sample Origin: AK

Client Sample Description	Lancaster Labs (LL) #
TW106-160 Grab Groundwater	8528577
16MC-PW135-P5-0811 Grab Groundwater	8528578
16MC-PW135-P4-0811 Grab Groundwater	8528579
16MC-PW135-P1-0811 Grab Groundwater	8528580
TW106-180 Grab Groundwater	8528581
TW106-185 Grab Groundwater	8528582
TW106-200 Grab Groundwater	8528583
TW106-220 Grab Groundwater	8528584

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

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

Electronic Copy To	EA Engineering, Science & Tech	Attn: PacificChem Mailbox
Electronic Copy To	EA Engineering, Science & Tech	Attn: Brenda Nuding

Respectfully Submitted,

Kay Hower

Kay Hower

(510) 672-3979

Project Name: Moose Creek Drinking Water
LL Group #: 1695266

General Comments:

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

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

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

Project specific QC samples are not included in this data set

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

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

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

Analysis Specific Comments:

EPA 200.7 rev 4.4, Metals

Batch #: 162315716004 (Sample number(s): 8528577, 8528581-8528584 UNSPK: P523838 BKG: P523838)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Calcium, Iron

SM 5310 C-2000, Wet Chemistry

Batch #: 16240298701A (Sample number(s): 8528577, 8528581-8528584 UNSPK: P529294 BKG: P529294)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Total Organic Carbon

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Organic Carbon

SM 2540 C-1997, Wet Chemistry

Batch #: 16231021201A (Sample number(s): 8528577, 8528581 UNSPK: P525269 BKG: P523004, P525269)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Dissolved Solids

Sample Description: TW106-160 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528577
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:55 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10660 SDG#: MOO91-01

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	8	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	110	5	10	10	1
Metals	**EPA 200.7 rev 4.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	1.71	0.0868	0.200	0.200	1
	The EPA has established a secondary guideline of 0.2 mg/l for aluminum.						
07046	Barium	7440-39-3	0.149	0.0011	0.0025	0.0050	1
	The EPA has set a maximum contaminant level of 2 mg/l for barium. The state of Pennsylvania has set a maximum contaminant level of 1 mg/l for barium.						
07047	Beryllium	7440-41-7	0.0025 U	0.00067	0.0025	0.0040	1
	The EPA has set a maximum contaminant level of 0.004 mg/l for beryllium.						
07049	Cadmium	7440-43-9	0.0013 U	0.00049	0.0013	0.0050	1
	The EPA has set a maximum contaminant level of 0.005 mg/l for cadmium.						
01750	Calcium	7440-70-2	37.8	0.0382	0.200	0.200	1
07051	Chromium	7440-47-3	0.0125 J	0.0018	0.0038	0.0150	1
	The EPA has set a maximum contaminant level of 0.1 mg/l for chromium. The state of Pennsylvania has set a maximum contaminant level of 0.05 mg/l for chromium.						
07052	Cobalt	7440-48-4	0.0050 U	0.0019	0.0050	0.0050	1
01754	Iron	7439-89-6	7.15	0.0747	0.200	0.200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.3 mg/l for iron in drinking water. Iron in excess of this standard is not generally considered a health hazard but it will discolor laundry or porcelain and can affect the taste of the water.						
01757	Magnesium	7439-95-4	8.58	0.0190	0.0500	0.100	1
07058	Manganese	7439-96-5	0.244	0.0018	0.0050	0.0050	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.05 mg/l manganese in drinking water. Above this level, staining effects similar to iron can occur.						
07061	Nickel	7440-02-0	0.0043 J	0.0028	0.0050	0.0100	1
01762	Potassium	7440-09-7	3.26	0.160	0.500	0.500	1
07066	Silver	7440-22-4	0.0050 U	0.0019	0.0050	0.0050	1
01767	Sodium	7440-23-5	8.44	0.173	0.500	1.00	1
	The EPA has established 20 mg/l as a guideline for the sodium level in drinking water. Sodium levels substantially above this guide could be of concern to those individuals on a sodium restricted diet.						
07071	Vanadium	7440-62-2	0.0115	0.0016	0.0050	0.0050	1
07072	Zinc	7440-66-6	0.0793	0.0054	0.0100	0.0200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 5 mg/l for zinc in drinking water. Zinc at these levels is not generally considered a health hazard but will affect the taste of the water.						
	EPA 200.8 rev 5.4		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 J	0.00030	0.0010	0.0010	1
	The EPA has set a maximum contaminant level of 0.006 mg/l for antimony.						
06025	Arsenic	7440-38-2	0.0125	0.00040	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.01 mg/l for arsenic.						

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

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Analysis Report

Sample Description: TW106-160 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528577
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:55 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10660 SDG#: MOO91-01

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Metals	**EPA 200.8 rev 5.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.0226	0.00014	0.00025	0.0020	1
	The action level for copper in the lead and copper rule is 1.3 mg/l. Copper at these levels is not considered a direct health hazard, but can affect the taste of the water. Excessive copper levels may indicate a corrosive water if the system has copper plumbing.						
06035	Lead	7439-92-1	0.0053	0.000054	0.00013	0.0010	1
	The Lead and Copper Rule establishes a 15 ppb (0.015 mg/l) lead action limit for public water systems. This is based on a 1 liter sample size. The EPA recommends a limit of 20 ppb (0.02 mg/l) lead in school systems, based on a 250 ml sample size.						
06041	Selenium	7782-49-2	0.0010 U	0.00050	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.05 mg/l for selenium. The state of Pennsylvania has set a maximum contaminant level of 0.01 mg/l for selenium.						
06045	Thallium	7440-28-0	0.00050 U	0.00015	0.00050	0.00050	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for thallium.						
	EPA 245.1 rev 3		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00010 U	0.000050	0.00010	0.00020	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for mercury.						
	SM 2340 B-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06256	Total Hardness as CaCO3	471-34-1	130	0.038	0.20	0.20	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	1.7	0.50	1.0	1.0	1
	SM 2540 C-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00212	Total Dissolved Solids	n.a.	191	9.7	30.0	60.0	1
	Total dissolved solids is a measure of residue remaining when a filtered water sample is evaporated. The Environmental Protection Agency (EPA) has established a secondary guideline of 500 mg/l total dissolved solids for drinking water.						

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 22:56	Marissa C Drexinger	1

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

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: TW106-160 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528577
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:55 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10660 SDG#: MOO91-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016	10:55	Devon M Whooley	1
01743	Aluminum	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07046	Barium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07047	Beryllium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07049	Cadmium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
01750	Calcium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07051	Chromium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:30	Eric L Eby	1
07052	Cobalt	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
01754	Iron	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
01757	Magnesium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07058	Manganese	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07061	Nickel	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:30	Eric L Eby	1
01762	Potassium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:30	Eric L Eby	1
07066	Silver	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:30	Eric L Eby	1
01767	Sodium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:30	Eric L Eby	1
07071	Vanadium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
07072	Zinc	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:30	Eric L Eby	1
06024	Antimony	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:30	Scott P Cuff	1
06025	Arsenic	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:30	Scott P Cuff	1
06033	Copper	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:30	Scott P Cuff	1
06035	Lead	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:30	Scott P Cuff	1
06041	Selenium	EPA 200.8 rev 5.4	1	162297050004C	08/18/2016	08:30	Scott P Cuff	1
06045	Thallium	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:30	Scott P Cuff	1
00259	Mercury	EPA 245.1 rev 3	1	162295714002	08/18/2016	07:12	Damary Valentin	1
06256	Total Hardness as CaCO3	SM 2340 B-1997	1	162356256010	08/22/2016	13:07	Jennifer L Moyer	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	162295716006	08/17/2016	07:35	Ann Borg	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	2	162315716004	08/18/2016	22:00	Annamaria Kuhns	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162297050004	08/17/2016	06:50	Ann Borg	1
05714	PW/WW Hg Digest	EPA 245.1 rev 3	1	162295714002	08/17/2016	09:35	Katlin N Cataldi	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16240298701A	08/27/2016	01:18	Clinton M Wilson	1
00212	Total Dissolved Solids	SM 2540 C-1997	1	16231021201A	08/18/2016	06:55	Karen D Lausch	1

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

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Analysis Report

Sample Description: 16MC-PW135-P5-0811 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528578
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:20 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

135P5 SDG#: MOO91-02

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	2	U	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	5	10	10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 23:27	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 10:55	Devon M Whooley	1

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

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Analysis Report

Sample Description: 16MC-PW135-P4-0811 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528579
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:22 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

135P4 SDG#: MOO91-03

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	2	U	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	5	10	10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 23:43	Irene L Dodd	1
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 23:43	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 10:55	Devon M Whooley	1

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

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Analysis Report

Sample Description: 16MC-PW135-P1-0811 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528580
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/11/2016 14:24 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

135P1 SDG#: MOO91-04

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	31	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	440	5	10	10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 23:59	Irene L Dodd	1
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 23:59	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016 10:55	Devon M Whooley	1

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

Sample Description: TW106-180 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528581
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 11:00 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10680 SDG#: MOO91-05

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	3	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	36	5	10	10	1
Metals	**EPA 200.7 rev 4.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.461	0.0868	0.200	0.200	1
	The EPA has established a secondary guideline of 0.2 mg/l for aluminum.						
07046	Barium	7440-39-3	0.0993	0.0011	0.0025	0.0050	1
	The EPA has set a maximum contaminant level of 2 mg/l for barium. The state of Pennsylvania has set a maximum contaminant level of 1 mg/l for barium.						
07047	Beryllium	7440-41-7	0.0025 U	0.00067	0.0025	0.0040	1
	The EPA has set a maximum contaminant level of 0.004 mg/l for beryllium.						
07049	Cadmium	7440-43-9	0.0013 U	0.00049	0.0013	0.0050	1
	The EPA has set a maximum contaminant level of 0.005 mg/l for cadmium.						
01750	Calcium	7440-70-2	31.6	0.0382	0.200	0.200	1
07051	Chromium	7440-47-3	0.0364	0.0018	0.0038	0.0150	1
	The EPA has set a maximum contaminant level of 0.1 mg/l for chromium. The state of Pennsylvania has set a maximum contaminant level of 0.05 mg/l for chromium.						
07052	Cobalt	7440-48-4	0.0050 U	0.0019	0.0050	0.0050	1
01754	Iron	7439-89-6	15.2	0.0747	0.200	0.200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.3 mg/l for iron in drinking water. Iron in excess of this standard is not generally considered a health hazard but it will discolor laundry or porcelain and can affect the taste of the water.						
01757	Magnesium	7439-95-4	9.71	0.0190	0.0500	0.100	1
07058	Manganese	7439-96-5	0.237	0.0018	0.0050	0.0050	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.05 mg/l manganese in drinking water. Above this level, staining effects similar to iron can occur.						
07061	Nickel	7440-02-0	0.0170	0.0028	0.0050	0.0100	1
01762	Potassium	7440-09-7	3.30	0.160	0.500	0.500	1
07066	Silver	7440-22-4	0.0050 U	0.0019	0.0050	0.0050	1
01767	Sodium	7440-23-5	12.2	0.173	0.500	1.00	1
	The EPA has established 20 mg/l as a guideline for the sodium level in drinking water. Sodium levels substantially above this guide could be of concern to those individuals on a sodium restricted diet.						
07071	Vanadium	7440-62-2	0.0028 J	0.0016	0.0050	0.0050	1
07072	Zinc	7440-66-6	0.312	0.0054	0.0100	0.0200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 5 mg/l for zinc in drinking water. Zinc at these levels is not generally considered a health hazard but will affect the taste of the water.						
	EPA 200.8 rev 5.4		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00043 J	0.00030	0.0010	0.0010	1
	The EPA has set a maximum contaminant level of 0.006 mg/l for antimony.						
06025	Arsenic	7440-38-2	0.0150	0.00040	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.01 mg/l for arsenic.						

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

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Analysis Report

Sample Description: TW106-180 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528581
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 11:00 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10680 SDG#: MOO91-05

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Metals	**EPA 200.8 rev 5.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.0305	0.00014	0.00025	0.0020	1
	The action level for copper in the lead and copper rule is 1.3 mg/l. Copper at these levels is not considered a direct health hazard, but can affect the taste of the water. Excessive copper levels may indicate a corrosive water if the system has copper plumbing.						
06035	Lead	7439-92-1	0.00061 J	0.000054	0.00013	0.0010	1
	The Lead and Copper Rule establishes a 15 ppb (0.015 mg/l) lead action limit for public water systems. This is based on a 1 liter sample size. The EPA recommends a limit of 20 ppb (0.02 mg/l) lead in school systems, based on a 250 ml sample size.						
06041	Selenium	7782-49-2	0.0010 U	0.00050	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.05 mg/l for selenium. The state of Pennsylvania has set a maximum contaminant level of 0.01 mg/l for selenium.						
06045	Thallium	7440-28-0	0.00050 U	0.00015	0.00050	0.00050	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for thallium.						
	EPA 245.1 rev 3		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00010 U	0.000050	0.00010	0.00020	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for mercury.						
	SM 2340 B-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06256	Total Hardness as CaCO3	471-34-1	119	0.038	0.20	0.20	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	2.0	0.50	1.0	1.0	1
	SM 2540 C-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00212	Total Dissolved Solids	n.a.	189	19.4	60.0	60.0	1
	Total dissolved solids is a measure of residue remaining when a filtered water sample is evaporated. The Environmental Protection Agency (EPA) has established a secondary guideline of 500 mg/l total dissolved solids for drinking water.						

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/17/2016 00:14	Marissa C Drexinger	1

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

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Analysis Report

Sample Description: TW106-180 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528581
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 11:00 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10680 SDG#: MOO91-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016	10:55	Devon M Whooley	1
01743	Aluminum	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07046	Barium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07047	Beryllium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07049	Cadmium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
01750	Calcium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07051	Chromium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:33	Eric L Eby	1
07052	Cobalt	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
01754	Iron	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
01757	Magnesium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07058	Manganese	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07061	Nickel	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:33	Eric L Eby	1
01762	Potassium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:33	Eric L Eby	1
07066	Silver	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:33	Eric L Eby	1
01767	Sodium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:33	Eric L Eby	1
07071	Vanadium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
07072	Zinc	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:33	Eric L Eby	1
06024	Antimony	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:33	Scott P Cuff	1
06025	Arsenic	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:33	Scott P Cuff	1
06033	Copper	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:33	Scott P Cuff	1
06035	Lead	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:33	Scott P Cuff	1
06041	Selenium	EPA 200.8 rev 5.4	1	162297050004C	08/18/2016	08:33	Scott P Cuff	1
06045	Thallium	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:33	Scott P Cuff	1
00259	Mercury	EPA 245.1 rev 3	1	162295714002	08/18/2016	07:18	Damary Valentin	1
06256	Total Hardness as CaCO3	SM 2340 B-1997	1	162356256010	08/22/2016	13:07	Jennifer L Moyer	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	162295716006	08/17/2016	07:35	Ann Borg	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	2	162315716004	08/18/2016	22:00	Annamaria Kuhns	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162297050004	08/17/2016	06:50	Ann Borg	1
05714	PW/WW Hg Digest	EPA 245.1 rev 3	1	162295714002	08/17/2016	09:35	Katlin N Cataldi	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16240298701A	08/27/2016	01:31	Clinton M Wilson	1
00212	Total Dissolved Solids	SM 2540 C-1997	1	16231021201A	08/18/2016	06:55	Karen D Lausch	1

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

Sample Description: TW106-185 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528582
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 15:50 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10685 SDG#: MOO91-06

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	1	J	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	5	10	10	1
Metals	**EPA 200.7 rev 4.4**		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	1.11		0.0868	0.200	0.200	1
	The EPA has established a secondary guideline of 0.2 mg/l for aluminum.							
07046	Barium	7440-39-3	0.0314		0.0011	0.0025	0.0050	1
	The EPA has set a maximum contaminant level of 2 mg/l for barium. The state of Pennsylvania has set a maximum contaminant level of 1 mg/l for barium.							
07047	Beryllium	7440-41-7	0.0025 U		0.00067	0.0025	0.0040	1
	The EPA has set a maximum contaminant level of 0.004 mg/l for beryllium.							
07049	Cadmium	7440-43-9	0.0013 U		0.00049	0.0013	0.0050	1
	The EPA has set a maximum contaminant level of 0.005 mg/l for cadmium.							
01750	Calcium	7440-70-2	7.69		0.0382	0.200	0.200	1
07051	Chromium	7440-47-3	0.0456		0.0018	0.0038	0.0150	1
	The EPA has set a maximum contaminant level of 0.1 mg/l for chromium. The state of Pennsylvania has set a maximum contaminant level of 0.05 mg/l for chromium.							
07052	Cobalt	7440-48-4	0.0050 U		0.0019	0.0050	0.0050	1
01754	Iron	7439-89-6	16.8		0.0747	0.200	0.200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.3 mg/l for iron in drinking water. Iron in excess of this standard is not generally considered a health hazard but it will discolor laundry or porcelain and can affect the taste of the water.							
01757	Magnesium	7439-95-4	2.30		0.0190	0.0500	0.100	1
07058	Manganese	7439-96-5	0.173		0.0018	0.0050	0.0050	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.05 mg/l manganese in drinking water. Above this level, staining effects similar to iron can occur.							
07061	Nickel	7440-02-0	0.0203		0.0028	0.0050	0.0100	1
01762	Potassium	7440-09-7	1.65		0.160	0.500	0.500	1
07066	Silver	7440-22-4	0.0050 U		0.0019	0.0050	0.0050	1
01767	Sodium	7440-23-5	94.6		0.173	0.500	1.00	1
	The EPA has established 20 mg/l as a guideline for the sodium level in drinking water. Sodium levels substantially above this guide could be of concern to those individuals on a sodium restricted diet.							
07071	Vanadium	7440-62-2	0.0053		0.0016	0.0050	0.0050	1
07072	Zinc	7440-66-6	0.317		0.0054	0.0100	0.0200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 5 mg/l for zinc in drinking water. Zinc at these levels is not generally considered a health hazard but will affect the taste of the water.							
	EPA 200.8 rev 5.4		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.0010		0.00030	0.0010	0.0010	1
	The EPA has set a maximum contaminant level of 0.006 mg/l for antimony.							
06025	Arsenic	7440-38-2	0.0058		0.00040	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.01 mg/l for arsenic.							

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

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Analysis Report

Sample Description: TW106-185 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528582
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 15:50 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10685 SDG#: MOO91-06

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Metals	**EPA 200.8 rev 5.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.0333	0.00014	0.00025	0.0020	1
	The action level for copper in the lead and copper rule is 1.3 mg/l. Copper at these levels is not considered a direct health hazard, but can affect the taste of the water. Excessive copper levels may indicate a corrosive water if the system has copper plumbing.						
06035	Lead	7439-92-1	0.0019	0.000054	0.00013	0.0010	1
	The Lead and Copper Rule establishes a 15 ppb (0.015 mg/l) lead action limit for public water systems. This is based on a 1 liter sample size. The EPA recommends a limit of 20 ppb (0.02 mg/l) lead in school systems, based on a 250 ml sample size.						
06041	Selenium	7782-49-2	0.0010 U	0.00050	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.05 mg/l for selenium. The state of Pennsylvania has set a maximum contaminant level of 0.01 mg/l for selenium.						
06045	Thallium	7440-28-0	0.00050 U	0.00015	0.00050	0.00050	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for thallium.						
	EPA 245.1 rev 3		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00010 U	0.000050	0.00010	0.00020	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for mercury.						
	SM 2340 B-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06256	Total Hardness as CaCO3	471-34-1	28.7	0.038	0.20	0.20	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	1.7	0.50	1.0	1.0	1
	SM 2540 C-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00212	Total Dissolved Solids	n.a.	305	19.4	60.0	60.0	1
	Total dissolved solids is a measure of residue remaining when a filtered water sample is evaporated. The Environmental Protection Agency (EPA) has established a secondary guideline of 500 mg/l total dissolved solids for drinking water.						

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/17/2016 00:46	Irene L Dodd	1

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

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Analysis Report

Sample Description: TW106-185 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528582
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/12/2016 15:50 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10685 SDG#: MOO91-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/17/2016	00:46	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016	10:55	Devon M Whooley	1
01743	Aluminum	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07046	Barium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07047	Beryllium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07049	Cadmium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
01750	Calcium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07051	Chromium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:37	Eric L Eby	1
07052	Cobalt	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
01754	Iron	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
01757	Magnesium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07058	Manganese	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07061	Nickel	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:37	Eric L Eby	1
01762	Potassium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:37	Eric L Eby	1
07066	Silver	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:37	Eric L Eby	1
01767	Sodium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:37	Eric L Eby	1
07071	Vanadium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
07072	Zinc	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:37	Eric L Eby	1
06024	Antimony	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:37	Scott P Cuff	1
06025	Arsenic	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:37	Scott P Cuff	1
06033	Copper	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:37	Scott P Cuff	1
06035	Lead	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:37	Scott P Cuff	1
06041	Selenium	EPA 200.8 rev 5.4	1	162297050004C	08/18/2016	08:37	Scott P Cuff	1
06045	Thallium	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:37	Scott P Cuff	1
00259	Mercury	EPA 245.1 rev 3	1	162295714002	08/18/2016	07:20	Damary Valentin	1
06256	Total Hardness as CaCO3	SM 2340 B-1997	1	162356256010	08/22/2016	13:07	Jennifer L Moyer	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	162295716006	08/17/2016	07:35	Ann Borg	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	2	162315716004	08/18/2016	22:00	Annamaria Kuhns	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162297050004	08/17/2016	06:50	Ann Borg	1
05714	PW/WW Hg Digest	EPA 245.1 rev 3	1	162295714002	08/17/2016	09:35	Katlin N Cataldi	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16240298701A	08/27/2016	01:58	Clinton M Wilson	1
00212	Total Dissolved Solids	SM 2540 C-1997	1	16231021202A	08/18/2016	07:03	Karen D Lausch	1

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

Sample Description: TW106-200 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528583
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/13/2016 13:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10620 SDG#: MOO91-07

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	2	U	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	5	10	10	1
Metals	**EPA 200.7 rev 4.4**		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	1.33		0.0868	0.200	0.200	1
	The EPA has established a secondary guideline of 0.2 mg/l for aluminum.							
07046	Barium	7440-39-3	0.210		0.0011	0.0025	0.0050	1
	The EPA has set a maximum contaminant level of 2 mg/l for barium. The state of Pennsylvania has set a maximum contaminant level of 1 mg/l for barium.							
07047	Beryllium	7440-41-7	0.0025 U		0.00067	0.0025	0.0040	1
	The EPA has set a maximum contaminant level of 0.004 mg/l for beryllium.							
07049	Cadmium	7440-43-9	0.0013 U		0.00049	0.0013	0.0050	1
	The EPA has set a maximum contaminant level of 0.005 mg/l for cadmium.							
01750	Calcium	7440-70-2	25.2		0.0382	0.200	0.200	1
07051	Chromium	7440-47-3	0.0071 J		0.0018	0.0038	0.0150	1
	The EPA has set a maximum contaminant level of 0.1 mg/l for chromium. The state of Pennsylvania has set a maximum contaminant level of 0.05 mg/l for chromium.							
07052	Cobalt	7440-48-4	0.0050 U		0.0019	0.0050	0.0050	1
01754	Iron	7439-89-6	4.36		0.0747	0.200	0.200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.3 mg/l for iron in drinking water. Iron in excess of this standard is not generally considered a health hazard but it will discolor laundry or porcelain and can affect the taste of the water.							
01757	Magnesium	7439-95-4	8.68		0.0190	0.0500	0.100	1
07058	Manganese	7439-96-5	0.164		0.0018	0.0050	0.0050	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.05 mg/l manganese in drinking water. Above this level, staining effects similar to iron can occur.							
07061	Nickel	7440-02-0	0.0050 J		0.0028	0.0050	0.0100	1
01762	Potassium	7440-09-7	3.99		0.160	0.500	0.500	1
07066	Silver	7440-22-4	0.0050 U		0.0019	0.0050	0.0050	1
01767	Sodium	7440-23-5	32.2		0.173	0.500	1.00	1
	The EPA has established 20 mg/l as a guideline for the sodium level in drinking water. Sodium levels substantially above this guide could be of concern to those individuals on a sodium restricted diet.							
07071	Vanadium	7440-62-2	0.0081		0.0016	0.0050	0.0050	1
07072	Zinc	7440-66-6	0.0758		0.0054	0.0100	0.0200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 5 mg/l for zinc in drinking water. Zinc at these levels is not generally considered a health hazard but will affect the taste of the water.							
	EPA 200.8 rev 5.4		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.0023		0.00030	0.0010	0.0010	1
	The EPA has set a maximum contaminant level of 0.006 mg/l for antimony.							
06025	Arsenic	7440-38-2	0.0751		0.00040	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.01 mg/l for arsenic.							

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

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Analysis Report

Sample Description: TW106-200 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528583
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/13/2016 13:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10620 SDG#: MOO91-07

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Metals	**EPA 200.8 rev 5.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.0065	0.00014	0.00025	0.0020	1
	The action level for copper in the lead and copper rule is 1.3 mg/l. Copper at these levels is not considered a direct health hazard, but can affect the taste of the water. Excessive copper levels may indicate a corrosive water if the system has copper plumbing.						
06035	Lead	7439-92-1	0.0023	0.000054	0.00013	0.0010	1
	The Lead and Copper Rule establishes a 15 ppb (0.015 mg/l) lead action limit for public water systems. This is based on a 1 liter sample size. The EPA recommends a limit of 20 ppb (0.02 mg/l) lead in school systems, based on a 250 ml sample size.						
06041	Selenium	7782-49-2	0.0010 U	0.00050	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.05 mg/l for selenium. The state of Pennsylvania has set a maximum contaminant level of 0.01 mg/l for selenium.						
06045	Thallium	7440-28-0	0.00050 U	0.00015	0.00050	0.00050	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for thallium.						
	EPA 245.1 rev 3		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00010 U	0.000050	0.00010	0.00020	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for mercury.						
	SM 2340 B-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06256	Total Hardness as CaCO3	471-34-1	98.7	0.038	0.20	0.20	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	2.1	0.50	1.0	1.0	1
	SM 2540 C-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00212	Total Dissolved Solids	n.a.	239	9.7	30.0	30.0	1
	Total dissolved solids is a measure of residue remaining when a filtered water sample is evaporated. The Environmental Protection Agency (EPA) has established a secondary guideline of 500 mg/l total dissolved solids for drinking water.						

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/17/2016 01:02	Marissa C Drexinger	1

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

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Analysis Report

Sample Description: TW106-200 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528583
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/13/2016 13:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10620 SDG#: MOO91-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016	10:55	Devon M Whooley	1
01743	Aluminum	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07046	Barium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07047	Beryllium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07049	Cadmium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
01750	Calcium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07051	Chromium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:40	Eric L Eby	1
07052	Cobalt	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
01754	Iron	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
01757	Magnesium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07058	Manganese	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07061	Nickel	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:40	Eric L Eby	1
01762	Potassium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:40	Eric L Eby	1
07066	Silver	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:40	Eric L Eby	1
01767	Sodium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:40	Eric L Eby	1
07071	Vanadium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
07072	Zinc	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:40	Eric L Eby	1
06024	Antimony	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:41	Scott P Cuff	1
06025	Arsenic	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:41	Scott P Cuff	1
06033	Copper	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:41	Scott P Cuff	1
06035	Lead	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:41	Scott P Cuff	1
06041	Selenium	EPA 200.8 rev 5.4	1	162297050004C	08/18/2016	08:41	Scott P Cuff	1
06045	Thallium	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:41	Scott P Cuff	1
00259	Mercury	EPA 245.1 rev 3	1	162295714002	08/18/2016	07:22	Damary Valentin	1
06256	Total Hardness as CaCO3	SM 2340 B-1997	1	162356256010	08/22/2016	13:07	Jennifer L Moyer	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	162295716006	08/17/2016	07:35	Ann Borg	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	2	162315716004	08/18/2016	22:00	Annamaria Kuhns	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162297050004	08/17/2016	06:50	Ann Borg	1
05714	PW/WW Hg Digest	EPA 245.1 rev 3	1	162295714002	08/17/2016	09:35	Katlin N Cataldi	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16240298701A	08/27/2016	02:11	Clinton M Wilson	1
00212	Total Dissolved Solids	SM 2540 C-1997	1	16231021202A	08/18/2016	07:03	Karen D Lausch	1

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

Sample Description: TW106-220 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528584
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/14/2016 17:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10622 SDG#: MOO91-08

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	1	J	1	2	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	5	10	10	1
Metals	**EPA 200.7 rev 4.4**		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.438		0.0868	0.200	0.200	1
	The EPA has established a secondary guideline of 0.2 mg/l for aluminum.							
07046	Barium	7440-39-3	0.310		0.0011	0.0025	0.0050	1
	The EPA has set a maximum contaminant level of 2 mg/l for barium. The state of Pennsylvania has set a maximum contaminant level of 1 mg/l for barium.							
07047	Beryllium	7440-41-7	0.0025 U		0.00067	0.0025	0.0040	1
	The EPA has set a maximum contaminant level of 0.004 mg/l for beryllium.							
07049	Cadmium	7440-43-9	0.0013 U		0.00049	0.0013	0.0050	1
	The EPA has set a maximum contaminant level of 0.005 mg/l for cadmium.							
01750	Calcium	7440-70-2	34.0		0.0382	0.200	0.200	1
07051	Chromium	7440-47-3	0.0438		0.0018	0.0038	0.0150	1
	The EPA has set a maximum contaminant level of 0.1 mg/l for chromium. The state of Pennsylvania has set a maximum contaminant level of 0.05 mg/l for chromium.							
07052	Cobalt	7440-48-4	0.0050 U		0.0019	0.0050	0.0050	1
01754	Iron	7439-89-6	20.3		0.0747	0.200	0.200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.3 mg/l for iron in drinking water. Iron in excess of this standard is not generally considered a health hazard but it will discolor laundry or porcelain and can affect the taste of the water.							
01757	Magnesium	7439-95-4	18.1		0.0190	0.0500	0.100	1
07058	Manganese	7439-96-5	0.356		0.0018	0.0050	0.0050	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 0.05 mg/l manganese in drinking water. Above this level, staining effects similar to iron can occur.							
07061	Nickel	7440-02-0	0.0161		0.0028	0.0050	0.0100	1
01762	Potassium	7440-09-7	5.88		0.160	0.500	0.500	1
07066	Silver	7440-22-4	0.0050 U		0.0019	0.0050	0.0050	1
01767	Sodium	7440-23-5	70.9		0.173	0.500	1.00	1
	The EPA has established 20 mg/l as a guideline for the sodium level in drinking water. Sodium levels substantially above this guide could be of concern to those individuals on a sodium restricted diet.							
07071	Vanadium	7440-62-2	0.0025 J		0.0016	0.0050	0.0050	1
07072	Zinc	7440-66-6	0.177		0.0054	0.0100	0.0200	1
	The Environmental Protection Agency (EPA) has established a secondary guideline of 5 mg/l for zinc in drinking water. Zinc at these levels is not generally considered a health hazard but will affect the taste of the water.							
	EPA 200.8 rev 5.4		**mg/l**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00031 J		0.00030	0.0010	0.0010	1
	The EPA has set a maximum contaminant level of 0.006 mg/l for antimony.							
06025	Arsenic	7440-38-2	0.0175		0.00040	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.01 mg/l for arsenic.							

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

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Analysis Report

Sample Description: TW106-220 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528584
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/14/2016 17:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10622 SDG#: MOO91-08

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Metals	**EPA 200.8 rev 5.4**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.0258	0.00014	0.00025	0.0020	1
	The action level for copper in the lead and copper rule is 1.3 mg/l. Copper at these levels is not considered a direct health hazard, but can affect the taste of the water. Excessive copper levels may indicate a corrosive water if the system has copper plumbing.						
06035	Lead	7439-92-1	0.00088 J	0.000054	0.00013	0.0010	1
	The Lead and Copper Rule establishes a 15 ppb (0.015 mg/l) lead action limit for public water systems. This is based on a 1 liter sample size. The EPA recommends a limit of 20 ppb (0.02 mg/l) lead in school systems, based on a 250 ml sample size.						
06041	Selenium	7782-49-2	0.0010 U	0.00050	0.0010	0.0020	1
	The EPA has set a maximum contaminant level of 0.05 mg/l for selenium. The state of Pennsylvania has set a maximum contaminant level of 0.01 mg/l for selenium.						
06045	Thallium	7440-28-0	0.00050 U	0.00015	0.00050	0.00050	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for thallium.						
	EPA 245.1 rev 3		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00010 U	0.000050	0.00010	0.00020	1
	The EPA has set a maximum contaminant level of 0.002 mg/l for mercury.						
	SM 2340 B-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
06256	Total Hardness as CaCO3	471-34-1	159	0.038	0.20	0.20	1
Wet Chemistry	**SM 5310 C-2000**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	2.4	0.50	1.0	1.0	1
	SM 2540 C-1997		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00212	Total Dissolved Solids	n.a.	372	19.4	60.0	60.0	1
	Total dissolved solids is a measure of residue remaining when a filtered water sample is evaporated. The Environmental Protection Agency (EPA) has established a secondary guideline of 500 mg/l total dissolved solids for drinking water.						

Sample Comments

State of Alaska Lab Certification No. UST-061

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	PFOA/PFOS DoD	EPA 537 Rev. 1.1 modified	1	16229004	08/17/2016 01:17	Marissa C Drexinger	1

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

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: TW106-220 Grab Groundwater
Moose Creek Drinking Water

LL Sample # PW 8528584
LL Group # 1695266
Account # 30098

Project Name: Moose Creek Drinking Water

Collected: 08/14/2016 17:15 by NS

Submitted: 08/16/2016 09:30
Reported: 08/31/2016 15:26

EA Engineering, Science & Tech
Suite 515
615 Piikoi Street
Honolulu HI 96814

10622 SDG#: MOO91-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16229004	08/16/2016	10:55	Devon M Whooley	1
01743	Aluminum	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07046	Barium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07047	Beryllium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07049	Cadmium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
01750	Calcium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07051	Chromium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:43	Eric L Eby	1
07052	Cobalt	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
01754	Iron	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
01757	Magnesium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07058	Manganese	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07061	Nickel	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:43	Eric L Eby	1
01762	Potassium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:43	Eric L Eby	1
07066	Silver	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:43	Eric L Eby	1
01767	Sodium	EPA 200.7 rev 4.4	1	162315716004	08/19/2016	14:43	Eric L Eby	1
07071	Vanadium	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
07072	Zinc	EPA 200.7 rev 4.4	2	162315716004	08/19/2016	14:43	Eric L Eby	1
06024	Antimony	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:45	Scott P Cuff	1
06025	Arsenic	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:45	Scott P Cuff	1
06033	Copper	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:45	Scott P Cuff	1
06035	Lead	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:45	Scott P Cuff	1
06041	Selenium	EPA 200.8 rev 5.4	1	162297050004C	08/18/2016	08:45	Scott P Cuff	1
06045	Thallium	EPA 200.8 rev 5.4	1	162297050004A	08/18/2016	08:45	Scott P Cuff	1
00259	Mercury	EPA 245.1 rev 3	1	162295714002	08/18/2016	07:24	Damary Valentin	1
06256	Total Hardness as CaCO3	SM 2340 B-1997	1	162356256010	08/22/2016	13:07	Jennifer L Moyer	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	162295716006	08/17/2016	07:35	Ann Borg	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	2	162315716004	08/18/2016	22:00	Annamaria Kuhns	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162297050004	08/17/2016	06:50	Ann Borg	1
05714	PW/WW Hg Digest	EPA 245.1 rev 3	1	162295714002	08/17/2016	09:35	Katlin N Cataldi	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16240298701A	08/27/2016	02:24	Clinton M Wilson	1
00212	Total Dissolved Solids	SM 2540 C-1997	1	16231021202A	08/18/2016	07:03	Karen D Lausch	1

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

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 08/31/2016 15:26

Group Number: 1695266

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

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

Method Blank

Analysis Name	Result		DL**	LOD	LOQ
	ng/l		ng/l	ng/l	ng/l
Batch number: 16229004	Sample number(s): 8528577-8528584				
Perfluorooctanoic acid	2	U	1	2	2
Perfluoro-octanesulfonate	10	U	5	10	10
	mg/l		mg/l	mg/l	mg/l
Batch number: 162295714002	Sample number(s): 8528577,8528581-8528584				
Mercury	0.00010	U	0.000050	0.00010	0.00020
Batch number: 162297050004A	Sample number(s): 8528577,8528581-8528584				
Antimony	0.0010	U	0.00030	0.0010	0.0010
Arsenic	0.0010	U	0.00040	0.0010	0.0020
Copper	0.00025	U	0.00014	0.00025	0.0020
Lead	0.00013	U	0.000054	0.00013	0.0010
Thallium	0.00050	U	0.00015	0.00050	0.00050
Batch number: 162297050004C	Sample number(s): 8528577,8528581-8528584				
Selenium	0.0010	U	0.00050	0.0010	0.0020
Batch number: 162315716004	Sample number(s): 8528577,8528581-8528584				
Aluminum	0.200	U	0.0868	0.200	0.200
Barium	0.0025	U	0.0011	0.0025	0.0050
Beryllium	0.0025	U	0.00067	0.0025	0.0040
Cadmium	0.0013	U	0.00049	0.0013	0.0050
Calcium	0.200	U	0.0382	0.200	0.200
Chromium	0.0038	U	0.0018	0.0038	0.0150
Cobalt	0.0050	U	0.0019	0.0050	0.0050
Iron	0.200	U	0.0747	0.200	0.200
Magnesium	0.0500	U	0.0190	0.0500	0.100
Manganese	0.0050	U	0.0018	0.0050	0.0050
Nickel	0.0050	U	0.0028	0.0050	0.0100
Potassium	0.500	U	0.160	0.500	0.500
Silver	0.0050	U	0.0019	0.0050	0.0050
Sodium	0.199	J	0.173	0.500	1.00
Vanadium	0.0050	U	0.0016	0.0050	0.0050
Zinc	0.0100	U	0.0054	0.0100	0.0200
Batch number: 16240298701A	Sample number(s): 8528577,8528581-8528584				
Total Organic Carbon	1.0	U	0.50	1.0	1.0
Batch number: 16231021201A	Sample number(s): 8528577,8528581				
Total Dissolved Solids	30.0	U	9.7	30.0	30.0
Batch number: 16231021202A	Sample number(s): 8528582-8528584				
Total Dissolved Solids	30.0	U	9.7	30.0	30.0

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 08/31/2016 15:26

Group Number: 1695266

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16229004	Sample number(s): 8528577-8528584								
Perfluorooctanoic acid	200	183.88	200	181.8	92	91	70-130	1	30
Perfluoro-octanesulfonate	191.2	189.84	191.2	187.6	99	98	70-130	1	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 162295714002	Sample number(s): 8528577,8528581-8528584								
Mercury	0.00100	0.000923			92		85-115		
Batch number: 162297050004A	Sample number(s): 8528577,8528581-8528584								
Antimony	0.00600	0.00642			107		85-115		
Arsenic	0.0100	0.00985			99		85-115		
Copper	0.0500	0.0509			102		85-115		
Lead	0.0150	0.0147			98		85-115		
Thallium	0.00200	0.00197			99		85-115		
Batch number: 162297050004C	Sample number(s): 8528577,8528581-8528584								
Selenium	0.0100	0.0106			106		85-115		
Batch number: 162315716004	Sample number(s): 8528577,8528581-8528584								
Aluminum	2.00	2.01			101		85-115		
Barium	2.00	2.00			100		85-115		
Beryllium	0.00400	0.00424			106		85-115		
Cadmium	0.00500	0.00513			103		85-115		
Calcium	4.00	3.93			98		85-115		
Chromium	0.100	0.0980			98		85-115		
Cobalt	0.500	0.503			101		85-115		
Iron	1.00	0.970			97		85-115		
Magnesium	2.00	1.98			99		85-115		
Manganese	0.500	0.507			101		85-115		
Nickel	0.100	0.101			101		85-115		
Potassium	4.00	4.03			101		85-115		
Silver	0.100	0.102			102		85-115		
Sodium	4.00	4.22			105		85-115		
Vanadium	0.500	0.506			101		85-115		
Zinc	0.500	0.501			100		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16240298701A	Sample number(s): 8528577,8528581-8528584								
Total Organic Carbon	25	24.59			98		91-113		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16231021201A	Sample number(s): 8528577,8528581								
Total Dissolved Solids	200	182			91		70-124		
Batch number: 16231021202A	Sample number(s): 8528582-8528584								
Total Dissolved Solids	200	192			96		70-124		

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

Client Name: EA Engineering, Science & Tech
Reported: 08/31/2016 15:26

Group Number: 1695266

MS/MSD

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

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16229004	Sample number(s): 8528577-8528584 UNSPK: 8528577									
Perfluorooctanoic acid	7.69	200	197.38			95		70-130		
Perfluoro-octanesulfonate	110	191.2	288.88			94		70-130		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 162295714002	Sample number(s): 8528577,8528581-8528584 UNSPK: P523838									
Mercury	0.00010 U	0.00100	0.000856			86		80-120		
Batch number: 162297050004A	Sample number(s): 8528577,8528581-8528584 UNSPK: P523838									
Antimony	0.000435	0.00600	0.00676			105		70-130		
Arsenic	0.00661	0.0100	0.0167			100		70-130		
Copper	0.0227	0.0500	0.0730			101		70-130		
Lead	0.00104	0.0150	0.0159			99		70-130		
Thallium	0.00050 U	0.00200	0.00198			99		70-130		
Batch number: 162297050004C	Sample number(s): 8528577,8528581-8528584 UNSPK: P523838									
Selenium	0.0010 U	0.0100	0.00999			100		70-130		
Batch number: 162315716004	Sample number(s): 8528577,8528581-8528584 UNSPK: P523838									
Aluminum	0.175	2.00	2.34			108		70-130		
Barium	0.198	2.00	2.21			101		70-130		
Beryllium	0.0025 U	0.0500	0.0494			99		70-130		
Cadmium	0.0013 U	0.0500	0.0503			101		70-130		
Calcium	57.49	4.00	63.97			162 (2)		70-130		
Chromium	0.0143	0.200	0.218			102		70-130		
Cobalt	0.0050 U	0.500	0.498			100		70-130		
Iron	5.43	1.00	7.10			167 (2)		70-130		
Magnesium	11.61	2.00	14.06			122 (2)		70-130		
Manganese	0.336	0.500	0.864			106		70-130		
Nickel	0.00651	0.500	0.504			100		70-130		
Potassium	4.48	10	14.66			102		70-130		
Silver	0.0050 U	0.0500	0.0519			104		70-130		
Sodium	16.48	10	27.24			108		70-130		
Vanadium	0.00234	0.500	0.525			105		70-130		
Zinc	0.0703	0.500	0.579			102		70-130		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16240298701A	Sample number(s): 8528577,8528581-8528584 UNSPK: P529294									
Total Organic Carbon	1.0 U	10	11.73	10	11.72	117*	117*	91-113	0	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16231021201A	Sample number(s): 8528577,8528581 UNSPK: P525269									
Total Dissolved Solids	1088	1600	2436			84		70-124		
Batch number: 16231021202A	Sample number(s): 8528582-8528584 UNSPK: P525712									
Total Dissolved Solids	453	400	850			99		70-124		

*- Outside of specification
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(3) The surrogate spike amount was less than the LOD.
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Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 08/31/2016 15:26

Group Number: 1695266

Laboratory Duplicate

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

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 162295714002	Sample number(s): 8528577,8528581-8528584 BKG: P523838			
Mercury	0.00010 U	0.00010 U	0 (1)	20
Batch number: 162297050004A	Sample number(s): 8528577,8528581-8528584 BKG: P523838			
Antimony	0.000435	0.000497	13 (1)	20
Arsenic	0.00661	0.00722	9 (1)	20
Copper	0.0227	0.0273	18	20
Lead	0.00104	0.00114	10 (1)	20
Thallium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 162297050004C	Sample number(s): 8528577,8528581-8528584 BKG: P523838			
Selenium	0.0010 U	0.0010 U	0 (1)	20
Batch number: 162315716004	Sample number(s): 8528577,8528581-8528584 BKG: P523838			
Aluminum	0.175	0.182	4 (1)	20
Barium	0.198	0.196	1	20
Beryllium	0.0025 U	0.0025 U	0 (1)	20
Cadmium	0.0013 U	0.0013 U	0 (1)	20
Calcium	57.49	56.46	2	20
Chromium	0.0143	0.0152	6 (1)	20
Cobalt	0.0050 U	0.0050 U	0 (1)	20
Iron	5.43	5.58	3	20
Magnesium	11.61	11.43	2	20
Manganese	0.336	0.335	0	20
Nickel	0.00651	0.00717	10 (1)	20
Potassium	4.48	4.45	1	20
Silver	0.0050 U	0.0050 U	0 (1)	20
Sodium	16.48	16.27	1	20
Vanadium	0.00234	0.00206	13 (1)	20
Zinc	0.0703	0.0749	6 (1)	20
	mg/l	mg/l		
Batch number: 16240298701A	Sample number(s): 8528577,8528581-8528584 BKG: P529294			
Total Organic Carbon	1.0 U	0.590	200* (1)	3
	mg/l	mg/l		
Batch number: 16231021201A	Sample number(s): 8528577,8528581 BKG: P525269			
Total Dissolved Solids	1088	1004	8* (1)	5
Batch number: 16231021202A	Sample number(s): 8528582-8528584 BKG: P525712			
Total Dissolved Solids	453	441	3	5

*- Outside of specification
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(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 30098 Group # 1695266 Sample # 8528577-84 COC# 088 Pg 1 of 1

Client:	EA Engineering, Inc., PBC.
Project Name/#:	Moose Creek Drinking Water
Site ID #:	
Project Manager:	Mark Wilkinson/Brenda Nuding
P.O. #:	14218
Sampler:	N. Stoecklein, M. Cligget, G. Manning
PWSID #:	
Phone #:	907-456-4751
Quote #:	
State where sample(s) were collected:	Alaska

For Lab Use Only
SF #: _____
SCR #: _____

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other - $Na_2S_2O_3$

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Water (Ground / Potable / Surface / NPDES)	Matrix: Other:	Total # of Containers	Total Organic Carbon (SM5310C)	Total Dissolved Solids (SM2540C)	Metals, Hardness (EPA 200.7/200.8/245.1, SM2340B)	PFCs (EPA Method 537)	Total Suspended Solids (SM2540D)	VOCs (EPA 524.2)					Remarks
Preservation Codes									P	None	N	O	None	H, As					
TW106-160	8/11/16	1455				X		5	X	X	X	X							RUSH
16MC-PW135-P5-0811	8/11/16	1420				X		1				X							
16MC-PW135-P4-0811	8/11/16	1422				X		1				X							
16MC-PW135-P1-0811	8/11/16	1424				X		1				X							
TW106-180	8/12/16	1100				X		5	X	X	X	X							RUSH
TW106-185	8/12/16	1550				X		5	X	X	X	X							RUSH
TW106-200	8/13/16	1315				X		5	X	X	X	X							RUSH
TW106-220	8/14/16	1715				X		5	X	X	X	X							RUSH

Turnaround Time Requested (TAT) (please check): Standard ☑ Rush ☑

RUSH SELECTED PFCs ONLY

Date results are needed:

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: bnuding@eaest.com, pacificchem@eaest.com, gmanning@eaest.com

Phone: 808-589-1455 X 102

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☐
- Type III (Reduced non-CLP) ☐
- Type IV (CLP SOW) ☑
- Type VI (Raw Data Only) ☐
- MA MCP ☐
- CT RCP ☐
- TX TRRP-13 ☐

EDD Required? Yes ☑ No ☐ If yes, format: SEDD

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/15/16	0800	UPS		
			[signature]	8-16-16	930

Relinquished by Commercial Carrier: UPS X

Temperature upon receipt 2.3 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 158482

Group Number(s): 1695266

Client: EA Engineering

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	08/16/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	AK		

Arrival Condition Summary

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

Unpacked by Timothy Cubberley (6520) at 09:43 on 08/16/2016

Samples Chilled Details

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

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.3	DT	Wet	Y	Bagged	N

General Comments: TW-106-185 rec'd an unlabled vial.

2425 New Holland Pike
Lancaster, PA 17601-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

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

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

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

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

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

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

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

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

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

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

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

PFAAs by LC/MS/MS Data

Case Narrative/Conformance Summary

PFAAs by LC/MS/MS

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8528577	TW106-160	X		1	
8528578	16MC-PW135-P5-0811	X		1	
8528579	16MC-PW135-P4-0811	X		1	
8528580	16MC-PW135-P1-0811	X		1	
8528581	TW106-180	X		1	
8528582	TW106-185	X		1	
8528583	TW106-200	X		1	
8528584	TW106-220	X		1	

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.
See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Surrogate

The surrogate recoveries were outside of specifications.

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

SAMPLE ANALYSIS:

(Sample number(s): 8528581-8528582: Analysis: 10954)
The internal standard responses for PFOA and PFOS in this sample were greater than 50% of the average area measured during the initial calibration. Since the response is high, any result should be considered biased low.

Abbreviation Key

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

QC Summary

PFAAs by LC/MS/MS

Lancaster Laboratories Environmental

Quality Control Reference List
Specialty Services Group

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Fraction: PFAAs by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFOA/PFOS DoD	16229004	BLK229004	08/16/2016 22:09:00
		LCS229004	08/16/2016 22:25:00
		LCS2294	08/16/2016 22:56:00
		8528577 UNSPK	08/16/2016 22:56:00
		8528577 MS	08/16/2016 23:12:00
		8528578	08/16/2016 23:27:00
		8528579	08/16/2016 23:43:00
		8528580	08/16/2016 23:59:00
		8528581	08/17/2016 00:14:00
		8528582	08/17/2016 00:46:00
		8528583	08/17/2016 01:02:00
		8528584	08/17/2016 01:17:00

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: MOO91
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16229004 / BLK229004 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**DL**	**LOD**	**LOQ**
Perfluorooctanoic acid	08/16/16	N.D.	ng/l	1	2	2
Perfluoro-octanesulfonate	08/16/16	N.D.	ng/l	5	10	10

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Quality Control Summary
Surrogates
Specialty Services Group
SDG: MOO91
Matrix: Liquid

Fraction: PFAAs by LC/MS/MS

16229004	13C-PFOA		13C-PFOS	
Sample	**% Recovery**	**Limits**	**% Recovery**	**Limits**
BLK004229B	126	70-130	148 *	70-130
16229004LCSQ	117	70-130	129	70-130
16229004LCSDQ	116	70-130	128	70-130
8528577	116	70-130	122	70-130
8528577MS	115	70-130	131 *	70-130
8528578	106	70-130	116	70-130
8528579	129	70-130	135 *	70-130
8528580	126	70-130	122	70-130
8528581	151 *	70-130	150 *	70-130
8528582	169 *	70-130	175 *	70-130
8528583	127	70-130	136 *	70-130
85285824	103	70-130	97	70-130

* Values outside of advisory QC limits.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: MOO91
Matrix: LIQUID

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

UNSPK: 8528577 MS: 8528577	Batch: **16229004** (Sample number(s): 8528577-8528584)								
Analyte	**Spike Added ng/l**	**Unspiked Conc ng/l**	**MS Conc ng/l**	**MSD Conc ng/l**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	7.69	197.38	NA	95	NA	70-130	NA	NA
Perfluoro-octanesulfonate	191.2	110.	288.88	NA	94	NA	70-130	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: MOO91
Matrix: LIQUID

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

LCS: LCS229004 LCSD: LCS2294	Batch: **16229004** (Sample number(s): 8528577-8528584)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	183.88	181.8	92	91	70-130	1	30
Perfluoro-octanesulfonate	191.2	189.84	187.6	99	98	70-130	1	30

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FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG16-14

Calibration Date: 08/16/2016

Instrument ID: 24743

Calibration Time: 21:36

Init. Calib. Date(s): 08/16/2016 - 08/16/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	2772744	519783	2.45	2.50	-2.2
PFOS	2730294	729996	10.01	9.99	0.2

* Maximum %DRIFT = 25%.

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FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG16-10

Calibration Date: 08/17/2016

Instrument ID: 24743

Calibration Time: 00:30

Init. Calib. Date(s): 08/16/2016 - 08/16/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	2772744	491207	2.26	2.50	-9.6
PFOS	2730294	695120	9.26	9.99	-7.3

* Maximum %DRIFT = 25%.

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FORM 07
Perfluorinated Compounds in Liquid
CONTINUING CALIBRATION CHECK

Lab File ID: 16AUG16-14

Calibration Date: 08/17/2016

Instrument ID: 24743

Calibration Time: 01:33

Init. Calib. Date(s): 08/16/2016 - 08/16/2016

COMPOUND	Ave. ICAL Response	CCV Response	Actual CONC.	True CONC.	%Diff
PFOA	2772744	516864	2.39	2.50	-4.2
PFOS	2730294	680810	9.37	9.99	-6.3

* Maximum %DRIFT = 25%.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: MOO91
Matrix: Liquid

Fraction: PFAAs by LC/MS/MS

16229004	**13C-PFOA**		**13C-PFOS**	
	Area	**RT**	**Area**	**RT**
Average ICAL Response	912711	5.43	286656	5.82
Upper Limit	1369067		429984	
Lower Limit	456356		143328	
Sample				
BLK004229B	1148997	5.43	422979	5.82
16229004LCSQ	1069093	5.42	370953	5.81
16229004LCSDQ	1056520	5.43	366537	5.82
8528577	1055884	5.42	349981	5.81
8528577MS	1047581	5.42	374670	5.82
8528578	965344	5.43	331658	5.82
8528579	1173903	5.43	386537	5.82
8528580	1153414	5.43	351145	5.83
8528581	1379421	5.43	430189	5.83
8528582	925480	5.42	340761	5.82
8528583	1545869	5.44	502020	5.83
85285824	1155137	5.44	389611	5.84

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Sample Data

PFAAs by LC/MS/MS

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LOQ/MDL Summary
Specialty Services Group

SDG: MOO91

Fraction: PFAAs by LC/MS/MS

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

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

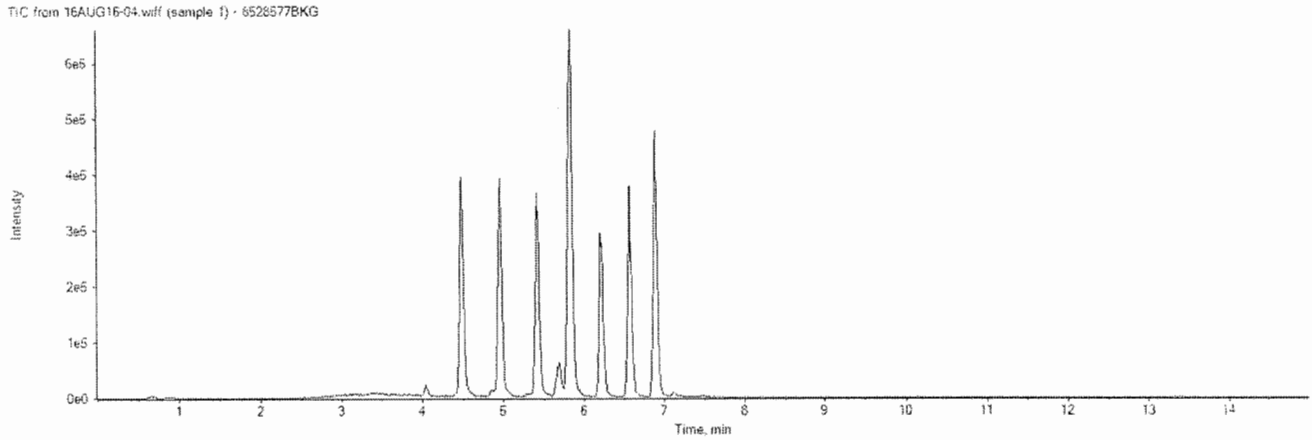
Sample Name:	8528577BKG		**Data File:**		16AUG16-04.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-160 Grab Groundwater		**Acquis Date:**		8/16/2016 10:56:25 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	19		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10011		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	190903.8	A	13C4-PFOA	5.42	1055884.1	0.181	7.686	
PFOS	5.81	849272.8	A	13C4-PFOS	5.81	349980.6	2.427	109.998	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-160 Grab Groundwater



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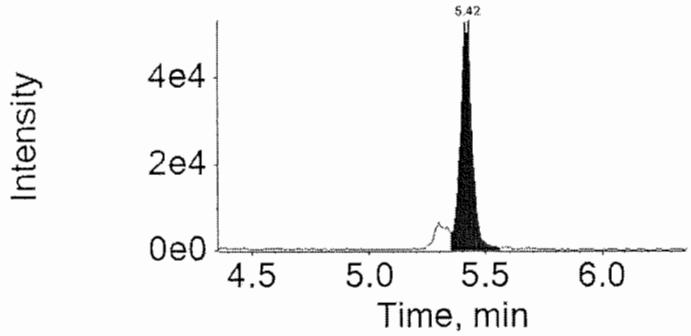
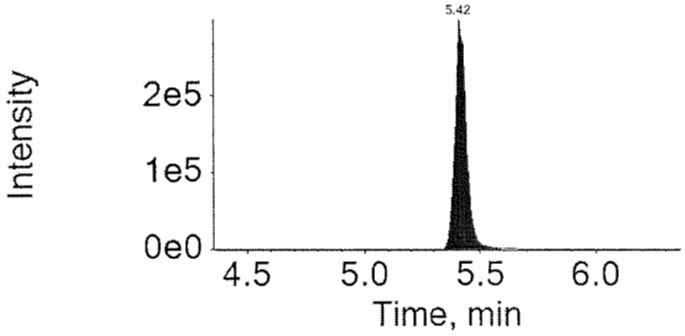
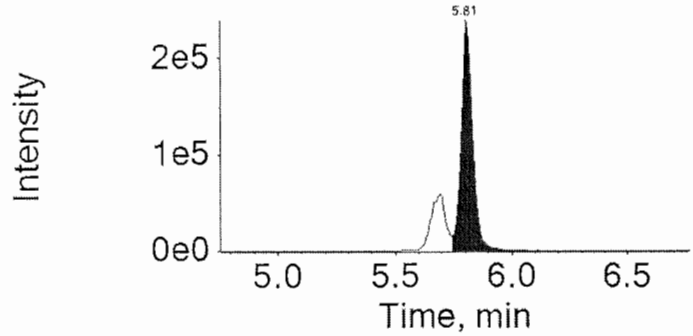
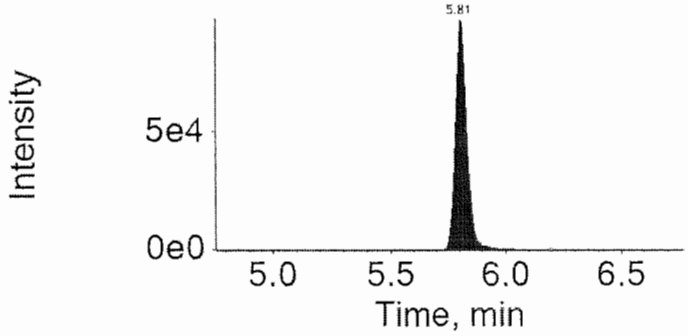
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-04.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

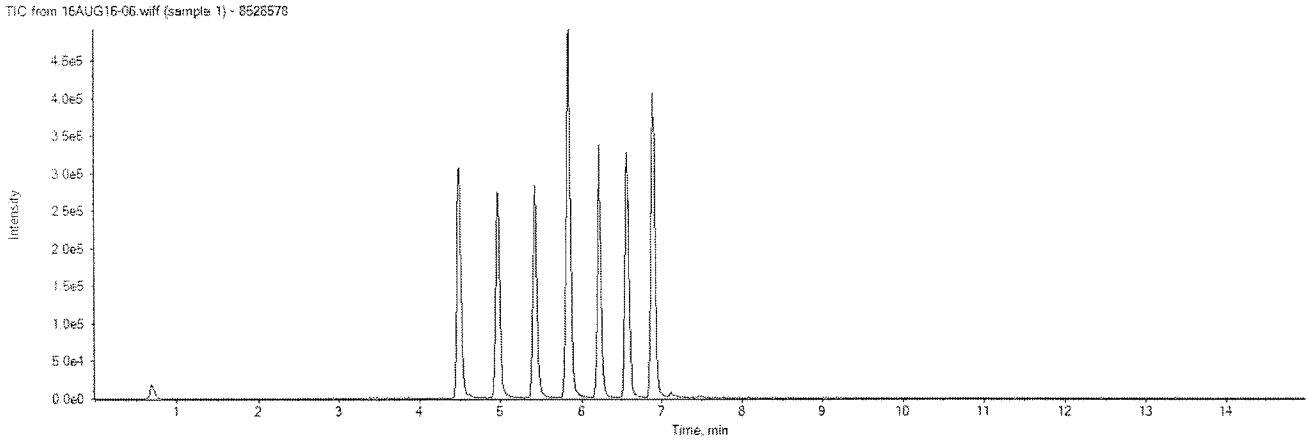
Sample Name:	8528578		**Data File:**		16AUG16-06.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P5-0811 Grab Groundwater		**Acquis Date:**		8/16/2016 11:27:49 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	21		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10024		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

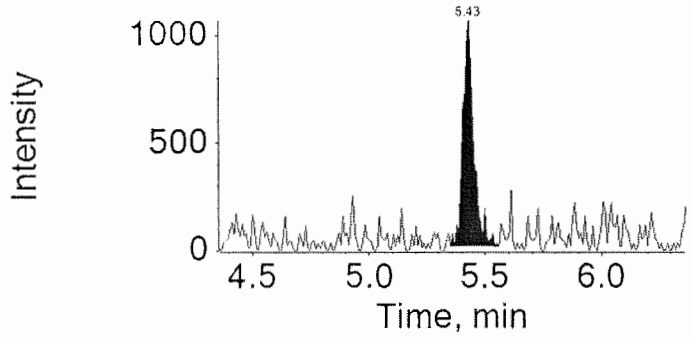
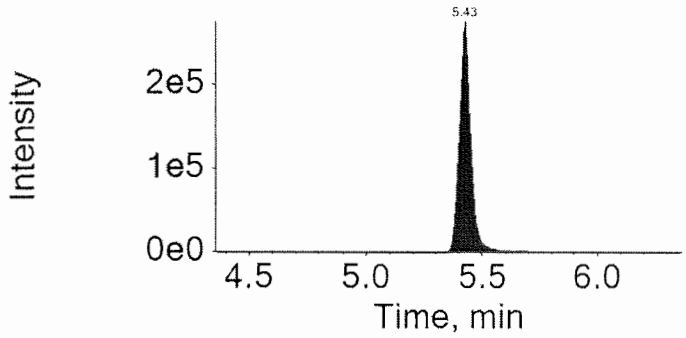
Quantitation Peak Table

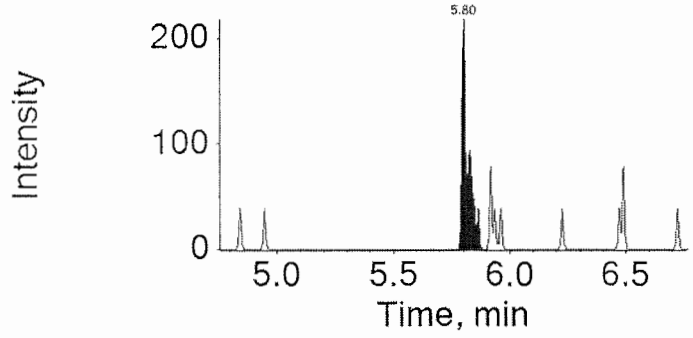
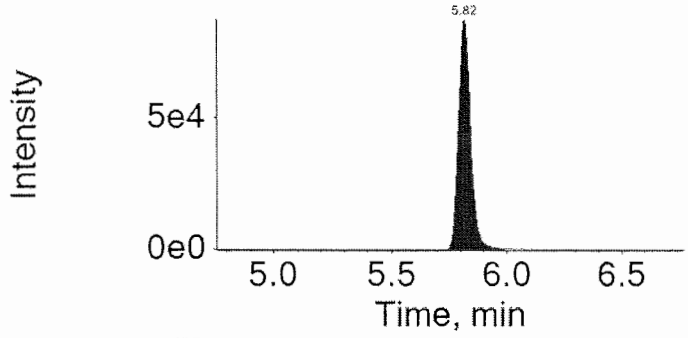
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	3516.7	A	13C4-PFOA	5.43	965344.4	0.004	0.155	
PFOS	5.80	420.3	A	13C4-PFOS	5.82	331658.3	0.001	0.057	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P5-0811 Grab Groundwater



16AUG16-06.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-06.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

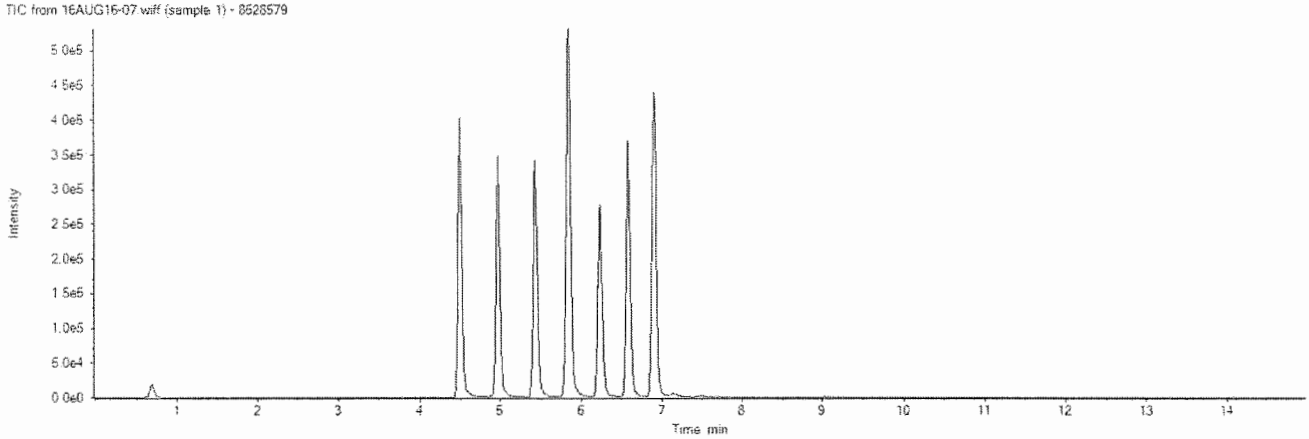
Sample Name:	8528579		**Data File:**		16AUG16-07.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P4-0811 Grab Groundwater		**Acquis Date:**		8/16/2016 11:43:31 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	22		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09993		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

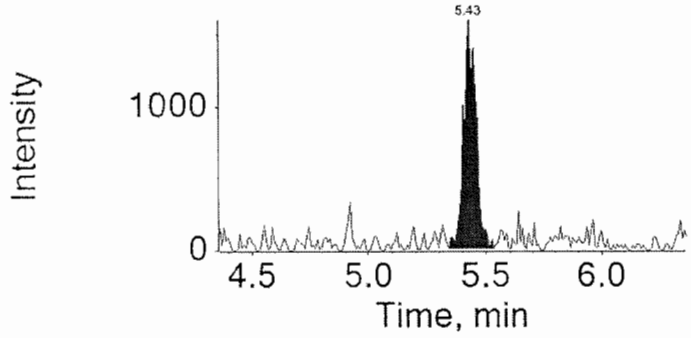
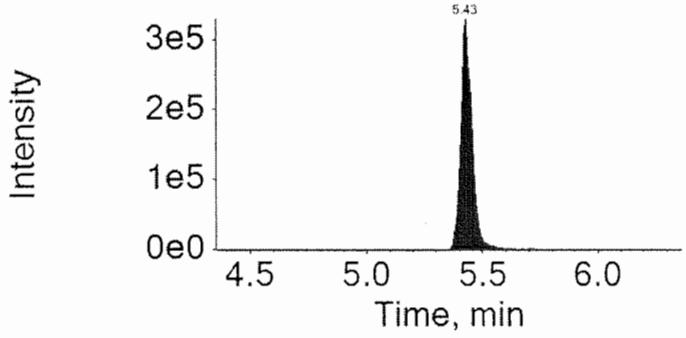
Quantitation Peak Table

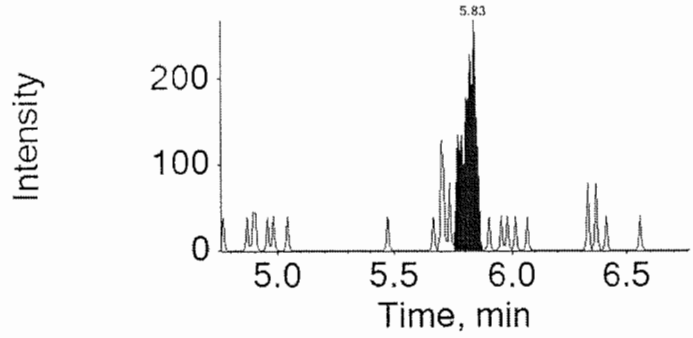
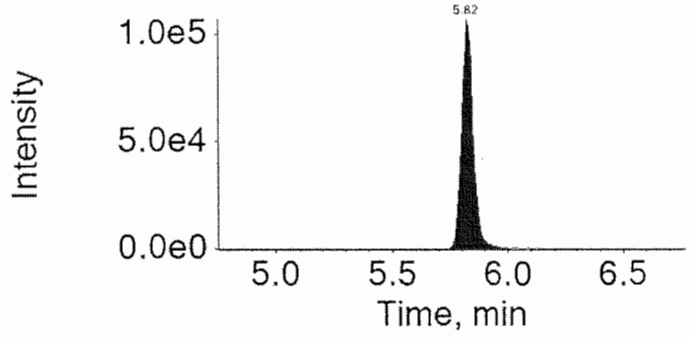
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	5853.7	A	13C4-PFOA	5.43	1173902.9	0.005	0.212	
PFOS	5.83	944.3	M	13C4-PFOS	5.82	386537.7	0.002	0.111	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P4-0811 Grab Groundwater



16AUG16-07.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-07.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

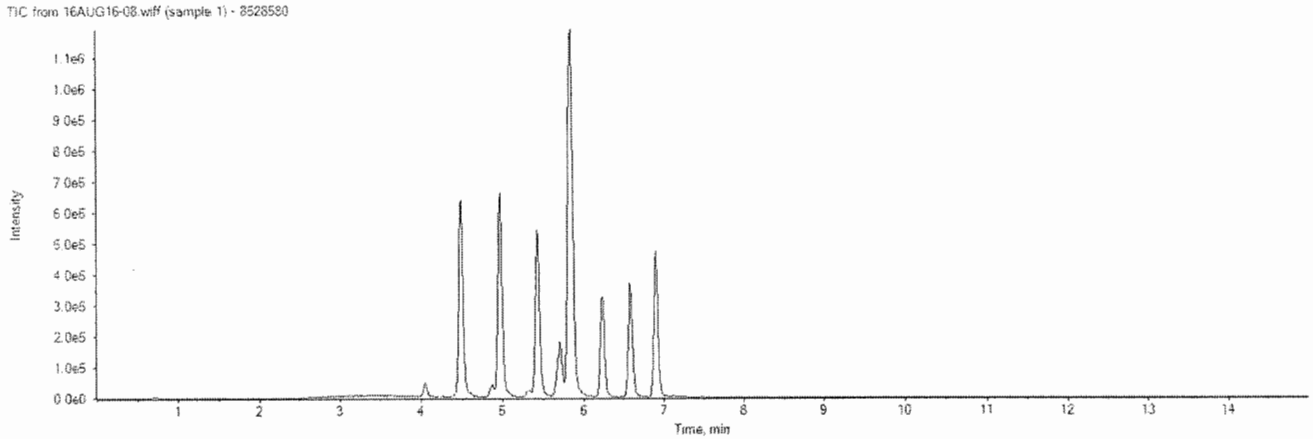
Sample Name:	8528580		**Data File:**		16AUG16-08.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P1-0811 Grab Groundwater		**Acquis Date:**		8/16/2016 11:59:13 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	23		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10007		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

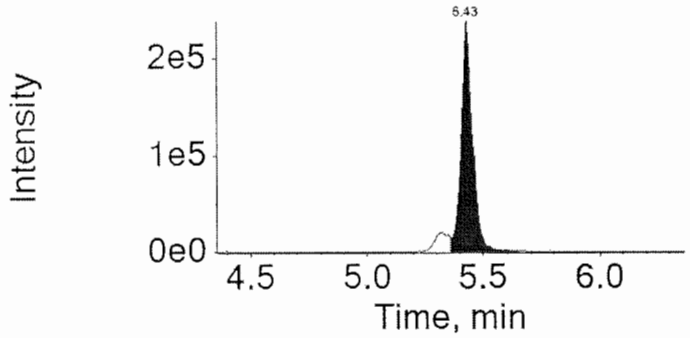
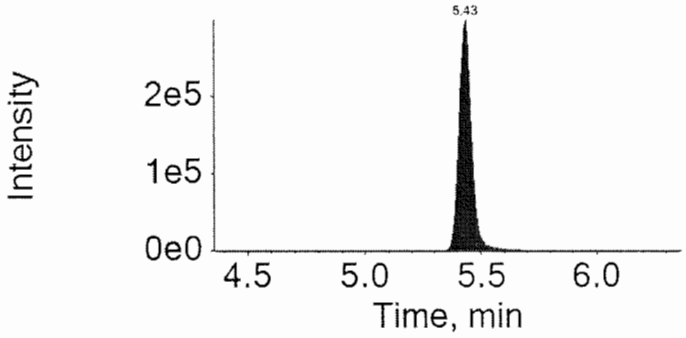
Quantitation Peak Table

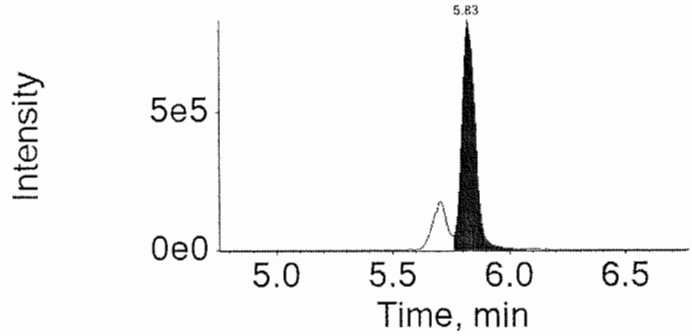
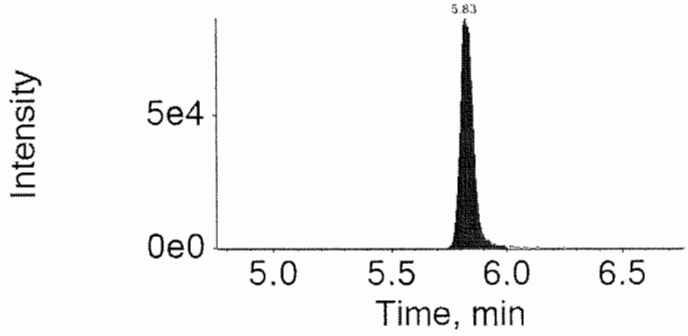
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	834053.9	A	13C4-PFOA	5.43	1153413.9	0.723	30.752	
PFOS	5.83	3435414.6	A	13C4-PFOS	5.83	351144.8	9.783	443.659	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 16MC-PW135-P1-0811 Grab Groundwater



16AUG16-08.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-08.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

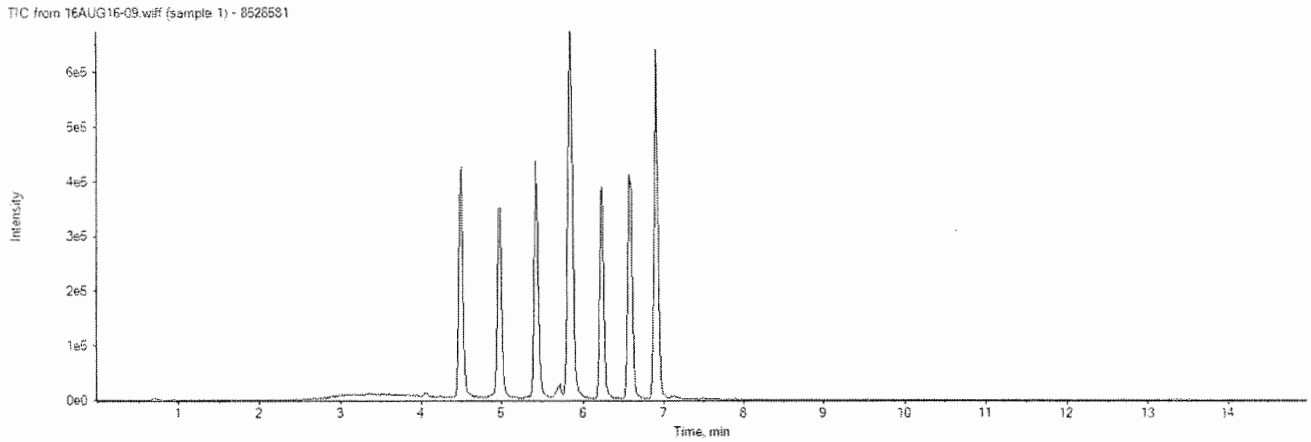
Sample Name:	8528581		**Data File:**		16AUG16-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-180 Grab Groundwater		**Acquis Date:**		8/17/2016 12:14:55 AM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	24		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

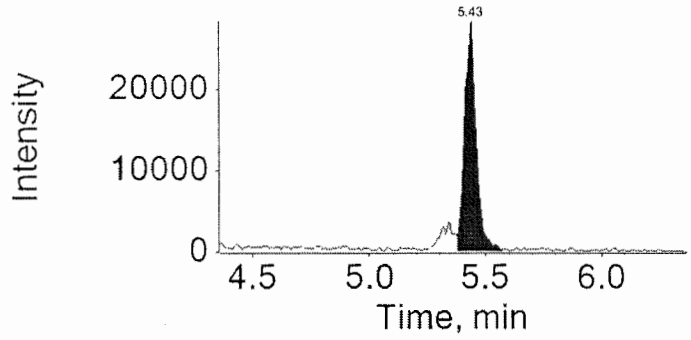
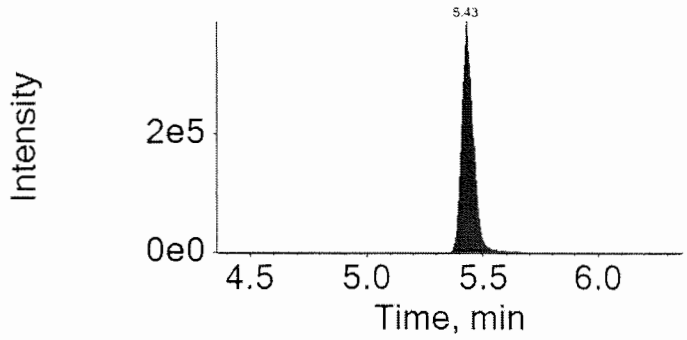
Quantitation Peak Table

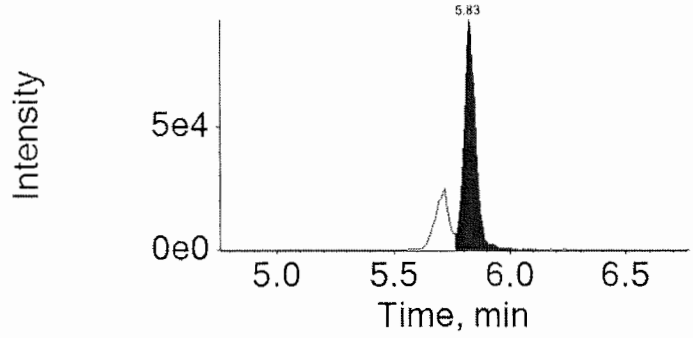
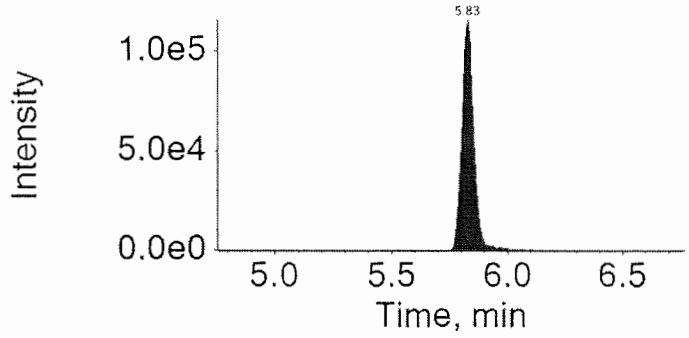
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	103568.0	M	13C4-PFOA	5.43	1379421.3	0.075	3.197	
PFOS	5.83	344469.8	A	13C4-PFOS	5.83	430188.7	0.801	36.355	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-180 Grab Groundwater



16AUG16-09.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-09.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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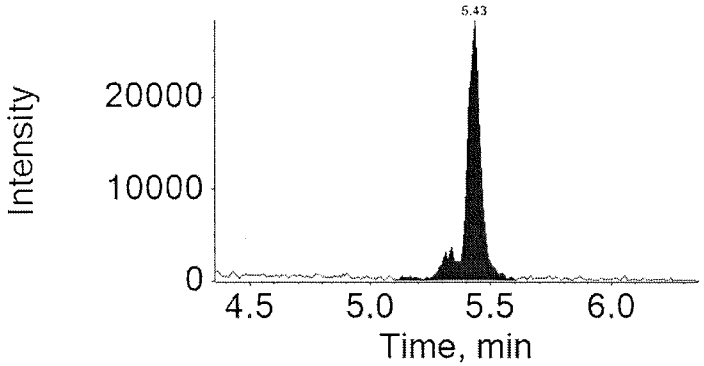
Print Date: 17/08/2016 9:41 AM

Auto Integrations prior to Manual Integration

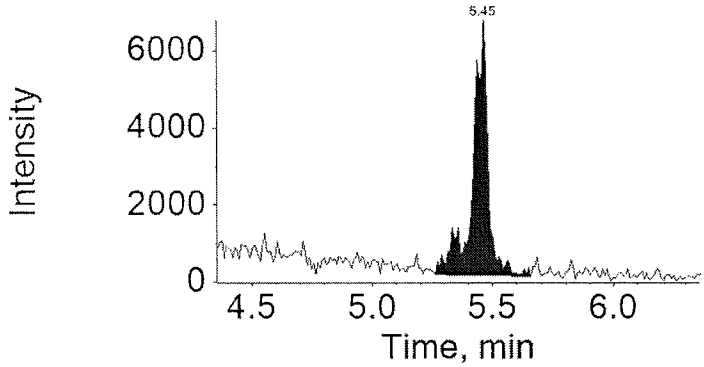
File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG16-09.wiff	8/17/2016 12:14:55 AM	8528581	PFOA	5.43	120541.9

Component: PFOA
Mass: 412.9 / 368.9



16AUG16-13.wiff	8/17/2016 1:17:47 AM	8528584	PFOA	5.45	30620.9
16AUG16-13.wiff	8/17/2016 1:17:47 AM	8528584	PFOS	5.84	13290.6

Component: PFOA
Mass: 412.9 / 368.9



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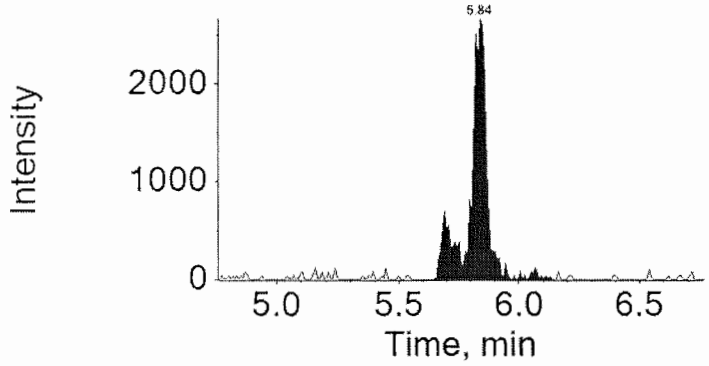
Print Date: 17/08/2016 9:41 AM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Lynn Dodd
AUG 17 2016
Lynn Dodd
Principal Specialist

MEM 78224
8/17/16

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

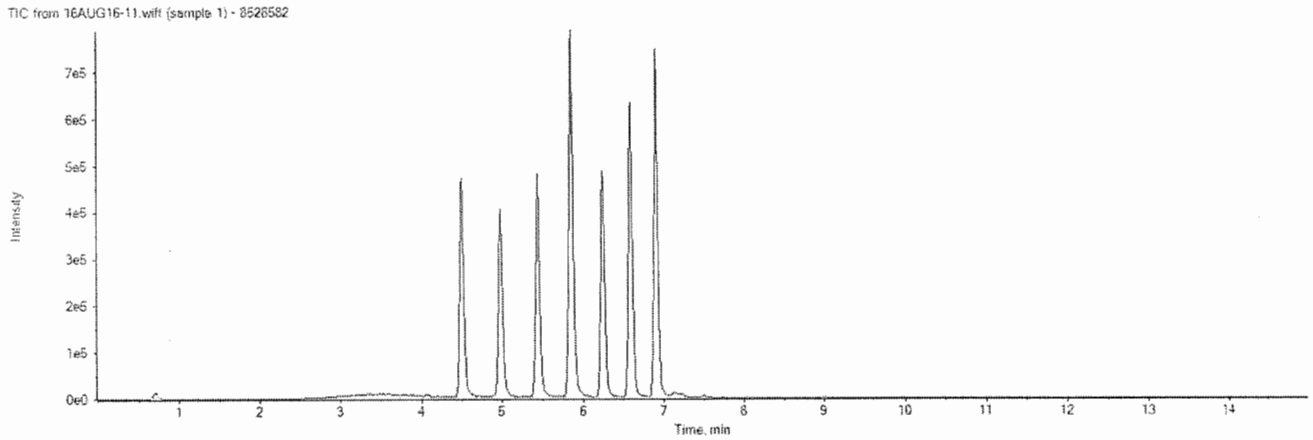
Sample Name:	8528582		**Data File:**		16AUG16-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-185 Grab Groundwater		**Acquis Date:**		8/17/2016 12:46:22 AM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	25		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09982		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

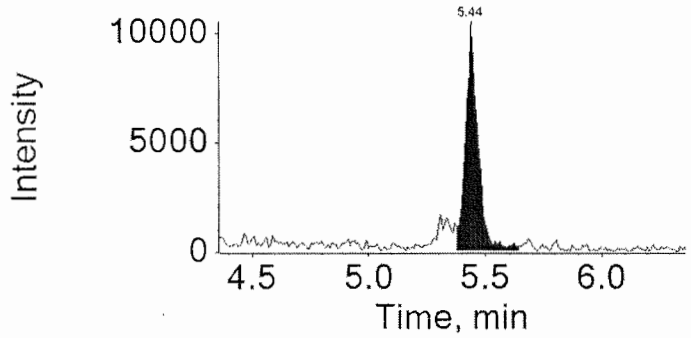
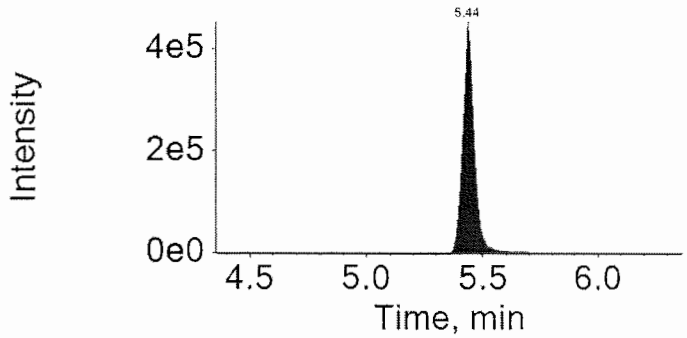
Quantitation Peak Table

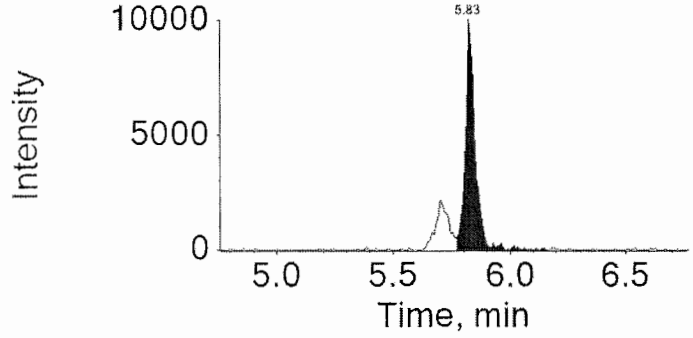
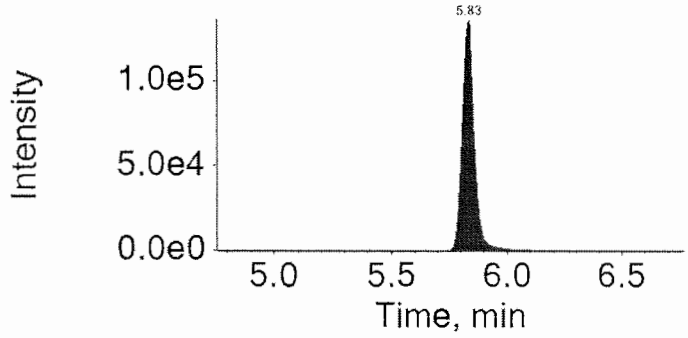
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.44	39401.5	A	13C4-PFOA	5.44	1545868.5	0.025	1.087	
PFOS	5.83	30753.5	A	13C4-PFOS	5.83	502020.1	0.061	2.785	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-185 Grab Groundwater



16AUG16-11.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-11.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

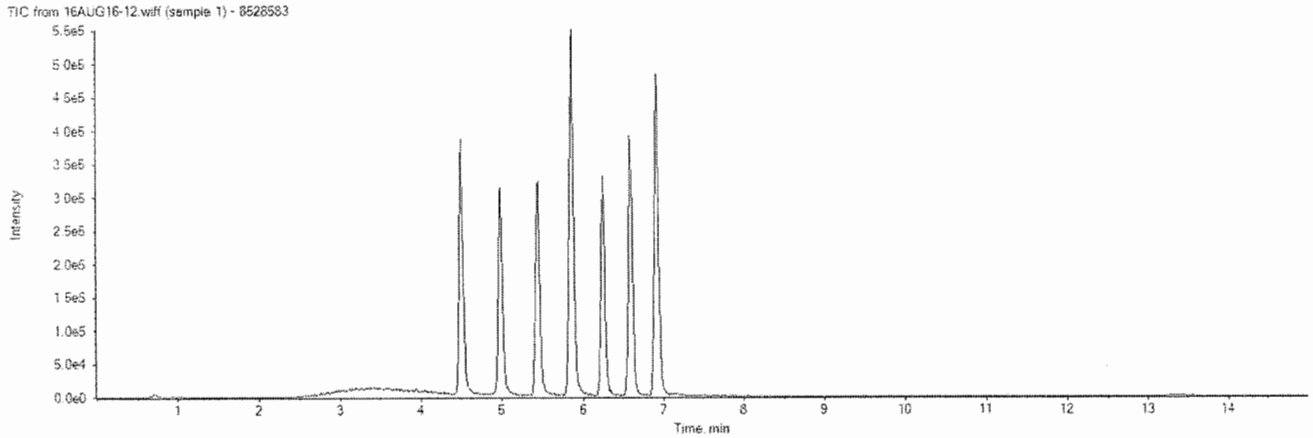
Sample Name:	8528583		**Data File:**		16AUG16-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-200 Grab Groundwater		**Acquis Date:**		8/17/2016 1:02:04 AM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	26		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10028		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

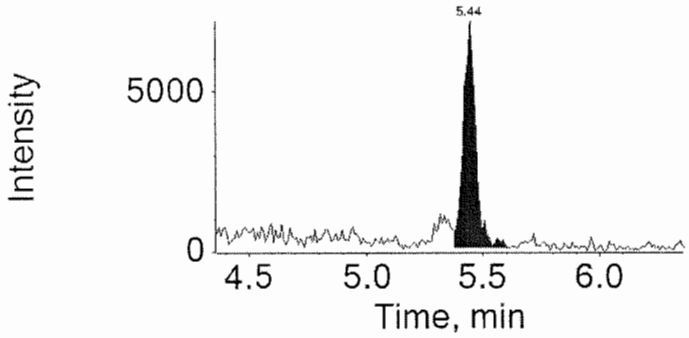
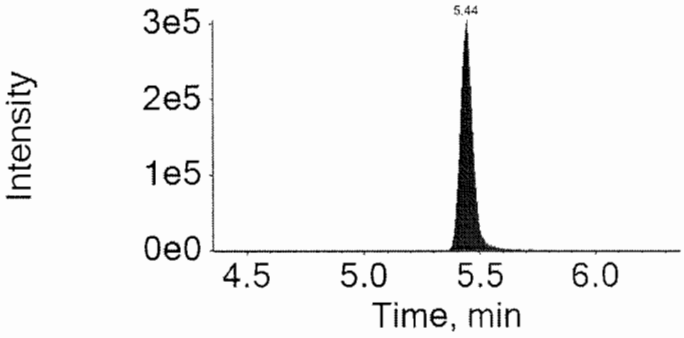
Quantitation Peak Table

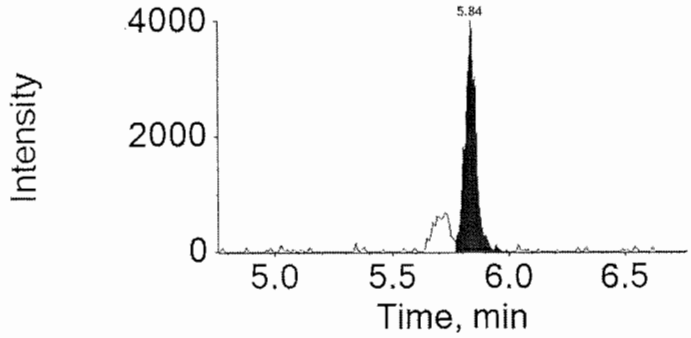
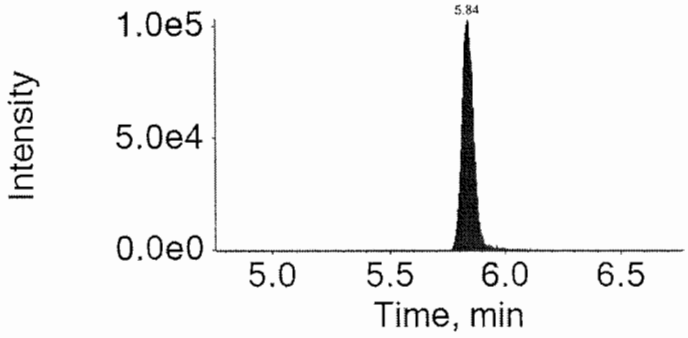
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.44	27184.6	A	13C4-PFOA	5.44	1155136.7	0.024	0.999	
PFOS	5.84	13078.3	A	13C4-PFOS	5.84	389610.6	0.034	1.519	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-200 Grab Groundwater



16AUG16-12.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-12.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

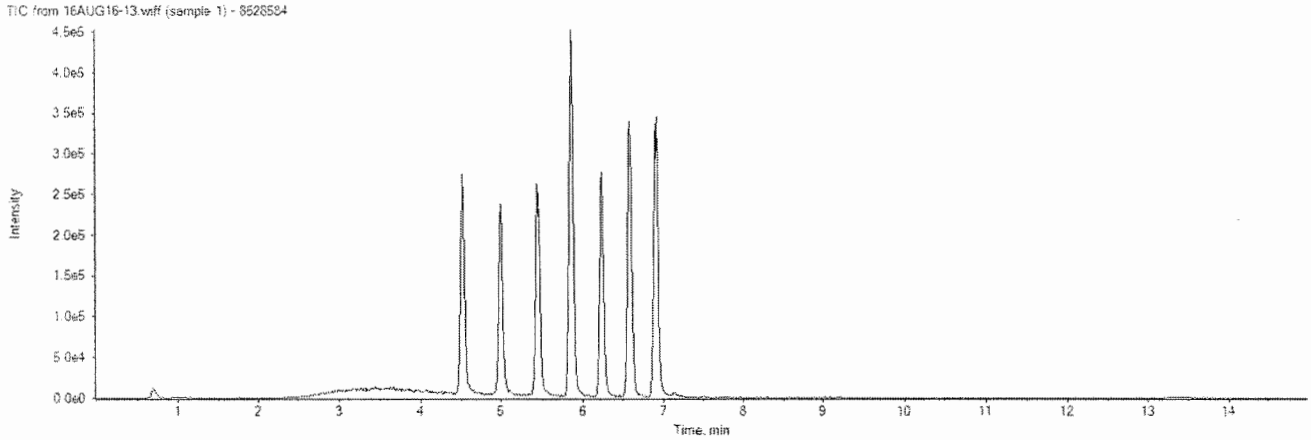
Sample Name:	8528584		**Data File:**		16AUG16-13.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-220 Grab Groundwater		**Acquis Date:**		8/17/2016 1:17:47 AM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	27		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10007		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

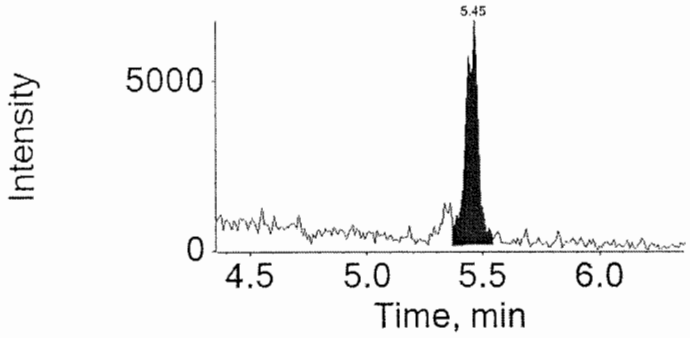
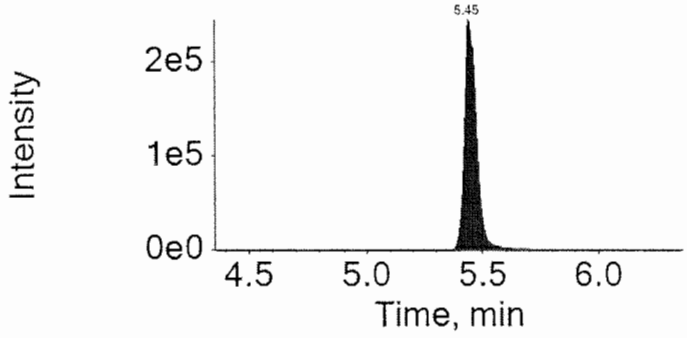
Quantitation Peak Table

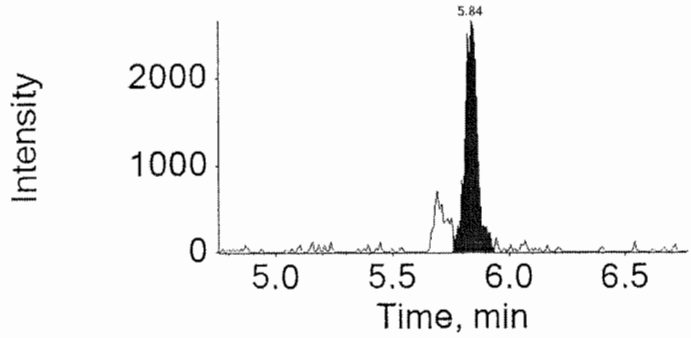
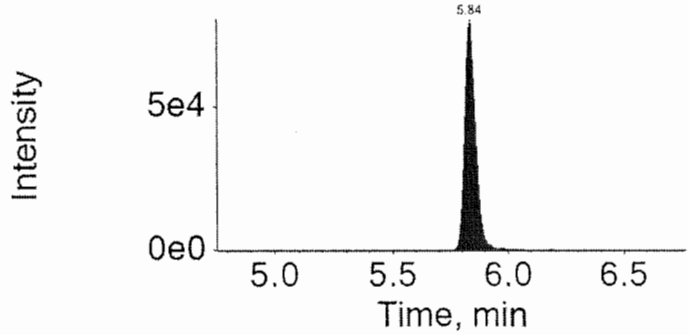
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.45	25379.4	M	13C4-PFOA	5.45	940493.6	0.027	1.148	
PFOS	5.84	10374.1	M	13C4-PFOS	5.84	276640.4	0.038	1.701	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-220 Grab Groundwater



16AUG16-13.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-13.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

Standards Data

PFAAs by LC/MS/MS

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LC-MS/MS
Sequence Report

Printed: 08/17/2016 9:32:00 AM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500, 0, LM24743	8/16/2016 7:09:13 PM	16AUG16-05.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 7:25:37 PM	16AUG16-06.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 7:42:01 PM	16AUG16-07.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 7:58:22 PM	16AUG16-08.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 8:14:43 PM	16AUG16-09.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 8:31:04 PM	16AUG16-10.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 8:47:25 PM	16AUG16-11.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 9:03:46 PM	16AUG16-12.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 9:20:10 PM	16AUG16-13.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 9:36:31 PM	16AUG16-14.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 10:09:19 PM	16AUG16-01.wiff	BLK229004	16	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 10:25:01 PM	16AUG16-02.wiff	LCS229004	17	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 10:40:43 PM	16AUG16-03.wiff	LCSDA	18	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 10:56:25 PM	16AUG16-04.wiff	8528577BKG	19	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 11:12:07 PM	16AUG16-05.wiff	8528577MS	20	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 11:27:49 PM	16AUG16-06.wiff	8528578	21	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 11:43:31 PM	16AUG16-07.wiff	8528579	22	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/16/2016 11:59:13 PM	16AUG16-08.wiff	8528580	23	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/17/2016 12:14:55 AM	16AUG16-09.wiff	8528581	24	0.10	1.00	1.00
Triple Quad 4500, 0,	8/17/2016 12:30:40 AM	16AUG16-10.wiff	CCV2	5	1.00	1.00	1.00

LM24743							
Triple Quad 4500, 0, LM24743	8/17/2016 12:46:22 AM	16AUG16-11.wiff	8528582	25	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/17/2016 1:02:04 AM	16AUG16-12.wiff	8528583	26	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/17/2016 1:17:47 AM	16AUG16-13.wiff	8528584	27	0.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/17/2016 1:33:31 AM	16AUG16-14.wiff	CCV3	5	1.00	1.00	1.00

Results Table Name: MQ 16229004 8/17/2016 8:17:54 AM

Lynn Dodd
AUG 17 2016

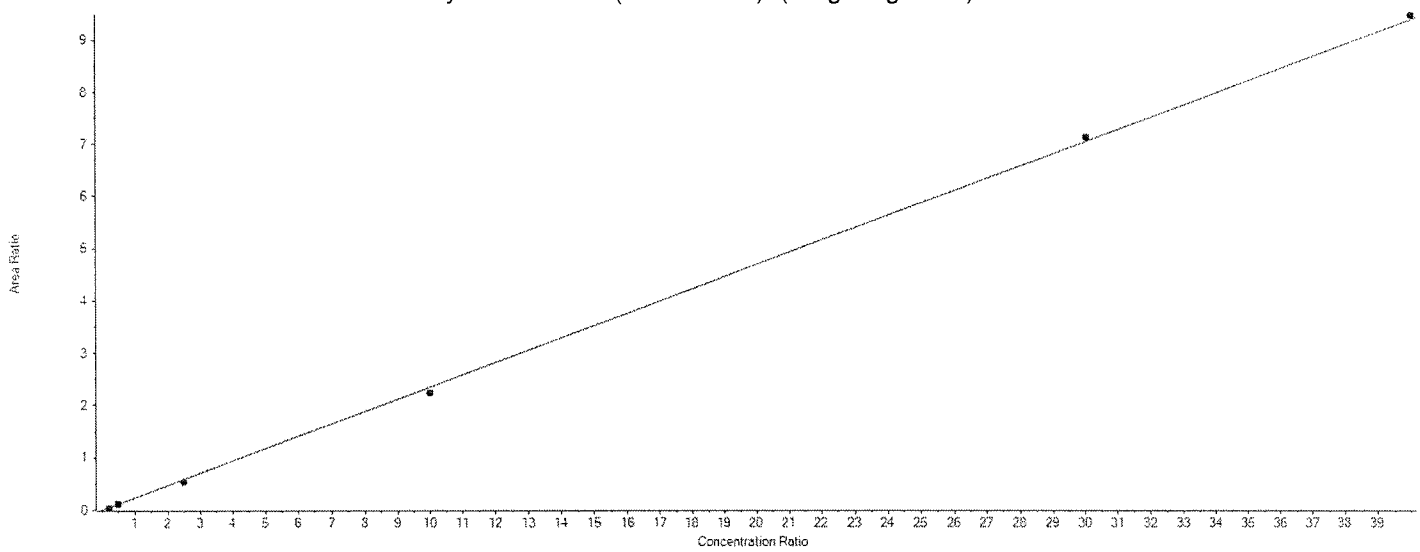
Lynn Dodd
Principal Specialist

MED 78201 8/17/16

Initial Calibration

Results Table Name: MQ 16229004 8/17/2016 8:17:54 AM
ICAL Name: 16AUG16ICAL

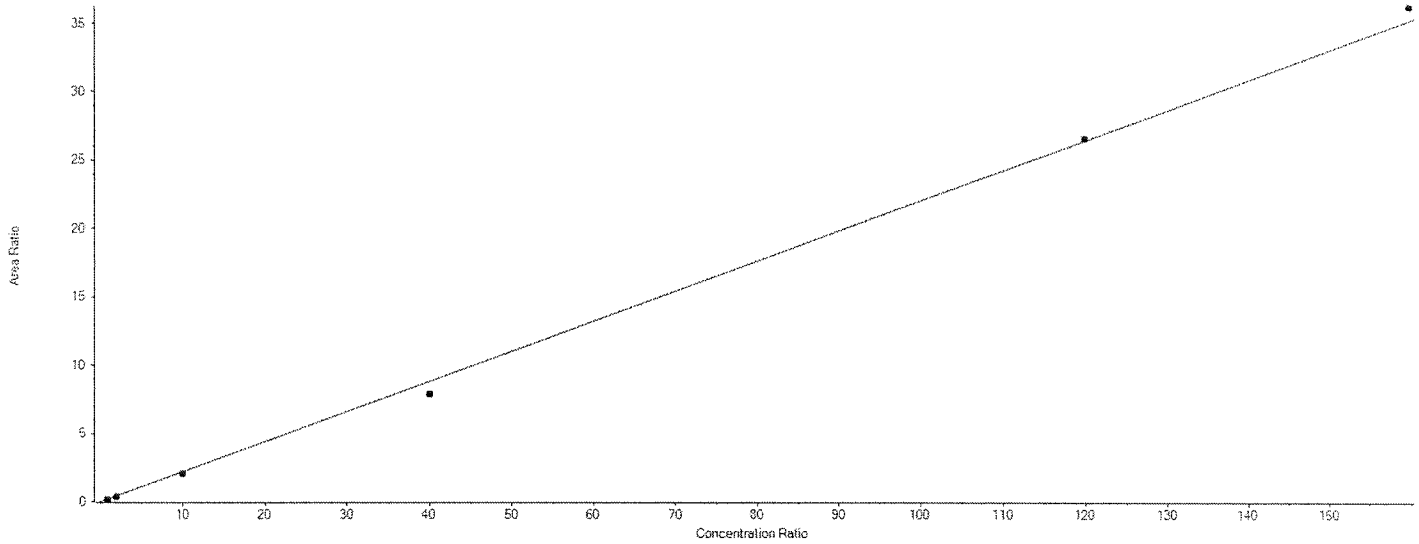
PFOA
y = 0.23498 x (r = 0.99977) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG16-06.wiff	CAL1	39196.1	973555.3	1.00	0.040	5.43	0.200	0.170	-14.3
16AUG16-07.wiff	CAL2	103164.5	954352.2	1.00	0.108	5.43	0.500	0.460	-8.0
16AUG16-08.wiff	CAL3	516879.5	954059.1	1.00	0.542	5.42	2.500	2.310	-7.8
16AUG16-09.wiff	CAL4	2045695.5	912878.2	1.00	2.241	5.42	10.000	9.540	-4.6
16AUG16-10.wiff	CAL5	6114806.7	857772.2	1.00	7.129	5.42	30.000	30.340	1.1
16AUG16-11.wiff	CAL6	7816718.8	823651.6	1.00	9.490	5.43	40.000	40.390	1.0

PFOS
y = 0.22036 x (r = 0.99912) (weighting: 1 / x)

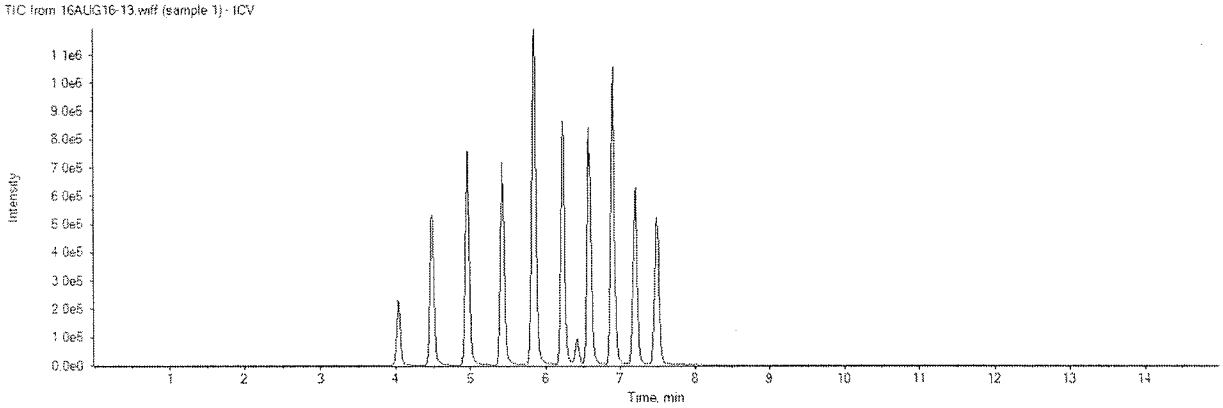


Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG16-06.wiff	CAL1	48529.4	349742.5	1.00	0.139	5.82	0.800	0.630	-21.2
16AUG16-07.wiff	CAL2	123081.0	321521.4	1.00	0.383	5.82	2.000	1.740	-13.1
16AUG16-08.wiff	CAL3	678104.1	334693.0	1.00	2.026	5.83	9.990	9.190	-8.0
16AUG16-09.wiff	CAL4	2285103.0	289107.8	1.00	7.904	5.81	39.960	35.870	-10.2
16AUG16-10.wiff	CAL5	5906567.8	222334.2	1.00	26.566	5.82	119.900	120.560	0.5
16AUG16-11.wiff	CAL6	7340379.4	202538.4	1.00	36.242	5.82	159.800	164.460	2.9

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16AUG16-13.wiff
Acquisition Date: 8/16/2016 9:20:10 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFOA	1755516.8	13C4-PFOA	866949.1	1.00	2.025	5.42	10.00	8.620	-13.8	
PFOS	644790.0	13C4-PFOS	324424.8	1.00	1.987	5.82	9.55	9.020	-5.6	

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AUG 17 2016
Lynn Dodd
Principal Specialist

MLM 1824
8/17/16

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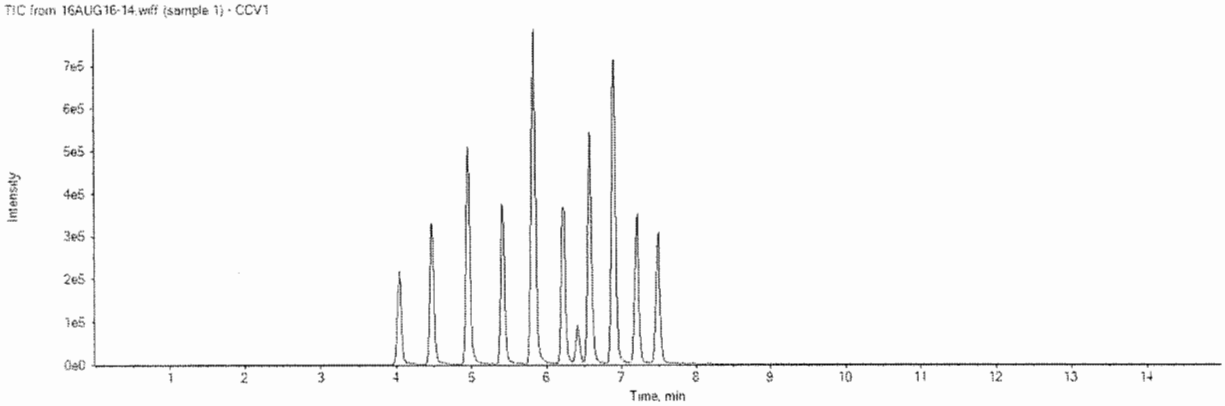
LC-MS/MS Analysis Report

Printed: 8/17/2016 9:39:00 AM

Continuing Calibration Verification

ICAL Name: 16AUG16ICAL

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16AUG16-14.wiff
Acquisition Date: 8/16/2016 9:36:31 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFOA	519782.7	13C4-PFOA	904375.0	1.00	0.575	5.42	2.50	2.450	-2.2	
PFOS	729995.9	13C4-PFOS	330977.3	1.00	2.206	5.81	9.99	10.010	0.2	

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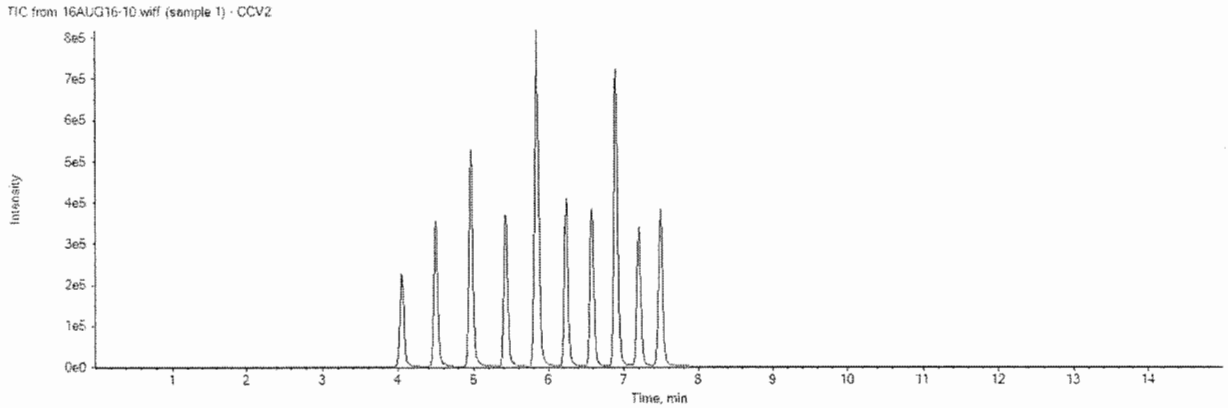
LC-MS/MS Analysis Report

Printed: 8/17/2016 9:39:00 AM

Sample ID: CAL3
Sample Name: CCV2
Sample File: 16AUG16-10.wiff
Acquisition Date: 8/17/2016 12:30:40 AM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFOA	491207.3	13C4-PFOA	925479.8	1.00	0.531	5.43	2.50	2.260	-9.6	
PFOS	695120.0	13C4-PFOS	340761.1	1.00	2.040	5.82	9.99	9.260	-7.3	

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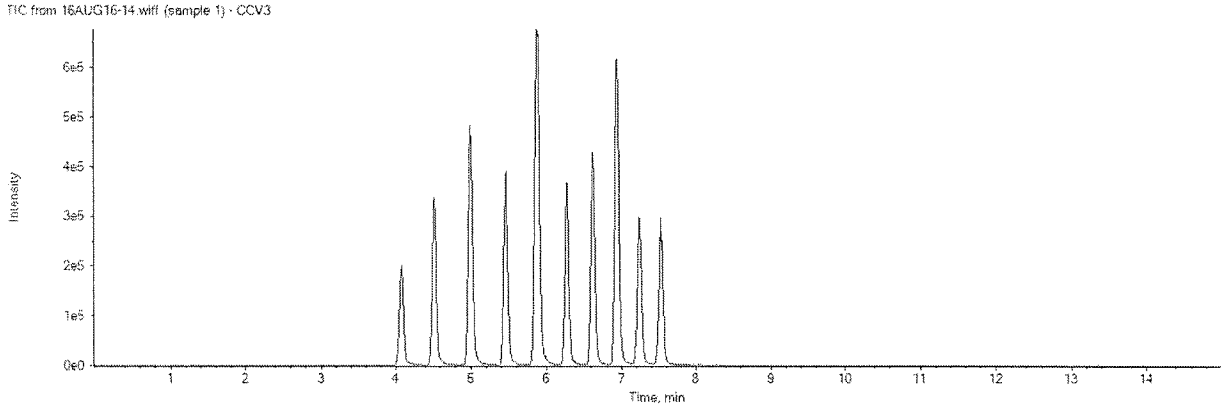
LC-MS/MS Analysis Report

Printed: 8/17/2016 9:39:00 AM

Sample ID: CAL3
Sample Name: CCV3
Sample File: 16AUG16-14.wiff
Acquisition Date: 8/17/2016 1:33:31 AM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFOA	516864.0	13C4-PFOA	918742.0	1.00	0.563	5.46	2.50	2.390	-4.2	
PFOS	680810.4	13C4-PFOS	329894.4	1.00	2.064	5.85	9.99	9.370	-6.3	

Lynn Dodd
AUG 17 2016

Lynn Dodd
Principal Specialist

MOO 7824
8/17/16

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

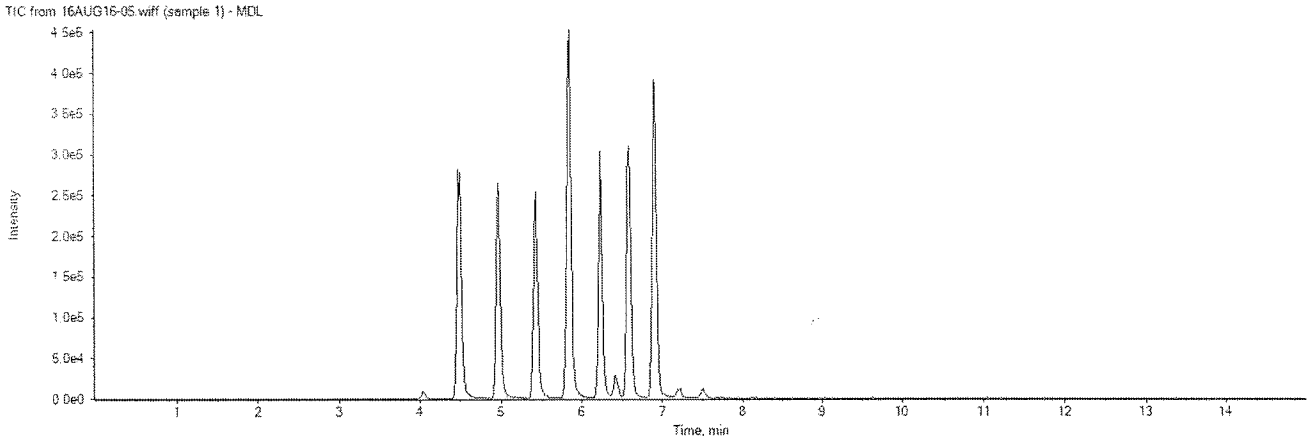
Sample Name:	MDL		**Data File:**		16AUG16-05.wiff
Sample ID:	MDL		**Acquis Date:**		8/16/2016 7:09:13 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

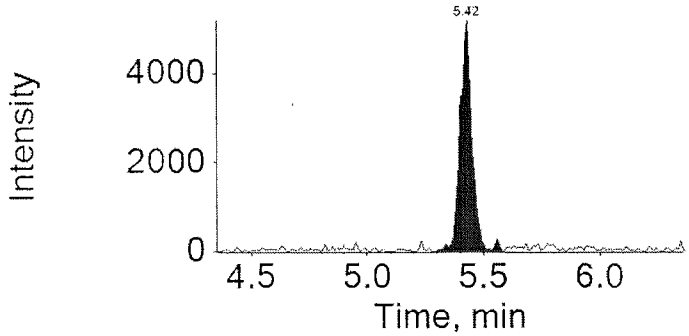
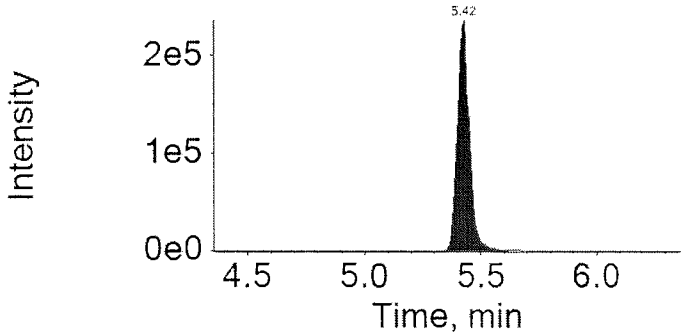
Quantitation Peak Table

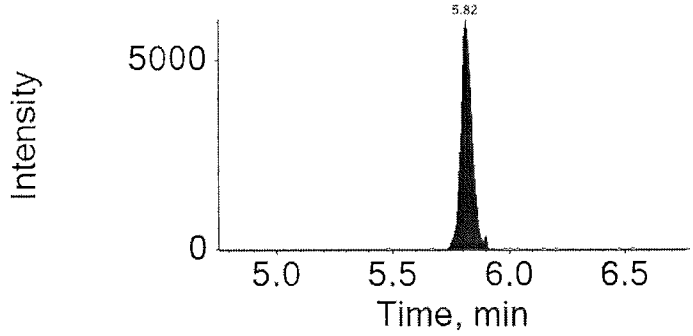
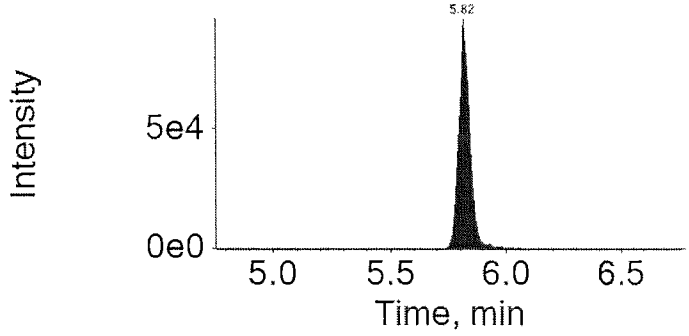
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	19231.1	A	13C4-PFOA	5.42	907038.2	0.021	0.090	
PFOS	5.82	20982.2	A	13C4-PFOS	5.82	333273.4	0.063	0.286	

Total Ion Chromatogram

MDL



16AUG16-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

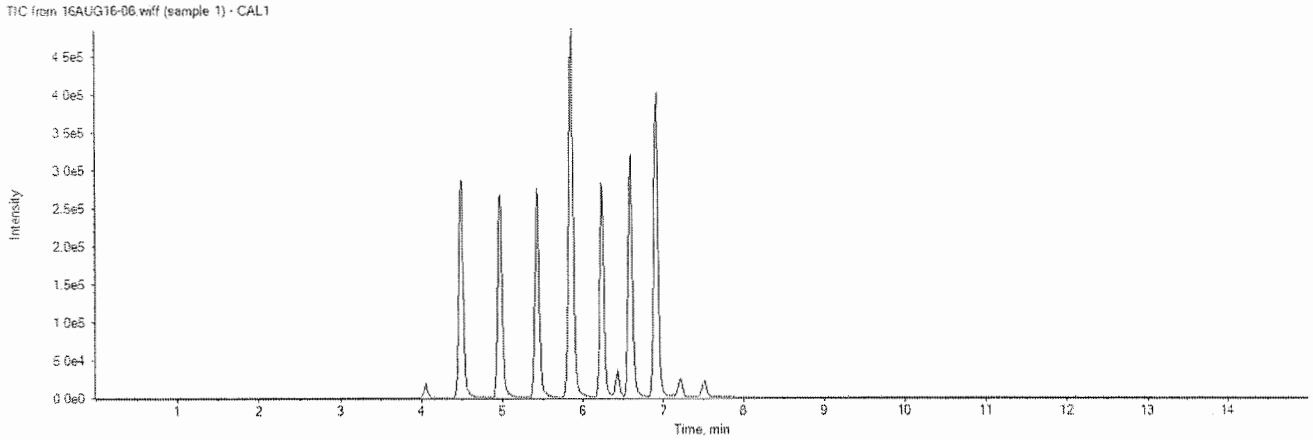
Sample Name:	CAL1		**Data File:**		16AUG16-06.wiff
Sample ID:	CAL1		**Acquis Date:**		8/16/2016 7:25:37 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	3		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

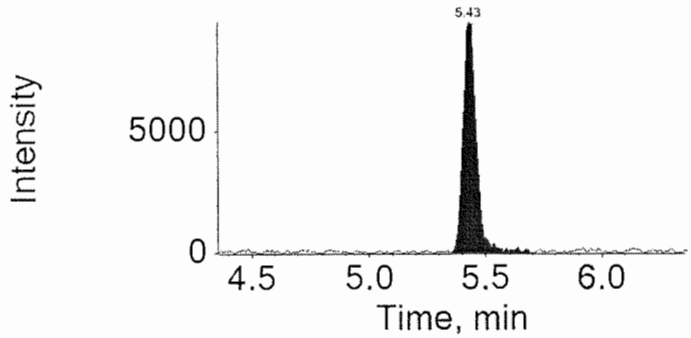
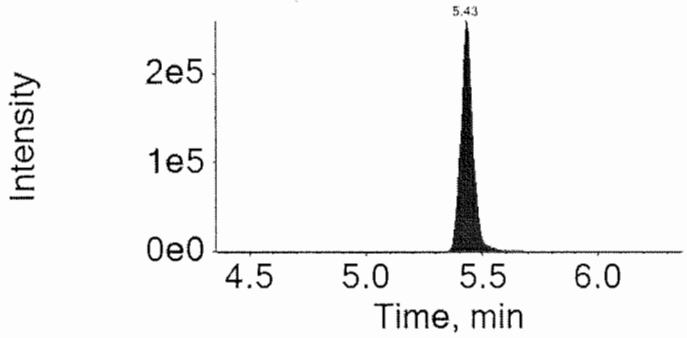
Quantitation Peak Table

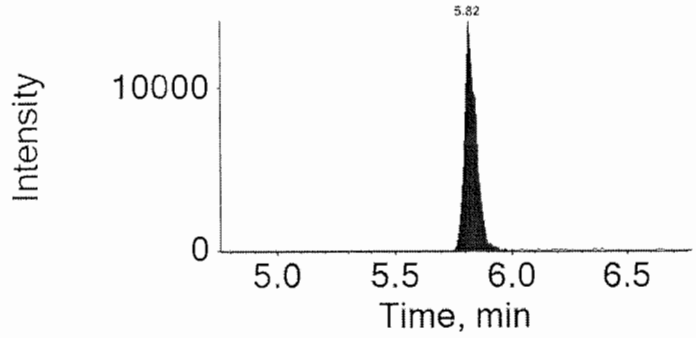
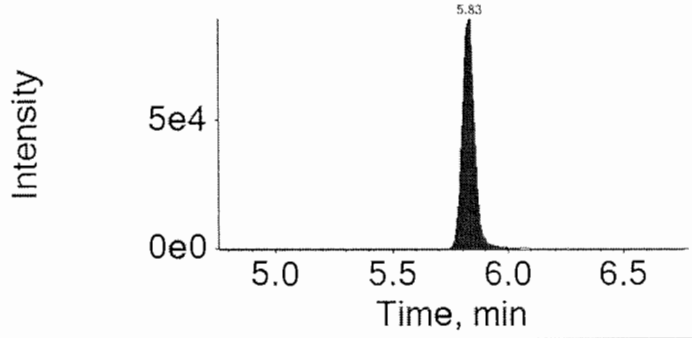
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	39196.1	A	13C4-PFOA	5.43	973555.3	0.040	0.171	
PFOS	5.82	48529.4	A	13C4-PFOS	5.83	349742.5	0.139	0.630	

Total Ion Chromatogram

CAL1



16AUG16-06.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-06.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

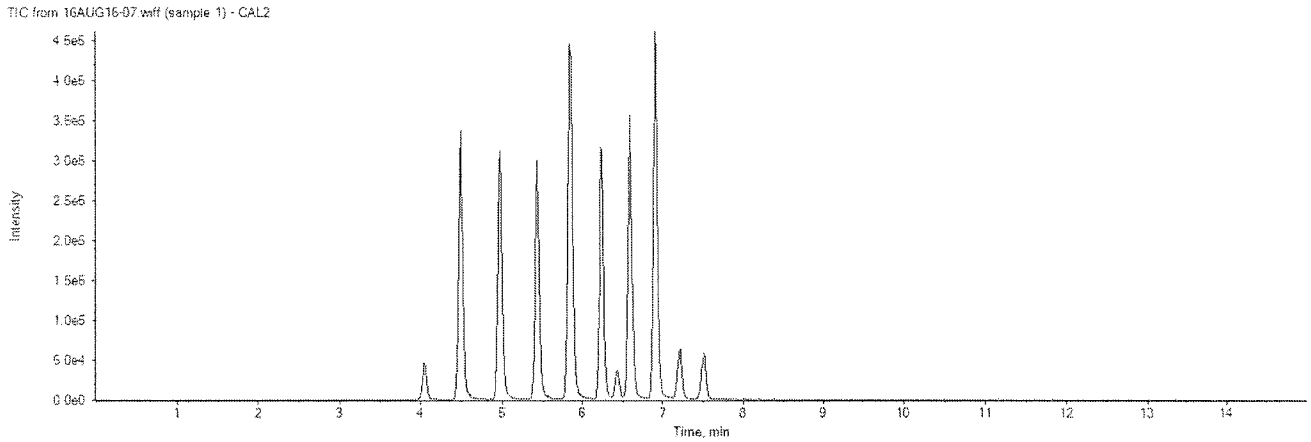
Sample Name:	CAL2		**Data File:**		16AUG16-07.wiff
Sample ID:	CAL2		**Acquis Date:**		8/16/2016 7:42:01 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	4		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

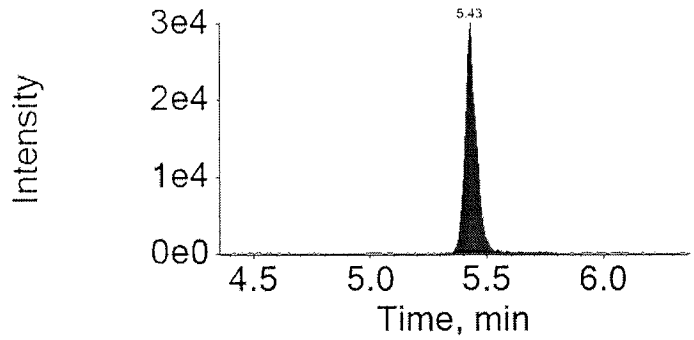
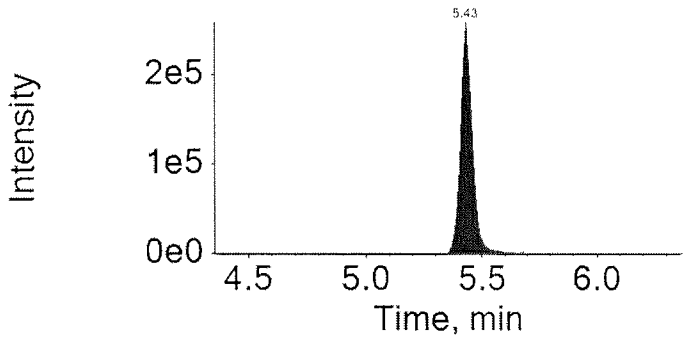
Quantitation Peak Table

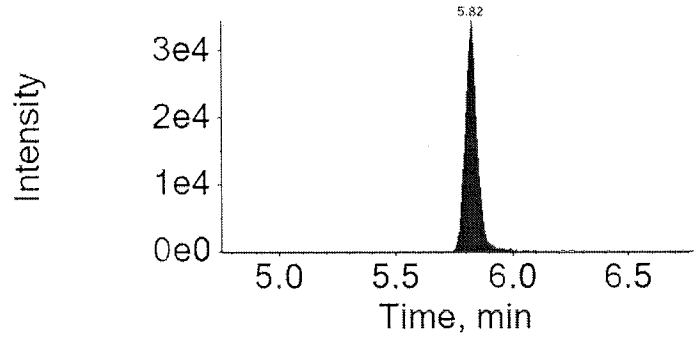
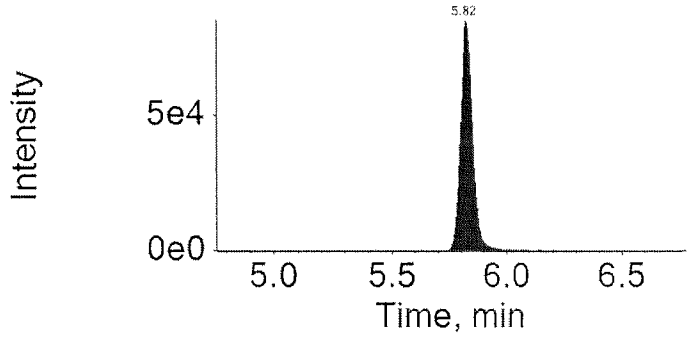
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	103164.5	A	13C4-PFOA	5.43	954352.2	0.108	0.460	
PFOS	5.82	123081.0	A	13C4-PFOS	5.82	321521.4	0.383	1.737	

Total Ion Chromatogram

CAL2



16AUG16-07.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-07.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

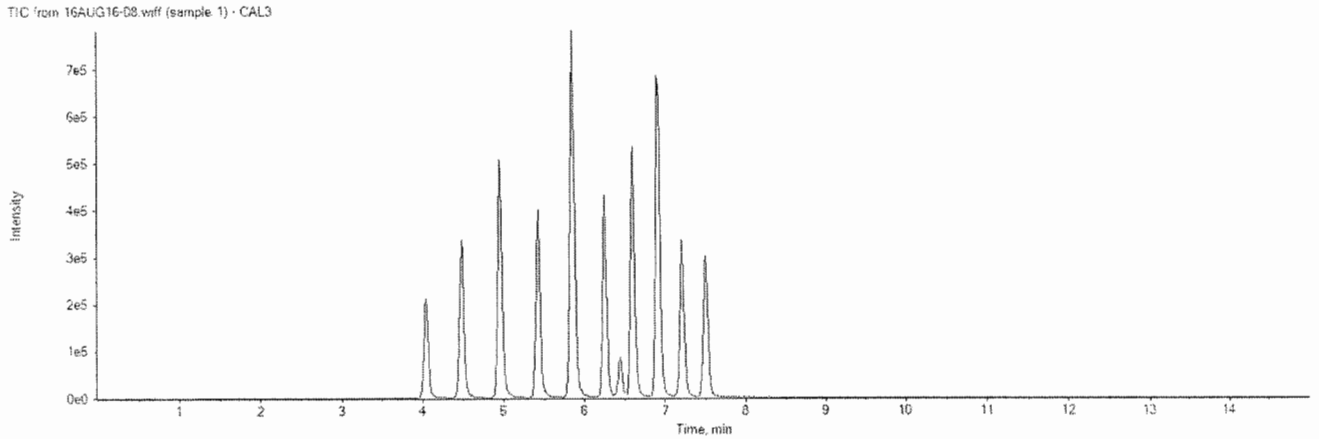
Sample Name:	CAL3		**Data File:**		16AUG16-08.wiff
Sample ID:	CAL3		**Acquis Date:**		8/16/2016 7:58:22 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	5		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

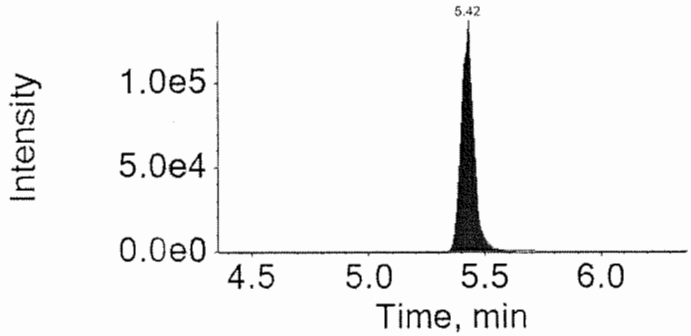
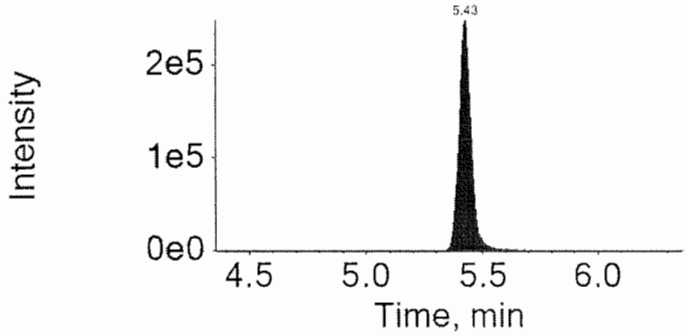
Quantitation Peak Table

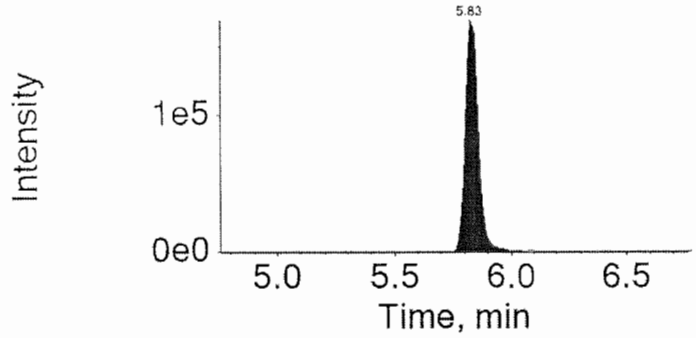
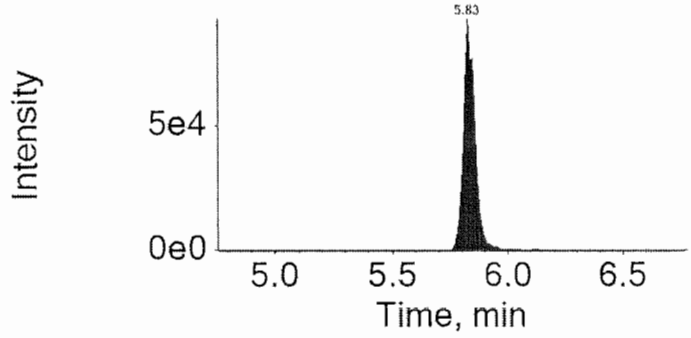
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	516879.5	A	13C4-PFOA	5.43	954059.1	0.542	2.306	
PFOS	5.83	678104.1	A	13C4-PFOS	5.83	334693.0	2.026	9.194	

Total Ion Chromatogram

CAL3



16AUG16-08.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-08.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

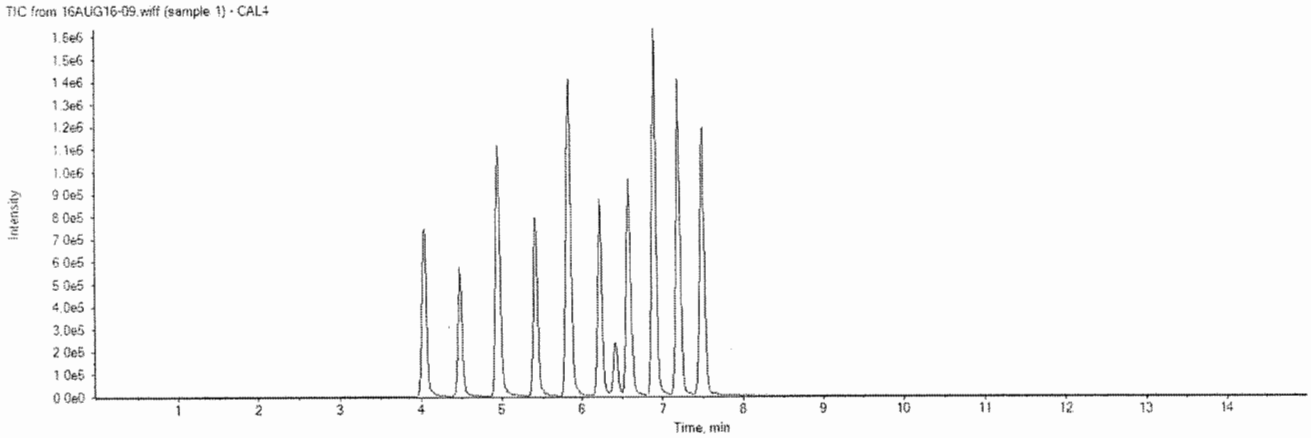
Sample Name:	CAL4		**Data File:**		16AUG16-09.wiff
Sample ID:	CAL4		**Acquis Date:**		8/16/2016 8:14:43 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	6		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

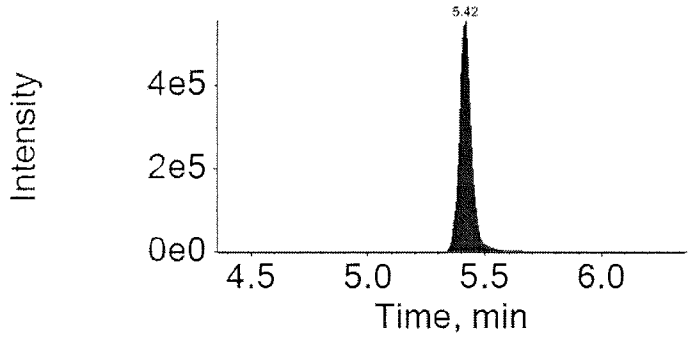
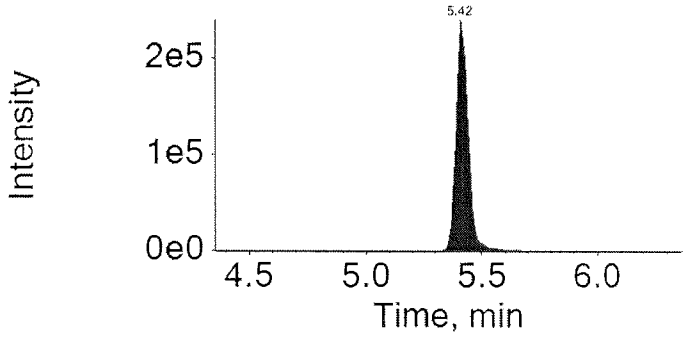
Quantitation Peak Table

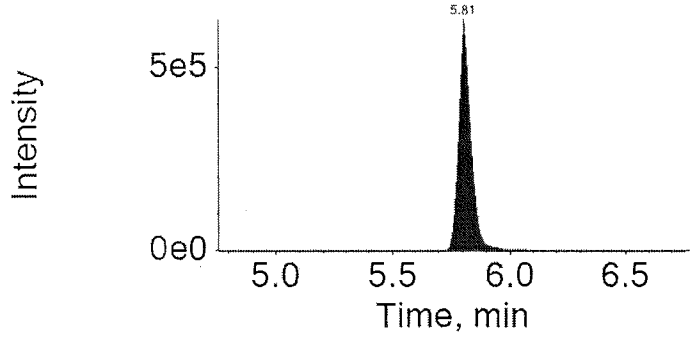
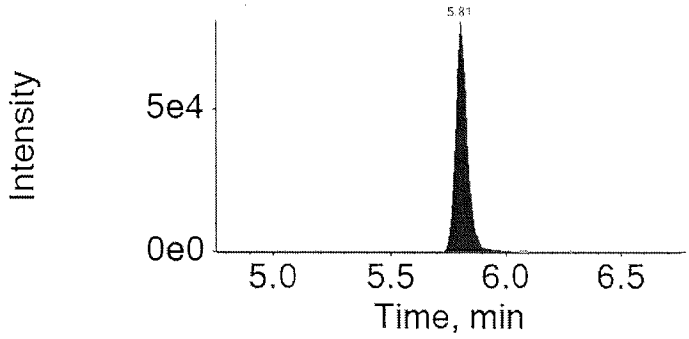
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	2045695.5	A	13C4-PFOA	5.42	912878.2	2.241	9.537	
PFOS	5.81	2285103.0	A	13C4-PFOS	5.81	289107.8	7.904	35.868	

Total Ion Chromatogram

CAL4



16AUG16-09.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-09.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

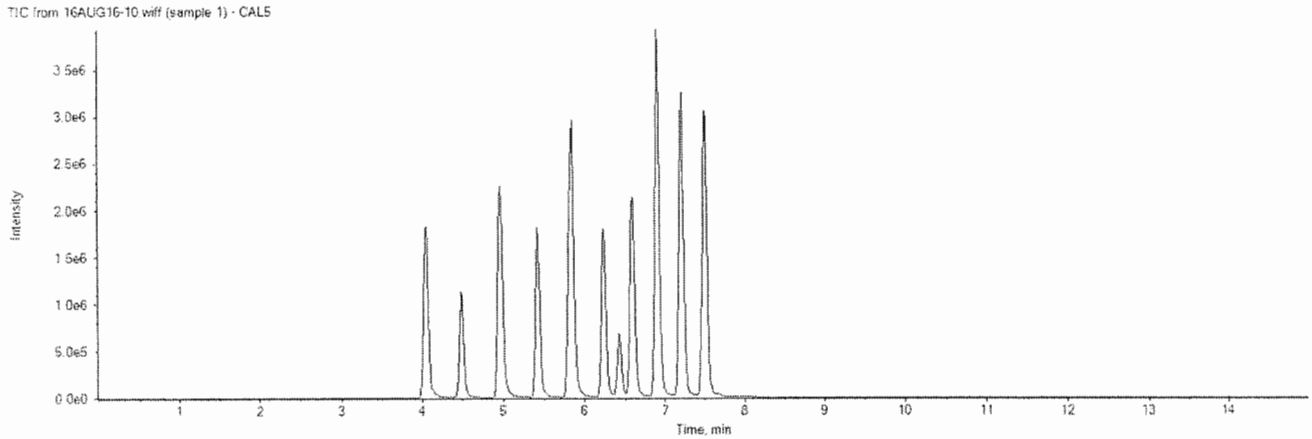
Sample Name:	CAL5		**Data File:**		16AUG16-10.wiff
Sample ID:	CAL5		**Acquis Date:**		8/16/2016 8:31:04 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	7		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

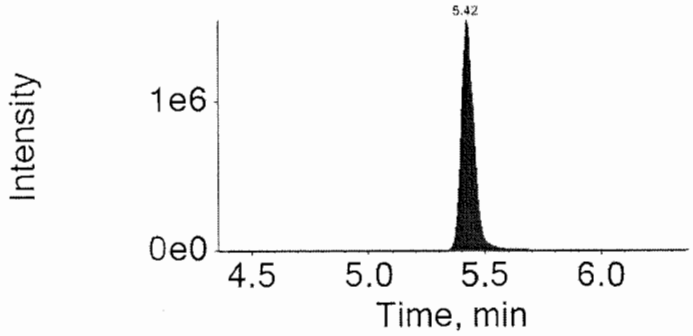
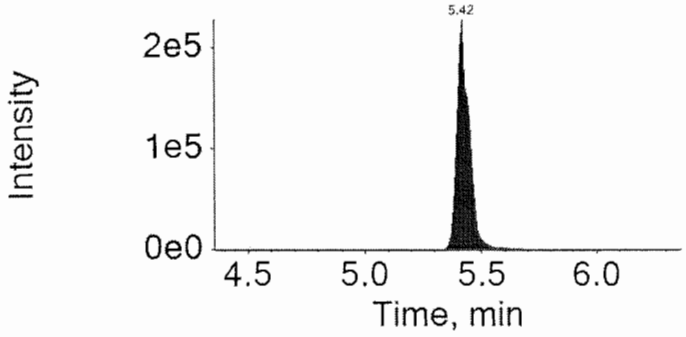
Quantitation Peak Table

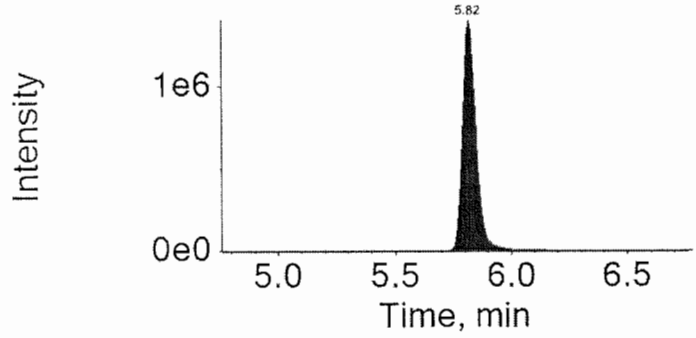
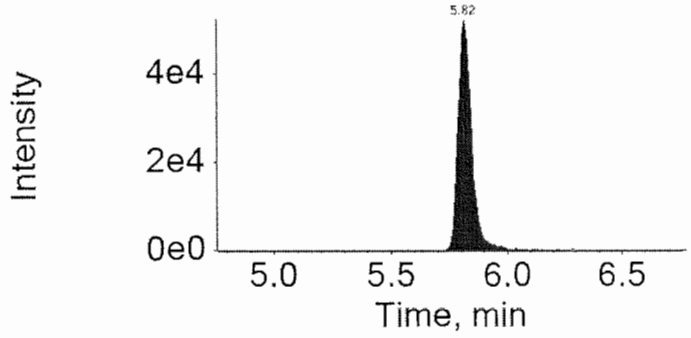
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	6114806.7	A	13C4-PFOA	5.42	857772.2	7.129	30.338	
PFOS	5.82	5906567.8	A	13C4-PFOS	5.82	222334.2	26.566	120.556	

Total Ion Chromatogram

CAL5



16AUG16-10.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-10.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

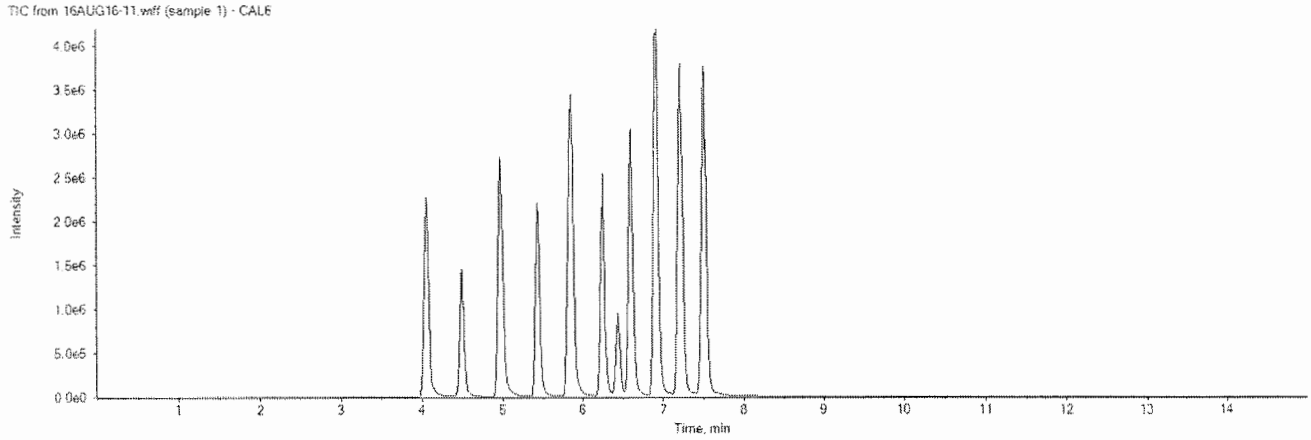
Sample Name:	CAL6		**Data File:**		16AUG16-11.wiff
Sample ID:	CAL6		**Acquis Date:**		8/16/2016 8:47:25 PM
Sample Type:	Standard		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	8		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

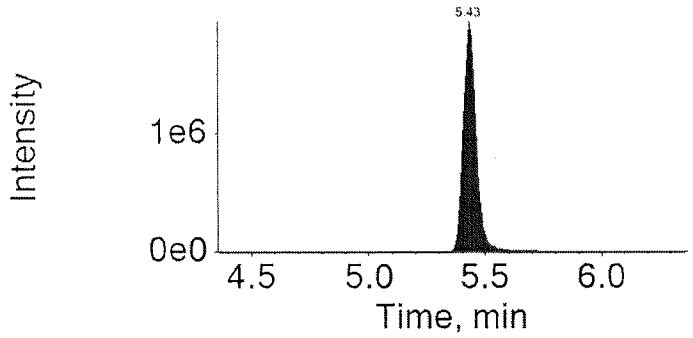
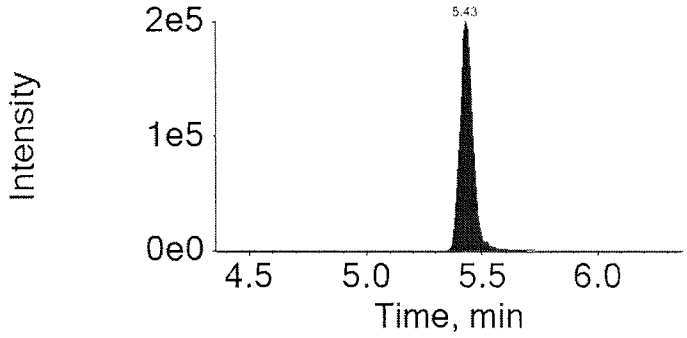
Quantitation Peak Table

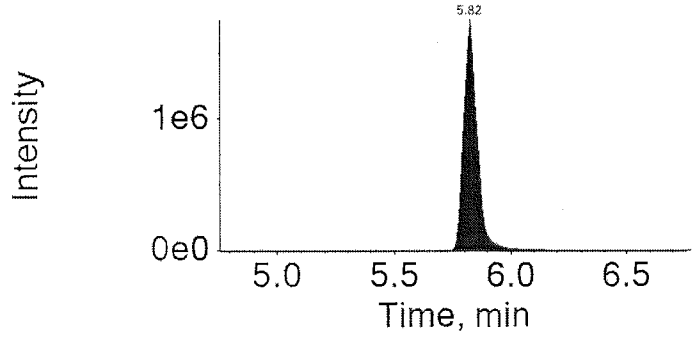
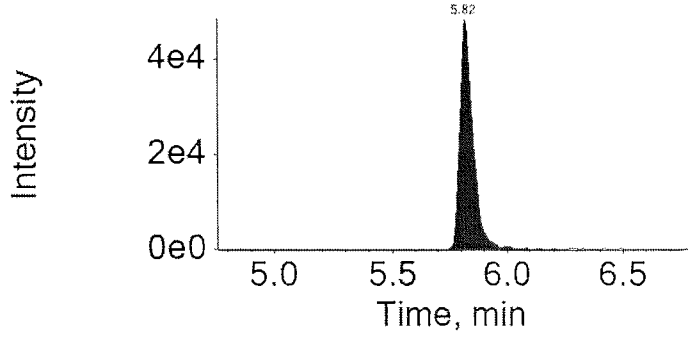
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	7816718.8	A	13C4-PFOA	5.43	823651.6	9.490	40.388	
PFOS	5.82	7340379.4	A	13C4-PFOS	5.82	202538.4	36.242	164.464	

Total Ion Chromatogram

CAL6



16AUG16-11.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-11.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

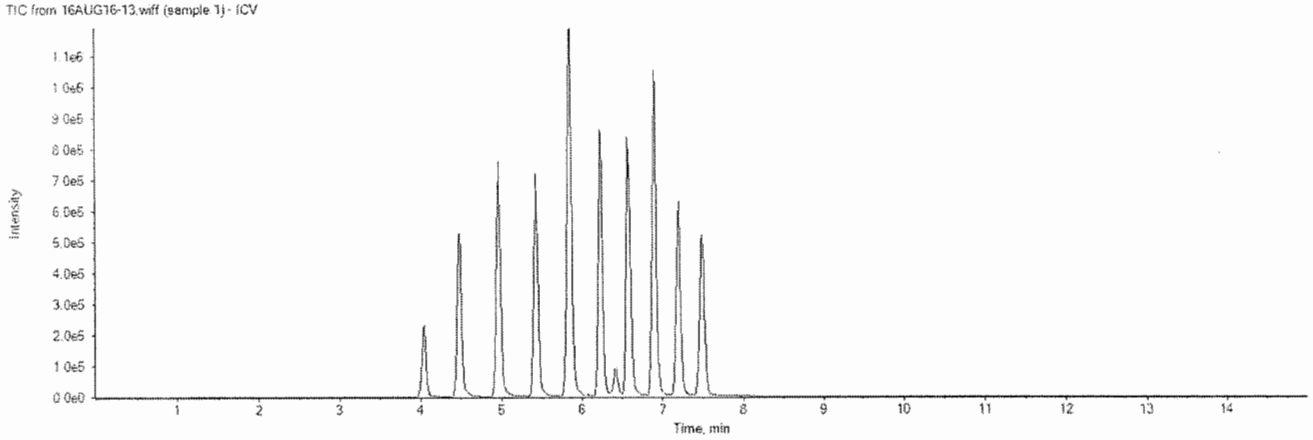
Sample Name:	ICV		**Data File:**		16AUG16-13.wiff
Sample ID:	ICV		**Acquis Date:**		8/16/2016 9:20:10 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	9		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

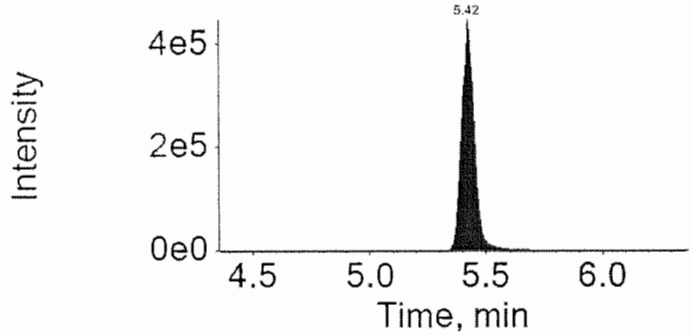
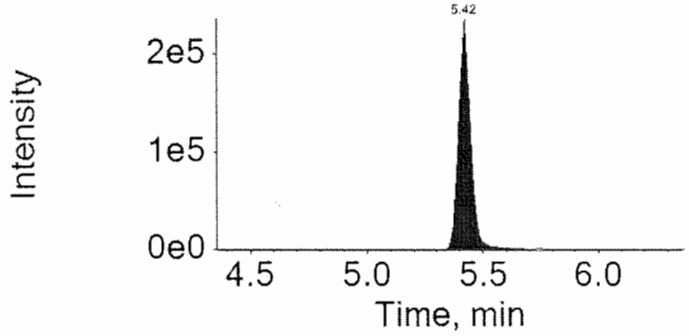
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	1755516.8	A	13C4-PFOA	5.42	866949.1	2.025	8.618	
PFOS	5.82	644790.0	A	13C4-PFOS	5.81	324424.8	1.987	9.019	

Total Ion Chromatogram

ICV



16AUG16-13.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

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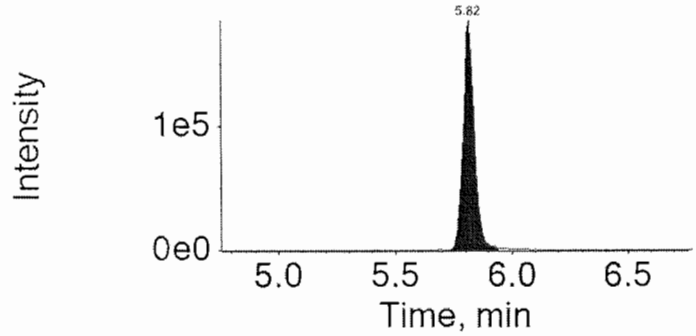
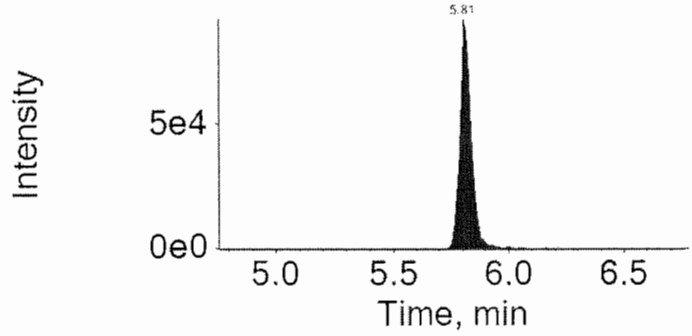
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

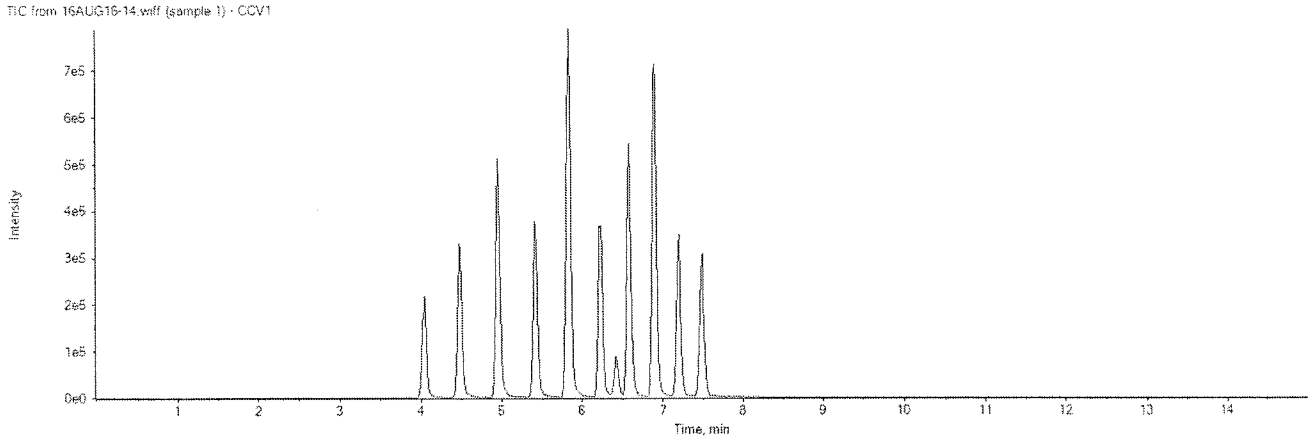
Sample Name:	CCV1		**Data File:**		16AUG16-14.wiff
Sample ID:	CAL3		**Acquis Date:**		8/16/2016 9:36:31 PM
Sample Type:	Quality Control		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	5		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

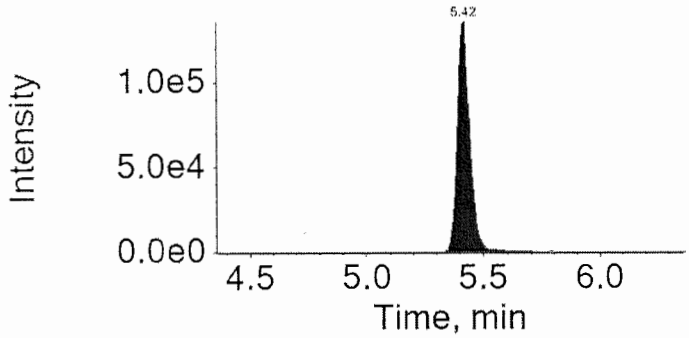
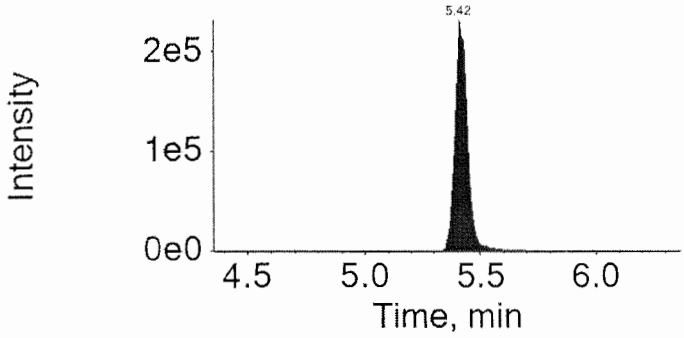
Quantitation Peak Table

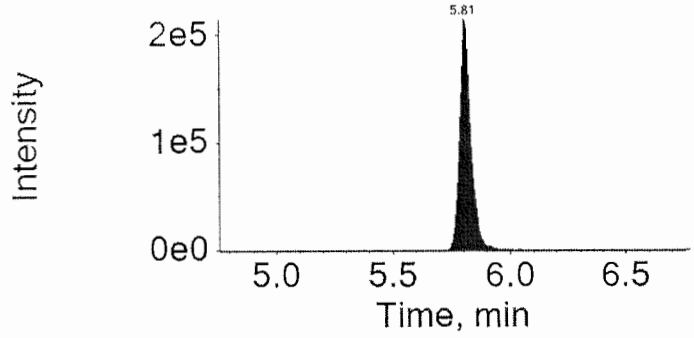
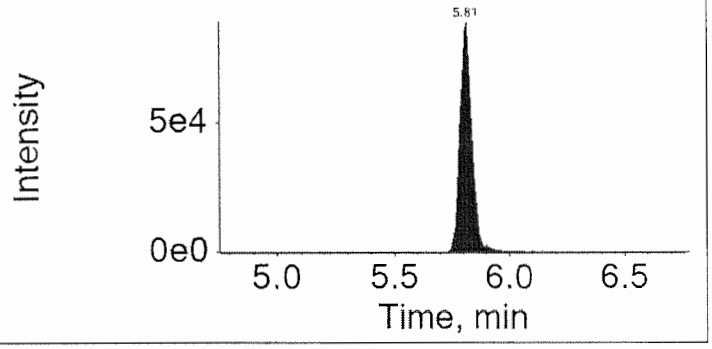
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	519782.7	A	13C4-PFOA	5.42	904375.0	0.575	2.446	
PFOS	5.81	729995.9	A	13C4-PFOS	5.81	330977.3	2.206	10.009	

Total Ion Chromatogram

CAL3



16AUG16-14.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-14.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

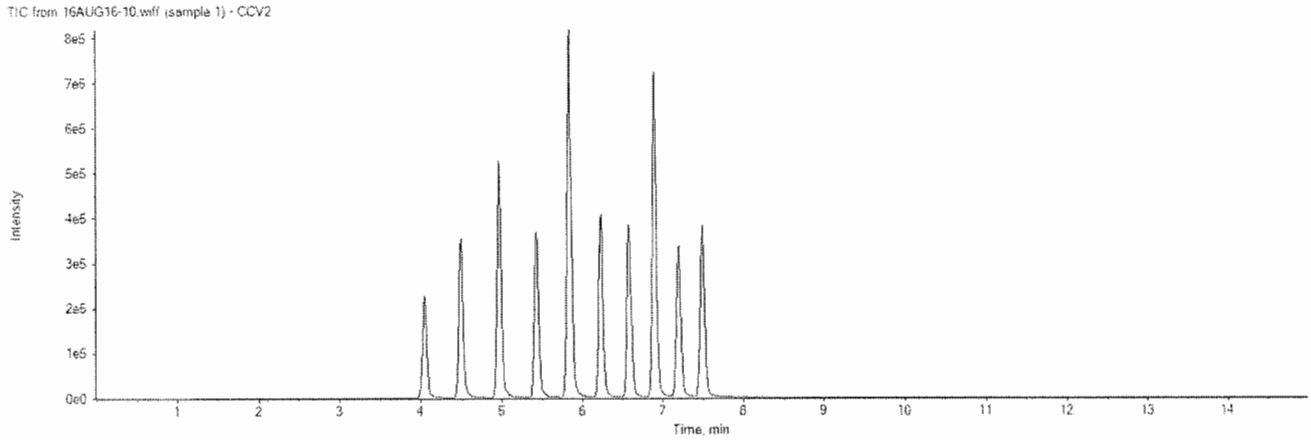
Sample Name:	CCV2		**Data File:**		16AUG16-10.wiff
Sample ID:	CAL3		**Acquis Date:**		8/17/2016 12:30:40 AM
Sample Type:	Quality Control		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	5		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

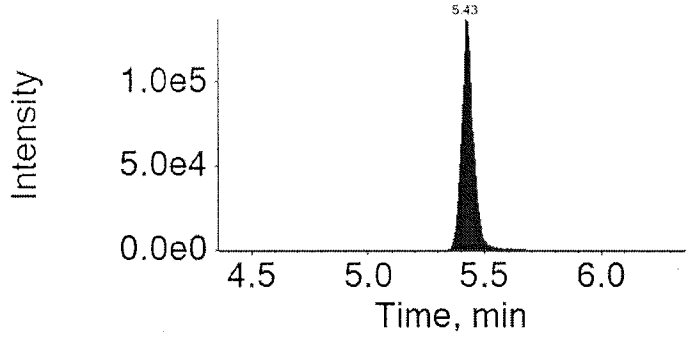
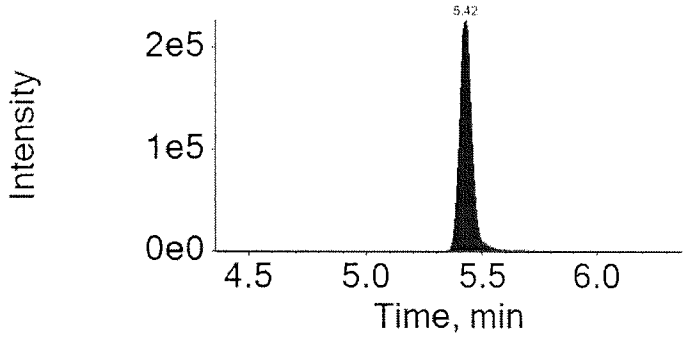
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	491207.3	A	13C4-PFOA	5.42	925479.8	0.531	2.259	
PFOS	5.82	695120.0	A	13C4-PFOS	5.82	340761.1	2.040	9.257	

Total Ion Chromatogram

CAL3



16AUG16-10.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

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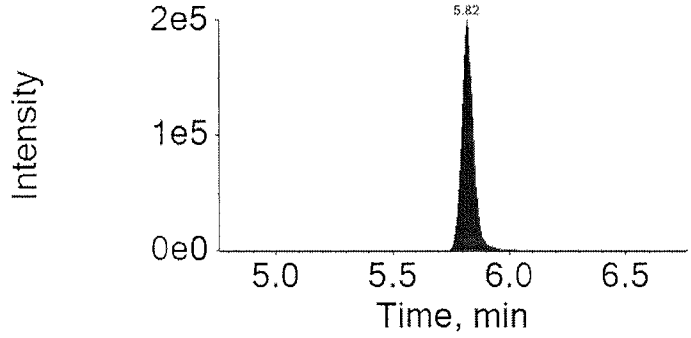
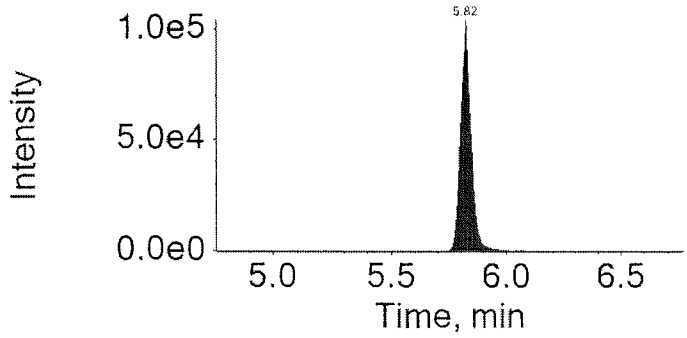
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

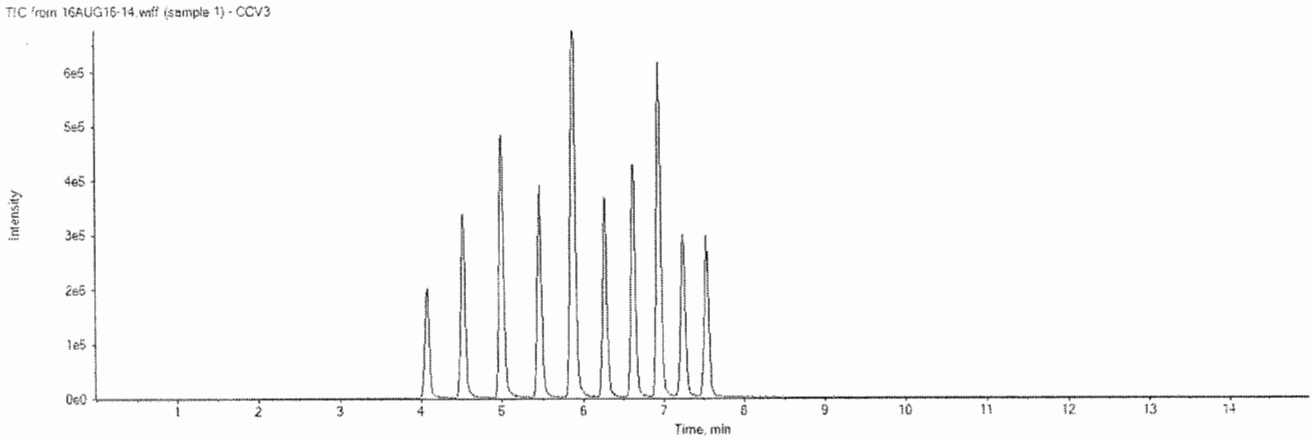
Sample Name:	CCV3		**Data File:**		16AUG16-14.wiff
Sample ID:	CAL3		**Acquis Date:**		8/17/2016 1:33:31 AM
Sample Type:	Quality Control		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	5		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

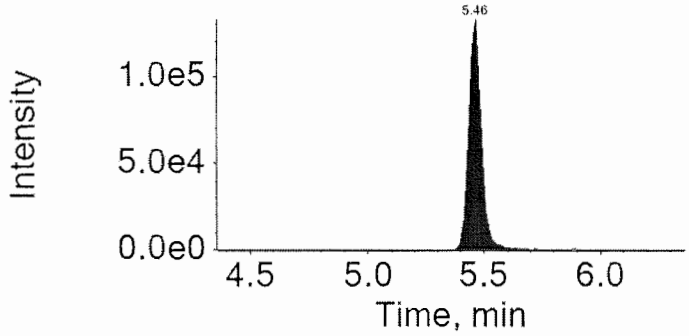
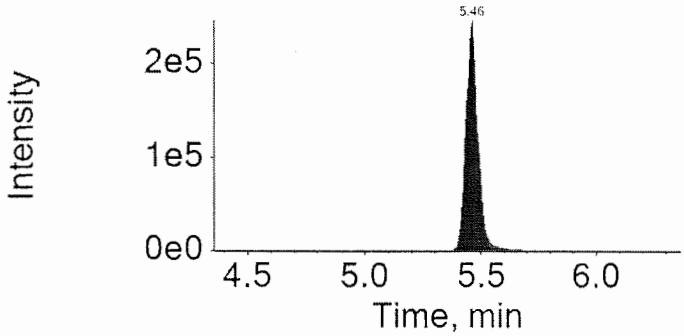
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.46	516864.0	A	13C4-PFOA	5.46	918742.0	0.563	2.394	
PFOS	5.85	680810.4	A	13C4-PFOS	5.85	329894.4	2.064	9.365	

Total Ion Chromatogram

CAL3



16AUG16-14.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

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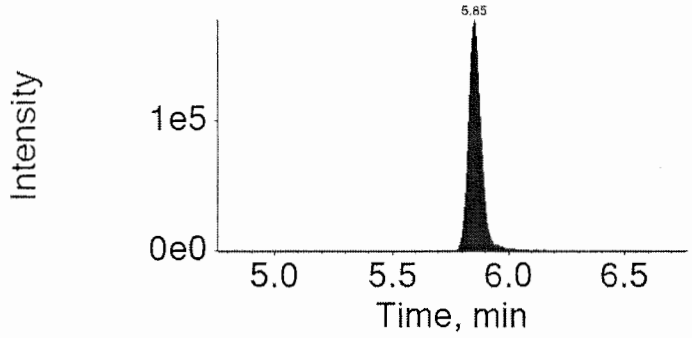
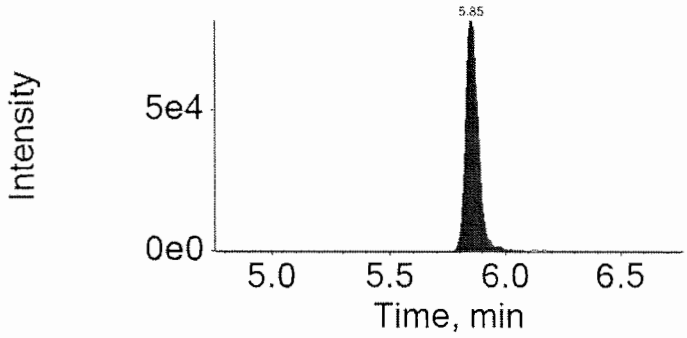
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

Lynn Dodd
AUG 17 2016
Lynn Dodd
Principal Specialist

MEO 7824
8/17/16

PFC Calibration std soln in MeOH / H2O 96:4

Actual conc (ng/mL)

	A	B	C
Sys(MDL)	0.1	0.2	0.4
CAL1	0.2	0.4	0.8
CAL2	0.5	1	2
CAL3	2.5	5	10
CAL4	10	20	40
CAL5	30	60	120
CAL6	40	80	160
ICV1	10	10	20
ICV2	20	20	40

PFC multi Cal std: 235002-69

A (500 ng/mL)	B (1000 ng/mL)	C (2000 ng/mL)
PFHxA (1)	PFTrDA (7)	PFBS (11)
PFHpA (2)	PFTeDA (8)	PFHxS (12)
PFOA (3)	PFDoA (9)	PFOS (13)
PFNA (4)	8.2 FtS (10)	NMeFOSAA (14)
PFDA (5)		NetFOSAA (15)
PFUnDA (6)		

NOTE: Equiv Conc ng/L is based on 100 mL of water to final vol of 1 mL
NOTE: The ICV is spiked with 2nd Source SPK STD (235002-70)

	conc ng/mL	conc	Prep Vol.	Final Vol.		
Level	A	ng/mL	mL	tot (mL)	MeOH / Water	WIS/SS
Sys(MDL)	0.10	5	0.020	1	0.955	0.025
CAL1(LOQ)	0.20	5	0.040	1	0.935	0.025
CAL2	0.50	5	0.100	1	0.875	0.025
CAL3	2.50	50	0.050	1	0.925	0.025
CAL4	10.0	500	0.020	1	0.955	0.025
CAL5	30.0	500	0.060	1	0.915	0.025
CAL6	40.0	500	0.080	1	0.895	0.025
ICV	10.0	500	0.020	1	0.955	0.025

NOTE: All samples are spiked with labeled compound surrogate spike (SS1620937A)

Pipette ID's P1000
P100

	Wellington Labs Lot#	Expiration Date
PFHxA (1)	PFxA0514	5/9/2019
PFHpA (2)	PFHpA0514	5/9/2019
PFOA (3)	PFOA1214	12/9/2019
PFNA (4)	PFNA0514	5/9/2019
PFDA (5)	PFDA0615	7/2/2020
PFUnDA (6)	PFUdA0613	6/19/2018
PFTrDA (7)	PFTrDA1213	12/10/2018
PFTeDA (8)	PFTeDA0613	6/19/2018
PFDoA (9)	PFDoA0115	1/30/2020
8.2 FtS (10)	82FTS1014	10/3/2017
PFBS (11)	LPFBS1014	10/9/2019
PFHxS (12)	LPFHxS0514	5/9/2019
PFOS (13)	LPFOS0614	6/20/2019
NMeFOSAA (14)	NMeFOSAA0116	1/20/2021
NetFOSAA (15)	NetFOSAA0116	1/20/2021

Prep Date: 7/28/2016
Analyst: MCD7824
Expiration Date: 1/28/2017

MCD 7824
8/17/16

Raw QC Data

PFAAs by LC/MS/MS

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

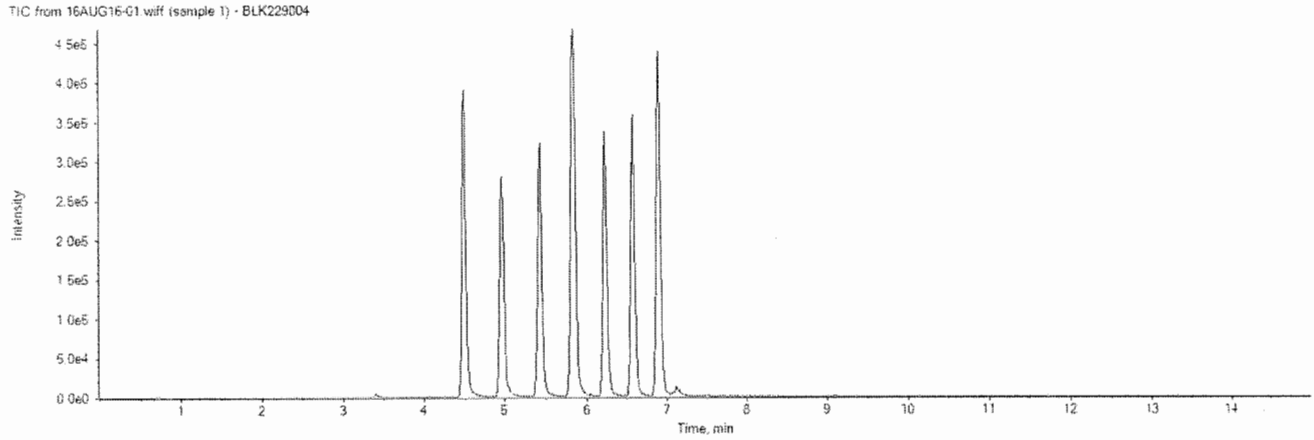
Sample Name:	BLK229004		**Data File:**		16AUG16-01.wiff
Sample ID:	16229004		**Acquis Date:**		8/16/2016 10:09:19 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	16		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

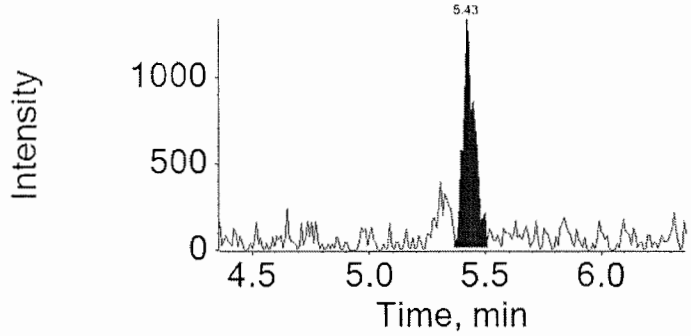
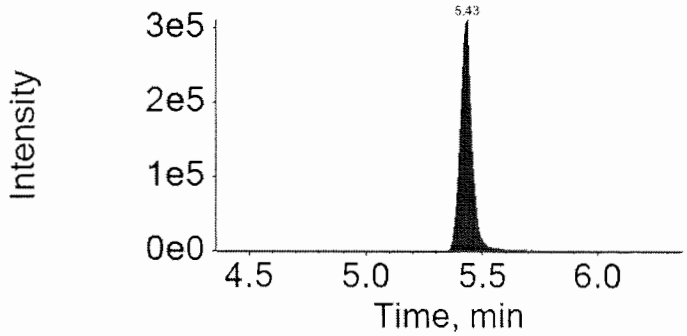
Quantitation Peak Table

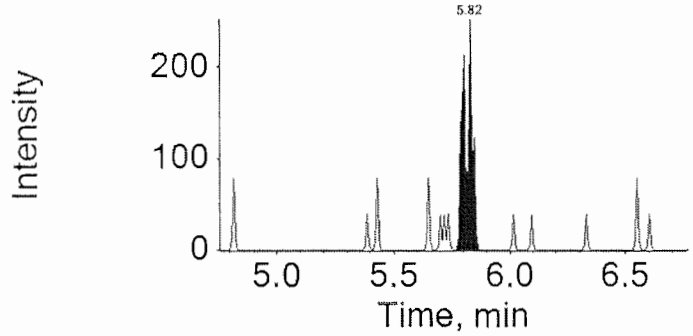
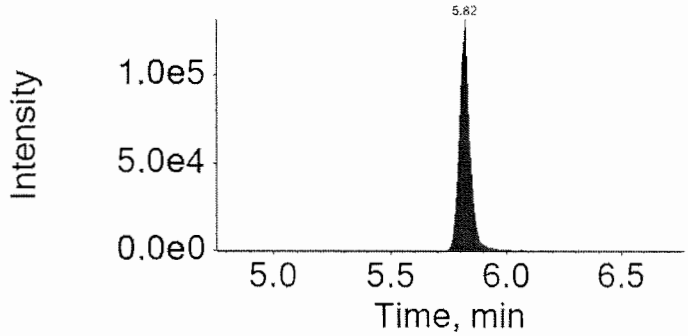
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	4538.2	M	13C4-PFOA	5.43	1148997.3	0.004	0.168	
PFOS	5.82	604.2	A	13C4-PFOS	5.82	422979.2	0.001	0.065	

Total Ion Chromatogram

16229004



16AUG16-01.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-01.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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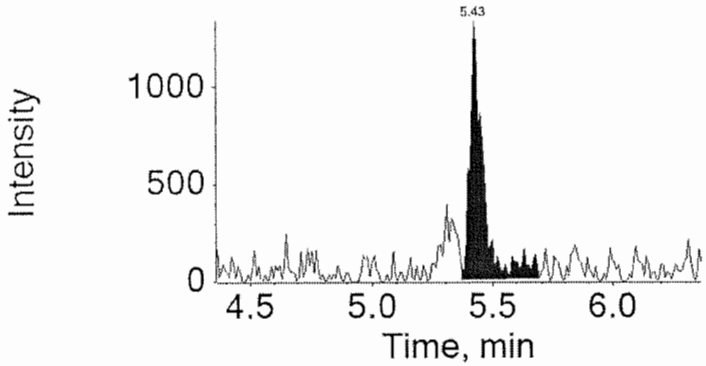
Print Date: 17/08/2016 9:41 AM

Auto Integrations prior to Manual Integration

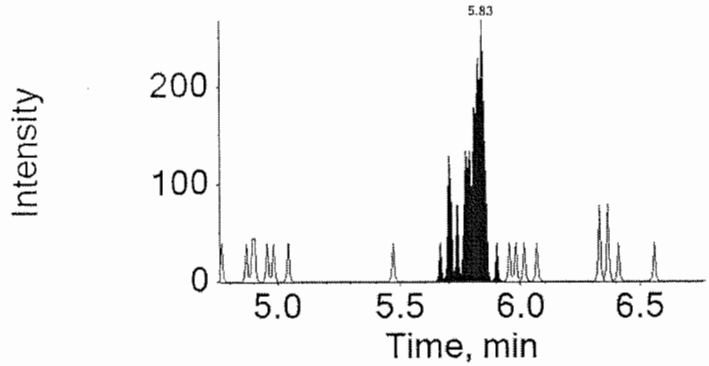
File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG16-01.wiff	8/16/2016 10:09:19 PM	BLK229004	PFOA	5.43	5396.4

Component: PFOA
Mass: 412.9 / 368.9



16AUG16-07.wiff	8/16/2016 11:43:31 PM	8528579	PFOS	5.83	1182.0

Component: PFOS
Mass: 498.9 / 98.9



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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

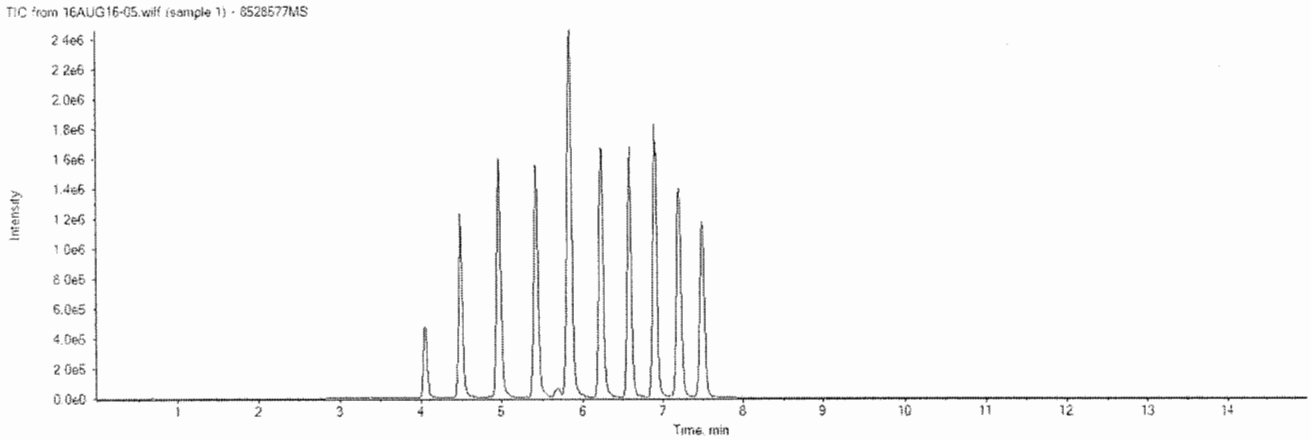
Sample Name:	8528577MS		**Data File:**		16AUG16-05.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16229004 TW106-160 Grab Groundwater		**Acquis Date:**		8/16/2016 11:12:07 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	20		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10026		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

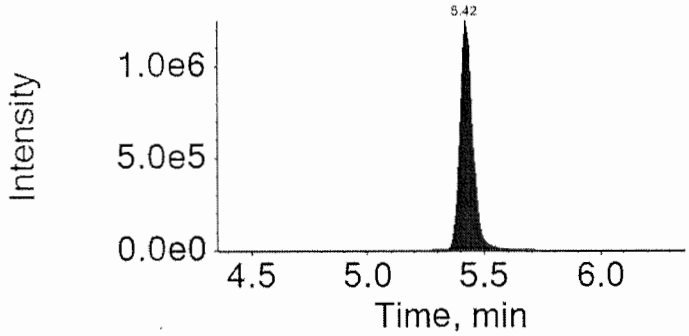
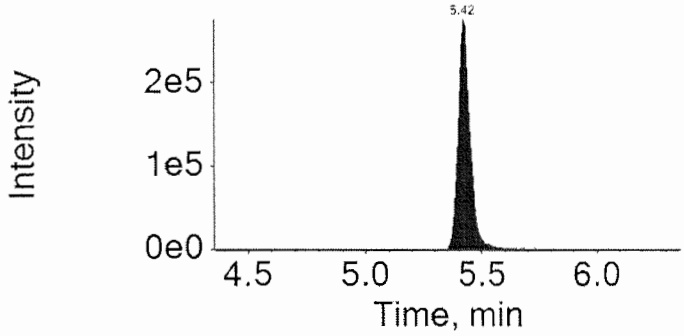
Quantitation Peak Table

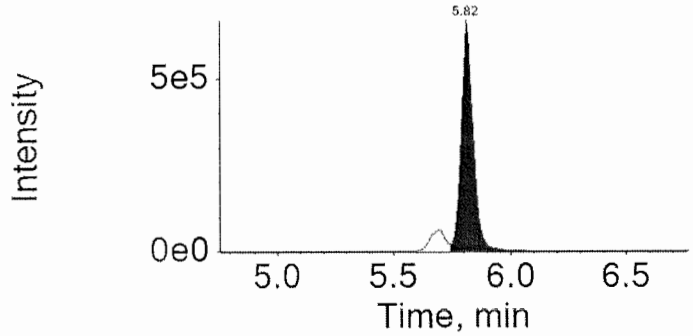
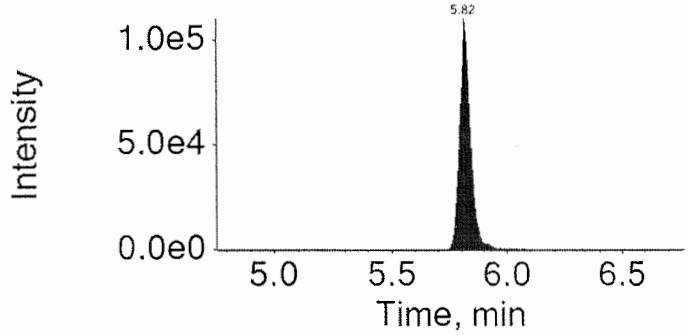
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	4871197.7	A	13C4-PFOA	5.42	1047581.1	4.650	197.376	
PFOS	5.82	2391283.5	A	13C4-PFOS	5.82	374669.5	6.382	288.878	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16229004 TW106-160 Grab Groundwater



16AUG16-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

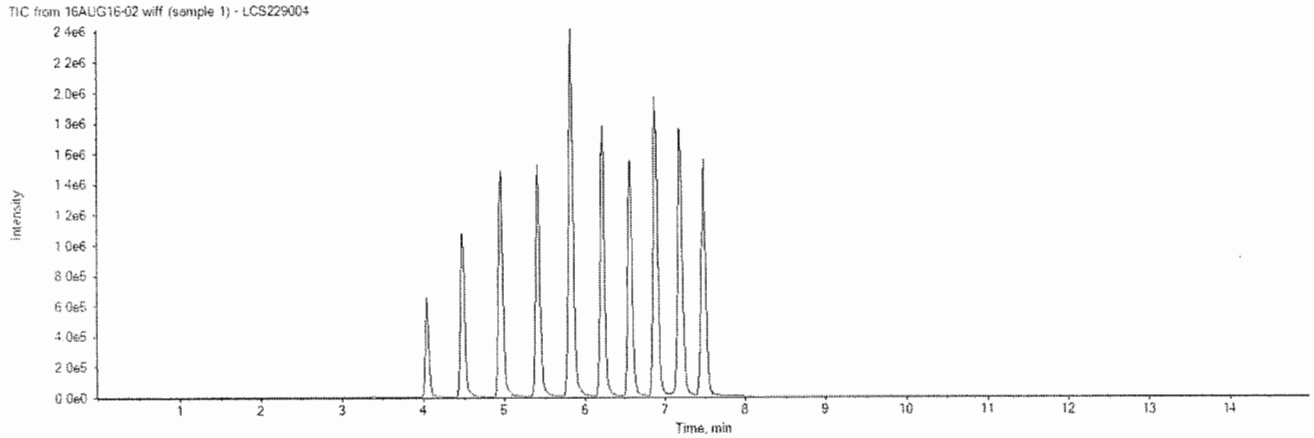
Sample Name:	LCS229004		**Data File:**		16AUG16-02.wiff
Sample ID:	16229004		**Acquis Date:**		8/16/2016 10:25:01 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	17		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

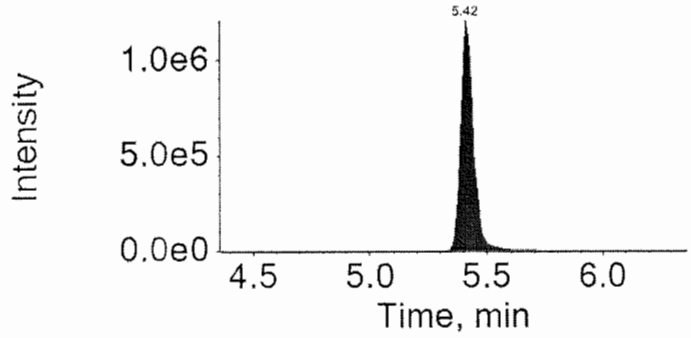
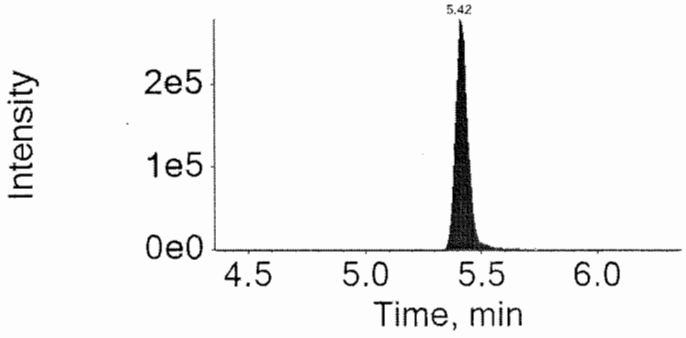
Quantitation Peak Table

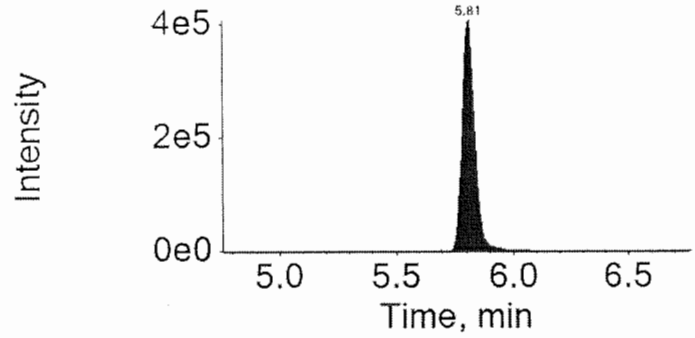
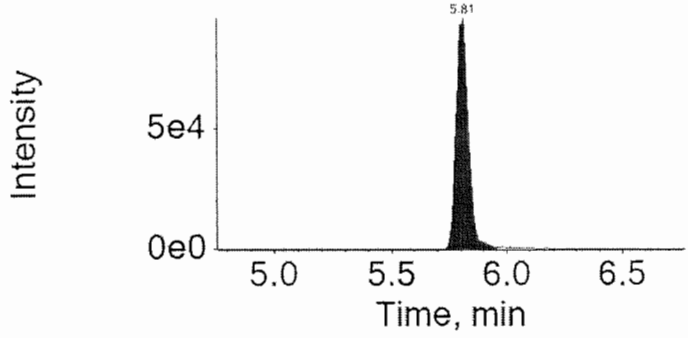
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.42	4619289.7	A	13C4-PFOA	5.42	1069093.3	4.321	183.880	
PFOS	5.81	1551819.1	A	13C4-PFOS	5.81	370952.5	4.183	189.838	

Total Ion Chromatogram

16229004



16AUG16-02.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-02.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

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LC-MS/MS Analysis Report

Printed: 8/17/2016 9:40:00 AM

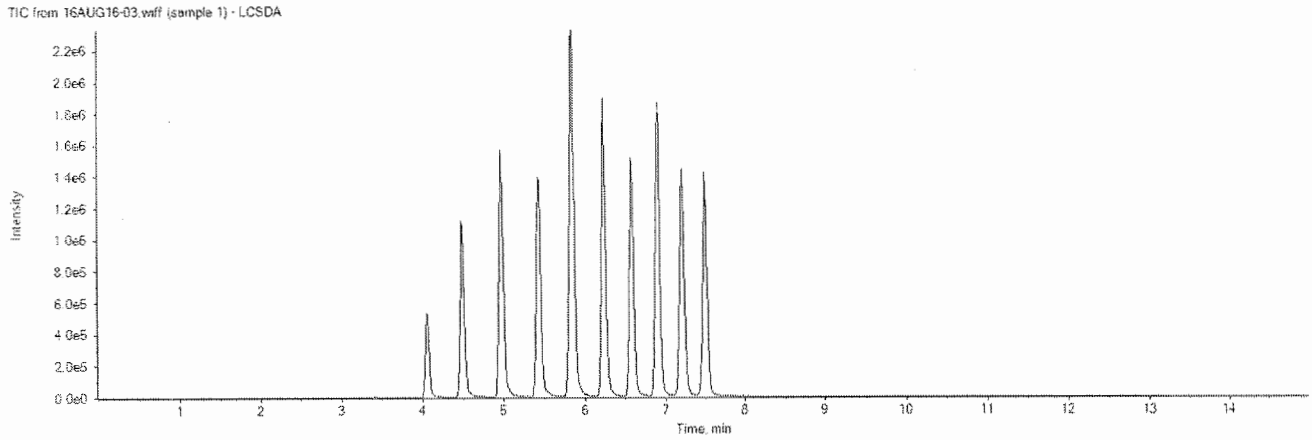
Sample Name:	LCSDA		**Data File:**		16AUG16-03.wiff
Sample ID:	16229004		**Acquis Date:**		8/16/2016 10:40:43 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	18		**Acquis Method:**		PFC-12cmpd-16AUG10.dam
Injection Vol:	10.00		**Result Table:**		MQ 16229004
			ICAL Name:		16AUG16ICAL
Batch Number:	16229004		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

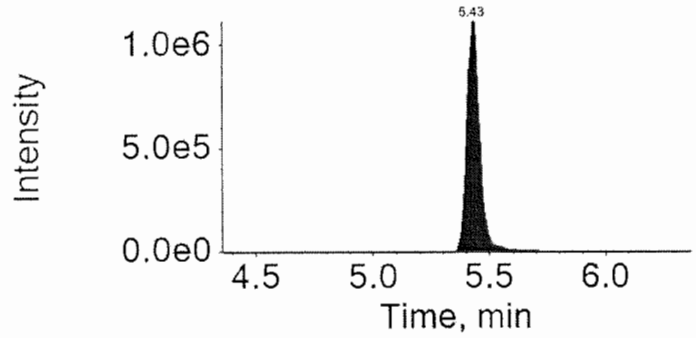
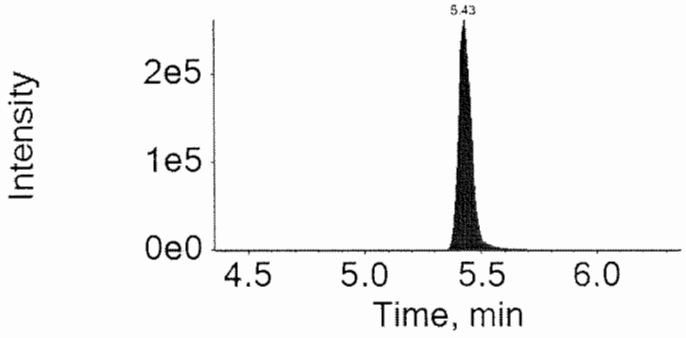
Quantitation Peak Table

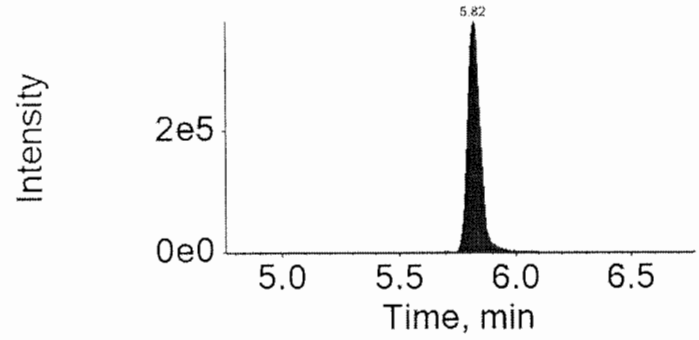
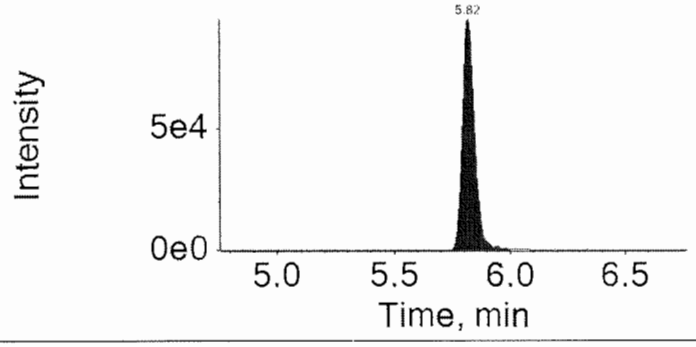
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFOA	5.43	4513347.2	A	13C4-PFOA	5.43	1056520.1	4.272	181.801	
PFOS	5.82	1515244.9	A	13C4-PFOS	5.82	366536.6	4.134	187.597	

Total Ion Chromatogram

16229004



16AUG16-03.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9 	417.0 / 372.0 

16AUG16-03.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9 	503.0 / 99.0 

Preparation Logs

PFAAs by LC/MS/MS

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: ldl1415 Start Date: 8/16/16 Start time: 10:55

16229004

Tech 1: DW 10262 Tech 2: _____

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

Dept: 37 Prep Analysis: 14091 PFAA Water Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
8528577MS	10660MS	100.26	SS1621737A	.025	235002-95	.04			201a	Centrifuged
BLANKA	BLK229004	100.00	↓	.025	N/A	N/A				
LCSA	OPR229004	100.00		.025	235002-95	.04				
LCSDA		100.00		.025	235002-95	.04				

Reagent/Material	Lot No.
96% MeOH:H2O	159749
Methanol	156749
Milli-Q H2O	House 8/16
SPE Cartridge	0409361801C
Sodium Thiosulfate	114350A
Trizma	—

Spike Solutions: Witness: JWK9524 Instrument: ABSciex LM24743

Sequence: 16AUG16PFC - 16AUG16 ICAL + 16229004

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8528577	10660	100.11	SS1621737A	.025			201a	Centrifuged	10954	08/17/2016	S
2 8528578	135P5	100.24	↓	.025			201a	Centrifuged	10954	08/26/2016	N
3 8528579	135P4	99.93		.025			201a	Centrifuged	10954	08/26/2016	N
4 8528580	135P1	100.07		.025			201a	Centrifuged	10954	08/26/2016	N
5 8528581	10680	99.95		.025			201a	Centrifuged	10954	08/17/2016	S
6 8528582	10685	99.82		.025			201a	Centrifuged	10954	08/17/2016	S
7 8528583	10620	100.28		.025			201a	Centrifuged	10954	08/17/2016	S
8 8528584	10622	100.07	↓	.025			201a	Centrifuged	10954	08/17/2016	S

MCOGL Page 15 of 38

Balance #		SPE Manifold	4/5	Vacuum Port		N-evap	C	16229004

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Metals in Liquid Data

Case Narrative/Conformance Summary

Metals in Liquid

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

ICP Metals

Fraction: Metals in Liquid

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8528577	TW106-160	X		1	
8528581	TW106-180	X		1	
8528582	TW106-185	X		1	
8528583	TW106-200	X		1	
8528584	TW106-220	X		1	

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.
See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

ICP Metals

Fraction: Metals in Liquid

MS/MSD

Method defined actions are taken for any failed matrix QC.

Batch#: 162315716004 (Sample number(s): 8528577, 8528581-8528584, UNSPK: P523839, BKG: P523841)
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Calcium, Iron

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Abbreviation Key

BKG – Background	AF - Cold Vapor Atomic Fluorescence
DUP – Duplicate	U - Below MDL
MS - Matrix Spike	B - Below LOQ
MSD - Matrix Spike Dup	N - Matrix Spike out of specifications
B – Blank	* - Duplicate out of specifications
Q - Laboratory Control Sample	E - Matrix Effects exist as proven by Serial Dilution or Spiked Dilution
Y - Laboratory Control Sample Duplicate	A - Post Digestion Spike
P - ICP Atomic Emission Spectrometer	L - Serial Dilution
MS - ICP Mass Spectrometry	R - Internal Standard Relative Intensity OOS
CV - Cold Vapor	NR - Not Required

Sample Data

Metals in Liquid

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8528577 % Solids: 0.0
Concentration Units: UG/L Date Received: 08/16/2016

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1710			P
7440-36-0	Antimony	0.45	B		MS
7440-38-2	Arsenic	12.5			MS
7440-39-3	Barium	149			P
7440-41-7	Beryllium	0.67	U		P
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium	37800			P
7440-47-3	Chromium	12.5	B		P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	22.6			MS
7439-89-6	Iron	7150			P
7439-92-1	Lead	5.3			MS
7439-95-4	Magnesium	8580			P
7439-96-5	Manganese	244			P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	4.3	B		P
7440-09-7	Potassium	3260			P
7782-49-2	Selenium	0.50	U		MS
7440-22-4	Silver	1.9	U		P
7440-23-5	Sodium	8440			P
7440-28-0	Thallium	0.15	U		MS
7440-62-2	Vanadium	11.5			P
7440-66-6	Zinc	79.3			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8528581 % Solids: 0.0
Concentration Units: UG/L Date Received: 08/16/2016

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	461			P
7440-36-0	Antimony	0.43	B		MS
7440-38-2	Arsenic	15.0			MS
7440-39-3	Barium	99.3			P
7440-41-7	Beryllium	0.67	U		P
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium	31600			P
7440-47-3	Chromium	36.4			P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	30.5			MS
7439-89-6	Iron	15200			P
7439-92-1	Lead	0.61	B		MS
7439-95-4	Magnesium	9710			P
7439-96-5	Manganese	237			P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	17.0			P
7440-09-7	Potassium	3300			P
7782-49-2	Selenium	0.50	U		MS
7440-22-4	Silver	1.9	U		P
7440-23-5	Sodium	12200			P
7440-28-0	Thallium	0.15	U		MS
7440-62-2	Vanadium	2.8	B		P
7440-66-6	Zinc	312			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8528582 % Solids: 0.0
Concentration Units: UG/L Date Received: 08/16/2016

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1110			P
7440-36-0	Antimony	1.0			MS
7440-38-2	Arsenic	5.8			MS
7440-39-3	Barium	31.4			P
7440-41-7	Beryllium	0.67	U		P
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium	7690			P
7440-47-3	Chromium	45.6			P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	33.3			MS
7439-89-6	Iron	16800			P
7439-92-1	Lead	1.9			MS
7439-95-4	Magnesium	2300			P
7439-96-5	Manganese	173			P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	20.3			P
7440-09-7	Potassium	1650			P
7782-49-2	Selenium	0.50	U		MS
7440-22-4	Silver	1.9	U		P
7440-23-5	Sodium	94600			P
7440-28-0	Thallium	0.15	U		MS
7440-62-2	Vanadium	5.3			P
7440-66-6	Zinc	317			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8528583 % Solids: 0.0
Concentration Units: UG/L Date Received: 08/16/2016

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1330			P
7440-36-0	Antimony	2.3			MS
7440-38-2	Arsenic	75.1			MS
7440-39-3	Barium	210			P
7440-41-7	Beryllium	0.67	U		P
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium	25200			P
7440-47-3	Chromium	7.1	B		P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	6.5			MS
7439-89-6	Iron	4360			P
7439-92-1	Lead	2.3			MS
7439-95-4	Magnesium	8680			P
7439-96-5	Manganese	164			P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	3990			P
7782-49-2	Selenium	0.50	U		MS
7440-22-4	Silver	1.9	U		P
7440-23-5	Sodium	32200			P
7440-28-0	Thallium	0.15	U		MS
7440-62-2	Vanadium	8.1			P
7440-66-6	Zinc	75.8			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8528584 % Solids: 0.0
Concentration Units: UG/L Date Received: 08/16/2016

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	438			P
7440-36-0	Antimony	0.31	B		MS
7440-38-2	Arsenic	17.5			MS
7440-39-3	Barium	310			P
7440-41-7	Beryllium	0.67	U		P
7440-43-9	Cadmium	0.49	U		P
7440-70-2	Calcium	34000			P
7440-47-3	Chromium	43.8			P
7440-48-4	Cobalt	1.9	U		P
7440-50-8	Copper	25.8			MS
7439-89-6	Iron	20300			P
7439-92-1	Lead	0.88	B		MS
7439-95-4	Magnesium	18100			P
7439-96-5	Manganese	356			P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	16.1			P
7440-09-7	Potassium	5880			P
7782-49-2	Selenium	0.50	U		MS
7440-22-4	Silver	1.9	U		P
7440-23-5	Sodium	70900			P
7440-28-0	Thallium	0.15	U		MS
7440-62-2	Vanadium	2.5	B		P
7440-66-6	Zinc	177			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

Quality Control and Calibration Summary Forms

Metals in Liquid

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QUALITY CONTROL REFERENCE LIST

SDG No.: MOO91
Matrix: WATER

Analyte	Batch Number	Lab Sample ID
Aluminum	162315716004	*23838BKG
Barium		*23838MS
Beryllium		*23838DUP
Cadmium		8528577
Calcium		8528581
Chromium		8528582
Cobalt		8528583
Iron		8528584
Magnesium		P23116DB
Manganese		P23116DQ
Nickel		
Potassium		
Silver		
Sodium		
Vanadium		
Zinc		

LEGEND:

BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY CONTROL REFERENCE LIST

SDG No.: MOO91
Matrix: WATER

Analyte	Batch Number	Lab Sample ID
Antimony	162297050004	*23838BKG
Arsenic		*23838MS
Copper		*23838DUP
Lead		8528577
Selenium		8528581
Thallium		8528582
		8528583
		8528584
		P22950DB
		P22950DQ

LEGEND:

BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY CONTROL REFERENCE LIST

SDG No.: MOO91
Matrix: WATER

Analyte	Batch Number	Lab Sample ID
Mercury	162295714002	*23838BKG
		*23838MS
		*23838DUP
		8528577
		8528581
		8528582
		8528583
		8528584
		P22914BB
		P22914BQ

LEGEND:

BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: P
Run Name: 1623204T72
Calibration Date(s): 08/19/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Aluminum		30000.0	29267.31	97.6	25000.0	24438.06	97.8	25000.0	24496.77	98.0
Barium		600.0	600.26	100.0	500.0	486.78	97.4	500.0	492.93	98.6
Beryllium		600.0	579.79	96.6	500.0	471.75	94.4	500.0	474.69	94.9
Cadmium		600.0	583.96	97.3	500.0	490.54	98.1	500.0	488.39	97.7
Calcium		30000.0	29183.72	97.3	25000.0	24334.41	97.3	25000.0	24380.48	97.5
Chromium		600.0	596.37	99.4	500.0	480.42	96.1	500.0	486.88	97.4
Cobalt		600.0	574.71	95.8	500.0	488.48	97.7	500.0	486.61	97.3
Iron		30000.0	29033.71	96.8	25000.0	24137.62	96.6	25000.0	24177.12	96.7
Magnesium		30000.0	29230.60	97.4	25000.0	24381.84	97.5	25000.0	24471.80	97.9
Manganese		600.0	596.01	99.3	500.0	488.47	97.7	500.0	492.21	98.4
Nickel		600.0	578.48	96.4	500.0	485.38	97.1	500.0	481.03	96.2
Potassium		30000.0	29413.69	98.0	25000.0	24561.82	98.2	25000.0	24682.02	98.7
Silver		600.0	592.64	98.8	500.0	489.68	97.9	500.0	493.39	98.7
Sodium		30000.0	29402.71	98.0	25000.0	24737.00	98.9	25000.0	24816.27	99.3
Vanadium		600.0	604.72	100.8	500.0	492.07	98.4	500.0	497.39	99.5
Zinc		600.0	588.46	98.1	500.0	492.01	98.4	500.0	490.31	98.1

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: P
Run Name: 1623204T72
Calibration Date(s): 08/19/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Aluminum					25000.0	24827.17	99.3			
Barium					500.0	494.85	99.0			
Beryllium					500.0	475.89	95.2			
Cadmium					500.0	489.94	98.0			
Calcium					25000.0	24447.92	97.8			
Chromium					500.0	483.97	96.8			
Cobalt					500.0	489.05	97.8			
Iron					25000.0	24186.61	96.7			
Magnesium					25000.0	24535.92	98.1			
Manganese					500.0	495.54	99.1			
Nickel					500.0	484.45	96.9			
Potassium					25000.0	24809.13	99.2			
Silver					500.0	497.45	99.5			
Sodium					25000.0	25005.38	100.0			
Vanadium					500.0	499.75	100.0			
Zinc					500.0	491.72	98.3			

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: MS
Run Name: 1623102E02
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Antimony	121	50.0	52.39	104.8	25.0	24.64	98.6	25.0	25.21	100.8
Arsenic	75	50.0	48.74	97.5	25.0	23.46	93.8	25.0	24.15	96.6
Copper	63	50.0	50.03	100.1	25.0	24.49	98.0	25.0	24.60	98.4
Lead	208	50.0	48.43	96.9	25.0	24.23	96.9	25.0	24.47	97.9
Selenium	82	50.0	50.22	100.4	25.0	23.66	94.6	25.0	26.32	105.3
Thallium	203	50.0	48.31	96.6	25.0	24.23	96.9	25.0	24.49	98.0

(1) Control Limits: 90 - 110
(2) Control Limits: 85 - 115
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: MS
Run Name: 1623102E02
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Antimony	121				25.0	25.16	100.6			
Arsenic	75				25.0	24.24	97.0			
Copper	63				25.0	24.88	99.5			
Lead	208				25.0	24.75	99.0			
Selenium	82				25.0	25.60	102.4			
Thallium	203				25.0	24.37	97.5			

(1) Control Limits: 90 - 110
(2) Control Limits: 85 - 115
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Mercury		2.5	2.38	95.2	1.0	1.02	102.0	1.0	1.02	102.0

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Mercury					1.0	0.99	99.0	1.0	1.01	101.0

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Mercury					1.0	1.00	100.0	1.0	1.02	102.0

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Mercury					1.0	0.99	99.0	1.0	1.02	102.0

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: MOO91

Method: P
Run Name: 1623204T72
Calibration Date(s): 08/19/2016
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Aluminum		200.0	194.92	97.5	208.21	104.1
Barium		5.0	4.90	98.0	4.96	99.2
Beryllium		5.0	4.98	99.6	5.00	100.0
Cadmium		5.0	5.05	101.0	4.98	99.6
Calcium		200.0	189.11	94.6	195.10	97.6
Chromium		15.0	14.56	97.1	14.28	95.2
Cobalt		5.0	4.86	97.2	4.55	91.0
Iron		200.0	198.93	99.5	201.60	100.8
Magnesium		100.0	96.10	96.1	96.81	96.8
Manganese		5.0	5.11	102.2	5.23	104.6
Nickel		10.0	9.99	99.9	9.58	95.8
Potassium		500.0	527.07	105.4	540.15	108.0
Silver		5.0	5.49	109.8	5.28	105.6
Sodium		1000.0	1230.40	123.0	1195.82	119.6
Vanadium		5.0	5.33	106.6	5.53	110.6
Zinc		20.0	19.93	99.7	20.04	100.2

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: MOO91

Method: MS
Run Name: 1623102E02
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Antimony	121	1.0	1.11	111.0	1.06	106.0
Arsenic	75	2.0	2.08	104.0	1.84	92.0
Copper	63	2.0	2.24	112.0	2.23	111.5
Lead	208	1.0	1.05	105.0	1.03	103.0
Selenium	82	2.0	1.40	70.0	2.00	100.0
Thallium	203	0.5	0.65	130.0	0.57	114.0

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.22	110.0	0.22	110.0

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: MOO91

Method: P
Run Name: 1623204T72
Calibration Date(s): 08/19/2016
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Aluminum		33.4	U	33.4	U	33.4	U	33.4	U		86.800	U	162315716004
Barium		0.33	U	0.33	U	0.33	U	0.33	U		1.100	U	162315716004
Beryllium		0.67	U	0.67	U	0.67	U	0.67	U		0.670	U	162315716004
Cadmium		0.33	U	0.33	U	0.33	U	0.33	U		0.490	U	162315716004
Calcium		33.4	U	33.4	U	33.4	U	33.4	U		38.200	U	162315716004
Chromium		0.90	U	0.90	U	0.90	U	0.90	U		1.800	U	162315716004
Cobalt		0.58	U	0.58	U	0.58	U	0.58	U		1.900	U	162315716004
Iron		33.4	U	33.4	U	33.4	U	33.4	U		74.700	U	162315716004
Magnesium		16.7	U	16.7	U	16.7	U	16.7	U		19.000	U	162315716004
Manganese		0.83	U	0.83	U	0.83	U	0.83	U		1.800	U	162315716004
Nickel		1.1	U	1.1	U	1.1	U	1.1	U		2.800	U	162315716004
Potassium		83.4	U	83.4	U	83.4	U	95.8	B		160.000	U	162315716004
Silver		0.83	U	0.83	U	0.83	U	0.83	U		1.900	U	162315716004
Sodium		230	B	193	B	167	U	167	U		198.800	B	162315716004
Vanadium		0.97	U	0.97	U	0.97	U	0.97	U		1.600	U	162315716004
Zinc		2.0	U	2.0	U	2.0	U	2.0	U		5.400	U	162315716004

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: MOO91

Method: MS
Run Name: 1623102E02
Calibration Date(s): 08/18/2016
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Antimony	121	0.077	U	0.11	B	0.19	B	0.14	B	121	0.300	U	162297050004A
Arsenic	75	0.61	U	0.61	U	0.61	U	0.61	U	75	0.400	U	162297050004A
Copper	63	0.093	U	0.093	U	0.093	U	0.093	U	63	0.140	U	162297050004A
Lead	208	0.047	U	0.047	U	0.047	U	0.047	U	208	0.054	U	162297050004A
Selenium	82	0.99	U	0.99	U	0.99	U	0.99	U	82	0.500	U	162297050004A
Thallium	203	0.028	U	0.028	U	0.067	B	0.057	B	203	0.150	U	162297050004A

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Mercury		0.050	U	0.050	U	0.050	U	0.050	U		0.050	U	162295714002

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Mercury				0.050	U	0.050	U	0.050	U				

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: MOO91

Method: CV
Run Name: 1623101M07
Calibration Date(s): 08/18/2016

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Mercury				0.050	U	0.050	U						

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: MOO91

Instrument ID: 16417
Run Name: 1623204T72
Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	%R	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Aluminum	500000	500000	508246	101.6	508785.8	101.8	516309	103.3	517801.1	103.6
Barium	0	500	4		499.1	99.8	4		499.3	99.9
Beryllium	0	500	0		480.6	96.1	0		479.5	95.9
Cadmium	0	1000	-2		884.6	88.5	-3		889.0	88.9
Calcium	500000	500000	501322	100.3	505307.1	101.1	506414	101.3	508512.9	101.7
Chromium	0	500	0		475.5	95.1	-1		475.4	95.1
Cobalt	0	500	1		445.1	89.0	2		446.9	89.4
Iron	200000	200000	202472	101.2	202133.4	101.1	204223	102.1	205199.7	102.6
Magnesium	500000	500000	499349	99.9	502697.0	100.5	503903	100.8	505027.5	101.0
Manganese	0	500	2		476.7	95.3	1		476.0	95.2
Nickel	0	1000	1		867.4	86.7	0		871.9	87.2
Potassium	0	0	126		65.7		106		58.8	
Silver	0	200	-4		208.8	104.4	-6		208.2	104.1
Sodium	0	0	468		504.6		422		437.8	
Vanadium	0	500	-1		500.5	100.1	-1		500.0	100.0
Zinc	0	1000	11		960.4	96.0	11		964.4	96.4

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: MOO91

Instrument ID: 10007
Run Name: 1623102E02
Concentration Units: ug/L

Analyte	Mass	True Sol. A	True Sol. AB	Found Sol. A	%R	Found Sol. AB	%R
Aluminum	27	10000	10000	9148	91.5	9414.5	94.1
Antimony	121	0	0	0		0.0	
Arsenic	75	0	20	0		18.9	94.5
Calcium	43	10000	10000	9785	97.9	10120.3	101.2
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Copper	63	0	20	0		21.3	106.5
Iron	54	10000	10000	9648	96.5	10112.3	101.1
Lead	208	0	0	0		0.0	
Magnesium	24	10000	10000	9418	94.2	9559.8	95.6
Molybdenum	98	200	200	208	104.0	214.1	107.1
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	9698	97.0	10131.7	101.3
Selenium	82	0	0	-1		-0.6	
Sodium	23	10000	10000	9366	93.7	9567.5	95.7
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.0	
Titanium	47	200	200	210	105.0	211.3	105.7

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: MOO91

Instrument ID: 10007
Run Name: 1623102E02
Concentration Units: ug/L

Analyte	Mass	True Sol. A	True Sol. AB	Found Sol. A	%R	Found Sol. AB	%R
Aluminum	27	10000	10000	9143	91.4	9711.1	97.1
Antimony	121	0	0	0		-0.1	
Arsenic	75	0	20	0		19.0	95.0
Calcium	43	10000	10000	9828	98.3	10199.1	102.0
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Copper	63	0	20	0		20.7	103.5
Iron	54	10000	10000	9782	97.8	10068.0	100.7
Lead	208	0	0	0		0.0	
Magnesium	24	10000	10000	9561	95.6	9905.2	99.1
Molybdenum	98	200	200	204	102.0	202.9	101.5
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	9883	98.8	10350.5	103.5
Selenium	82	0	0	-1		-0.9	
Sodium	23	10000	10000	9577	95.8	9768.7	97.7
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.0	
Titanium	47	200	200	210	105.0	208.7	104.4

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A
SPIKE SAMPLE RECOVERY
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *23838BKG Matrix Spike Sample ID: *23838MS
Batch Number(s): 162315716004, 162297050004, 162295714002

Analyte	Mass	Control Limit %R	Spiked Sample Result (SSR)	C	Background Sample Result (SR)	C	Spike Added (SA)	Units	%R	Q	M
Aluminum		70 - 130	2335.8900		175.4600	B	2000.0000	UG/L	108		P
Antimony	121	70 - 130	6.7587		0.4349	B	6.0000	UG/L	105		MS
Arsenic	75	70 - 130	16.6507		6.6076		10.0000	UG/L	100		MS
Barium		70 - 130	2214.2800		197.7400		2000.0000	UG/L	101		P
Beryllium		70 - 130	49.4400		0.6700	U	50.0000	UG/L	99		P
Cadmium		70 - 130	50.3400		0.4900	U	50.0000	UG/L	101		P
Calcium			63973.7700		57485.1900		4000.0000	UG/L	162		P
Chromium		70 - 130	217.8600		14.3200	B	200.0000	UG/L	102		P
Cobalt		70 - 130	498.2700		1.9000	U	500.0000	UG/L	100		P
Copper	63	70 - 130	73.0245		22.7304		50.0000	UG/L	101		MS
Iron			7100.7700		5426.2600		1000.0000	UG/L	167		P
Lead	208	70 - 130	15.9013		1.0362		15.0000	UG/L	99		MS
Magnesium			14060.6100		11614.6300		2000.0000	UG/L	122		P
Manganese		70 - 130	863.7600		335.7000		500.0000	UG/L	106		P
Mercury		80 - 120	0.8561		0.0500	U	1.0000	UG/L	86		CV
Nickel		70 - 130	504.4700		6.5100	B	500.0000	UG/L	100		P
Potassium		70 - 130	14660.6600		4482.5000		10000.0000	UG/L	102		P
Selenium	82	70 - 130	9.9861		0.5000	U	10.0000	UG/L	100		MS
Silver		70 - 130	51.9400		1.9000	U	50.0000	UG/L	104		P
Sodium		70 - 130	27244.4400		16476.8900		10000.0000	UG/L	108		P
Thallium	203	70 - 130	1.9837		0.1500	U	2.0000	UG/L	99		MS
Vanadium		70 - 130	525.0200		2.3400	B	500.0000	UG/L	105		P
Zinc		70 - 130	579.0000		70.3000		500.0000	UG/L	102		P

Note: An (N) in column "Q" indicates a spike recovery that is not within the control limits. The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample page.

Comments:

Note: Results shown are reported on an as-received basis.

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	FLAGS:
AF = Cold Vapor Atomic Fluorescence	N = Matrix Spike Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *23838BKG Duplicate Lab Sample ID: *23838DUP
Batch Number(s): 162315716004, 162297050004, 162295714002
Concentration Units: UG/L

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			175.4600	B	181.7600	B	4		P
Antimony	121		0.4349	B	0.4972	B	13		MS
Arsenic	75	2.0	6.6076		7.2218		9		MS
Barium			197.7400		196.0500		1		P
Beryllium			0.6700	U	0.6700	U			P
Cadmium			0.4900	U	0.4900	U			P
Calcium			57485.1900		56464.9100		2		P
Chromium		15.0	14.3200	B	15.1500		6		P
Cobalt			1.9000	U	1.9000	U			P
Copper	63		22.7304		27.3227		18		MS
Iron			5426.2600		5583.3000		3		P
Lead	208	1.0	1.0362		1.1411		10		MS
Magnesium			11614.6300		11425.2200		2		P
Manganese			335.7000		334.5100		0		P
Mercury			0.0500	U	0.0500	U			CV
Nickel			6.5100	B	7.1700	B	10		P
Potassium			4482.5000		4454.3600		1		P
Selenium	82		0.5000	U	-0.6416	B	-200		MS
Silver			1.9000	U	1.9000	U			P
Sodium			16476.8900		16272.4900		1		P
Thallium	203		0.1500	U	0.1500	U			MS
Vanadium			2.3400	B	2.0600	B	13		P
Zinc		20.0	70.3000		74.9400		6		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: MOO91
Matrix: WATER

Analyte	Mass	Batch Number	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Aluminum		162315716004	UG/L	2000.000	2012.510		85 - 115	101	P	Yes
Antimony	121	162297050004	UG/L	6.000	6.423		85 - 115	107	MS	Yes
Arsenic	75	162297050004	UG/L	10.000	9.852		85 - 115	99	MS	Yes
Barium		162315716004	UG/L	2000.000	2004.730		85 - 115	100	P	Yes
Beryllium		162315716004	UG/L	4.000	4.240		85 - 115	106	P	Yes
Cadmium		162315716004	UG/L	5.000	5.130		85 - 115	103	P	Yes
Calcium		162315716004	UG/L	4000.000	3932.170		85 - 115	98	P	Yes
Chromium		162315716004	UG/L	100.000	97.980		85 - 115	98	P	Yes
Cobalt		162315716004	UG/L	500.000	502.730		85 - 115	101	P	Yes
Copper	63	162297050004	UG/L	50.000	50.898		85 - 115	102	MS	Yes
Iron		162315716004	UG/L	1000.000	970.230		85 - 115	97	P	Yes
Lead	208	162297050004	UG/L	15.000	14.659		85 - 115	98	MS	Yes
Magnesium		162315716004	UG/L	2000.000	1982.230		85 - 115	99	P	Yes
Manganese		162315716004	UG/L	500.000	507.250		85 - 115	101	P	Yes
Mercury		162295714002	UG/L	1.000	0.923		85 - 115	92	CV	Yes
Nickel		162315716004	UG/L	100.000	100.590		85 - 115	101	P	Yes
Potassium		162315716004	UG/L	4000.000	4031.530		85 - 115	101	P	Yes
Selenium	82	162297050004	UG/L	10.000	10.603		85 - 115	106	MS	Yes
Silver		162315716004	UG/L	100.000	101.520		85 - 115	102	P	Yes
Sodium		162315716004	UG/L	4000.000	4215.830		85 - 115	105	P	Yes
Thallium	203	162297050004	UG/L	2.000	1.974		85 - 115	99	MS	Yes
Vanadium		162315716004	UG/L	500.000	505.530		85 - 115	101	P	Yes
Zinc		162315716004	UG/L	500.000	500.600		85 - 115	100	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: MOO91
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *23838BKG Serial Dilution Lab Sample ID: *23838L
Batch Number(s): 162315716004, 162297050004
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Aluminum		175.4600	B	434.0000	U	100		P
Antimony	121	0.4349	B	1.5000	U	100		MS
Arsenic	75	6.6076		7.0289	B	6		MS
Barium		197.7400		190.6500		4		P
Beryllium		0.6700	U	3.3500	U			P
Cadmium		0.4900	U	2.4500	U			P
Calcium		57485.1900		55660.5000		3		P
Chromium		14.3200	B	10.2500	B	28		P
Cobalt		1.9000	U	9.5000	U			P
Copper	63	22.7304		23.3100		3		MS
Iron		5426.2600		5243.8500		3		P
Lead	208	1.0362		0.9897	B	4		MS
Magnesium		11614.6300		11271.2500		3		P
Manganese		335.7000		329.1500		2		P
Nickel		6.5100	B	14.0000	U	100		P
Potassium		4482.5000		4414.1000		2		P
Selenium	82	0.5000	U	2.5000	U			MS
Silver		1.9000	U	9.5000	U			P
Sodium		16476.8900		16647.6500		1		P
Thallium	203	0.1500	U	0.7500	U			MS
Vanadium		2.3400	B	8.0000	U	100		P
Zinc		70.3000		67.9000	B	3		P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: MOO91

Method: P
Instrument ID: 16417
Date: 07/2016

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Aluminum	308.21		33.4
Barium	455.40		0.33
Beryllium	313.04		0.67
Cadmium	226.50		0.33
Calcium	317.93		33.4
Chromium	267.72		0.90
Cobalt	228.62		0.58
Iron	261.19		33.4
Magnesium	285.21		16.7
Manganese	257.61		0.83
Nickel	231.60		1.1
Potassium	766.49		83.4
Silver	328.06		0.83
Sodium	589.59		167
Vanadium	292.40		0.97
Zinc	213.86		2.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: MOO91

Method: MS
Instrument ID: 10007
Date: 07/2016

Analyte	MASS (amu)	Background	IDL (UG/L)
Antimony	121		0.077
Arsenic	75		0.61
Copper	63		0.093
Lead	208		0.047
Selenium	82		0.99
Thallium	203		0.028

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: MOO91

Method: CV
Instrument ID: 17384
Date: 07/2016

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury	254.00		0.050

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: MOO91
Matrix: WATER

Method: P
Date: 06/2016

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Aluminum	308.21		200	86.8
Barium	455.40		5.0	1.1
Beryllium	313.04		4.0	0.67
Cadmium	226.50		5.0	0.49
Calcium	317.93		200	38.2
Chromium	267.72		15.0	1.8
Cobalt	228.62		5.0	1.9
Iron	261.19		200	74.7
Magnesium	285.21		100	19.0
Manganese	257.61		5.0	1.8
Nickel	231.60		10.0	2.8
Potassium	766.49		500	160
Silver	328.06		5.0	1.9
Sodium	589.59		1000	173
Vanadium	292.40		5.0	1.6
Zinc	213.86		20.0	5.4

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: MOO91
Matrix: WATER

Method: MS
Date: 05/2016

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Antimony				
Arsenic				
Copper				
Lead	208		1.0	0.054
Selenium				
Thallium				

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: MOO91
Matrix: WATER

Method: MS
Date: 08/2015

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Antimony	121		1.0	0.30
Arsenic	75		2.0	0.40
Copper	63		2.0	0.14
Lead				
Selenium	82		2.0	0.50
Thallium	203		0.50	0.15

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: MOO91
Matrix: WATER

Method: CV
Date: 07/2015

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury	254.00		0.20	0.050

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: MOO91

Instrument ID: 16417
Date: 08/2016

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CU
Aluminum	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	455.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000830	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	261.19	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	-0.0000500	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	-0.0001210	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000130	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0000000	0.0000690	0.0000000	0.0013190

Comments:

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: MOO91

Instrument ID: 16417
Date: 08/2016

Analyte	Wavelength (nm)	Interelement Correction Factor for: MO	NI	TI	V	ZR
Aluminum	308.21	0.0212030	0.0000000	0.0000000	0.0000000	0.0000000
Barium	455.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0004090
Beryllium	313.04	0.0000000	0.0000000	0.0000000	-0.0044300	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0023940	0.0000000	0.0000000
Iron	261.19	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0067270
Vanadium	292.40	-0.0138110	0.0000000	0.0006220	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0056200	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: MOO91

Method: P
Instrument ID: 16417
Date: 07/2016

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Aluminum	308.21	10.00	600000.0
Barium	455.4	10.00	10000.0
Beryllium	313.04	10.00	5000.0
Cadmium	226.5	10.00	20000.0
Calcium	317.93	10.00	600000.0
Chromium	267.72	10.00	20000.0
Cobalt	228.62	10.00	10000.0
Iron	261.19	10.00	300000.0
Magnesium	285.21	10.00	600000.0
Manganese	257.61	10.00	10000.0
Nickel	231.6	10.00	10000.0
Potassium	766.49	10.00	500000.0
Silver	328.06	10.00	20000.0
Sodium	589.59	10.00	500000.0
Vanadium	292.4	10.00	20000.0
Zinc	213.86	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: MOO91

Method: P
Batch Number: 162315716004

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
8528577	08/18/2016	50.00	50
8528581	08/18/2016	50.00	50
8528582	08/18/2016	50.00	50
8528583	08/18/2016	50.00	50
8528584	08/18/2016	50.00	50
*23838BKG	08/18/2016	50.00	50
*23838DUP	08/18/2016	50.00	50
*23838MS	08/18/2016	50.00	50
P23116DB	08/18/2016	50.00	50
P23116DQ	08/18/2016	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: MOO91

Method: MS
Batch Number: 162297050004

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
8528577	08/17/2016	50.00	50
8528581	08/17/2016	50.00	50
8528582	08/17/2016	50.00	50
8528583	08/17/2016	50.00	50
8528584	08/17/2016	50.00	50
*23838BKG	08/17/2016	50.00	50
*23838DUP	08/17/2016	50.00	50
*23838MS	08/17/2016	50.00	50
P22950DB	08/17/2016	50.00	50
P22950DQ	08/17/2016	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: MOO91

Method: CV
Batch Number: 162295714002

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
8528577	08/17/2016	40.00	40
8528581	08/17/2016	40.00	40
8528582	08/17/2016	40.00	40
8528583	08/17/2016	40.00	40
8528584	08/17/2016	40.00	40
*23838BKG	08/17/2016	40.00	40
*23838DUP	08/17/2016	40.00	40
*23838MS	08/17/2016	40.00	40
P22914BB	08/17/2016	40.00	40
P22914BQ	08/17/2016	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: MOO91

Method: P
Instrument ID: 16417
Run Name: 1623204T72

Run Start Date: 08/19/2016
Run End Date: 08/19/2016

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
S0	1.00	13:12	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
S	1.00	13:15	X						X				X		X				X			X										
S	1.00	13:18				X	X	X			X					X		X			X				X							
S	1.00	13:21								X														X								
ICV	1.00	13:24	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICV	1.00	13:28	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICB	1.00	13:31	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
LLC	1.00	13:34	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICSA	1.00	13:37	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICSAB	1.00	13:40	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
CCV	1.00	13:44	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
CCB	1.00	13:47	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
P23116DB	1.00	13:50	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
P23116DQ	1.00	13:53	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
*23838BKG	1.00	13:56	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
*23838A	1.00	13:59																														
*23838DUP	1.00	14:02	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
*23838MS	1.00	14:06	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
*23838L	5.00	14:09	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ZZZZZZ	1.00	14:12																														
ZZZZZZ	1.00	14:15																														
ZZZZZZ	1.00	14:18																														
CCV	1.00	14:21	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
CCB	1.00	14:24	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ZZZZZZ	1.00	14:27																														
8528577	1.00	14:30	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
8528581	1.00	14:33	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
8528582	1.00	14:37	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
8528583	1.00	14:40	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
8528584	1.00	14:43	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
LLC	1.00	14:46	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICSA	1.00	14:49	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
ICSAB	1.00	14:52	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
CCV	1.00	14:55	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							
CCB	1.00	14:59	X			X	X	X	X	X	X		X		X	X		X	X		X	X		X	X							

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: MOO91

Method: MS
Instrument ID: 10007
Run Name: 1623102E02

Run Start Date: 08/18/2016
Run End Date: 08/18/2016

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
S0	1.00	06:59		X	X							X		X						X			X									
S	1.00	07:03		X	X							X		X						X			X									
CCS	1.00	07:07		X	X							X		X						X			X									
CCS	1.00	07:10		X	X							X		X						X			X									
ICV	1.00	07:14		X	X							X		X						X			X									
ICB	1.00	07:18		X	X							X		X						X			X									
LLC	1.00	07:22		X	X							X		X						X			X									
ICSA	1.00	07:25		X	X							X		X						X			X									
ICSAB	1.00	07:29		X	X							X		X						X			X									
CCV	1.00	07:33		X	X							X		X						X			X									
CCB	1.00	07:37		X	X							X		X						X			X									
P22950DB	1.00	07:41		X	X							X		X						X			X									
P22950DQ	1.00	07:44		X	X							X		X						X			X									
*23838BKG	1.00	07:48		X	X							X		X						X			X									
*23838A	1.00	07:52																														
*23838DUP	1.00	07:56		X	X							X		X						X			X									
*23838MS	1.00	07:59		X	X							X		X						X			X									
*23838L	5.00	08:03		X	X							X		X						X			X									
ZZZZZZ	1.00	08:07																														
ZZZZZZ	1.00	08:11																														
ZZZZZZ	1.00	08:15																														
CCV	1.00	08:18		X	X							X		X						X			X									
CCB	1.00	08:22		X	X							X		X						X			X									
ZZZZZZ	1.00	08:26																														
8528577	1.00	08:30		X	X							X		X						X			X									
8528581	1.00	08:33		X	X							X		X						X			X									
8528582	1.00	08:37		X	X							X		X						X			X									
8528583	1.00	08:41		X	X							X		X						X			X									
8528584	1.00	08:45		X	X							X		X						X			X									
LLC	1.00	08:49		X	X							X		X						X			X									
ICSA	1.00	08:52		X	X							X		X						X			X									
ICSAB	1.00	08:56		X	X							X		X						X			X									
CCV	1.00	09:00		X	X							X		X						X			X									
CCB	1.00	09:04		X	X							X		X						X			X									

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: MOO91

Method: CV
Instrument ID: 17384
Run Name: 1623101M07

Run Start Date: 08/18/2016
Run End Date: 08/18/2016

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN						
S0	1.00	06:31															X														
S0.2	1.00	06:33															X														
S0.5	1.00	06:35															X														
S1.0	1.00	06:37															X														
S2.5	1.00	06:39															X														
S5.0	1.00	06:41															X														
ICV	1.00	06:43															X														
ICB	1.00	06:46															X														
CRA	1.00	06:48															X														
CCV	1.00	06:50															X														
CCB	1.00	06:52															X														
P22914BB	1.00	06:54															X														
P22914BQ	1.00	06:56															X														
*23838BKG	1.00	06:58															X														
*23838DUP	1.00	07:00															X														
*23838MS	1.00	07:02															X														
ZZZZZZ	1.00	07:04																													
ZZZZZZ	1.00	07:06																													
ZZZZZZ	1.00	07:08																													
ZZZZZZ	1.00	07:10																													
8528577	1.00	07:12															X														
CCV	1.00	07:14															X														
CCB	1.00	07:16															X														
8528581	1.00	07:18															X														
8528582	1.00	07:20															X														
8528583	1.00	07:22															X														
8528584	1.00	07:24															X														
ZZZZZZ	1.00	07:27																													
ZZZZZZ	1.00	07:29																													
ZZZZZZ	1.00	07:31																													
ZZZZZZ	1.00	07:33																													
ZZZZZZ	1.00	07:35																													
ZZZZZZ	1.00	07:37																													
CCV	1.00	07:39															X														
CCB	1.00	07:41															X														
ZZZZZZ	1.00	07:43																													
ZZZZZZ	1.00	07:45																													
ZZZZZZ	1.00	07:47																													

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: MOO91

Method: CV
Instrument ID: 17384
Run Name: 1623101M07

Run Start Date: 08/18/2016
Run End Date: 08/18/2016

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
ZZZZZZ	1.00	07:49																														
ZZZZZZ	1.00	07:51																														
ZZZZZZ	1.00	07:53																														
ZZZZZZ	1.00	07:55																														
ZZZZZZ	1.00	07:57																														
ZZZZZZ	1.00	07:59																														
ZZZZZZ	1.00	08:01																														
CCV	1.00	08:03															X															
CCB	1.00	08:05															X															
ZZZZZZ	1.00	08:07																														
ZZZZZZ	1.00	08:09																														
ZZZZZZ	1.00	08:11																														
ZZZZZZ	1.00	08:13																														
ZZZZZZ	1.00	08:15																														
ZZZZZZ	1.00	08:18																														
ZZZZZZ	1.00	08:20																														
ZZZZZZ	1.00	08:22																														
ZZZZZZ	1.00	08:24																														
ZZZZZZ	1.00	08:26																														
CCV	1.00	08:28															X															
CCB	1.00	08:30															X															
ZZZZZZ	1.00	08:32																														
ZZZZZZ	1.00	08:34																														
ZZZZZZ	1.00	08:36																														
ZZZZZZ	1.00	08:38																														
ZZZZZZ	1.00	08:40																														
ZZZZZZ	1.00	08:42																														
ZZZZZZ	1.00	08:44																														
ZZZZZZ	1.00	08:46																														
ZZZZZZ	1.00	08:48																														
ZZZZZZ	1.00	08:50																														
CCV	1.00	08:52															X															
CCB	1.00	08:54															X															
ZZZZZZ	1.00	08:56																														
ZZZZZZ	1.00	08:58																														
ZZZZZZ	1.00	09:00																														
ZZZZZZ	1.00	09:03																														
ZZZZZZ	1.00	09:05																														

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: MOO91

Method: CV
Instrument ID: 17384
Run Name: 1623101M07

Run Start Date: 08/18/2016
Run End Date: 08/18/2016

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
ZZZZZZ	1.00	09:07																														
ZZZZZZ	1.00	09:09																														
ZZZZZZ	1.00	09:11																														
ZZZZZZ	1.00	09:13																														
ZZZZZZ	1.00	09:15																														
CCV	1.00	09:17															X															
CCB	1.00	09:19															X															
CRA	1.00	09:21															X															
CCV	1.00	09:23															X															
CCB	1.00	09:25															X															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 15
ICP-MS TUNE
SDG No.: MOO91
Matrix: WATER

Instrument ID: 10007
Date: 08/17/2016

Analyte	Mass	Avg. Measured Mass (amu)	Avg. Peak Width at 5% Peak Height (amu)	%RSD
Lithium	6.015	6.03	0.56	1.4
Magnesium	23.985	23.98	0.54	1.1
Rhodium	102.905	102.93	0.60	1.5
Indium	114.904	114.93	0.60	1.0
Cerium	139.905	139.88	0.61	0.7
Lead	207.977	207.98	0.62	1.0
Uranium	238.050	238.03	0.61	0.8

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: MOO91

Instrument ID: 10007
Run Name: 1623102E02

Start Date: 08/18/2016
End Date: 08/18/2016

Standard	Elements Applies to	Standard	Elements Applies to
BI-209	PB,TL	GE-72	AS,SE
IN-115	CU,SB		

Lab Sample ID	Time	Internal Standards %RI For:													
		Element GE-72	Q	Element IN-115	Q	Element BI-209	Q	Element	Q	Element	Q	Element	Q	Element	Q
S0	06:59	100		100		100									
S	07:03	101		100		99									
CCS	07:07	100		105		101									
CCS	07:10	99		103		101									
ICV	07:14	104		105		100									
ICB	07:18	101		101		97									
LLC	07:22	105		102		98									
ICSA	07:25	108		101		101									
ICSAB	07:29	107		102		99									
CCV	07:33	109		109		102									
CCB	07:37	100		105		97									
P22950DB	07:41	102		104		102									
P22950DQ	07:44	104		104		103									
*23838BKG	07:48	104		104		100									
*23838A	07:52	106		107		97									
*23838DUP	07:56	108		104		97									
*23838MS	07:59	105		102		99									
*23838L	08:03	109		104		102									
ZZZZZZ	08:07														
ZZZZZZ	08:11														
ZZZZZZ	08:15														
CCV	08:18	105		105		102									
CCB	08:22	103		100		98									
ZZZZZZ	08:26														
8528577	08:30	108		102		107									
8528581	08:33	106		102		101									
8528582	08:37	105		100		93									
8528583	08:41	108		106		103									
8528584	08:45	108		101		95									
LLC	08:49	107		103		101									
ICSA	08:52	109		106		100									
ICSAB	08:56	108		105		100									

LEGEND:
BKG = Background
MS = Matrix Spike
DUP = Duplicate
MSD = Matrix Spike Duplicate
L = Serial Dilution
A = Post Digest Spike
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
LI = Lithium
BI = Bismuth
SC = Scandium
GE = Germanium
TB = Terbium
HO = Holmium
Y = Yttrium
IN = Indium

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: MOO91

Instrument ID: 10007
Run Name: 1623102E02

Start Date: 08/18/2016
End Date: 08/18/2016

Standard	Elements Applies to	Standard	Elements Applies to
BI-209	PB,TL	GE-72	AS,SE
IN-115	CU,SB		

Lab Sample ID	Time	Internal Standards %RI For:													
		Element GE-72	Q	Element IN-115	Q	Element BI-209	Q	Element	Q	Element	Q	Element	Q	Element	Q
CCV	09:00	108		105		104									
CCB	09:04	105		107		98									

LEGEND:
BKG = Background
MS = Matrix Spike
DUP = Duplicate
MSD = Matrix Spike Duplicate
L = Serial Dilution
A = Post Digest Spike
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
LI = Lithium
BI = Bismuth
SC = Scandium
GE = Germanium
TB = Terbium
HO = Holmium
Y = Yttrium
IN = Indium

Raw Data

Metals in Liquid

ICP Data

Metals in Liquid

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ICP-AES Run Data Report

Reviewed By
Suzanne M Will

Reviewed Date
08/19/2016 4:27PM

Data File Name 1623204T72.TXT
Run Name: 1623204T72

Method Reference Name(s):

Verified By:
Jennifer L Moyer

Verified Date
08/22/2016 10:51AM

Analyst Employee: 420

Instrument Parameters:

Individual Integration Time: 10.00 sec Total Integration Time: 30.00 sec Rinse Time: 15.00 sec

Element	Analyte Name	Wavelength Value
AG	Silver	328.06
AL	Aluminum	308.21
AS	Arsenic	189.04
AU	Gold	242.80
B	Boron	249.67
BA	Barium	455.40
BE	Beryllium	313.04
CA	Calcium	317.93
CD	Cadmium	226.50
CO	Cobalt	228.62
CR	Chromium	267.72
CU	Copper	327.40
FE	Iron	261.19
K	Potassium	766.49
LI	Lithium	670.78
MG	Magnesium	285.21
MN	Manganese	257.61
MO	Molybdenum	202.03
NA	Sodium	589.59
NI	Nickel	231.60
P	Phosphorus	177.49
PB	Lead	220.35
SB	Antimony	206.83
SE	Selenium	196.09
SI	Silicon	251.60
SN	Tin	189.99
SR	Strontium	421.55
TE	Tellurium	214.28
TH	Thorium	401.91
TI	Titanium	334.94
TL	Thallium	190.86
V	Vanadium	292.40
W	Tungsten	207.91
Y1	Yttrium	224.31
Y2	Yttrium	371.03
ZN	Zinc	213.86
ZR	Zirconium	339.19

The TRACE ICP utilizes Yttrium as an internal standard to compensate for fluctuations in nebulization and plasma conditions. All Yttrium readings are expressed in counts.

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 1

Date/Time: 08/19/2016 13:12

Sample Number: **S0**

ELEMENT	CONC (ppm)	AVERAGE INTENSITY	% RSD	INTEGRATIONS #1	#2	#3
AG	0.000	-33.51648	25.676	-0.00703	-0.01008	-0.00630
AL	0.000	2.98293	130.280	0.00741	-0.00097	0.02841
AS	0.000	-1.09178	145.104	-0.01216	-0.01679	0.00510
B	0.000	26.80653	9.581	0.00011	0.00014	0.00012
BA	0.000	312.58741	3.512	0.00150	0.00140	0.00146
BE	0.000	-326.47353	0.988	-0.07614	-0.07515	-0.07662
CA	0.000	43.18286	4.167	0.00327	0.00329	0.00352
CD	0.000	-4.89991	38.288	-0.04968	-0.03590	-0.02218
CO	0.000	3.20228	19.937	0.02865	0.01948	0.02240
CR	0.000	-3.77955	136.030	0.00000	-0.00004	-0.00001
CU	0.000	-160.42291	2.160	-0.03798	-0.03759	-0.03643
FE	0.000	2.21572	48.227	0.00023	0.00021	0.00008
K	0.000	74.87360	14.200	0.33131	0.24869	0.29421
LI	0.000	-6.22951	200.046	-0.00107	-0.00102	0.00063
MG	0.000	5.99692	42.274	0.00047	0.00066	0.00027
MN	0.000	23.09357	5.242	0.00506	0.00561	0.00545
MO	0.000	0.17210	49.676	0.00070	0.00115	0.00194
NA	0.000	267.59341	2.908	0.02042	0.02053	0.02152
NI	0.000	8.71808	8.499	0.05943	0.06999	0.06246
P	0.000	1.47130	37.192	0.00027	0.00025	0.00012
PB	0.000	0.37170	213.742	0.00940	-0.00145	0.00025
S	0.000	4.12769	2.274	0.00062	0.00059	0.00061
SB	0.000	2.23691	43.314	0.00040	0.00042	0.00016
SE	0.000	-3.46858	9.103	-0.02528	-0.02784	-0.02321
SI	0.000	-0.25374	565.357	-0.00009	0.00011	-0.00008
SN	0.000	1.30153	106.977	0.00300	0.02122	0.00429
SR	0.000	94.14585	38.660	0.00047	0.00059	0.00026
TI	0.000	26.04063	27.109	0.00425	0.00746	0.00648
TL	0.000	-3.21560	7.047	-0.02257	-0.02551	-0.02269
V	0.000	-3.33000	154.457	0.00057	-0.00174	-0.00116
Y1	0.000	6813.02693	0.844	6813.73078	6870.17675	6755.17327
Y2A	0.000	214865.46787	0.538	215511.76324	213531.06893	215553.57143
Y2R	0.000	12850.16544	0.251	12820.50000	12884.59041	12845.40592
ZN	0.000	12.10345	2.258	0.09079	0.08888	0.08678
ZR	0.000	2.66681	148.854	0.00055	-0.00006	0.00014

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 2

Date/Time: 08/19/2016 13:15

Sample Number: **S1**

ELEMENT	CONC (ppm)	AVERAGE INTENSITY	% RSD	INTEGRATIONS #1	#2	#3
AL	50.000	5572.70054	1.798	21.57317	22.31491	21.71768
CA	50.000	45658.92884	1.617	3.53534	3.64780	3.56733
FE	50.000	13519.68012	1.544	1.04767	1.07934	1.05620
K	50.000	14044.06012	1.784	54.28215	56.19821	54.85660
MG	50.000	74976.14049	1.679	5.79241	5.98881	5.87216
NA	50.000	48271.21099	1.711	3.72852	3.85729	3.77984
S	50.000	7318.29875	0.385	1.11043	1.10502	1.11347
SI	50.000	6863.00108	1.722	0.53175	0.54919	0.53497
Y1	50.000	6595.23980	0.269	6595.92692	6612.63105	6577.16142
Y2R	50.000	12742.90830	1.072	12875.02491	12602.22500	12751.47500

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 3

Date/Time: 08/19/2016 13:18

Sample Number: **S2**

ELEMENT	CONC (ppm)	AVERAGE INTENSITY	% RSD	INTEGRATIONS #1	#2	#3
AG	1.000	14341.11667	0.339	3.44479	3.46380	3.44250
AS	1.000	285.45137	0.522	2.15544	2.13765	2.13481
B	1.000	8418.10000	0.372	0.04043	0.04068	0.04041
BA	1.000	630034.06569	0.590	3.01105	3.04359	3.04021
BE	1.000	408677.91879	1.011	99.06460	98.71595	97.19576
CD	1.000	10971.19503	0.279	82.59892	82.14558	82.30807
CO	1.000	4581.22874	0.137	34.43890	34.34646	34.37568
CU	1.000	12007.33333	0.810	2.88207	2.91496	2.86968
LI	1.000	5966.70068	0.632	0.46218	0.46762	0.46683
MN	1.000	62304.46667	0.603	14.98919	15.08097	14.90005
NI	1.000	2812.54521	0.430	21.21174	21.08666	21.03526
P	1.000	331.29979	0.279	0.04978	0.04958	0.04984
PB	1.000	917.01134	0.233	6.89832	6.86642	6.88477
SE	1.000	220.89667	0.189	1.65454	1.65907	1.66055
SR	1.000	692497.18487	0.458	3.31844	3.34860	3.32953
TL	1.000	407.25073	0.520	3.07449	3.04356	3.05260
Y1	1.000	6661.30218	0.438	6635.80136	6693.13569	6654.96950
Y2A	1.000	207822.30000	0.388	208027.35000	206934.02500	208505.52500
Y2R	1.000	12816.79886	0.225	12846.12887	12788.40587	12815.86183
ZN	1.000	8371.32028	0.380	63.05354	62.58040	62.87454

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 4

Date/Time: 08/19/2016 13:21

Sample Number: **S3**

ELEMENT	CONC (ppm)	AVERAGE INTENSITY	% RSD	INTEGRATIONS #1	#2	#3
CR	1.000	10396.17936	0.658	0.04827	0.04847	0.04889
MO	1.000	2693.70412	0.096	19.64943	19.66186	19.68664
SB	1.000	480.12889	0.195	0.07026	0.07003	0.07002
SN	1.000	808.07214	0.386	5.92473	5.88039	5.89346
TI	1.000	49801.14549	0.443	11.57692	11.62468	11.67994
V	1.000	14747.53041	0.465	3.43113	3.43696	3.46132
Y1	1.000	6848.63841	0.133	6839.86703	6858.04500	6848.00319
Y2A	1.000	214159.13601	0.125	214369.47500	214250.22424	213857.70879
Y2R	1.000	12782.41394	1.140	12895.86661	12833.21699	12618.15821
ZR	1.000	2005.94317	1.880	0.15467	0.15591	0.16028

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 5 Date/Time: 08/19/2016 13:24

Sample Number: **ICV**

The Average Readings, RSD are calculated based on both ICV tubes in the run.

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.59264	8,476.03	0.735	0.58548	0.59343	0.59068
____ AL	29.26731	3,305.96	1.129	29.09903	29.93467	29.13025
____ AS	0.58891	166.88	0.965	0.58657	0.58927	0.58628
____ B	0.55413	5,228.12	0.982	0.54735	0.55154	0.55238
____ BA	0.60026	378,924.89	0.851	0.59186	0.60578	0.59799
____ BE	0.57979	235,578.22	0.721	0.57388	0.58110	0.57630
____ CA	29.18372	27,005.62	1.093	28.90953	29.80283	28.99676
____ CD	0.58396	6,430.72	0.793	0.58715	0.58612	0.57890
____ CO	0.57471	2,635.57	0.774	0.57977	0.57521	0.56819
____ CR	0.59637	6,020.04	0.883	0.59033	0.59971	0.59258
____ CU	0.59036	7,051.27	0.706	0.58492	0.59592	0.58673
____ FE	29.03371	8,044.72	1.262	28.70612	29.75414	28.86705
____ K	29.41369	8,364.65	0.928	29.24769	29.91692	29.30670
____ LI	0.59156	3,548.87	1.159	0.58804	0.60514	0.59211
____ MG	29.23059	44,521.29	1.190	28.88524	29.90083	29.13981
____ MN	0.59601	37,143.56	0.642	0.59051	0.59678	0.59340
____ MO	0.59609	1,557.07	0.914	0.60204	0.59574	0.58759
____ NA	29.40271	28,645.36	1.028	29.21634	30.00094	29.40123
____ NI	0.57848	1,625.18	0.878	0.58359	0.58232	0.57060
____ P	0.58785	195.15	1.146	0.59417	0.59309	0.57705
____ PB	0.58207	539.45	0.809	0.58434	0.58583	0.57515
____ S	29.16514	4,314.31	0.777	29.44619	29.27951	28.91587
____ SB	0.60284	282.55	0.726	0.60957	0.60421	0.59834
____ SE	0.59278	129.77	1.028	0.59803	0.59461	0.58976
____ SI	29.63127	4,116.89	0.995	29.56098	30.20337	29.61090
____ SN	0.57387	450.51	0.941	0.57808	0.57621	0.56568
____ SR	0.58457	406,952.82	0.821	0.57837	0.58912	0.58836
____ TI	0.60165	29,071.78	0.737	0.59597	0.60350	0.59718
____ TL	0.58297	226.09	0.626	0.58509	0.58204	0.58132
____ V	0.60471	8,688.81	0.752	0.59815	0.61106	0.60393
____ Y1	6661.78340	6,652.12	0.648	6628.56072	6619.17500	6708.61880
____ Y2A	207842.47027	208,681.81	0.709	210135.95000	207471.80639	208437.67500
____ Y2R	12804.39687	12,820.73	0.890	12965.58694	12622.15909	12874.45208
____ ZN	0.58846	4,945.97	0.838	0.59393	0.59183	0.58165
____ ZR	0.60347	1,218.76	1.151	0.59943	0.61675	0.59954

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 6 Date/Time: 08/19/2016 13:28

Sample Number: **ICV2**

The Average Readings, RSD are calculated based on both ICV tubes in the run.

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.59264	8,487.53	0.735	0.59567	0.59812	0.59248
____ AL	29.26731	3,271.06	1.129	29.18112	29.06492	29.19384
____ AS	0.58891	168.24	0.965	0.59983	0.58355	0.58797
____ B	0.55413	5,245.06	0.982	0.56025	0.56123	0.55203
____ BA	0.60026	378,040.67	0.851	0.60235	0.60455	0.59903
____ BE	0.57979	235,879.78	0.721	0.58303	0.58506	0.57937
____ CA	29.18372	26,844.71	1.093	29.14643	29.18265	29.06414
____ CD	0.58396	6,446.99	0.793	0.59012	0.57873	0.58273
____ CO	0.57471	2,646.27	0.774	0.57938	0.57190	0.57381
____ CR	0.59637	6,015.12	0.883	0.60161	0.60193	0.59208
____ CU	0.59036	7,022.91	0.706	0.59274	0.59277	0.58906
____ FE	29.03371	7,984.99	1.262	28.95503	28.96411	28.95583
____ K	29.41369	8,301.24	0.928	29.50920	29.15644	29.34518
____ LI	0.59156	3,498.15	1.159	0.58823	0.58769	0.58814
____ MG	29.23059	44,181.08	1.190	29.21562	29.16300	29.07907
____ MN	0.59601	37,148.23	0.642	0.59821	0.60153	0.59562
____ MO	0.59609	1,566.69	0.914	0.60203	0.59403	0.59509
____ NA	29.40271	28,310.34	1.028	29.32093	29.19567	29.28115
____ NI	0.57848	1,627.96	0.878	0.58224	0.57575	0.57636
____ P	0.58785	195.55	1.146	0.59245	0.58327	0.58705
____ PB	0.58207	541.52	0.809	0.58667	0.57742	0.58303
____ S	29.16514	4,312.48	0.777	29.36826	28.97829	29.00269
____ SB	0.60284	282.27	0.726	0.60564	0.59948	0.59979
____ SE	0.59278	129.55	1.028	0.58761	0.58563	0.60102
____ SI	29.63127	4,062.64	0.995	29.44847	29.37174	29.59215
____ SN	0.57387	452.69	0.941	0.58046	0.57149	0.57132
____ SR	0.58457	402,692.53	0.821	0.58523	0.58748	0.57884
____ TI	0.60165	29,104.49	0.737	0.60587	0.60657	0.60082
____ TL	0.58297	226.85	0.626	0.58921	0.57885	0.58134
____ V	0.60471	8,628.48	0.752	0.60397	0.60854	0.60264
____ Y1	6661.78340	6,671.45	0.648	6624.15411	6711.95022	6678.24153
____ Y2A	207842.47027	207,003.13	0.709	206633.73253	206004.50000	208371.15768
____ Y2R	12804.39687	12,788.06	0.890	12793.82500	12784.39748	12785.96062
____ ZN	0.58846	4,949.07	0.838	0.59225	0.58439	0.58669
____ ZR	0.60347	1,208.73	1.151	0.59966	0.59977	0.60565

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 7 Date/Time: 08/19/2016 13:31

Sample Number: **ICB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00006	-36.08	671.489	-0.00041	-0.00010	0.00034
____ AL	0.01914	5.11	120.368	0.03397	-0.00740	0.03087
____ AS	0.00173	-0.34	315.511	-0.00335	0.00750	0.00104
____ B	0.00261	48.97	13.382	0.00287	0.00221	0.00275
____ BA	-0.00030	117.72	2.885	-0.00030	-0.00029	-0.00031
____ BE	0.00003	-325.27	47.854	0.00002	0.00003	0.00005
____ CA	-0.00745	35.97	44.741	-0.00364	-0.00889	-0.00982
____ CD	-0.00019	-7.92	18.608	-0.00020	-0.00022	-0.00015
____ CO	-0.00004	3.00	202.344	0.00004	-0.00005	-0.00010
____ CR	-0.00040	-2.26	108.689	-0.00026	-0.00087	-0.00005
____ CU	-0.00094	-161.07	90.445	-0.00103	-0.00174	-0.00005
____ FE	0.00509	1.11	132.444	0.00522	-0.00172	0.01175
____ K	0.01147	77.52	205.878	0.01758	-0.01460	0.03143
____ LI	0.00178	4.39	34.732	0.00199	0.00226	0.00108
____ MG	-0.00358	0.50	46.672	-0.00495	-0.00172	-0.00406
____ MN	-0.00007	18.29	148.909	-0.00001	-0.00001	-0.00019
____ MO	0.00105	2.95	17.042	0.00113	0.00084	0.00117
____ NA	0.23014	109.21	4.193	0.24088	0.22222	0.22730
____ NI	-0.00011	8.33	564.916	0.00052	-0.00015	-0.00069
____ P	-0.00071	1.22	192.228	-0.00152	0.00087	-0.00148
____ PB	0.00160	1.86	52.953	0.00258	0.00110	0.00112
____ S	0.00566	4.93	78.618	0.01074	0.00249	0.00374
____ SB	-0.00273	0.91	62.937	-0.00447	-0.00103	-0.00269
____ SE	-0.00210	-1.98	294.668	-0.00337	-0.00754	0.00462
____ SI	0.02061	1.93	57.230	0.03422	0.01326	0.01436
____ SN	-0.00021	1.12	253.234	0.00019	-0.00001	-0.00079
____ SR	0.00004	-17.09	59.582	0.00001	0.00005	0.00005
____ TI	-0.00008	21.65	83.043	-0.00012	-0.00012	0.00000
____ TL	0.00108	-2.87	50.107	0.00137	0.00141	0.00045
____ V	0.00047	-2.28	38.873	0.00067	0.00030	0.00044
____ Y1	6745.33468	6,745.33	0.367	6773.68053	6728.05378	6734.26972
____ Y2A	212259.16333	212,259.16	0.517	211015.15454	213088.60917	212673.72627
____ Y2R	12752.81416	12,752.81	0.387	12700.89464	12799.17298	12758.37488
____ ZN	-0.00004	11.63	344.299	0.00009	-0.00019	-0.00002
____ ZR	-0.00022	2.21	1020.612	-0.00055	-0.00227	0.00216

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 8

Date/Time: 08/19/2016 13:34

Sample Number: **LLC**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00549	50.20	1.123	0.00543	0.00555	0.00550
____ AL	0.19492	24.94	16.879	0.19739	0.16085	0.22652
____ AS	0.01864	4.63	11.475	0.01774	0.02109	0.01710
____ B	0.04614	429.07	2.587	0.04657	0.04706	0.04479
____ BA	0.00490	3,497.66	1.875	0.00493	0.00497	0.00479
____ BE	0.00498	1,743.37	1.455	0.00499	0.00504	0.00490
____ CA	0.18911	218.05	0.793	0.18934	0.19049	0.18751
____ CD	0.00505	51.21	1.934	0.00494	0.00508	0.00514
____ CO	0.00486	26.13	6.693	0.00466	0.00523	0.00469
____ CR	0.01456	153.02	2.514	0.01423	0.01451	0.01495
____ CU	0.00979	-28.17	6.303	0.00942	0.01050	0.00944
____ FE	0.19893	55.72	1.183	0.19769	0.19746	0.20165
____ K	0.52707	222.19	7.520	0.50779	0.57266	0.50076
____ LI	0.02142	121.43	7.449	0.02319	0.02099	0.02009
____ MG	0.09610	152.96	2.861	0.09893	0.09344	0.09593
____ MN	0.00511	350.67	1.868	0.00502	0.00521	0.00510
____ MO	0.01037	28.01	2.338	0.01059	0.01011	0.01040
____ NA	1.23040	1,080.66	1.455	1.23692	1.24413	1.21016
____ NI	0.00999	37.43	2.431	0.01020	0.01005	0.00973
____ P	0.09677	34.19	0.832	0.09696	0.09746	0.09588
____ PB	0.01468	14.21	12.550	0.01566	0.01582	0.01255
____ S	0.48826	78.08	0.772	0.48922	0.48410	0.49145
____ SB	0.02063	12.08	11.595	0.02323	0.02012	0.01852
____ SE	0.01394	1.64	5.500	0.01330	0.01479	0.01373
____ SI	0.06817	8.53	8.953	0.06715	0.07472	0.06264
____ SN	0.01821	15.95	6.687	0.01952	0.01801	0.01711
____ SR	0.00509	3,586.30	1.607	0.00510	0.00517	0.00501
____ TI	0.00980	512.87	2.078	0.00976	0.01002	0.00962
____ TL	0.03253	10.21	5.492	0.03078	0.03436	0.03246
____ V	0.00533	68.48	9.648	0.00590	0.00491	0.00518
____ Y1	6827.65770	6,827.66	0.516	6827.33174	6863.07170	6792.56966
____ Y2A	213875.62676	213,875.63	1.089	213594.44888	211699.13139	216333.30002
____ Y2R	12785.13296	12,785.13	1.223	12816.12500	12615.59757	12923.67632
____ ZN	0.01993	182.39	0.507	0.02003	0.01983	0.01991
____ ZR	0.04908	101.07	9.656	0.04644	0.04625	0.05455

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 9 Date/Time: 08/19/2016 13:37

Sample Number: **ICSA**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00362	-469.44	5.886	-0.00386	-0.00349	-0.00350
____ AL	508.24641	52,165.61	1.625	502.94184	504.03707	517.76034
____ AS	0.00813	-5.49	27.936	0.01069	0.00736	0.00634
____ B	-0.03793	3,264.06	21.885	-0.03326	-0.03302	-0.04752
____ BA	0.00362	2,334.08	0.445	0.00364	0.00361	0.00361
____ BE	-0.00007	-322.97	25.726	-0.00006	-0.00009	-0.00006
____ CA	501.32211	399,282.25	2.085	493.03572	497.86634	513.06428
____ CD	-0.00205	190.68	20.966	-0.00208	-0.00161	-0.00247
____ CO	0.00137	8.48	0.972	0.00138	0.00136	0.00136
____ CR	0.00002	1.74	2517.897	0.00023	0.00023	-0.00042
____ CU	0.00164	6.95	15.013	0.00166	0.00139	0.00188
____ FE	202.47200	47,094.41	1.869	200.16164	200.41562	206.83876
____ K	0.12636	106.67	9.033	0.11379	0.12924	0.13607
____ LI	0.00655	31.79	34.734	0.00764	0.00393	0.00807
____ MG	499.34932	620,330.18	1.960	498.06075	490.27100	509.71621
____ MN	0.00153	106.50	11.362	0.00174	0.00142	0.00144
____ MO	-0.00019	-0.29	125.752	0.00003	-0.00016	-0.00044
____ NA	0.46783	330.16	4.494	0.44356	0.47979	0.48015
____ NI	0.00074	-16.07	25.545	0.00061	0.00066	0.00096
____ P	0.01035	4.39	5.415	0.01099	0.01013	0.00993
____ PB	0.00399	111.00	73.564	0.00732	0.00177	0.00288
____ S	-0.06832	-3.74	0.626	-0.06868	-0.06843	-0.06785
____ SB	0.01414	7.93	17.576	0.01483	0.01138	0.01620
____ SE	-0.01053	-9.54	21.088	-0.01186	-0.01177	-0.00797
____ SI	0.01661	1.34	25.182	0.01995	0.01192	0.01796
____ SN	0.00211	2.64	58.291	0.00245	0.00074	0.00313
____ SR	0.00537	3,321.52	0.831	0.00542	0.00534	0.00536
____ TI	-0.00087	-14.99	41.595	-0.00099	-0.00114	-0.00046
____ TL	0.00433	-5.41	162.610	0.00091	-0.00035	0.01241
____ V	-0.00148	8.46	39.660	-0.00215	-0.00106	-0.00123
____ Y1	6022.67364	6,022.67	0.356	5999.28529	6041.43114	6027.30450
____ Y2A	187748.96098	187,748.96	0.234	187608.03607	188240.48426	187398.36262
____ Y2R	12408.37829	12,408.38	1.512	12541.69998	12489.63122	12193.80367
____ ZN	0.01071	196.61	4.078	0.01119	0.01061	0.01033
____ ZR	0.00597	14.19	15.423	0.00493	0.00666	0.00633

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 10 Date/Time: 08/19/2016 13:40

Sample Number: **ICSAB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.20881	2,267.15	0.988	0.21057	0.20654	0.20931
____ AL	508.78578	52,390.29	1.109	503.24178	514.51974	508.59583
____ AS	0.09717	17.83	8.804	0.08894	0.10602	0.09655
____ B	-0.03338	3,259.73	30.589	-0.02231	-0.04243	-0.03539
____ BA	0.49910	281,375.65	0.809	0.50362	0.49783	0.49585
____ BE	0.48062	174,708.97	0.854	0.48535	0.47848	0.47802
____ CA	505.30706	403,398.88	1.171	501.47028	512.11989	502.33103
____ CD	0.88461	9,021.72	0.563	0.87894	0.88827	0.88660
____ CO	0.44507	1,851.56	0.688	0.44154	0.44677	0.44691
____ CR	0.47554	4,291.62	1.112	0.48165	0.47230	0.47268
____ CU	0.51759	5,616.30	0.772	0.52218	0.51574	0.51486
____ FE	202.13338	47,185.70	1.332	199.71427	205.03259	201.65328
____ K	0.06566	90.38	120.565	-0.02515	0.10205	0.12008
____ LI	0.00683	33.69	37.435	0.00927	0.00417	0.00707
____ MG	502.69696	625,763.99	0.872	500.50112	507.74398	499.84577
____ MN	0.47668	26,573.01	1.010	0.48214	0.47484	0.47306
____ MO	-0.00118	-2.66	34.623	-0.00088	-0.00165	-0.00101
____ NA	0.50463	366.01	4.784	0.47836	0.52585	0.50968
____ NI	0.86740	2,188.79	0.790	0.85969	0.87280	0.86971
____ P	0.01343	5.32	27.037	0.00989	0.01715	0.01326
____ PB	0.05271	152.02	5.278	0.05251	0.05559	0.05003
____ S	-0.08406	-5.84	0.736	-0.08337	-0.08422	-0.08457
____ SB	0.61515	264.28	1.266	0.60746	0.62303	0.61497
____ SE	0.52097	97.67	1.478	0.52415	0.51219	0.52657
____ SI	0.01389	0.99	98.518	0.02963	0.00709	0.00493
____ SN	0.00362	3.73	24.649	0.00354	0.00455	0.00277
____ SR	0.00550	3,369.37	0.614	0.00554	0.00548	0.00549
____ TI	-0.00067	-6.32	33.764	-0.00075	-0.00041	-0.00084
____ TL	0.09185	22.09	3.429	0.09537	0.09085	0.08932
____ V	0.50045	6,522.83	0.945	0.50591	0.49761	0.49782
____ Y1	6044.07523	6,044.08	0.810	6100.53908	6018.06886	6013.61774
____ Y2A	185877.54297	185,877.54	0.576	184643.41395	186431.10158	186558.11338
____ Y2R	12448.16871	12,448.17	0.813	12550.75470	12348.35000	12445.40144
____ ZN	0.96038	7,392.31	0.619	0.95394	0.96566	0.96153
____ ZR	0.00650	15.26	14.082	0.00660	0.00735	0.00553

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 11

Date/Time: 08/19/2016 13:44

Sample Number: **CCV**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.48968	7,061.23	0.079	0.48936	0.49011	0.48957
____ AL	24.43806	2,733.09	1.762	24.26344	24.92864	24.12209
____ AS	0.49533	140.17	0.852	0.49891	0.49068	0.49642
____ B	0.45505	4,347.35	1.063	0.44962	0.45661	0.45891
____ BA	0.48678	309,607.02	0.268	0.48545	0.48806	0.48683
____ BE	0.47175	193,375.48	0.161	0.47200	0.47236	0.47090
____ CA	24.33441	22,361.61	1.872	24.08840	24.85995	24.05487
____ CD	0.49054	5,383.42	1.106	0.49346	0.48428	0.49387
____ CO	0.48848	2,234.88	0.893	0.49076	0.48346	0.49124
____ CR	0.48042	4,889.28	0.790	0.47608	0.48314	0.48204
____ CU	0.48635	5,820.75	0.525	0.48347	0.48836	0.48722
____ FE	24.13762	6,651.62	1.989	23.87671	24.69177	23.84439
____ K	24.56182	6,933.23	1.403	24.42617	24.95373	24.30555
____ LI	0.49807	2,949.89	1.030	0.49601	0.50391	0.49430
____ MG	24.38184	36,855.20	1.608	24.16263	24.83456	24.14832
____ MN	0.48847	30,706.63	0.159	0.48914	0.48864	0.48762
____ MO	0.49315	1,286.40	1.166	0.49647	0.48651	0.49646
____ NA	24.73700	23,811.54	1.647	24.52201	25.20688	24.48212
____ NI	0.48538	1,360.12	0.962	0.48617	0.48037	0.48960
____ P	0.48386	160.34	0.509	0.48364	0.48151	0.48643
____ PB	0.48607	449.40	0.636	0.48849	0.48259	0.48714
____ S	24.54223	3,614.12	1.011	24.67399	24.25609	24.69662
____ SB	0.49201	229.80	0.622	0.49189	0.48901	0.49513
____ SE	0.48989	106.41	2.196	0.50049	0.47898	0.49019
____ SI	24.89041	3,416.64	1.575	24.69201	25.34199	24.63721
____ SN	0.47844	375.02	1.684	0.48484	0.46939	0.48109
____ SR	0.49134	343,150.41	0.943	0.48856	0.49669	0.48877
____ TI	0.48789	23,794.01	0.049	0.48781	0.48816	0.48770
____ TL	0.49245	190.24	0.765	0.49609	0.48857	0.49269
____ V	0.49207	7,102.53	0.407	0.49147	0.49431	0.49044
____ Y1	6632.11697	6,632.12	0.763	6606.85226	6690.36253	6599.13612
____ Y2A	209605.00010	209,605.00	0.074	209681.88174	209427.05841	209706.06015
____ Y2R	12736.46194	12,736.46	1.399	12855.84979	12531.63735	12821.89868
____ ZN	0.49201	4,120.08	0.850	0.49429	0.48719	0.49456
____ ZR	0.49536	991.42	1.656	0.48765	0.50398	0.49443

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 12

Date/Time: 08/19/2016 13:47

Sample Number: **CCB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00002	-34.96	1114.484	0.00015	0.00018	-0.00026
____ AL	-0.00724	2.15	299.886	-0.01795	0.01774	-0.02150
____ AS	0.00074	-0.63	119.992	0.00057	0.00170	-0.00005
____ B	0.00087	34.03	19.459	0.00070	0.00087	0.00104
____ BA	-0.00031	111.26	15.207	-0.00026	-0.00035	-0.00030
____ BE	0.00007	-308.86	30.663	0.00007	0.00010	0.00005
____ CA	0.00179	44.32	86.309	0.00353	0.00128	0.00057
____ CD	-0.00008	-6.72	95.126	-0.00009	-0.00015	0.00000
____ CO	0.00030	4.59	57.028	0.00039	0.00010	0.00041
____ CR	-0.00052	-3.50	61.920	-0.00036	-0.00088	-0.00030
____ CU	-0.00023	-152.06	327.351	0.00061	-0.00048	-0.00082
____ FE	0.00671	1.57	53.494	0.00289	0.01002	0.00721
____ K	0.04884	87.61	90.236	0.09823	0.01354	0.03474
____ LI	0.00205	6.01	27.334	0.00219	0.00254	0.00144
____ MG	0.00190	8.81	67.129	0.00138	0.00335	0.00096
____ MN	-0.00018	11.61	15.998	-0.00021	-0.00017	-0.00015
____ MO	0.00082	2.36	47.070	0.00043	0.00083	0.00121
____ NA	0.19344	73.39	7.735	0.19041	0.20968	0.18022
____ NI	-0.00096	5.92	47.014	-0.00146	-0.00085	-0.00058
____ P	-0.00159	0.93	17.586	-0.00132	-0.00157	-0.00188
____ PB	0.00151	1.78	78.136	0.00257	0.00174	0.00024
____ S	0.00805	5.31	42.333	0.00541	0.00684	0.01190
____ SB	0.00075	2.57	322.248	0.00340	0.00023	-0.00137
____ SE	-0.00384	-2.38	59.989	-0.00397	-0.00608	-0.00148
____ SI	0.01571	1.26	61.735	0.02643	0.00756	0.01313
____ SN	-0.00202	-0.32	32.212	-0.00133	-0.00212	-0.00262
____ SR	0.00003	-20.19	19.529	0.00004	0.00003	0.00003
____ TI	-0.00006	22.71	231.427	-0.00005	-0.00020	0.00007
____ TL	-0.00020	-3.40	862.798	0.00151	-0.00011	-0.00201
____ V	0.00034	-4.18	74.092	0.00014	0.00062	0.00025
____ Y1	6764.55361	6,764.55	0.338	6788.17473	6742.47301	6763.01308
____ Y2A	212015.59649	212,015.60	0.729	212712.98701	213089.43556	210244.36690
____ Y2R	12696.80822	12,696.81	0.400	12729.70812	12722.36921	12638.34733
____ ZN	-0.00023	10.05	65.277	-0.00040	-0.00011	-0.00017
____ ZR	-0.00084	0.97	173.193	-0.00248	-0.00033	0.00029

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 13 Date/Time: 08/19/2016 13:50

Sample Number: **PBW** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00010	-34.57	401.653	0.00017	0.00044	-0.00032
____ AL	-0.01578	1.18	40.882	-0.02119	-0.01752	-0.00864
____ AS	0.00091	-0.59	358.613	-0.00234	0.00090	0.00416
____ B	-0.00010	26.37	543.550	-0.00010	0.00044	-0.00063
____ BA	-0.00031	110.30	9.156	-0.00034	-0.00028	-0.00031
____ BE	0.00004	-329.93	100.785	0.00005	0.00008	0.00000
____ CA	0.00188	44.56	188.220	0.00195	-0.00169	0.00539
____ CD	-0.00002	-6.08	235.016	0.00001	0.00000	-0.00006
____ CO	-0.00045	1.11	83.982	-0.00010	-0.00085	-0.00039
____ CR	-0.00029	-1.18	123.543	0.00010	-0.00061	-0.00036
____ CU	-0.00010	-154.00	408.608	0.00037	-0.00036	-0.00030
____ FE	0.00673	1.58	141.802	0.01330	-0.00422	0.01112
____ K	0.05836	90.70	35.782	0.06792	0.07276	0.03441
____ LI	-0.00020	-7.40	314.978	-0.00082	0.00044	-0.00023
____ MG	-0.00095	4.46	257.233	-0.00351	0.00137	-0.00071
____ MN	0.00017	34.19	21.666	0.00021	0.00016	0.00013
____ MO	0.00034	1.09	64.061	0.00034	0.00012	0.00056
____ NA	0.19880	78.72	7.631	0.19694	0.18464	0.21481
____ NI	-0.00047	7.42	152.740	-0.00083	0.00035	-0.00092
____ P	-0.00154	0.96	94.388	-0.00215	-0.00259	0.00012
____ PB	0.00243	2.66	74.520	0.00052	0.00413	0.00264
____ S	0.00042	4.22	706.124	0.00383	-0.00166	-0.00090
____ SB	0.00128	2.86	265.520	0.00222	-0.00249	0.00409
____ SE	-0.00374	-2.39	173.220	0.00326	-0.00496	-0.00953
____ SI	-0.00007	-0.90	)332.078	0.00626	-0.00771	0.00125
____ SN	-0.00157	0.03	59.469	-0.00179	-0.00055	-0.00238
____ SR	0.00001	-35.10	70.095	0.00002	0.00001	0.00001
____ TI	-0.00003	24.55	382.157	-0.00018	0.00009	-0.00002
____ TL	0.00146	-2.75	79.539	0.00280	0.00089	0.00069
____ V	0.00034	-4.13	70.249	0.00007	0.00042	0.00054
____ Y1	6856.38477	6,856.38	0.115	6865.42840	6850.83966	6852.88625
____ Y2A	217013.22407	217,013.22	0.781	218458.11688	217434.52144	215147.03390
____ Y2R	12750.63079	12,750.63	2.267	13032.11216	12765.11895	12454.66127
____ ZN	0.00025	14.29	14.318	0.00021	0.00027	0.00026
____ ZR	0.00019	3.06	1564.032	0.00288	-0.00305	0.00075

LANCASTER LABORATORIES

Run Name: 1623204T72 | Instrument ID: 16417

Tube: 14 | Date/Time: 08/19/2016 13:53

Sample Number: **LCSW** | Class: **** | Batch: 162315716004

Initial Vol: 1.00 | Final Vol: 1.00 | DF: 1.00 | Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
AG	0.10152	1,477.16	1.202	0.10159	0.10027	0.10270
AL	2.01251	237.51	1.552	1.98444	2.04617	2.00693
AS	0.05040	15.94	2.483	0.04983	0.04954	0.05184
B	1.79950	15,721.59	0.803	1.78468	1.80024	1.81357
BA	2.00473	1,310,703.08	0.948	1.99727	1.99058	2.02634
BE	0.00424	504.17	0.658	0.00426	0.00421	0.00425
CA	3.93217	3,736.56	0.622	3.90522	3.95295	3.93834
CD	0.00513	52.92	1.548	0.00514	0.00505	0.00521
CO	0.50273	2,368.49	0.134	0.50348	0.50217	0.50253
CR	0.09798	1,027.72	1.016	0.09696	0.09895	0.09803
CU	0.24516	2,942.06	0.926	0.24348	0.24427	0.24775
FE	0.97023	276.94	0.582	0.97675	0.96704	0.96690
K	4.03153	1,223.08	0.430	4.03104	4.04910	4.01446
LI	1.00080	6,047.21	0.677	0.99333	1.00654	1.00254
MG	1.98223	3,081.95	0.409	1.97309	1.98851	1.98510
MN	0.50725	32,816.41	0.351	0.50536	0.50748	0.50890
MO	2.00064	5,361.63	0.406	2.00747	2.00279	1.99167
NA	4.21583	4,040.12	0.744	4.18043	4.24017	4.22690
NI	0.10059	297.09	1.004	0.10038	0.10168	0.09970
P	-0.00139	1.00	266.105	0.00100	-0.00566	0.00048
PB	0.00301	1.78	75.126	0.00557	0.00127	0.00219
S	0.96565	150.09	0.840	0.96618	0.97347	0.95728
SB	0.00344	-7.17	54.069	0.00130	0.00432	0.00469
SE	-0.00123	-1.84	196.239	0.00100	-0.00089	-0.00380
SI	1.05605	153.02	1.782	1.04441	1.04597	1.07777
SN	3.90155	3,132.99	0.355	3.91023	3.90886	3.88556
SR	0.99788	717,283.52	0.610	0.99124	0.99921	1.00320
TI	0.98470	49,396.15	0.555	0.97847	0.98690	0.98871
TL	0.00299	-10.45	31.330	0.00297	0.00206	0.00393
V	0.50553	7,198.67	0.624	0.50265	0.50506	0.50890
Y1	6813.87064	6,813.87	0.115	6819.72908	6816.91331	6804.96953
Y2A	215721.86028	215,721.86	0.721	217249.70036	215774.62500	214141.25549
Y2R	12979.26900	12,979.27	0.085	12988.81081	12981.78593	12967.21025
ZN	0.50060	4,271.35	0.326	0.50232	0.49908	0.50039
ZR	0.00275	8.29	102.762	-0.00032	0.00523	0.00333

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 15 Date/Time: 08/19/2016 13:56

Sample Number: **8523838** Class: U*** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
AG	-0.00030	-51.15	173.225	-0.00090	-0.00011	0.00010
AL	0.17546	22.99	11.886	0.17211	0.19778	0.15648
AS	0.00722	1.06	24.470	0.00595	0.00924	0.00648
B	0.06613	696.06	0.400	0.06584	0.06619	0.06636
BA	0.19774	126,727.54	0.330	0.19848	0.19726	0.19747
BE	0.00001	-336.05	118.441	0.00001	0.00003	0.00000
CA	57.48519	53,177.75	0.104	57.53899	57.42125	57.49534
CD	0.00009	1.69	128.081	0.00021	-0.00003	0.00010
CO	0.00005	3.67	437.792	0.00023	-0.00018	0.00010
CR	0.01432	148.41	0.807	0.01437	0.01440	0.01418
CU	0.02568	183.91	2.077	0.02612	0.02509	0.02583
FE	5.42626	1,539.49	0.342	5.42357	5.40917	5.44603
K	4.48250	1,346.40	0.813	4.45613	4.46726	4.52411
LI	0.00526	25.42	58.088	0.00216	0.00535	0.00827
MG	11.61463	17,905.53	0.456	11.67418	11.59685	11.57287
MN	0.33570	21,250.08	0.374	0.33699	0.33448	0.33563
MO	0.01330	35.09	2.767	0.01289	0.01359	0.01343
NA	16.47689	16,066.82	0.147	16.50367	16.45644	16.47056
NI	0.00651	26.07	10.060	0.00644	0.00719	0.00589
P	0.13171	44.97	1.755	0.12904	0.13309	0.13300
PB	0.00530	5.34	46.292	0.00813	0.00389	0.00387
S	4.24381	632.52	0.104	4.24307	4.23982	4.24853
SB	0.00029	2.31	232.860	-0.00021	0.00002	0.00107
SE	-0.00174	-1.98	41.085	-0.00256	-0.00124	-0.00142
SI	11.94184	1,662.96	0.666	11.88026	11.91359	12.03166
SN	0.00205	2.88	33.070	0.00254	0.00128	0.00234
SR	0.25636	180,203.69	0.438	0.25763	0.25553	0.25591
TI	0.02853	1,424.59	1.790	0.02838	0.02811	0.02910
TL	-0.00027	-3.61	409.866	-0.00107	0.00100	-0.00075
V	0.00234	24.10	11.410	0.00206	0.00259	0.00236
Y1	6674.44651	6,674.45	0.317	6679.36825	6692.69792	6651.27334
Y2A	210993.71417	210,993.71	0.298	210284.77481	211484.05739	211212.31030
Y2R	12931.13026	12,931.13	0.308	12922.23111	12974.68544	12896.47423
ZN	0.07030	600.34	0.778	0.07049	0.06968	0.07073
ZR	0.00086	4.43	246.090	0.00210	0.00204	-0.00157

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 16 Date/Time: 08/19/2016 13:59

Sample Number: **8523838** Class: UP** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.02006	340.25	1.556	0.02036	0.01974	0.02008
____ AL	1.13743	132.17	2.675	1.12149	1.17252	1.11829
____ AS	0.49895	142.21	0.716	0.50209	0.49506	0.49968
____ B	0.24319	2,203.58	0.536	0.24305	0.24196	0.24455
____ BA	0.24280	155,229.64	0.101	0.24254	0.24283	0.24302
____ BE	0.01937	7,490.16	0.563	0.01937	0.01925	0.01947
____ CA	57.28188	52,734.34	0.323	57.31008	57.45093	57.08464
____ CD	0.04891	538.46	0.302	0.04908	0.04879	0.04887
____ CO	0.09756	451.49	0.565	0.09769	0.09803	0.09695
____ CR	0.20755	2,119.59	0.209	0.20758	0.20711	0.20797
____ CU	0.50571	6,085.03	0.096	0.50605	0.50516	0.50592
____ FE	5.78378	1,632.54	0.350	5.76886	5.80685	5.77562
____ K	6.34174	1,864.53	0.459	6.31630	6.33540	6.37351
____ LI	0.98756	5,916.07	0.419	0.98513	0.99234	0.98522
____ MG	12.33550	18,919.52	0.113	12.33126	12.35109	12.32415
____ MN	0.38811	24,475.39	0.046	0.38821	0.38791	0.38822
____ MO	0.20495	537.53	0.161	0.20526	0.20499	0.20460
____ NA	18.11266	17,587.33	0.269	18.08957	18.16871	18.07969
____ NI	0.15003	428.74	0.306	0.14951	0.15021	0.15037
____ P	1.10852	367.39	0.728	1.10765	1.10091	1.11699
____ PB	0.48584	446.23	0.421	0.48801	0.48395	0.48556
____ S	5.13474	763.52	0.272	5.14692	5.13778	5.11951
____ SB	0.34239	161.28	0.646	0.34145	0.34081	0.34491
____ SE	0.77639	171.20	0.703	0.77915	0.77991	0.77010
____ SI	12.72308	1,763.78	0.824	12.64279	12.84169	12.68476
____ SN	0.57585	453.50	0.250	0.57725	0.57592	0.57437
____ SR	0.27040	189,390.43	0.147	0.27035	0.27004	0.27082
____ TI	0.12610	6,186.76	0.760	0.12720	0.12545	0.12564
____ TL	0.98438	398.34	0.112	0.98525	0.98314	0.98475
____ V	0.10188	1,447.37	1.465	0.10287	0.10017	0.10261
____ Y1	6666.62385	6,666.62	0.464	6701.89772	6643.99860	6653.97523
____ Y2A	210228.90106	210,228.90	0.180	210281.75474	210577.52344	209827.42500
____ Y2R	12868.29484	12,868.29	0.484	12867.60444	12806.35246	12930.92763
____ ZN	0.18550	1,568.97	0.023	0.18549	0.18555	0.18546
____ ZR	0.98116	1,981.71	0.698	0.97331	0.98589	0.98429

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 17 Date/Time: 08/19/2016 14:02

Sample Number: **8523841** Class: D*** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00040	-52.75	288.133	-0.00060	0.00083	-0.00142
____ AL	0.18176	23.81	5.194	0.17433	0.19238	0.17856
____ AS	0.01043	1.97	16.125	0.00870	0.01051	0.01206
____ B	0.06331	677.16	1.746	0.06269	0.06458	0.06265
____ BA	0.19605	126,040.30	0.070	0.19602	0.19593	0.19620
____ BE	0.00001	-339.23	691.848	0.00005	-0.00004	0.00001
____ CA	56.46491	52,498.22	0.640	56.53051	56.78921	56.07500
____ CD	0.00023	3.44	57.859	0.00011	0.00038	0.00022
____ CO	-0.00034	1.89	140.867	0.00013	-0.00032	-0.00084
____ CR	0.01515	157.39	3.142	0.01564	0.01511	0.01469
____ CU	0.02800	212.94	2.011	0.02811	0.02739	0.02850
____ FE	5.58330	1,591.48	0.849	5.56211	5.63763	5.55017
____ K	4.45436	1,344.94	0.767	4.48230	4.41628	4.46450
____ LI	0.00611	30.66	59.824	0.00206	0.00710	0.00916
____ MG	11.42522	17,699.31	0.825	11.44331	11.50914	11.32322
____ MN	0.33451	21,240.12	0.161	0.33408	0.33434	0.33511
____ MO	0.00940	24.88	2.962	0.00946	0.00964	0.00909
____ NA	16.27249	15,942.35	0.591	16.25166	16.37737	16.18845
____ NI	0.00717	27.93	8.999	0.00662	0.00788	0.00699
____ P	0.13432	45.91	3.369	0.13407	0.13896	0.12992
____ PB	0.00418	4.32	10.815	0.00395	0.00470	0.00388
____ S	4.20717	628.13	0.341	4.20912	4.22046	4.19192
____ SB	0.00630	5.15	20.336	0.00710	0.00697	0.00482
____ SE	-0.00666	-3.08	73.436	-0.00965	-0.00932	-0.00102
____ SI	11.87653	1,661.77	1.377	11.77193	12.06502	11.79262
____ SN	0.00053	1.69	212.541	0.00022	0.00177	-0.00041
____ SR	0.25434	179,339.12	0.091	0.25410	0.25436	0.25456
____ TI	0.02924	1,464.05	0.278	0.02916	0.02932	0.02924
____ TL	0.00002	-3.50	6415.835	-0.00166	0.00079	0.00094
____ V	0.00206	20.90	26.868	0.00164	0.00185	0.00269
____ Y1	6685.55657	6,685.56	0.207	6701.44298	6676.13455	6679.09218
____ Y2A	211644.44717	211,644.45	0.270	212113.90444	211810.97561	211008.46146
____ Y2R	12993.59575	12,993.60	0.655	13040.81684	12895.29723	13044.67320
____ ZN	0.07494	640.18	0.179	0.07507	0.07495	0.07480
____ ZR	0.00352	9.87	34.917	0.00307	0.00257	0.00490

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 18 Date/Time: 08/19/2016 14:06

Sample Number: **8523839** Class: R*** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.05194	797.63	0.899	0.05159	0.05247	0.05176
____ AL	2.33589	273.08	1.319	2.36434	2.34017	2.30317
____ AS	0.15966	46.58	0.700	0.15891	0.16094	0.15912
____ B	1.93688	16,446.69	0.384	1.92883	1.94351	1.93830
____ BA	2.21428	1,397,436.85	0.500	2.20175	2.21831	2.22277
____ BE	0.04944	18,970.09	0.661	0.04914	0.04978	0.04939
____ CA	63.97377	58,982.63	0.130	64.05836	63.89265	63.97030
____ CD	0.05034	553.10	0.646	0.05050	0.05055	0.04996
____ CO	0.49827	2,287.21	0.709	0.50189	0.49808	0.49482
____ CR	0.21786	2,203.27	0.793	0.21982	0.21716	0.21659
____ CU	0.28104	3,292.48	0.457	0.28213	0.28137	0.27963
____ FE	7.10077	2,008.63	0.072	7.10462	7.09494	7.10275
____ K	14.66066	4,225.03	0.139	14.67859	14.63843	14.66496
____ LI	1.01575	6,104.03	0.408	1.01447	1.01239	1.02038
____ MG	14.06061	21,619.31	0.279	14.05117	14.02698	14.10366
____ MN	0.86376	53,913.83	0.790	0.85721	0.87084	0.86321
____ MO	2.07097	5,405.31	0.448	2.07992	2.07161	2.06140
____ NA	27.24444	26,594.54	0.304	27.24359	27.16199	27.32775
____ NI	0.50447	1,416.71	0.564	0.50559	0.50659	0.50123
____ P	1.15436	380.78	0.257	1.15106	1.15680	1.15520
____ PB	0.15502	140.64	0.791	0.15456	0.15409	0.15641
____ S	5.45390	807.03	0.620	5.48083	5.46493	5.41594
____ SB	0.51286	229.36	0.309	0.51447	0.51130	0.51280
____ SE	0.14287	30.03	0.856	0.14428	0.14230	0.14204
____ SI	13.91469	1,940.90	0.487	13.88961	13.99139	13.86305
____ SN	4.01284	3,138.26	0.436	4.03221	4.00821	3.99811
____ SR	1.26704	878,996.77	0.300	1.26276	1.26831	1.27004
____ TI	1.06287	51,454.99	0.636	1.05713	1.07033	1.06116
____ TL	0.15642	51.78	2.061	0.16002	0.15543	0.15380
____ V	0.52502	7,218.59	0.386	0.52360	0.52734	0.52411
____ Y1	6636.16700	6,636.17	0.200	6621.63620	6639.26074	6647.60407
____ Y2A	208193.56314	208,193.56	0.721	209834.72001	206888.96941	207857.00000
____ Y2R	12908.24846	12,908.25	0.131	12910.54337	12923.93256	12890.26946
____ ZN	0.57900	4,831.09	0.344	0.58064	0.57959	0.57678
____ ZR	1.02689	2,080.38	0.205	1.02931	1.02548	1.02588

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 19 Date/Time: 08/19/2016 14:09

Sample Number: **8523838** Class: UL** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 5.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
AG	0.00036	-32.07	34.002	0.00024	0.00035	0.00048
AL	0.04385	7.92	31.592	0.04139	0.05876	0.03139
AS	0.00193	-0.31	143.017	0.00470	0.00191	-0.00082
B	0.01753	197.61	4.755	0.01806	0.01796	0.01657
BA	0.03813	24,864.82	0.135	0.03808	0.03814	0.03818
BE	0.00005	-318.48	18.927	0.00006	0.00005	0.00004
CA	11.13210	10,332.20	0.335	11.09296	11.13614	11.16721
CD	0.00001	-4.50	2953.279	-0.00016	0.00010	0.00008
CO	-0.00057	0.60	99.336	-0.00001	-0.00113	-0.00057
CR	0.00205	22.95	13.384	0.00199	0.00181	0.00235
CU	0.00414	-95.12	7.710	0.00449	0.00405	0.00387
FE	1.04877	295.11	0.377	1.04428	1.05035	1.05169
K	0.88282	322.24	6.319	0.83321	0.94321	0.87203
LI	0.00478	22.28	42.811	0.00243	0.00572	0.00618
MG	2.25425	3,453.86	0.037	2.25522	2.25368	2.25385
MN	0.06583	4,215.26	0.329	0.06603	0.06585	0.06560
MO	0.00666	17.82	11.877	0.00670	0.00585	0.00742
NA	3.32953	3,121.38	0.295	3.33350	3.31834	3.33676
NI	0.00076	10.62	39.028	0.00093	0.00042	0.00092
P	0.02601	10.14	1.329	0.02641	0.02582	0.02580
PB	-0.00044	-0.02	536.927	-0.00246	-0.00102	0.00216
S	0.80247	124.15	0.585	0.80545	0.79706	0.80491
SB	0.00310	3.65	59.790	0.00455	0.00101	0.00374
SE	-0.00645	-2.98	90.693	-0.01310	-0.00415	-0.00210
SI	2.27640	312.93	1.264	2.25654	2.30939	2.26327
SN	0.00373	4.25	37.586	0.00341	0.00252	0.00527
SR	0.04931	34,875.83	0.084	0.04929	0.04928	0.04936
TI	0.00589	316.63	3.277	0.00578	0.00611	0.00577
TL	0.00083	-3.01	307.453	0.00110	0.00322	-0.00184
V	0.00072	0.53	64.877	0.00024	0.00074	0.00117
Y1	6743.37381	6,743.37	0.195	6758.56158	6736.63035	6734.92952
Y2A	212513.44369	212,513.44	0.059	212531.72500	212380.48793	212628.11814
Y2R	12794.49749	12,794.50	0.107	12801.37500	12778.68484	12803.43264
ZN	0.01358	126.81	0.189	0.01361	0.01358	0.01355
ZR	0.00267	8.02	51.969	0.00398	0.00122	0.00282

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 20 Date/Time: 08/19/2016 14:12

Sample Number: **8523843** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00002	-47.31	868.970	-0.00021	0.00020	0.00007
____ AL	0.23629	30.06	10.713	0.26163	0.21101	0.23623
____ AS	0.00635	0.79	39.729	0.00568	0.00913	0.00423
____ B	0.06474	693.85	2.135	0.06370	0.06631	0.06422
____ BA	0.19789	127,374.94	0.314	0.19752	0.19861	0.19755
____ BE	0.00002	-334.74	63.056	0.00003	0.00001	0.00002
____ CA	57.24054	53,239.58	0.318	57.03084	57.35281	57.33797
____ CD	0.00011	2.24	110.909	0.00003	0.00024	0.00005
____ CO	-0.00032	2.02	74.637	-0.00006	-0.00038	-0.00052
____ CR	0.01561	162.41	4.125	0.01569	0.01493	0.01621
____ CU	0.02865	221.41	2.300	0.02831	0.02941	0.02822
____ FE	5.76802	1,644.86	0.633	5.72721	5.77926	5.79760
____ K	4.42765	1,337.98	1.941	4.34177	4.51366	4.42753
____ LI	0.00588	29.34	31.418	0.00724	0.00661	0.00378
____ MG	11.59694	17,974.47	0.566	11.52748	11.65784	11.60549
____ MN	0.33928	21,569.05	0.607	0.33918	0.34139	0.33728
____ MO	0.00940	24.89	3.867	0.00907	0.00935	0.00979
____ NA	16.47267	16,148.95	0.611	16.35914	16.50769	16.55119
____ NI	0.00704	27.56	12.960	0.00809	0.00642	0.00661
____ P	0.13427	45.90	0.930	0.13378	0.13569	0.13335
____ PB	0.00314	3.39	4.305	0.00329	0.00303	0.00309
____ S	4.23982	633.04	0.481	4.24504	4.25709	4.21732
____ SB	-0.00011	2.16	3488.963	-0.00326	-0.00101	0.00396
____ SE	-0.00353	-2.38	145.033	-0.00512	-0.00767	0.00220
____ SI	12.07831	1,691.03	0.665	11.98665	12.13614	12.11215
____ SN	-0.00096	0.51	65.196	-0.00154	-0.00029	-0.00106
____ SR	0.25655	181,118.73	0.413	0.25602	0.25777	0.25586
____ TI	0.03166	1,584.84	0.389	0.03151	0.03173	0.03173
____ TL	0.00054	-3.30	86.656	0.00106	0.00016	0.00039
____ V	0.00250	27.52	27.947	0.00256	0.00177	0.00317
____ Y1	6686.23959	6,686.24	0.102	6687.28009	6678.93817	6692.50050
____ Y2A	211905.93235	211,905.93	0.475	212212.49000	210781.42458	212723.88246
____ Y2R	13000.83281	13,000.83	0.504	13072.79588	12984.88407	12944.81847
____ ZN	0.07822	667.62	0.311	0.07804	0.07849	0.07811
____ ZR	0.00131	5.38	93.170	0.00197	0.00206	-0.00010

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 21 Date/Time: 08/19/2016 14:15

Sample Number: **8523844** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00024	-59.19	187.468	-0.00065	-0.00028	0.00023
____ AL	2.50414	291.37	2.023	2.44631	2.54070	2.52541
____ AS	0.02130	5.00	14.289	0.01948	0.01960	0.02481
____ B	0.03213	488.39	2.666	0.03174	0.03312	0.03155
____ BA	0.17698	114,955.76	0.235	0.17661	0.17743	0.17689
____ BE	0.00008	-325.58	13.885	0.00007	0.00009	0.00009
____ CA	47.61001	44,712.59	0.074	47.58573	47.59377	47.65051
____ CD	0.00044	10.22	40.042	0.00025	0.00059	0.00049
____ CO	0.00214	15.20	13.772	0.00209	0.00187	0.00245
____ CR	0.01678	175.97	0.809	0.01678	0.01692	0.01665
____ CU	0.02643	193.06	1.460	0.02678	0.02649	0.02602
____ FE	9.28936	2,661.72	0.159	9.27905	9.30626	9.28276
____ K	3.57679	1,103.48	0.717	3.54769	3.58657	3.59612
____ LI	0.00605	30.60	21.080	0.00491	0.00743	0.00582
____ MG	10.23517	15,987.96	0.149	10.24347	10.21753	10.24452
____ MN	0.25328	16,250.56	0.363	0.25245	0.25427	0.25313
____ MO	0.00639	17.14	7.618	0.00601	0.00622	0.00694
____ NA	9.17692	9,010.87	0.417	9.22076	9.16009	9.14991
____ NI	0.01229	42.27	6.012	0.01271	0.01273	0.01144
____ P	0.20947	71.51	0.819	0.21057	0.20749	0.21035
____ PB	0.00618	6.83	36.211	0.00861	0.00419	0.00575
____ S	3.31625	501.03	0.212	3.30855	3.32228	3.31793
____ SB	0.00168	3.04	193.014	-0.00087	0.00057	0.00534
____ SE	-0.00740	-3.36	26.802	-0.00948	-0.00720	-0.00553
____ SI	18.21973	2,570.60	0.094	18.20913	18.23953	18.21053
____ SN	-0.00122	0.31	125.122	-0.00283	-0.00102	0.00020
____ SR	0.20942	149,147.86	0.216	0.20896	0.20986	0.20944
____ TI	0.18835	9,384.49	1.180	0.18638	0.19076	0.18792
____ TL	0.00070	-3.87	294.151	0.00139	0.00234	-0.00162
____ V	0.01046	149.40	7.154	0.00978	0.01035	0.01126
____ Y1	6753.43623	6,753.44	0.290	6767.85500	6761.33913	6731.11455
____ Y2A	213781.06590	213,781.07	0.192	214220.80420	213408.42820	213713.96531
____ Y2R	13095.95132	13,095.95	0.065	13086.32914	13102.43854	13099.08628
____ ZN	0.04858	427.22	0.183	0.04865	0.04861	0.04848
____ ZR	0.00250	7.86	47.495	0.00120	0.00276	0.00354

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 22 Date/Time: 08/19/2016 14:18

Sample Number: **8523845** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
AG	-0.00071	-90.73	34.762	-0.00047	-0.00071	-0.00096
AL	4.32367	498.95	0.682	4.31870	4.29698	4.35533
AS	0.00847	0.89	23.377	0.00878	0.01029	0.00636
B	0.04755	842.86	1.866	0.04751	0.04668	0.04845
BA	0.12089	77,879.20	0.135	0.12102	0.12071	0.12094
BE	0.00007	-338.51	14.525	0.00006	0.00008	0.00008
CA	26.02144	24,486.86	0.275	25.93932	26.07067	26.05434
CD	0.00017	20.97	40.013	0.00024	0.00016	0.00011
CO	0.00293	20.44	13.661	0.00247	0.00313	0.00319
CR	0.05696	587.20	1.025	0.05629	0.05720	0.05738
CU	0.06138	618.16	1.186	0.06079	0.06219	0.06116
FE	20.85460	5,902.61	0.357	20.76870	20.90074	20.89435
K	2.76773	867.87	1.319	2.72563	2.78677	2.79080
LI	0.00679	34.96	44.019	0.00491	0.00522	0.01024
MG	7.01758	10,934.55	0.371	7.04724	7.00696	6.99852
MN	0.30992	19,690.87	0.408	0.31023	0.30853	0.31100
MO	0.03290	87.27	0.515	0.03270	0.03299	0.03300
NA	48.38428	47,828.62	0.144	48.31241	48.45139	48.38905
NI	0.02822	85.64	1.751	0.02823	0.02871	0.02772
P	0.32303	109.14	0.345	0.32427	0.32212	0.32269
PB	0.00808	9.13	15.740	0.00871	0.00891	0.00661
S	4.93617	741.27	0.281	4.95075	4.92309	4.93468
SB	-0.00121	1.70	177.709	-0.00216	0.00125	-0.00274
SE	-0.00501	-3.02	73.212	-0.00839	-0.00112	-0.00551
SI	18.15043	2,551.86	0.742	18.00032	18.19016	18.26082
SN	0.00042	1.61	137.409	-0.00017	0.00045	0.00097
SR	0.12420	87,595.57	0.233	0.12442	0.12387	0.12430
TI	0.33741	16,631.52	1.084	0.33718	0.33387	0.34117
TL	0.00327	-3.55	61.412	0.00179	0.00556	0.00246
V	0.01681	240.10	2.919	0.01650	0.01738	0.01655
Y1	6732.31197	6,732.31	0.439	6759.68450	6736.25200	6700.99940
Y2A	211757.37951	211,757.38	0.293	211951.65000	212257.22832	211063.26022
Y2R	13047.16794	13,047.17	0.325	13096.11355	13021.18305	13024.20722
ZN	0.33881	2,868.85	0.144	0.33831	0.33929	0.33882
ZR	0.00388	10.65	16.498	0.00446	0.00398	0.00319

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 23

Date/Time: 08/19/2016 14:21

Sample Number: **CCV**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.49339	7,027.15	0.607	0.49043	0.49642	0.49332
____ AL	24.49677	2,725.86	0.196	24.45599	24.48467	24.54966
____ AS	0.49435	139.48	0.851	0.48953	0.49626	0.49727
____ B	0.46320	4,362.81	0.532	0.46038	0.46493	0.46429
____ BA	0.49293	309,653.93	0.524	0.49004	0.49501	0.49374
____ BE	0.47469	192,184.90	0.567	0.47187	0.47723	0.47499
____ CA	24.38048	22,291.35	0.214	24.32034	24.40588	24.41522
____ CD	0.48839	5,344.17	0.084	0.48878	0.48796	0.48843
____ CO	0.48661	2,219.80	0.183	0.48605	0.48614	0.48763
____ CR	0.48688	4,894.07	0.253	0.48674	0.48817	0.48572
____ CU	0.49436	5,846.07	0.759	0.49035	0.49779	0.49494
____ FE	24.17712	6,628.99	0.218	24.23733	24.13861	24.15540
____ K	24.68202	6,931.55	0.705	24.56323	24.60093	24.88191
____ LI	0.50269	2,962.14	0.383	0.50141	0.50491	0.50176
____ MG	24.47180	36,803.79	0.335	24.42228	24.42661	24.56651
____ MN	0.49221	30,561.41	0.543	0.48920	0.49430	0.49314
____ MO	0.49261	1,281.23	0.158	0.49216	0.49216	0.49351
____ NA	24.81627	23,767.99	0.169	24.77396	24.81710	24.85775
____ NI	0.48103	1,343.98	0.036	0.48097	0.48123	0.48090
____ P	0.48551	160.40	0.531	0.48661	0.48256	0.48735
____ PB	0.48412	446.30	0.575	0.48263	0.48239	0.48733
____ S	24.48171	3,594.58	0.149	24.50378	24.43952	24.50183
____ SB	0.49126	228.80	1.082	0.48922	0.49729	0.48726
____ SE	0.48618	105.28	0.995	0.48752	0.48081	0.49020
____ SI	24.92726	3,404.48	0.465	24.81636	24.91799	25.04744
____ SN	0.47814	373.70	0.459	0.47713	0.47663	0.48066
____ SR	0.49640	342,428.99	0.124	0.49575	0.49649	0.49697
____ TI	0.49260	23,727.50	0.852	0.48790	0.49599	0.49390
____ TL	0.48925	188.29	1.050	0.49071	0.49351	0.48354
____ V	0.49739	7,092.34	0.198	0.49627	0.49777	0.49813
____ Y1	6612.21532	6,612.22	0.244	6597.70821	6609.34939	6629.58837
____ Y2A	207030.52339	207,030.52	0.633	208196.29685	205612.31559	207282.95772
____ Y2R	12670.42302	12,670.42	0.078	12658.99101	12675.40443	12676.87363
____ ZN	0.49031	4,093.76	0.092	0.49011	0.48999	0.49082
____ ZR	0.49277	981.28	0.740	0.48873	0.49581	0.49376

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 24

Date/Time: 08/19/2016 14:24

Sample Number: **CCB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00037	-40.52	138.465	-0.00004	-0.00095	-0.00011
____ AL	0.00191	3.16	2053.564	-0.00152	-0.03538	0.04262
____ AS	0.00311	0.06	90.618	0.00128	0.00170	0.00636
____ B	0.00179	41.95	34.997	0.00145	0.00252	0.00141
____ BA	-0.00030	115.54	7.851	-0.00030	-0.00033	-0.00028
____ BE	0.00005	-317.01	22.520	0.00005	0.00004	0.00007
____ CA	-0.00690	36.37	36.577	-0.00636	-0.00965	-0.00469
____ CD	0.00006	-5.16	191.824	0.00009	0.00015	-0.00007
____ CO	-0.00018	2.35	75.631	-0.00026	-0.00024	-0.00002
____ CR	-0.00038	-2.06	62.246	-0.00026	-0.00065	-0.00022
____ CU	-0.00088	-160.24	74.816	-0.00029	-0.00075	-0.00159
____ FE	0.00628	1.45	42.936	0.00413	0.00931	0.00541
____ K	0.05285	88.83	41.032	0.03104	0.07440	0.05310
____ LI	0.00140	2.11	72.367	0.00218	0.00026	0.00175
____ MG	-0.00492	-1.55	5.010	-0.00488	-0.00518	-0.00469
____ MN	-0.00014	14.11	69.283	-0.00003	-0.00017	-0.00021
____ MO	0.00134	3.73	24.915	0.00127	0.00170	0.00105
____ NA	0.16000	41.17	1.707	0.15781	0.16306	0.15911
____ NI	-0.00027	7.87	225.441	-0.00082	-0.00034	0.00037
____ P	0.00109	1.82	135.180	-0.00046	0.00125	0.00248
____ PB	0.00135	1.61	270.419	0.00464	-0.00259	0.00200
____ S	-0.00425	3.45	201.154	0.00246	-0.01387	-0.00134
____ SB	0.00288	3.56	131.227	0.00560	0.00447	-0.00143
____ SE	-0.00156	-1.86	47.291	-0.00143	-0.00236	-0.00090
____ SI	0.00872	0.30	112.235	-0.00153	0.00973	0.01795
____ SN	-0.00048	0.90	196.230	0.00030	-0.00154	-0.00021
____ SR	0.00004	-18.98	43.329	0.00002	0.00005	0.00004
____ TI	-0.00004	23.68	393.612	-0.00012	0.00015	-0.00015
____ TL	0.00112	-2.84	76.157	0.00015	0.00146	0.00176
____ V	0.00005	-8.49	815.043	-0.00004	-0.00033	0.00053
____ Y1	6741.15360	6,741.15	0.386	6727.49151	6771.16154	6724.80775
____ Y2A	212077.49144	212,077.49	0.764	210371.61017	212262.53746	213598.32667
____ Y2R	12715.22963	12,715.23	0.528	12775.32500	12727.68839	12642.67551
____ ZN	-0.00022	10.10	19.844	-0.00019	-0.00020	-0.00027
____ ZR	0.00093	4.47	319.057	0.00032	-0.00168	0.00413

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 25 Date/Time: 08/19/2016 14:27

Sample Number: **8523846** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00058	-89.14	97.545	-0.00104	-0.00075	0.00005
____ AL	4.41333	506.86	0.947	4.37351	4.40965	4.45684
____ AS	0.00836	0.84	19.590	0.00901	0.00649	0.00957
____ B	0.04828	854.00	1.939	0.04894	0.04869	0.04721
____ BA	0.12183	78,328.83	0.297	0.12225	0.12159	0.12166
____ BE	0.00013	-316.22	10.486	0.00013	0.00011	0.00014
____ CA	26.40337	24,727.38	0.488	26.25533	26.48894	26.46585
____ CD	0.00012	20.79	90.636	0.00025	0.00005	0.00007
____ CO	0.00316	21.46	2.134	0.00317	0.00322	0.00309
____ CR	0.05761	592.73	1.639	0.05862	0.05747	0.05674
____ CU	0.06066	608.09	1.255	0.06148	0.06050	0.05999
____ FE	21.18790	5,967.54	0.643	21.05975	21.17300	21.33094
____ K	2.76825	863.94	1.515	2.75628	2.81488	2.73359
____ LI	0.00918	49.27	14.128	0.01063	0.00814	0.00876
____ MG	7.15742	11,099.69	0.344	7.18585	7.14399	7.14244
____ MN	0.31194	19,780.35	0.319	0.31294	0.31195	0.31095
____ MO	0.03413	90.23	1.576	0.03424	0.03355	0.03460
____ NA	49.45789	48,663.75	0.638	49.09529	49.66963	49.60876
____ NI	0.02813	85.04	0.262	0.02821	0.02811	0.02807
____ P	0.32672	110.00	1.152	0.33104	0.32416	0.32496
____ PB	0.00606	7.26	29.901	0.00398	0.00689	0.00730
____ S	5.05217	756.01	0.277	5.03669	5.06395	5.05588
____ SB	0.00147	2.95	205.084	0.00007	-0.00060	0.00494
____ SE	-0.00347	-2.67	88.979	-0.00431	-0.00005	-0.00605
____ SI	18.35249	2,568.23	0.784	18.18738	18.45118	18.41892
____ SN	0.00056	1.72	100.916	0.00081	-0.00009	0.00097
____ SR	0.12648	89,034.86	0.303	0.12692	0.12619	0.12635
____ TI	0.33876	16,665.08	1.044	0.34273	0.33596	0.33758
____ TL	0.00401	-3.25	73.593	0.00225	0.00741	0.00236
____ V	0.01689	240.57	2.320	0.01730	0.01684	0.01652
____ Y1	6709.38558	6,709.39	0.127	6711.75295	6716.45873	6699.94507
____ Y2A	211340.35726	211,340.36	0.293	210630.98802	211764.51049	211625.57328
____ Y2R	12986.22296	12,986.22	0.603	13012.94652	12898.03550	13047.68685
____ ZN	0.33928	2,863.18	0.392	0.33838	0.33864	0.34080
____ ZR	0.00609	15.13	53.636	0.00655	0.00262	0.00910

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 26 Date/Time: 08/19/2016 14:30

Sample Number: **8528577** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00009	-49.33	407.375	0.00034	-0.00032	0.00025
____ AL	1.70992	199.05	0.927	1.72423	1.69288	1.71266
____ AS	0.01777	4.05	20.669	0.01936	0.02039	0.01357
____ B	0.03373	457.99	1.871	0.03440	0.03366	0.03314
____ BA	0.14898	96,442.35	0.142	0.14921	0.14894	0.14880
____ BE	0.00012	-313.44	25.452	0.00015	0.00011	0.00009
____ CA	37.77810	35,409.81	0.745	38.05743	37.49444	37.78243
____ CD	0.00038	6.94	44.213	0.00055	0.00022	0.00036
____ CO	0.00029	7.20	79.097	0.00006	0.00051	0.00029
____ CR	0.01251	131.13	5.620	0.01326	0.01241	0.01187
____ CU	0.02648	190.15	3.101	0.02737	0.02575	0.02632
____ FE	7.15144	2,043.17	0.778	7.19851	7.09003	7.16577
____ K	3.25666	1,007.05	1.635	3.31787	3.22086	3.23125
____ LI	0.00607	30.51	24.737	0.00654	0.00439	0.00728
____ MG	8.57757	13,347.45	0.688	8.64520	8.53678	8.55072
____ MN	0.24391	15,588.64	0.447	0.24504	0.24383	0.24286
____ MO	0.00542	14.56	4.294	0.00522	0.00568	0.00537
____ NA	8.44478	8,245.95	0.280	8.45546	8.41767	8.46122
____ NI	0.00425	19.68	10.656	0.00384	0.00474	0.00417
____ P	0.30012	101.71	0.552	0.30158	0.30048	0.29832
____ PB	0.00905	9.27	21.454	0.01113	0.00730	0.00870
____ S	1.93982	294.48	0.147	1.93908	1.93742	1.94296
____ SB	-0.00009	2.19	5379.344	0.00337	-0.00557	0.00193
____ SE	-0.00856	-3.57	50.160	-0.00913	-0.00401	-0.01254
____ SI	20.13847	2,828.87	1.280	20.40281	19.88760	20.12499
____ SN	-0.00101	0.48	45.211	-0.00048	-0.00125	-0.00130
____ SR	0.16457	116,732.10	0.183	0.16489	0.16450	0.16430
____ TI	0.24332	12,068.41	0.453	0.24377	0.24207	0.24413
____ TL	0.00162	-3.61	105.421	0.00181	0.00322	-0.00018
____ V	0.01150	164.47	2.881	0.01112	0.01173	0.01164
____ Y1	6745.89070	6,745.89	0.268	6759.22131	6725.31987	6753.13093
____ Y2A	212940.95834	212,940.96	0.122	212759.34882	213237.84202	212825.68418
____ Y2R	13037.99700	13,038.00	0.511	13005.64436	13114.59788	12993.74875
____ ZN	0.07925	682.93	0.165	0.07913	0.07924	0.07939
____ ZR	0.00445	11.83	116.676	-0.00094	0.00942	0.00486

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 27 Date/Time: 08/19/2016 14:33

Sample Number: **8528581** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00066	-78.49	48.312	-0.00042	-0.00053	-0.00101
____ AL	0.46141	55.88	7.683	0.49893	0.45682	0.42848
____ AS	0.01599	3.24	16.903	0.01829	0.01301	0.01665
____ B	0.04459	713.14	3.495	0.04475	0.04296	0.04607
____ BA	0.09934	64,577.57	0.573	0.09959	0.09868	0.09974
____ BE	0.00001	-344.43	464.377	0.00002	-0.00002	0.00001
____ CA	31.62111	29,638.22	0.863	31.74389	31.81116	31.30830
____ CD	0.00023	14.95	46.079	0.00026	0.00032	0.00011
____ CO	0.00121	9.13	27.237	0.00083	0.00138	0.00142
____ CR	0.03641	379.16	4.249	0.03817	0.03524	0.03584
____ CU	0.03285	268.53	4.962	0.03339	0.03102	0.03415
____ FE	15.24174	4,321.61	1.135	15.26767	15.40037	15.05718
____ K	3.29842	1,017.35	2.576	3.39037	3.22276	3.28213
____ LI	0.01209	66.97	17.160	0.01257	0.01389	0.00982
____ MG	9.71378	15,084.02	0.785	9.78535	9.72248	9.63351
____ MN	0.23680	15,175.16	0.937	0.23824	0.23425	0.23792
____ MO	0.02314	61.31	0.550	0.02311	0.02327	0.02302
____ NA	12.21527	11,959.66	0.642	12.27169	12.24842	12.12570
____ NI	0.01696	54.41	1.903	0.01727	0.01663	0.01698
____ P	0.35681	120.17	0.840	0.35335	0.35874	0.35833
____ PB	0.00538	5.65	40.264	0.00409	0.00787	0.00416
____ S	2.01650	304.72	0.223	2.01133	2.01940	2.01876
____ SB	0.00143	2.91	435.241	0.00846	-0.00084	-0.00334
____ SE	-0.00311	-2.47	239.935	-0.00759	-0.00725	0.00551
____ SI	19.39197	2,718.64	1.365	19.39725	19.65394	19.12474
____ SN	-0.00078	0.66	207.442	-0.00203	0.00104	-0.00134
____ SR	0.15200	108,101.49	0.862	0.15280	0.15049	0.15271
____ TI	0.03399	1,712.47	0.137	0.03394	0.03399	0.03403
____ TL	0.00185	-3.00	133.717	0.00028	0.00057	0.00470
____ V	0.00282	31.62	4.955	0.00284	0.00268	0.00296
____ Y1	6719.32714	6,719.33	0.123	6727.97643	6718.44578	6711.55922
____ Y2A	213513.08613	213,513.09	0.452	213493.69014	214488.22971	212557.33853
____ Y2R	13016.70180	13,016.70	0.898	12976.93037	12924.86530	13148.30973
____ ZN	0.31185	2,633.48	0.370	0.31316	0.31100	0.31139
____ ZR	0.00162	6.02	106.551	-0.00030	0.00306	0.00211

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 28 Date/Time: 08/19/2016 14:37

Sample Number: **8528582** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00058	-79.17	21.990	-0.00072	-0.00054	-0.00047
____ AL	1.10967	130.24	3.051	1.11459	1.14079	1.07361
____ AS	0.00619	0.37	40.611	0.00905	0.00522	0.00430
____ B	0.05500	819.54	0.892	0.05555	0.05461	0.05482
____ BA	0.03141	20,279.53	0.694	0.03133	0.03166	0.03124
____ BE	-0.00001	-348.59	94.659	0.00000	-0.00002	-0.00001
____ CA	7.69299	7,290.69	0.283	7.67251	7.69060	7.71587
____ CD	0.00012	15.43	84.343	0.00000	0.00018	0.00017
____ CO	0.00144	10.61	33.510	0.00192	0.00095	0.00145
____ CR	0.04560	466.19	0.942	0.04597	0.04513	0.04569
____ CU	0.03225	250.14	2.297	0.03222	0.03153	0.03301
____ FE	16.80585	4,764.63	0.569	16.73278	16.77063	16.91415
____ K	1.64926	547.16	0.967	1.63281	1.66467	1.65030
____ LI	0.00681	35.02	36.014	0.00537	0.00543	0.00965
____ MG	2.29686	3,583.70	0.292	2.28920	2.30163	2.29976
____ MN	0.17327	10,919.39	0.235	0.17328	0.17285	0.17367
____ MO	0.03095	81.36	1.870	0.03057	0.03162	0.03067
____ NA	94.63654	93,535.83	0.371	94.26168	94.68950	94.95846
____ NI	0.02033	63.26	1.605	0.01996	0.02049	0.02055
____ P	0.17379	58.84	0.911	0.17318	0.17559	0.17261
____ PB	0.00555	5.94	57.364	0.00448	0.00304	0.00913
____ S	5.75150	854.92	0.588	5.71886	5.78635	5.74931
____ SB	0.00194	3.12	48.167	0.00296	0.00113	0.00172
____ SE	-0.00228	-2.30	18.030	-0.00197	-0.00213	-0.00275
____ SI	12.26159	1,720.79	0.349	12.28381	12.21228	12.28869
____ SN	0.00092	1.99	97.259	-0.00005	0.00170	0.00110
____ SR	0.03957	27,627.21	0.193	0.03948	0.03961	0.03961
____ TI	0.07891	3,873.94	0.464	0.07933	0.07868	0.07871
____ TL	-0.00048	-4.12	102.495	-0.00030	-0.00103	-0.00010
____ V	0.00525	65.81	3.653	0.00546	0.00509	0.00520
____ Y1	6669.81445	6,669.81	0.454	6687.04759	6634.87954	6687.51623
____ Y2A	209847.93501	209,847.94	0.460	209548.16147	210927.74725	209067.89631
____ Y2R	13029.88827	13,029.89	0.549	13108.91287	13011.10945	12969.64250
____ ZN	0.31724	2,659.90	0.554	0.31654	0.31924	0.31595
____ ZR	0.00386	10.57	61.595	0.00123	0.00450	0.00584

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 29 Date/Time: 08/19/2016 14:40

Sample Number: **8528583** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00025	-48.44	57.963	-0.00030	-0.00008	-0.00035
____ AL	1.33029	155.16	1.270	1.34980	1.32041	1.32065
____ AS	0.08492	23.60	2.189	0.08413	0.08358	0.08704
____ B	0.05536	588.66	0.637	0.05572	0.05533	0.05502
____ BA	0.21014	135,869.32	0.538	0.21092	0.21064	0.20884
____ BE	0.00009	-318.41	16.398	0.00007	0.00010	0.00009
____ CA	25.19450	23,637.19	0.226	25.21545	25.23801	25.13005
____ CD	-0.00003	-0.89	253.089	0.00002	-0.00010	0.00000
____ CO	0.00050	6.46	108.630	-0.00013	0.00082	0.00079
____ CR	0.00712	75.40	3.463	0.00717	0.00685	0.00734
____ CU	0.00806	-42.60	7.585	0.00736	0.00841	0.00842
____ FE	4.36161	1,245.38	0.312	4.34817	4.37537	4.36128
____ K	3.99454	1,214.90	0.522	3.98108	4.01857	3.98398
____ LI	0.01457	82.03	12.613	0.01611	0.01254	0.01507
____ MG	8.68346	13,477.07	0.571	8.66476	8.73967	8.64596
____ MN	0.16353	10,456.76	0.737	0.16390	0.16451	0.16219
____ MO	0.00741	19.81	3.314	0.00765	0.00742	0.00716
____ NA	32.21098	31,698.18	0.357	32.17049	32.34062	32.12183
____ NI	0.00503	22.26	17.477	0.00403	0.00536	0.00569
____ P	0.13231	45.60	0.913	0.13314	0.13092	0.13285
____ PB	0.00608	6.37	40.560	0.00848	0.00620	0.00356
____ S	4.94073	742.64	0.257	4.95505	4.93081	4.93634
____ SB	0.00401	4.09	59.865	0.00678	0.00250	0.00275
____ SE	-0.00721	-3.21	65.601	-0.00185	-0.00900	-0.01078
____ SI	20.29341	2,842.81	0.522	20.28523	20.19189	20.40312
____ SN	-0.00193	-0.25	26.974	-0.00137	-0.00200	-0.00241
____ SR	0.13559	96,150.19	0.512	0.13603	0.13595	0.13479
____ TI	0.08982	4,470.20	2.060	0.09191	0.08916	0.08839
____ TL	0.00073	-3.45	315.116	0.00291	0.00095	-0.00167
____ V	0.00812	111.85	3.146	0.00787	0.00838	0.00812
____ Y1	6738.63662	6,738.64	0.030	6737.78211	6737.14914	6740.97861
____ Y2A	212896.99534	212,897.00	0.290	212773.50620	212351.34596	213566.13387
____ Y2R	13004.50669	13,004.51	0.446	13071.49621	12971.17306	12970.85079
____ ZN	0.07583	651.67	0.388	0.07565	0.07567	0.07617
____ ZR	0.00085	4.45	211.458	0.00293	-0.00005	-0.00032

LANCASTER LABORATORIES

Run Name: 1623204T72 Instrument ID: 16417

Tube: 30 Date/Time: 08/19/2016 14:43

Sample Number: **8528584** Class: **** Batch: 162315716004

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol Symbol: PW

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00084	-89.95	23.904	-0.00064	-0.00084	-0.00104
____ AL	0.43794	52.91	8.275	0.40759	0.42817	0.47806
____ AS	0.01779	3.54	13.083	0.01984	0.01526	0.01827
____ B	0.31730	3,085.07	0.690	0.31709	0.31523	0.31959
____ BA	0.31043	196,142.04	0.215	0.31012	0.30997	0.31119
____ BE	0.00001	-334.37	295.281	0.00001	0.00002	-0.00002
____ CA	33.96523	31,622.50	0.412	34.12527	33.90396	33.86646
____ CD	-0.00004	17.69	356.850	0.00002	0.00006	-0.00018
____ CO	0.00045	5.48	90.444	0.00050	0.00002	0.00084
____ CR	0.04376	443.97	0.349	0.04377	0.04391	0.04360
____ CU	0.02761	198.64	2.356	0.02702	0.02831	0.02748
____ FE	20.25538	5,687.30	0.023	20.25360	20.25191	20.26063
____ K	5.87899	1,743.23	0.334	5.85656	5.89316	5.88726
____ LI	0.13821	827.04	1.942	0.13531	0.13872	0.14061
____ MG	18.07092	27,809.68	0.070	18.07483	18.05685	18.08108
____ MN	0.35606	22,238.82	0.370	0.35702	0.35456	0.35659
____ MO	0.03505	91.47	1.894	0.03429	0.03547	0.03540
____ NA	70.87203	69,521.80	0.050	70.91086	70.86412	70.84111
____ NI	0.01608	50.50	2.485	0.01634	0.01628	0.01562
____ P	0.34978	116.15	0.402	0.35006	0.34825	0.35102
____ PB	0.00460	4.91	71.820	0.00185	0.00368	0.00826
____ S	2.34881	349.21	0.546	2.33409	2.35765	2.35467
____ SB	0.00068	2.48	266.554	0.00239	-0.00124	0.00090
____ SE	-0.00770	-3.53	23.540	-0.00966	-0.00734	-0.00609
____ SI	27.35852	3,812.67	0.618	27.51892	27.18215	27.37448
____ SN	0.00091	1.97	69.281	0.00019	0.00119	0.00134
____ SR	0.36102	250,430.71	0.159	0.36088	0.36053	0.36165
____ TI	0.02788	1,374.40	9.428	0.03091	0.02650	0.02622
____ TL	0.00197	-3.00	61.271	0.00123	0.00336	0.00132
____ V	0.00252	25.00	16.854	0.00213	0.00246	0.00298
____ Y1	6623.65714	6,623.66	0.355	6649.16517	6618.95052	6602.85572
____ Y2A	208198.26921	208,198.27	0.314	208791.98264	208305.30000	207497.52500
____ Y2R	12937.27406	12,937.27	0.204	12920.03090	12967.61013	12924.18115
____ ZN	0.17727	1,487.77	0.267	0.17675	0.17767	0.17738
____ ZR	0.00138	5.50	195.464	0.00394	0.00166	-0.00145

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 31

Date/Time: 08/19/2016 14:46

Sample Number: **LLC**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
AG	0.00528	46.91	8.799	0.00570	0.00536	0.00478
AL	0.20821	26.33	22.297	0.15669	0.22113	0.24680
AS	0.02108	5.29	3.837	0.02058	0.02065	0.02201
B	0.04590	426.58	0.646	0.04583	0.04565	0.04623
BA	0.00496	3,535.07	0.654	0.00493	0.00500	0.00496
BE	0.00500	1,748.36	0.676	0.00500	0.00502	0.00496
CA	0.19510	222.91	4.765	0.18948	0.18999	0.20583
CD	0.00498	49.97	3.139	0.00503	0.00481	0.00512
CO	0.00455	24.41	8.711	0.00415	0.00455	0.00494
CR	0.01428	149.85	3.726	0.01372	0.01478	0.01434
CU	0.00956	-30.94	7.796	0.00920	0.01041	0.00906
FE	0.20160	56.29	2.864	0.19622	0.20087	0.20770
K	0.54015	225.29	11.090	0.47397	0.59065	0.55583
LI	0.02215	125.34	10.541	0.02483	0.02054	0.02107
MG	0.09681	153.54	2.894	0.09958	0.09398	0.09686
MN	0.00523	357.50	2.831	0.00531	0.00531	0.00506
MO	0.01071	28.66	3.120	0.01102	0.01076	0.01035
NA	1.19582	1,043.93	1.000	1.20873	1.19364	1.18510
NI	0.00958	35.90	6.226	0.00890	0.01000	0.00985
P	0.09756	34.13	3.738	0.09341	0.09902	0.10024
PB	0.01729	16.51	3.411	0.01701	0.01689	0.01797
S	0.48339	76.62	0.751	0.47921	0.48512	0.48582
SB	0.02358	13.36	6.952	0.02533	0.02208	0.02331
SE	0.01920	2.81	17.766	0.01604	0.01875	0.02282
SI	0.06238	7.71	20.959	0.07741	0.05610	0.05364
SN	0.01899	16.41	7.225	0.01798	0.02056	0.01844
SR	0.00516	3,628.99	0.388	0.00515	0.00518	0.00515
TI	0.00987	515.76	0.669	0.00988	0.00980	0.00993
TL	0.03231	10.02	2.640	0.03145	0.03233	0.03315
V	0.00553	71.31	3.630	0.00530	0.00567	0.00561
Y1	6763.91685	6,763.92	0.727	6816.11355	6718.46914	6757.16785
Y2A	213586.03659	213,586.04	0.336	213161.31689	213182.40076	214414.39212
Y2R	12745.36138	12,745.36	0.423	12689.32136	12796.76277	12750.00000
ZN	0.02004	181.64	0.888	0.01987	0.02022	0.02004
ZR	0.04805	98.62	8.038	0.05206	0.04435	0.04774

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 32

Date/Time: 08/19/2016 14:49

Sample Number: **ICSA**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	-0.00596	-497.75	5.219	-0.00632	-0.00577	-0.00579
____ AL	516.30926	52,567.04	0.771	514.44729	520.87949	513.60098
____ AS	0.00278	-6.87	227.429	0.00856	0.00377	-0.00398
____ B	-0.04352	3,215.79	2.908	-0.04267	-0.04292	-0.04498
____ BA	0.00372	2,361.58	1.604	0.00371	0.00378	0.00366
____ BE	-0.00005	-311.69	43.809	-0.00003	-0.00005	-0.00007
____ CA	506.41408	399,998.48	0.663	505.48027	510.13809	503.62389
____ CD	-0.00253	186.05	4.950	-0.00249	-0.00267	-0.00243
____ CO	0.00157	9.24	6.756	0.00165	0.00162	0.00145
____ CR	-0.00071	-4.79	27.041	-0.00049	-0.00083	-0.00080
____ CU	0.00226	14.72	38.505	0.00222	0.00314	0.00141
____ FE	204.22282	47,096.92	0.781	203.76355	205.99762	202.90728
____ K	0.10563	100.41	49.570	0.14114	0.04550	0.13025
____ LI	0.00550	25.59	15.749	0.00582	0.00616	0.00452
____ MG	503.90327	620,473.79	1.095	503.13277	509.76662	498.81042
____ MN	0.00147	101.67	10.029	0.00130	0.00158	0.00153
____ MO	-0.00111	-2.45	58.954	-0.00038	-0.00163	-0.00131
____ NA	0.42223	285.22	3.424	0.43245	0.42855	0.40569
____ NI	0.00047	-16.83	205.508	-0.00033	0.00020	0.00156
____ P	0.00951	4.10	14.078	0.00956	0.01083	0.00815
____ PB	0.00192	109.96	274.550	0.00796	-0.00166	-0.00055
____ S	-0.07018	-3.93	7.546	-0.06600	-0.07613	-0.06840
____ SB	0.01851	9.69	38.674	0.01036	0.02142	0.02376
____ SE	-0.01838	-11.09	66.855	-0.03247	-0.01283	-0.00985
____ SI	0.01963	1.74	64.467	0.01937	0.00711	0.03241
____ SN	0.00253	2.91	57.651	0.00401	0.00251	0.00109
____ SR	0.00551	3,366.73	1.513	0.00552	0.00558	0.00542
____ TI	-0.00098	-19.63	17.275	-0.00084	-0.00092	-0.00117
____ TL	0.00268	-6.01	200.695	0.00889	-0.00045	-0.00040
____ V	-0.00137	10.17	45.507	-0.00130	-0.00079	-0.00203
____ Y1	5967.70754	5,967.71	0.087	5964.40924	5964.99551	5973.71788
____ Y2A	185660.17623	185,660.18	0.974	185022.31430	184256.98882	187701.22559
____ Y2R	12319.40410	12,319.40	0.779	12370.76018	12208.70736	12378.74476
____ ZN	0.01068	195.49	0.968	0.01061	0.01080	0.01063
____ ZR	0.00457	11.41	67.512	0.00446	0.00154	0.00771

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 33

Date/Time: 08/19/2016 14:52

Sample Number: **ICSAB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.20822	2,257.56	0.212	0.20840	0.20854	0.20771
____ AL	517.80105	52,925.90	0.680	513.88122	518.83124	520.69070
____ AS	0.10317	19.13	5.614	0.09896	0.10977	0.10077
____ B	-0.04209	3,252.61	16.845	-0.03658	-0.03961	-0.05009
____ BA	0.49931	281,962.90	0.310	0.50109	0.49853	0.49831
____ BE	0.47947	174,582.52	0.190	0.48051	0.47912	0.47879
____ CA	508.51289	403,091.18	0.813	506.47792	513.27064	505.79011
____ CD	0.88897	8,995.39	0.517	0.88505	0.88782	0.89403
____ CO	0.44688	1,844.11	0.432	0.44553	0.44602	0.44909
____ CR	0.47536	4,297.11	0.556	0.47791	0.47552	0.47264
____ CU	0.51906	5,642.35	0.397	0.52131	0.51858	0.51727
____ FE	205.19966	47,476.34	0.782	203.44423	205.56615	206.58861
____ K	0.05883	88.01	73.009	0.01774	0.05533	0.10343
____ LI	0.00761	37.92	32.883	0.00916	0.00472	0.00895
____ MG	505.02751	624,141.51	1.014	499.97709	510.21328	504.89218
____ MN	0.47599	26,579.34	0.156	0.47685	0.47563	0.47550
____ MO	-0.00163	-3.69	22.792	-0.00140	-0.00143	-0.00206
____ NA	0.43778	301.06	2.541	0.44527	0.42499	0.44307
____ NI	0.87187	2,182.06	0.397	0.86848	0.87172	0.87540
____ P	0.01379	5.39	6.199	0.01340	0.01476	0.01319
____ PB	0.04861	149.30	5.330	0.04897	0.05100	0.04586
____ S	-0.07912	-5.13	7.039	-0.07699	-0.07493	-0.08544
____ SB	0.62333	265.60	0.774	0.62860	0.62224	0.61914
____ SE	0.51769	96.12	1.697	0.50755	0.52292	0.52260
____ SI	0.01219	0.76	109.031	0.02600	-0.00051	0.01107
____ SN	0.00479	4.52	43.976	0.00241	0.00553	0.00643
____ SR	0.00551	3,380.17	0.254	0.00551	0.00552	0.00549
____ TI	-0.00070	-7.85	31.445	-0.00086	-0.00080	-0.00045
____ TL	0.08704	20.08	4.799	0.08229	0.09015	0.08867
____ V	0.49998	6,528.29	0.318	0.50171	0.49965	0.49858
____ Y1	5995.26433	5,995.26	0.424	6023.15647	5989.26824	5973.36826
____ Y2A	186182.76640	186,182.77	0.375	185537.97626	186086.23275	186924.09018
____ Y2R	12369.93625	12,369.94	0.695	12468.83747	12312.71237	12328.25892
____ ZN	0.96444	7,364.89	0.358	0.96251	0.96238	0.96842
____ ZR	0.00800	18.07	26.025	0.00563	0.00952	0.00886

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 34

Date/Time: 08/19/2016 14:55

Sample Number: **CCV**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.49745	7,081.76	0.817	0.49359	0.50169	0.49706
____ AL	24.82717	2,756.62	0.685	24.89946	24.94917	24.63287
____ AS	0.48978	139.06	0.505	0.49259	0.48795	0.48878
____ B	0.46292	4,358.23	0.762	0.45905	0.46596	0.46375
____ BA	0.49485	310,687.53	0.643	0.49141	0.49769	0.49544
____ BE	0.47589	192,561.02	0.828	0.47168	0.47950	0.47649
____ CA	24.44792	22,305.07	0.733	24.43997	24.63103	24.27276
____ CD	0.48994	5,395.46	0.386	0.49105	0.48776	0.49102
____ CO	0.48905	2,245.15	0.535	0.49098	0.48607	0.49010
____ CR	0.48397	4,862.03	0.828	0.47982	0.48782	0.48426
____ CU	0.49396	5,838.05	0.553	0.49098	0.49634	0.49455
____ FE	24.18661	6,617.38	0.977	24.15254	24.43799	23.96928
____ K	24.80913	6,952.02	0.839	24.78966	25.02641	24.61131
____ LI	0.50291	2,957.06	1.308	0.49886	0.51050	0.49938
____ MG	24.53592	36,821.21	0.662	24.49373	24.71529	24.39873
____ MN	0.49554	30,750.93	0.672	0.49184	0.49829	0.49651
____ MO	0.49372	1,292.34	0.325	0.49503	0.49193	0.49421
____ NA	25.00538	23,899.22	0.643	24.98094	25.17700	24.85822
____ NI	0.48445	1,362.16	0.470	0.48453	0.48213	0.48668
____ P	0.48599	161.58	0.634	0.48934	0.48328	0.48534
____ PB	0.48623	451.17	0.614	0.48868	0.48291	0.48712
____ S	24.59726	3,634.66	0.179	24.63455	24.54878	24.60844
____ SB	0.49152	230.36	0.378	0.49269	0.48938	0.49249
____ SE	0.48913	106.61	0.973	0.49231	0.49141	0.48366
____ SI	25.20279	3,434.75	0.910	25.22521	25.42015	24.96302
____ SN	0.47638	374.70	0.855	0.47830	0.47170	0.47913
____ SR	0.50062	345,132.89	1.145	0.49526	0.50666	0.49994
____ TI	0.49271	23,719.56	0.850	0.48812	0.49633	0.49366
____ TL	0.49033	189.91	1.003	0.49251	0.48470	0.49378
____ V	0.49975	7,122.09	0.733	0.49585	0.50311	0.50029
____ Y1	6654.58604	6,654.59	0.333	6646.11233	6679.70529	6637.94050
____ Y2A	206918.48047	206,918.48	0.729	208576.58873	205625.54825	206553.30443
____ Y2R	12644.03657	12,644.04	0.833	12659.36066	12531.84856	12740.90048
____ ZN	0.49172	4,131.82	0.397	0.49359	0.48970	0.49187
____ ZR	0.49756	988.73	0.188	0.49864	0.49705	0.49699

LANCASTER LABORATORIES

Run Name: 1623204T72

Instrument ID: 16417

Tube: 35

Date/Time: 08/19/2016 14:59

Sample Number: **CCB**

ELEMENT	AVERAGE CONC (ppm)	AVERAGE INTENSITY	%RSD	INTEGRATIONS #1	#2	#3
____ AG	0.00035	-30.01	84.227	0.00044	0.00002	0.00059
____ AL	0.02996	6.32	203.179	0.08060	-0.03757	0.04683
____ AS	0.00146	-0.42	137.944	0.00280	-0.00085	0.00242
____ B	0.00070	32.55	152.599	-0.00017	0.00037	0.00189
____ BA	-0.00031	108.74	1.770	-0.00030	-0.00031	-0.00031
____ BE	0.00005	-317.10	16.571	0.00005	0.00005	0.00006
____ CA	-0.00297	40.00	76.540	-0.00548	-0.00103	-0.00241
____ CD	0.00006	-5.10	361.716	-0.00020	0.00019	0.00019
____ CO	0.00007	3.48	105.261	-0.00001	0.00012	0.00009
____ CR	-0.00054	-3.77	88.284	-0.00107	-0.00043	-0.00013
____ CU	-0.00064	-156.91	89.954	-0.00040	-0.00129	-0.00022
____ FE	0.00945	2.33	50.616	0.00429	0.01373	0.01032
____ K	0.09581	100.79	47.875	0.04286	0.12105	0.12350
____ LI	0.00315	12.46	33.060	0.00329	0.00204	0.00410
____ MG	0.00382	11.74	55.918	0.00530	0.00137	0.00478
____ MN	-0.00014	13.83	9.913	-0.00013	-0.00014	-0.00016
____ MO	0.00083	2.37	33.211	0.00069	0.00066	0.00115
____ NA	0.13042	12.66	7.390	0.14128	0.12288	0.12710
____ NI	-0.00056	6.99	121.259	-0.00135	-0.00021	-0.00013
____ P	-0.00070	1.22	181.863	0.00035	-0.00034	-0.00210
____ PB	0.00006	0.43	909.821	0.00064	-0.00030	-0.00017
____ S	0.00500	4.82	2.343	0.00487	0.00510	0.00503
____ SB	-0.00155	1.47	95.626	-0.00001	-0.00167	-0.00296
____ SE	-0.00166	-1.88	48.530	-0.00155	-0.00252	-0.00092
____ SI	0.02122	2.01	23.509	0.01635	0.02100	0.02632
____ SN	-0.00184	-0.18	42.128	-0.00270	-0.00163	-0.00120
____ SR	0.00002	-31.75	42.547	0.00001	0.00002	0.00003
____ TI	0.00007	29.05	140.579	0.00018	0.00004	-0.00001
____ TL	0.00038	-3.15	207.280	0.00125	0.00013	-0.00025
____ V	0.00060	-0.22	71.937	0.00045	0.00109	0.00027
____ Y1	6722.09679	6,722.10	0.670	6769.67246	6680.09786	6716.52004
____ Y2A	211659.64606	211,659.65	0.604	211712.93619	212911.19143	210354.81057
____ Y2R	12721.36712	12,721.37	1.123	12849.58517	12747.07967	12567.43651
____ ZN	-0.00021	10.12	75.954	-0.00033	-0.00028	-0.00003
____ ZR	0.00030	3.21	1089.819	-0.00341	0.00275	0.00157

ICP-MS Data

Metals in Liquid

eurofins | Lancaster Laboratories Environmental

ICP-MS Run Data Report

Method Reference Name(s):

Date File Name: 1623102.E02

Run Name: 1623102E02

Analyst: 8381

Reviewed By: Scott P Cuff

Reviewed Date: 08/18/2016 09:21

Verified By: Deborah A Krady

Verified Date: 08/18/2016 13:01

Instrument Parameters:

Rinse Time (sec): 25.00

INTERNAL STD.	ELEMENT	MASS
SC		45
	NA	23
	MG	24
	AL	27
	K	39
	CA	43
GE		72
	TI	47
	FE	54
	AS	75
	SE	82
IN		115
	CU	63
	MO	98
	CD	111
	SB	121
BI		209
	TL	203
	PB	208

Run Name: 1623102E02 Date/Time: 08/18/2016 6:59:17
Tube Number: 1
Sample Number: **S0**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
C	13	6168.61900	6168.61900	0.000	0.00000	0.00000	0.00000
NA	23	0.00000	40384.38000	0.000	0.00000	0.00000	0.00000
MG	24	0.00000	1936.99300	0.000	0.00000	0.00000	0.00000
AL	27	0.00000	12146.38500	0.000	0.00000	0.00000	0.00000
P	31	7185.89700	7185.89700	0.000	0.00000	0.00000	0.00000
S	34	186218.35100	186218.35100	0.000	0.00000	0.00000	0.00000
CL	37	11119678	11119678	0.000	0.00000	0.00000	0.00000
K	39	0.00000	824064.88600	0.000	0.00000	0.00000	0.00000
CA	43	0.00000	841.36700	0.000	0.00000	0.00000	0.00000
SC	45	151275.19700	151275.19700	0.000	0.00000	0.00000	0.00000
TI	47	0.00000	7183.54400	0.000	0.00000	0.00000	0.00000
FE	54	0.00000	43307.44200	0.000	0.00000	0.00000	0.00000
CU	63	0.00000	132.00200	0.000	0.00000	0.00000	0.00000
GE	72	149429.29000	149429.29000	0.000	0.00000	0.00000	0.00000
AS	75	0.00000	3703.29800	0.000	0.00000	0.00000	0.00000
SE	82	0.00000	1549.10100	0.000	0.00000	0.00000	0.00000
MO	98	0.00000	366.74000	0.000	0.00000	0.00000	0.00000
CD	111	0.00000	67.91700	0.000	0.00000	0.00000	0.00000
IN	115	79254.49800	79254.49800	0.000	0.00000	0.00000	0.00000
SB	121	0.00000	457.67900	0.000	0.00000	0.00000	0.00000
TB	159	108821.71600	108821.71600	0.000	0.00000	0.00000	0.00000
TL	203	0.00000	92.00100	0.000	0.00000	0.00000	0.00000
PB	208	0.00000	157.33500	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.00000	63.66700	0.000	0.00000	0.00000	0.00000
BI	209	68295.63700	68295.63700	0.000	0.00000	0.00000	0.00000

Run Name: 1623102E02 Date/Time: 08/18/2016 7:03:14
Tube Number: 2
Sample Number: **S1**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	151649.46100	151649.46100	0.000	0.00000	0.00000	0.00000
AL	27	10000.00000	31384015.44700	6.529	10024.95410	9334.99177	10640.05413
CA	43	10000.00000	108258.20600	6.733	9804.48360	9446.10998	10749.40642
K	39	10000.00000	40996754.36700	8.040	9767.82022	9337.59313	10894.58665
MG	24	10000.00000	20082415.68300	4.798	10302.94694	9446.86817	10250.18489
NA	23	10000.00000	29966240.48600	3.240	10077.17934	9644.33430	10278.48636
GE	72	150465.48200	150465.48200	0.000	0.00000	0.00000	0.00000
AS	75	100.00000	117891.72100	3.687	98.50548	97.29537	104.19915
FE	54	10000.00000	3209437.49600	4.877	9460.57515	10129.65718	10409.76767
SE	82	100.00000	12320.76800	3.241	98.00386	98.25710	103.73904
TI	47	100.00000	54266.82200	3.459	96.33633	103.20863	100.45504
IN	115	79437.62200	79437.62200	0.000	0.00000	0.00000	0.00000
CD	111	100.00000	154493.06300	3.896	97.62399	97.87973	104.49627
CU	63	100.00000	319763.14400	7.398	92.68564	99.83478	107.47958
MO	98	100.00000	361553.08200	2.839	97.15210	100.01718	102.83072
SB	121	100.00000	540594.37600	6.458	94.49826	98.39178	107.10996
BI	209	67681.22200	67681.22200	0.000	0.00000	0.00000	0.00000
PB	208	100.00000	1989003.61000	5.659	96.28674	97.19975	106.51350
TL	203	100.00000	595541.76800	7.866	95.02408	95.90768	109.06823
C	13	6992.41100	6992.41100	0.000	0.00000	0.00000	0.00000
P	31	6922.37400	6922.37400	0.000	0.00000	0.00000	0.00000
S	34	169881.45600	169881.45600	0.000	0.00000	0.00000	0.00000
CL	37	11996673	11996673	0.000	0.00000	0.00000	0.00000
TB	159	107564.54300	107564.54300	0.000	0.00000	0.00000	0.00000
XPB 208	208	100.00000	1057228.00300	3.913	97.96313	97.52557	104.51129

Run Name: 1623102E02 Date/Time: 08/18/2016 7:07:00
Tube Number: 3
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	159006.21100	159006.21100	0.000	0.00000	0.00000	0.00000
AL	27	0.59803	14732.40400	25.614	0.49505	0.77406	0.52498
CA	43	6.50604	958.04200	16.341	7.72604	6.01431	5.77778
K	39	-6.90711	836624.03700	62.608	-11.90019	-4.46199	-4.35916
MG	24	0.85201	3824.22900	20.624	0.66241	1.00939	0.88422
NA	23	-7.52014	18814.26300	3.644	-7.83219	-7.40959	-7.31866
GE	72	150045.17800	150045.17800	0.000	0.00000	0.00000	0.00000
AS	75	0.20730	3947.86200	176.620	-0.10214	0.61149	0.11255
FE	54	9.28602	46399.68000	33.740	5.87243	9.95519	12.03046
SE	82	0.34345	1589.10500	427.539	-1.33798	1.37311	0.99521
TI	47	2.30451	8299.16600	26.074	2.94448	2.21664	1.75239
IN	115	82867.84900	82867.84900	0.000	0.00000	0.00000	0.00000
CD	111	0.00531	79.69800	87.750	0.00538	0.00992	0.00061
CU	63	0.03835	266.00500	13.351	0.04158	0.03245	0.04103
MO	98	0.33684	1645.18500	34.641	0.21563	0.34648	0.44840
SB	121	0.55615	3606.49500	16.792	0.46717	0.54788	0.65340
BI	209	68871.70300	68871.70300	0.000	0.00000	0.00000	0.00000
PB	208	0.01703	503.67500	7.573	0.01798	0.01556	0.01756
TL	203	0.12456	851.70100	21.838	0.09471	0.13102	0.14795
C	13	8533.42300	8533.42300	0.000	0.00000	0.00000	0.00000
P	31	7626.17100	7626.17100	0.000	0.00000	0.00000	0.00000
S	34	179549.21900	179549.21900	0.000	0.00000	0.00000	0.00000
CL	37	12464491	12464491	0.000	0.00000	0.00000	0.00000
TB	159	106696.42000	106696.42000	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.01709	248.33800	3.749	0.01647	0.01705	0.01774

Run Name: 1623102E02 Date/Time: 08/18/2016 7:10:46
Tube Number: 4
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	157252.25300	157252.25300	0.000	0.00000	0.00000	0.00000
AL	27	0.58627	14532.17600	14.482	0.51752	0.56011	0.68117
CA	43	10.78364	995.71100	32.534	14.56764	7.63887	10.14441
K	39	-4.23201	838734.59300	67.249	-6.86244	-4.62275	-1.21085
MG	24	0.72411	3524.12100	4.899	0.76400	0.69610	0.71224
NA	23	-7.72104	17986.44900	3.107	-7.98583	-7.51825	-7.65905
GE	72	148567.26900	148567.26900	0.000	0.00000	0.00000	0.00000
AS	75	0.04805	3742.48100	701.360	0.27550	0.20774	-0.33910
FE	54	5.56272	44752.29600	76.187	1.54601	9.99201	5.15013
SE	82	-0.01448	1536.76500	6693.515	-0.39339	1.08712	-0.73718
TI	47	3.04924	8556.98800	23.977	3.10375	3.75158	2.29240
IN	115	81668.81500	81668.81500	0.000	0.00000	0.00000	0.00000
CD	111	-0.00392	63.53000	179.352	-0.00838	-0.00757	0.00419
CU	63	0.03095	238.00400	3.944	0.03143	0.03186	0.02957
MO	98	0.05561	582.20100	93.026	0.00117	0.06153	0.10414
SB	121	0.17152	1421.42000	30.238	0.12032	0.17023	0.22402
BI	209	69215.31700	69215.31700	0.000	0.00000	0.00000	0.00000
PB	208	0.01534	472.00800	6.396	0.01464	0.01492	0.01646
TL	203	0.05584	434.34400	24.433	0.04089	0.05903	0.06761
C	13	8783.59500	8783.59500	0.000	0.00000	0.00000	0.00000
P	31	8313.37800	8313.37800	0.000	0.00000	0.00000	0.00000
S	34	188335.76600	188335.76600	0.000	0.00000	0.00000	0.00000
CL	37	12650484	12650484	0.000	0.00000	0.00000	0.00000
TB	159	105415.29700	105415.29700	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.01619	239.67100	7.101	0.01565	0.01540	0.01751

Run Name: 1623102E02 Date/Time: 08/18/2016 7:14:36
Tube Number: 5
Sample Number: **ICV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	162794.26200	162794.26200	0.000	0.00000	0.00000	0.00000
AL	27	4769.93982	16059838.42200	8.805	4293.71500	4928.72288	5087.38159
CA	43	4896.05313	57350.82900	6.276	4557.40931	4973.70594	5157.04413
K	39	4863.73029	21856716.29900	8.033	4415.16867	5046.50572	5129.51648
MG	24	4915.71950	10579045.82000	8.458	4444.04837	5074.13959	5228.97055
NA	23	4789.53419	15387697.53700	10.504	4242.26967	4894.35301	5231.97987
GE	72	154890.86100	154890.86100	0.000	0.00000	0.00000	0.00000
AS	75	48.74446	61085.97700	4.153	46.90560	48.41435	50.91344
FE	54	5384.07864	1795601.13300	11.724	4864.67566	5200.94579	6086.61446
SE	82	50.21561	7164.20200	5.066	48.34838	49.18538	53.11308
TI	47	52.70386	32945.61600	2.799	51.00027	53.55627	53.55503
IN	115	83134.28900	83134.28900	0.000	0.00000	0.00000	0.00000
CD	111	52.50050	84904.52600	3.578	50.56249	52.62540	54.31360
CU	63	50.03327	167537.46800	5.623	47.58701	49.40503	53.10777
MO	98	49.97212	189067.51400	6.307	47.14579	49.39958	53.37099
SB	121	52.38839	296822.13400	3.208	50.49931	52.94776	53.71810
BI	209	68029.97900	68029.97900	0.000	0.00000	0.00000	0.00000
PB	208	48.42843	970149.45800	0.726	48.45520	48.06410	48.76599
TL	203	48.30646	289886.94600	2.464	49.46930	48.35958	47.09049
C	13	9894.41500	9894.41500	0.000	0.00000	0.00000	0.00000
P	31	17332.29400	17332.29400	0.000	0.00000	0.00000	0.00000
S	34	286153.31700	286153.31700	0.000	0.00000	0.00000	0.00000
CL	37	12768644	12768644	0.000	0.00000	0.00000	0.00000
TB	159	109577.60700	109577.60700	0.000	0.00000	0.00000	0.00000
XPB 208	208	48.42837	515430.72800	1.681	48.01387	47.90479	49.36645

Run Name: 1623102E02 Date/Time: 08/18/2016 7:18:22
Tube Number: 6
Sample Number: **ICB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	154933.94300	154933.94300	0.000	0.00000	0.00000	0.00000
AL	27	-1.02287	9153.85000	8.163	-0.99134	-0.95973	-1.11755
CA	43	8.38739	953.04100	49.060	7.19566	12.96659	4.99993
K	39	-2.59337	832904.88200	158.814	-6.24568	1.87071	-3.40514
MG	24	0.43200	2867.24200	23.745	0.31492	0.47499	0.50609
NA	23	-8.58709	15072.78900	2.229	-8.80299	-8.43806	-8.52024
GE	72	151483.73200	151483.73200	0.000	0.00000	0.00000	0.00000
AS	75	0.10987	3876.46600	263.452	-0.22409	0.26509	0.28860
FE	54	7.57719	46318.62900	7.279	7.16276	8.20318	7.36564
SE	82	0.07454	1577.77000	2032.921	-1.41387	1.61528	0.02220
TI	47	2.81066	8617.02200	19.904	3.42969	2.66105	2.34123
IN	115	80220.61000	80220.61000	0.000	0.00000	0.00000	0.00000
CD	111	0.00884	82.37500	96.389	0.01361	0.01391	-0.00100
CU	63	0.00610	153.33600	4.303	0.00640	0.00603	0.00589
MO	98	0.19095	1071.26500	33.473	0.11788	0.21847	0.23650
SB	121	0.03891	677.35700	49.580	0.01938	0.03939	0.05796
BI	209	66394.69400	66394.69400	0.000	0.00000	0.00000	0.00000
PB	208	0.00991	346.67200	4.051	0.00976	0.00961	0.01037
TL	203	0.02707	1701.12500	35.564	0.02723	0.02626	0.02771
C	13	8109.79400	8109.79400	0.000	0.00000	0.00000	0.00000
P	31	6778.95900	6778.95900	0.000	0.00000	0.00000	0.00000
S	34	176700.34000	176700.34000	0.000	0.00000	0.00000	0.00000
CL	37	12438605	12438605	0.000	0.00000	0.00000	0.00000
TB	159	109186.17300	109186.17300	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.00958	161.33600	13.448	0.00920	0.00853	0.01101

Run Name: 1623102E02 Date/Time: 08/18/2016 7:22:10
Tube Number: 7
Sample Number: **LLC**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	156403.70100	156403.70100	0.000	0.00000	0.00000	0.00000
AL	27	125.00402	417259.48400	7.421	118.41911	135.61362	120.97932
CA	43	213.96066	3244.73400	0.234	214.49571	213.88070	213.50556
K	39	241.55045	1853896.72900	7.638	225.66168	261.78344	237.20623
MG	24	132.54389	276460.39200	6.825	124.75368	142.46595	130.41202
NA	23	242.62618	790510.65100	5.927	232.78739	259.12875	235.96241
GE	72	157160.90000	157160.90000	0.000	0.00000	0.00000	0.00000
AS	75	2.08371	6382.45000	11.547	2.31448	2.10230	1.83434
FE	54	136.97276	90840.53900	7.792	125.11525	139.99409	145.80893
SE	82	1.40400	1786.79700	116.454	3.28415	0.31533	0.61253
TI	47	17.68123	16237.38700	4.792	18.40451	16.74908	17.89010
IN	115	80880.31100	80880.31100	0.000	0.00000	0.00000	0.00000
CD	111	0.51164	874.42300	4.607	0.53316	0.51531	0.48645
CU	63	2.24361	7445.68200	4.856	2.13347	2.35135	2.24600
MO	98	0.56051	2437.03900	6.855	0.52566	0.55415	0.60171
SB	121	1.11485	6603.92900	7.489	1.01967	1.17572	1.14916
BI	209	66727.22600	66727.22600	0.000	0.00000	0.00000	0.00000
PB	208	1.04541	20685.34400	1.432	1.03117	1.04404	1.06101
TL	203	0.65337	3930.58100	6.974	0.60193	0.66954	0.68864
C	13	9464.09900	9464.09900	0.000	0.00000	0.00000	0.00000
P	31	7572.76900	7572.76900	0.000	0.00000	0.00000	0.00000
S	34	181037.88800	181037.88800	0.000	0.00000	0.00000	0.00000
CL	37	12525455	12525455	0.000	0.00000	0.00000	0.00000
TB	159	111284.96600	111284.96600	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.03000	10807.52900	2.407	1.01487	1.01653	1.05861

Run Name: 1623102E02 Date/Time: 08/18/2016 7:25:56
Tube Number: 8
Sample Number: **ICSA**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	158058.93700	158058.93700	0.000	0.00000	0.00000	0.00000
AL	27	9148.31531	29977725.67200	1.164	9242.38380	9169.87796	9032.68418
CA	43	9784.98807	110621.75200	1.346	9683.26355	9933.76203	9737.93863
K	39	9698.46723	41561674.77600	1.990	9905.91674	9665.19826	9524.28670
MG	24	9418.11945	19729824.53600	1.307	9288.91302	9431.32245	9534.12287
NA	23	9365.81544	29273379.43500	1.937	9174.24767	9535.01196	9388.18670
GE	72	160739.62400	160739.62400	0.000	0.00000	0.00000	0.00000
AS	75	0.22881	4257.81300	196.619	-0.06536	0.00509	0.74671
FE	54	9648.00737	3308419.27900	6.519	9158.60539	9428.03893	10357.37779
SE	82	-0.65847	1589.10500	230.687	-1.54309	-1.52782	1.09550
TI	47	210.31375	113354.67900	4.713	203.27044	206.02140	221.64942
IN	115	79899.33900	79899.33900	0.000	0.00000	0.00000	0.00000
CD	111	0.04693	140.82500	53.533	0.07588	0.03071	0.03422
CU	63	0.27734	1026.04700	1.451	0.27914	0.27273	0.28014
MO	98	208.22269	756971.19400	2.423	213.26920	203.17977	208.21909
SB	121	-0.00191	451.34500	737.546	-0.01560	-0.00270	0.01256
BI	209	68664.32300	68664.32300	0.000	0.00000	0.00000	0.00000
PB	208	0.02196	602.34400	8.580	0.02394	0.02174	0.02019
TL	203	0.04622	371.34200	52.960	0.02039	0.04919	0.06908
C	13	14438.75900	14438.75900	0.000	0.00000	0.00000	0.00000
P	31	1879804	1879804	0.000	0.00000	0.00000	0.00000
S	34	371014.88500	371014.88500	0.000	0.00000	0.00000	0.00000
CL	37	12427475	12427475	0.000	0.00000	0.00000	0.00000
TB	159	112548.15100	112548.15100	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.02246	305.34000	4.710	0.02361	0.02224	0.02153

Run Name: 1623102E02 Date/Time: 08/18/2016 7:29:41
Tube Number: 9
Sample Number: **ICSAB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	158246.99200	158246.99200	0.000	0.00000	0.00000	0.00000
AL	27	9414.45201	30883721.02800	0.732	9355.90388	9397.03033	9490.42181
CA	43	10120.25816	114531.30500	0.090	10112.38803	10118.08502	10130.30142
K	39	10131.67255	43402812.14100	3.937	9708.38701	10186.12594	10500.50469
MG	24	9559.78461	20036180.22100	4.090	9109.63890	9755.02027	9814.69465
NA	23	9567.46905	29937067.38900	1.764	9469.11878	9762.37932	9470.90904
GE	72	159619.15600	159619.15600	0.000	0.00000	0.00000	0.00000
AS	75	18.88588	26840.64500	3.045	18.92912	19.43805	18.29047
FE	54	10112.27216	3441829.75800	5.278	9559.88332	10151.82513	10625.10805
SE	82	-0.62002	1585.10500	318.045	-1.57921	1.64802	-1.92886
TI	47	211.26070	113058.12000	2.634	205.94564	210.79169	217.04478
IN	115	80469.40600	80469.40600	0.000	0.00000	0.00000	0.00000
CD	111	20.26339	31778.95000	3.150	20.69179	20.56860	19.52976
CU	63	21.28586	69162.08200	2.372	21.24530	21.80980	20.80247
MO	98	214.10906	783840.68900	3.708	219.72586	217.57500	205.02632
SB	121	-0.02337	337.67400	62.009	-0.03975	-0.01813	-0.01223
BI	209	67743.99300	67743.99300	0.000	0.00000	0.00000	0.00000
PB	208	0.02663	687.01300	3.667	0.02690	0.02744	0.02554
TL	203	0.04033	330.67400	46.212	0.01896	0.04881	0.05322
C	13	13544.45400	13544.45400	0.000	0.00000	0.00000	0.00000
P	31	1880591	1880591	0.000	0.00000	0.00000	0.00000
S	34	364340.95800	364340.95800	0.000	0.00000	0.00000	0.00000
CL	37	8246172	8246172	0.000	0.00000	0.00000	0.00000
TB	159	110165.30200	110165.30200	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.02839	364.00800	2.969	0.02925	0.02834	0.02757

Run Name: 1623102E02 Date/Time: 08/18/2016 7:33:26
Tube Number: 10
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	163350.86500	163350.86500	0.000	0.00000	0.00000	0.00000
AL	27	2329.54157	7872476.89900	11.128	2035.36908	2428.66114	2524.59451
CA	43	2438.13459	29119.27800	6.194	2266.11337	2499.40038	2548.89002
K	39	2365.60541	11121298.76800	8.884	2123.12542	2478.64005	2495.05076
MG	24	2388.28191	5152143.20100	12.791	2036.68650	2539.34822	2588.81102
NA	23	2375.77885	7679190.99700	12.273	2039.15977	2538.38553	2549.79127
GE	72	162276.49900	162276.49900	0.000	0.00000	0.00000	0.00000
AS	75	23.46179	32912.37400	0.827	23.36265	23.33749	23.68523
FE	54	3024.63767	1079343.06500	2.770	2952.60427	3004.71681	3116.59193
SE	82	23.66343	4428.39900	7.721	24.56719	21.56074	24.86238
TI	47	23.84381	19896.72500	1.462	24.12541	23.45396	23.95207
IN	115	86451.35900	86451.35900	0.000	0.00000	0.00000	0.00000
CD	111	24.75651	41648.58500	5.500	23.47589	24.60673	26.18691
CU	63	24.49495	85386.35500	5.119	23.04747	25.19552	25.24187
MO	98	24.26636	95713.20800	5.022	23.17720	24.03925	25.58262
SB	121	24.64033	145382.61100	4.579	23.34179	25.19868	25.38051
BI	209	69659.48800	69659.48800	0.000	0.00000	0.00000	0.00000
PB	208	24.23040	497046.83100	0.675	24.17723	24.41404	24.09992
TL	203	24.22941	148955.05400	1.155	24.33178	24.44353	23.91291
C	13	9343.99400	9343.99400	0.000	0.00000	0.00000	0.00000
P	31	6608.85700	6608.85700	0.000	0.00000	0.00000	0.00000
S	34	171544.90100	171544.90100	0.000	0.00000	0.00000	0.00000
CL	37	12170234	12170234	0.000	0.00000	0.00000	0.00000
TB	159	110331.98400	110331.98400	0.000	0.00000	0.00000	0.00000
XPB 208	208	24.45512	266467.96500	1.018	24.49223	24.68340	24.18972

Run Name: 1623102E02 Date/Time: 08/18/2016 7:37:13
Tube Number: 11
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	157642.37400	157642.37400	0.000	0.00000	0.00000	0.00000
AL	27	-0.98995	9424.05100	3.220	-1.00366	-0.95351	-1.01268
CA	43	8.14457	968.70900	100.732	16.83295	7.07042	0.53034
K	39	-9.36131	819541.66000	21.100	-11.48671	-7.58193	-9.01529
MG	24	0.43786	2933.92800	7.153	0.45887	0.45284	0.40186
NA	23	-8.90294	14365.32700	1.709	-9.05839	-8.75431	-8.89612
GE	72	148930.12000	148930.12000	0.000	0.00000	0.00000	0.00000
AS	75	0.11250	3811.08300	319.338	-0.29920	0.27425	0.36246
FE	54	6.60680	45153.57100	200.525	3.06716	21.26543	-4.51219
SE	82	0.58927	1602.44000	325.493	-1.61111	1.90757	1.47134
TI	47	2.46641	8304.16600	30.297	2.66736	3.09262	1.63923
IN	115	83120.89000	83120.89000	0.000	0.00000	0.00000	0.00000
CD	111	-0.00414	64.40800	187.023	-0.00836	0.00480	-0.00885
CU	63	0.00375	151.00200	5.981	0.00358	0.00367	0.00401
MO	98	0.17944	1057.89800	48.091	0.08339	0.20449	0.25043
SB	121	0.11197	1676.44900	17.382	0.07085	0.22308	0.24198
BI	209	66088.23500	66088.23500	0.000	0.00000	0.00000	0.00000
PB	208	0.00922	331.67100	2.549	0.00949	0.00910	0.00907
TL	203	0.00514	526.01500	30.428	0.01879	0.08976	0.08687
C	13	8269.90100	8269.90100	0.000	0.00000	0.00000	0.00000
P	31	6919.03800	6919.03800	0.000	0.00000	0.00000	0.00000
S	34	175617.42600	175617.42600	0.000	0.00000	0.00000	0.00000
CL	37	12485517	12485517	0.000	0.00000	0.00000	0.00000
TB	159	106480.73800	106480.73800	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.01009	166.00300	10.461	0.00924	0.00977	0.01127

Run Name: 1623102E02
Tube Number: 12
Sample Number: **PBW**

Date/Time: 08/18/2016 7:41:00
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	156129.53000	156129.53000	0.000	0.00000	0.00000	0.00000
AL	27	2.56198	20780.52900	18.668	2.10768	3.06105	2.51722
CA	43	102.82151	2008.49500	5.512	105.91150	106.27204	96.28099
K	39	1.29567	855118.56900	436.101	-4.83737	6.29009	2.43430
MG	24	1.80388	5728.38900	4.968	1.75604	1.90726	1.74835
NA	23	5.51403	58595.77600	15.090	4.55664	6.06231	5.92314
GE	72	152077.78500	152077.78500	0.000	0.00000	0.00000	0.00000
AS	75	0.06495	3845.06800	337.515	0.19380	0.18920	-0.18816
FE	54	3.16462	45091.86100	116.293	4.91800	-1.06445	5.64031
SE	82	-0.02751	1574.10300	4385.449	0.59598	0.73948	-1.41798
TI	47	3.19901	8834.15700	21.849	3.90262	3.18961	2.50479
IN	115	82681.24400	82681.24400	0.000	0.00000	0.00000	0.00000
CD	111	-0.00487	62.92700	116.275	-0.00863	0.00164	-0.00761
CU	63	0.04133	275.33900	7.134	0.03902	0.04465	0.04032
MO	98	0.02214	463.56000	178.408	-0.01822	0.02393	0.06070
SB	121	0.03983	699.69100	51.867	0.01600	0.05271	0.05079
BI	209	69746.21300	69746.21300	0.000	0.00000	0.00000	0.00000
PB	208	0.01761	522.34200	3.792	0.01832	0.01753	0.01699
TL	203	0.01274	172.00300	82.927	0.00166	0.01385	0.02270
C	13	7095.81000	7095.81000	0.000	0.00000	0.00000	0.00000
P	31	6658.90200	6658.90200	0.000	0.00000	0.00000	0.00000
S	34	170903.61000	170903.61000	0.000	0.00000	0.00000	0.00000
CL	37	13671385	13671385	0.000	0.00000	0.00000	0.00000
TB	159	106697.73500	106697.73500	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.01814	263.00500	10.907	0.01851	0.01992	0.01601

Run Name: 1623102E02
Tube Number: 13
Sample Number: **LCSW**

Date/Time: 08/18/2016 7:44:46
Batch: 162297050004A
Class: **********

Initial Vol: 1.00 Final Vol: 1.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	159734.24000	159734.24000	0.000	0.00000	0.00000	0.00000
AL	27	1950.75337	6460866.24100	6.669	1818.93433	2079.04834	1954.27745
CA	43	4066.33459	46928.10900	4.960	3844.99419	4239.73643	4114.27314
K	39	9884.06273	42725822.50100	6.749	9208.98738	10542.74591	9900.45489
MG	24	1959.95651	4145362.96200	6.576	1832.37028	2090.10956	1957.38969
NA	23	9812.85231	30978182.28500	2.499	9530.16844	9939.89512	9968.49338
GE	72	155639.47700	155639.47700	0.000	0.00000	0.00000	0.00000
AS	75	9.85157	15491.78300	7.659	9.86264	9.09152	10.60055
FE	54	1253.08334	455598.74900	4.238	1258.46123	1303.29452	1197.49426
SE	82	10.60317	2793.63500	12.083	10.61618	9.31558	11.87775
TI	47	246.20868	127253.26500	2.212	252.29669	241.80128	244.52807
IN	115	82207.00800	82207.00800	0.000	0.00000	0.00000	0.00000
CD	111	5.11352	8246.23300	1.685	5.01914	5.18803	5.13338
CU	63	50.89789	168588.76900	5.648	47.78273	53.44848	51.46247
MO	98	51.70988	193530.38800	6.141	48.29339	52.26522	54.57104
SB	121	6.42273	36399.34300	3.776	6.14268	6.56405	6.56147
BI	209	70257.41300	70257.41300	0.000	0.00000	0.00000	0.00000
PB	208	14.65908	303228.39500	4.081	14.06430	14.65212	15.26083
TL	203	1.97423	12322.77200	4.636	1.89156	1.95854	2.07259
C	13	7225.88900	7225.88900	0.000	0.00000	0.00000	0.00000
P	31	7262.58800	7262.58800	0.000	0.00000	0.00000	0.00000
S	34	178004.25600	178004.25600	0.000	0.00000	0.00000	0.00000
CL	37	14532250	14532250	0.000	0.00000	0.00000	0.00000
TB	159	109546.98800	109546.98800	0.000	0.00000	0.00000	0.00000
XPB 208	208	14.76163	162208.60300	3.597	14.17463	14.90163	15.20862

Run Name: 1623102E02
Tube Number: 14
Sample Number: **8523838**

Date/Time: 08/18/2016 7:48:32
Batch: 162297050004A
Class: U*********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	179887.55000	179887.55000	0.000	0.00000	0.00000	0.00000
AL	27	125.73881	482464.69700	5.362	120.28900	123.64963	133.27779
CA	43	49355.85261	630583.51900	3.954	47217.30728	49809.65617	51040.59439
K	39	3810.83134	19167340.64900	4.446	3618.03987	3878.34246	3936.11170
MG	24	9951.41894	23694027.44300	4.929	9536.63325	9824.73127	10492.89230
NA	23	13828.03355	49142081.75100	3.246	13339.43874	13922.54094	14222.12096
GE	72	154748.21500	154748.21500	0.000	0.00000	0.00000	0.00000
AS	75	6.60761	11599.65400	9.247	6.06817	6.48351	7.27117
FE	54	5449.28420	1818960.44700	5.638	5675.99814	5572.22056	5099.63391
SE	82	-0.31757	1569.43600	320.615	-1.49319	0.28049	0.25999
TI	47	24.89960	19479.80700	5.819	26.20877	25.14728	23.34275
IN	115	82295.49000	82295.49000	0.000	0.00000	0.00000	0.00000
CD	111	0.10820	242.61700	16.554	0.08829	0.12301	0.11331
CU	63	22.73044	75336.60500	6.955	20.90965	23.52630	23.75536
MO	98	7.17191	27144.62000	8.812	6.44733	7.45911	7.60929
SB	121	0.43492	2903.99100	9.450	0.38799	0.45229	0.46449
BI	209	68628.14800	68628.14800	0.000	0.00000	0.00000	0.00000
PB	208	1.03617	21095.99000	2.598	1.00754	1.04002	1.06096
TL	203	0.01174	163.66900	75.582	0.00179	0.01459	0.01883
C	13	7769.55800	7769.55800	0.000	0.00000	0.00000	0.00000
P	31	35975.50300	35975.50300	0.000	0.00000	0.00000	0.00000
S	34	282008.61200	282008.61200	0.000	0.00000	0.00000	0.00000
CL	37	14571660	14571660	0.000	0.00000	0.00000	0.00000
TB	159	109327.04300	109327.04300	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.03489	11172.81500	2.405	1.00675	1.04389	1.05401

Run Name: 1623102E02
Tube Number: 15
Sample Number: **8523838**

Date/Time: 08/18/2016 7:52:18
Batch: 162297050004A
Class: UP********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	185033.40300	185033.40300	0.000	0.00000	0.00000	0.00000
AL	27	308.31171	1196243.80400	5.397	292.94571	306.00726	325.98216
CA	43	48807.22426	641451.36000	5.724	45797.56035	49305.80680	51318.30565
K	39	3965.35451	20477471.41200	4.162	3792.39188	3982.59085	4121.08081
MG	24	9548.09763	23403195.40600	4.452	9075.45830	9669.87060	9898.96398
NA	23	13333.21559	48726365.12000	7.334	12305.48310	13441.94929	14252.21437
GE	72	158316.97300	158316.97300	0.000	0.00000	0.00000	0.00000
AS	75	10.66871	16738.66700	1.808	10.44677	10.76390	10.79547
FE	54	5320.59526	1812935.21900	11.739	4988.29139	4932.43255	6041.06184
SE	82	3.29119	2015.49600	12.796	3.15016	2.95911	2.76428
TI	47	53.80977	34224.30600	2.268	53.43365	52.82144	55.17422
IN	115	85038.77600	85038.77600	0.000	0.00000	0.00000	0.00000
CD	111	1.07233	1844.40700	7.275	0.99247	1.07617	1.14836
CU	63	26.11373	89631.06300	2.974	25.58578	27.00540	25.75001
MO	98	7.52513	29469.90700	6.283	6.99732	7.66824	7.90982
SB	121	2.41264	14456.12300	2.636	2.34305	2.46772	2.42715
BI	209	66233.63100	66233.63100	0.000	0.00000	0.00000	0.00000
PB	208	3.00042	58618.03600	3.200	2.88982	3.04885	3.06258
TL	203	1.10515	6544.56500	2.167	1.09082	1.09183	1.13279
C	13	7742.87400	7742.87400	0.000	0.00000	0.00000	0.00000
P	31	33272.11300	33272.11300	0.000	0.00000	0.00000	0.00000
S	34	275396.48800	275396.48800	0.000	0.00000	0.00000	0.00000
CL	37	14289237	14289237	0.000	0.00000	0.00000	0.00000
TB	159	109213.60800	109213.60800	0.000	0.00000	0.00000	0.00000
XPB 208	208	2.99390	31052.02400	3.516	2.87458	3.03360	3.07353

Run Name: 1623102E02
Tube Number: 16
Sample Number: **8523841**

Date/Time: 08/18/2016 7:56:06
Batch: 162297050004A
Class: D*********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	183935.17800	183935.17800	0.000	0.00000	0.00000	0.00000
AL	27	159.14153	620610.58400	5.882	165.49874	163.53380	148.39205
CA	43	49159.56850	642662.75700	0.906	48865.21801	49671.74011	48941.74739
K	39	3719.72964	19151330.75800	4.037	3830.52601	3779.83191	3548.83101
MG	24	9777.84113	23830659.94300	2.334	9670.49184	10039.93247	9623.09909
NA	23	13524.47513	49163961.57400	1.562	13526.18162	13734.83344	13312.41034
GE	72	161572.50000	161572.50000	0.000	0.00000	0.00000	0.00000
AS	75	7.22176	12853.38500	6.081	6.72968	7.57398	7.36161
FE	54	5373.03313	1873205.50600	2.763	5203.38507	5479.10928	5436.60503
SE	82	-0.64158	1599.10600	175.171	-1.92779	0.15084	-0.14778
TI	47	25.86900	20825.04500	4.367	24.57673	26.66952	26.36074
IN	115	82644.98700	82644.98700	0.000	0.00000	0.00000	0.00000
CD	111	0.09576	224.80400	7.190	0.08797	0.09830	0.10102
CU	63	27.32271	91125.35100	3.482	27.24115	28.31222	26.41474
MO	98	7.83085	29831.50400	1.069	7.90299	7.73902	7.85055
SB	121	0.49720	3274.74200	4.404	0.47439	0.51806	0.49915
BI	209	66451.25000	66451.25000	0.000	0.00000	0.00000	0.00000
PB	208	1.14114	22475.10500	0.878	1.13099	1.15102	1.14142
TL	203	0.01230	161.00300	67.085	0.00277	0.01698	0.01714
C	13	8246.54600	8246.54600	0.000	0.00000	0.00000	0.00000
P	31	36112.63300	36112.63300	0.000	0.00000	0.00000	0.00000
S	34	285496.19000	285496.19000	0.000	0.00000	0.00000	0.00000
CL	37	14478822	14478822	0.000	0.00000	0.00000	0.00000
TB	159	111357.31000	111357.31000	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.12679	11774.30500	0.862	1.13736	1.11827	1.12474

Run Name: 1623102E02
Tube Number: 17
Sample Number: **8523839**

Date/Time: 08/18/2016 7:59:53
Batch: 162297050004A
Class: R*********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	180632.01500	180632.01500	0.000	0.00000	0.00000	0.00000
AL	27	1743.62768	6541467.77100	0.475	1742.71742	1752.32243	1735.84319
CA	43	51864.60812	665809.54300	0.771	51418.11629	51985.19660	52190.51148
K	39	12362.33086	60270374.95600	0.860	12316.64839	12483.86391	12286.48029
MG	24	11205.94631	26820959.80600	3.750	10743.15533	11311.18797	11563.49562
NA	23	21252.20132	75835465.42800	5.094	20251.93339	21102.98115	22401.68942
GE	72	157442.43200	157442.43200	0.000	0.00000	0.00000	0.00000
AS	75	16.65073	23793.56800	4.326	16.26240	17.48197	16.20782
FE	54	5686.91063	1930241.01600	3.193	5627.06676	5542.83013	5890.83501
SE	82	9.98613	2756.29400	13.154	10.59491	10.88490	8.47860
TI	47	261.24844	136148.87000	1.128	261.82911	258.05563	263.86059
IN	115	80577.27400	80577.27400	0.000	0.00000	0.00000	0.00000
CD	111	5.21312	8241.56700	1.975	5.09514	5.28479	5.25945
CU	63	73.02450	237206.28500	4.237	71.62848	70.87421	76.57081
MO	98	59.72545	219354.17500	1.918	61.04823	59.08439	59.04372
SB	121	6.75865	37526.00400	6.506	6.48712	6.52283	7.26598
BI	209	67368.87200	67368.87200	0.000	0.00000	0.00000	0.00000
PB	208	15.90127	315396.94100	3.064	15.41597	15.89729	16.39053
TL	203	1.98368	11870.71700	4.496	1.88257	2.01727	2.05120
C	13	8443.34100	8443.34100	0.000	0.00000	0.00000	0.00000
P	31	32640.52800	32640.52800	0.000	0.00000	0.00000	0.00000
S	34	268618.99100	268618.99100	0.000	0.00000	0.00000	0.00000
CL	37	14218869	14218869	0.000	0.00000	0.00000	0.00000
TB	159	108056.75100	108056.75100	0.000	0.00000	0.00000	0.00000
XPB 208	208	15.96918	168249.10500	3.164	15.51242	15.88311	16.51200

Run Name: 1623102E02
Tube Number: 18
Sample Number: **8523838**

Date/Time: 08/18/2016 8:03:40
Batch: 162297050004A
Class: UL********

Initial Vol: 50.00 Final Vol: 50.00 DF: 5.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	161455.27800	161455.27800	0.000	0.00000	0.00000	0.00000
AL	27	26.46013	101399.17000	7.376	24.55583	28.45581	26.36875
CA	43	10622.80975	122506.43800	4.930	10019.78426	10963.18391	10885.46107
K	39	775.68821	4202381.74100	4.283	742.31256	808.74793	776.00413
MG	24	2187.49565	4678412.70300	5.367	2056.16979	2282.29716	2224.02001
NA	23	2998.65397	9598233.77800	3.834	2867.60531	3045.74039	3082.61620
GE	72	162449.93500	162449.93500	0.000	0.00000	0.00000	0.00000
AS	75	1.40579	5769.71300	48.331	1.27745	0.79967	2.14024
FE	54	1133.13224	434496.29500	1.309	1147.38615	1117.77830	1134.23227
SE	82	-0.60579	1615.77500	280.102	-0.19658	-2.46981	0.84902
TI	47	4.52378	10101.00900	25.613	5.72808	4.42641	3.41684
IN	115	82697.34600	82697.34600	0.000	0.00000	0.00000	0.00000
CD	111	0.01858	100.76300	15.236	0.01763	0.01635	0.02177
CU	63	4.66201	15674.76000	4.462	4.48925	4.60389	4.89289
MO	98	1.48102	5953.48300	3.737	1.41735	1.50805	1.51765
SB	121	0.03531	676.02300	24.485	0.02542	0.03907	0.04145
BI	209	69788.03200	69788.03200	0.000	0.00000	0.00000	0.00000
PB	208	0.19793	4222.28800	3.938	0.18949	0.19946	0.20485
TL	203	0.00440	120.00200	118.914	-0.00160	0.00682	0.00798
C	13	6672.22600	6672.22600	0.000	0.00000	0.00000	0.00000
P	31	14221.89300	14221.89300	0.000	0.00000	0.00000	0.00000
S	34	214998.21800	214998.21800	0.000	0.00000	0.00000	0.00000
CL	37	12974114	12974114	0.000	0.00000	0.00000	0.00000
TB	159	112098.98800	112098.98800	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.19942	2239.86500	2.768	0.19396	0.19931	0.20500

Run Name: 1623102E02
Tube Number: 19
Sample Number: **8523843**

Date/Time: 08/18/2016 8:07:28
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	178402.21500	178402.21500	0.000	0.00000	0.00000	0.00000
AL	27	123.93680	472361.74300	4.282	117.98319	125.65783	128.16937
CA	43	50991.63028	646267.63900	3.050	49588.04106	52663.37616	50723.47361
K	39	3925.00865	19557474.51100	3.662	3766.59285	3961.39712	4047.03597
MG	24	10187.28222	24086357.90800	0.837	10089.69914	10224.58146	10247.56604
NA	23	14039.24348	49519508.69300	3.449	14519.15922	14047.69144	13550.87980
GE	72	157624.87100	157624.87100	0.000	0.00000	0.00000	0.00000
AS	75	6.74527	11980.29500	8.631	6.34899	7.41369	6.47313
FE	54	5433.61697	1847545.19300	9.996	5659.88007	5827.03532	4813.93553
SE	82	-0.95142	1527.76500	204.988	-1.84242	1.28524	-2.29710
TI	47	22.22817	18524.85600	4.297	23.29400	21.44944	21.94108
IN	115	80459.92900	80459.92900	0.000	0.00000	0.00000	0.00000
CD	111	0.11477	248.62800	8.402	0.12587	0.10851	0.10992
CU	63	24.25793	78800.94300	2.927	23.52474	24.30684	24.94220
MO	98	6.75527	25102.80800	0.444	6.73194	6.78908	6.74478
SB	121	0.38157	2554.58800	6.746	0.37712	0.35834	0.40925
BI	209	67480.71500	67480.71500	0.000	0.00000	0.00000	0.00000
PB	208	1.06897	21383.79400	3.244	1.02919	1.09280	1.08493
TL	203	0.00126	98.00100	405.412	-0.00459	0.00359	0.00477
C	13	8239.87200	8239.87200	0.000	0.00000	0.00000	0.00000
P	31	35200.17900	35200.17900	0.000	0.00000	0.00000	0.00000
S	34	284895.02100	284895.02100	0.000	0.00000	0.00000	0.00000
CL	37	14609415	14609415	0.000	0.00000	0.00000	0.00000
TB	159	108958.93700	108958.93700	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.06051	11252.87600	2.001	1.03665	1.07726	1.06763

Run Name: 1623102E02
Tube Number: 20
Sample Number: **8523844**

Date/Time: 08/18/2016 8:11:15
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	196161.75600	196161.75600	0.000	0.00000	0.00000	0.00000
AL	27	1232.71324	5021041.76300	5.366	1157.25098	1280.64374	1260.24502
CA	43	39718.22349	553938.63900	0.353	39619.84877	39655.99040	39878.83129
K	39	2850.82431	15905075.38000	2.199	2808.21892	2821.45074	2922.80326
MG	24	8138.59715	21129484.20900	5.497	7622.86330	8370.73647	8422.19168
NA	23	7350.29416	28505762.32200	2.640	7131.27807	7418.85953	7500.74489
GE	72	156402.29000	156402.29000	0.000	0.00000	0.00000	0.00000
AS	75	17.10231	24184.01500	3.456	17.60943	16.45326	17.24425
FE	54	7965.18759	2666088.31400	1.935	7788.43419	8035.53965	8071.58893
SE	82	-0.49268	1569.10300	297.939	1.13599	-1.71355	-0.90048
TI	47	122.63893	67462.97900	1.107	121.07197	123.41193	123.43287
IN	115	81546.40300	81546.40300	0.000	0.00000	0.00000	0.00000
CD	111	0.44251	770.60500	14.225	0.44237	0.37963	0.50553
CU	63	21.51979	70789.34500	3.676	20.67880	21.63161	22.24896
MO	98	4.97002	18771.29500	7.816	4.58238	4.96844	5.35925
SB	121	0.43534	2885.32000	4.560	0.41243	0.44731	0.44628
BI	209	69185.87400	69185.87400	0.000	0.00000	0.00000	0.00000
PB	208	2.44823	50029.79300	0.368	2.44199	2.44415	2.45855
TL	203	0.01006	155.00200	60.128	0.00313	0.01430	0.01275
C	13	8603.45300	8603.45300	0.000	0.00000	0.00000	0.00000
P	31	51866.04800	51866.04800	0.000	0.00000	0.00000	0.00000
S	34	272411.31100	272411.31100	0.000	0.00000	0.00000	0.00000
CL	37	14954917	14954917	0.000	0.00000	0.00000	0.00000
TB	159	106115.16200	106115.16200	0.000	0.00000	0.00000	0.00000
XPB 208	208	2.43791	26445.06100	0.236	2.43908	2.43167	2.44298

Run Name: 1623102E02
Tube Number: 21
Sample Number: **8523845**

Date/Time: 08/18/2016 8:15:02
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	200358.43800	200358.43800	0.000	0.00000	0.00000	0.00000
AL	27	2337.55975	9723848.71600	3.646	2255.17851	2332.12772	2425.37300
CA	43	20968.55413	299286.50600	3.124	20237.97923	21163.96870	21503.71448
K	39	2050.36350	11998948.07900	1.985	2005.69723	2060.04151	2085.35177
MG	24	5158.96573	13702501.37400	3.297	4969.20970	5210.02137	5297.66612
NA	23	37623.91815	148946892.93100	2.932	36445.01394	37795.29739	38631.44312
GE	72	162761.18500	162761.18500	0.000	0.00000	0.00000	0.00000
AS	75	6.85616	12490.43600	6.934	6.51115	6.65888	7.39845
FE	54	17674.78777	6095471.37200	4.671	17007.44620	17418.94818	18597.96893
SE	82	-0.76189	1595.10500	203.925	-1.26458	-2.00197	0.98090
TI	47	239.82601	129711.08600	5.424	226.20596	241.15032	252.12175
IN	115	82276.40500	82276.40500	0.000	0.00000	0.00000	0.00000
CD	111	0.17266	346.50000	31.826	0.23152	0.12271	0.16375
CU	63	57.25777	190008.42900	2.261	57.14843	58.60350	56.02139
MO	98	29.03497	109070.33400	1.411	29.41218	28.59938	29.09334
SB	121	0.76753	4774.51200	3.325	0.77533	0.78824	0.73903
BI	209	66118.65600	66118.65600	0.000	0.00000	0.00000	0.00000
PB	208	3.49211	68129.58800	0.548	3.50328	3.50304	3.47001
TL	203	0.01838	196.33700	10.323	0.01722	0.02057	0.01735
C	13	8433.33400	8433.33400	0.000	0.00000	0.00000	0.00000
P	31	72266.48400	72266.48400	0.000	0.00000	0.00000	0.00000
S	34	295121.86600	295121.86600	0.000	0.00000	0.00000	0.00000
CL	37	14654250	14654250	0.000	0.00000	0.00000	0.00000
TB	159	111230.62200	111230.62200	0.000	0.00000	0.00000	0.00000
XPB 208	208	3.47684	36018.38900	1.334	3.45559	3.53002	3.44491

Run Name: 1623102E02 Date/Time: 08/18/2016 8:18:48
Tube Number: 22
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	164054.81600	164054.81600	0.000	0.00000	0.00000	0.00000
AL	27	2378.71693	8096085.38100	6.667	2225.22957	2541.96783	2368.95340
CA	43	2451.86251	29441.60200	2.837	2393.69928	2432.96400	2528.92425
K	39	2372.92426	11225255.84400	3.136	2291.61491	2437.65866	2389.49923
MG	24	2429.33952	5279687.20000	6.414	2257.39321	2561.21652	2469.40884
NA	23	2417.45830	7867106.76600	6.462	2238.80066	2485.16947	2528.40476
GE	72	156923.51200	156923.51200	0.000	0.00000	0.00000	0.00000
AS	75	24.14918	32632.79300	6.282	22.43175	25.30652	24.70925
FE	54	3026.75924	1044959.08700	1.692	2992.87088	3085.67035	3001.73650
SE	82	26.31939	4579.11400	8.600	23.74827	27.19867	28.01125
TI	47	24.77121	19695.43900	3.799	25.22704	25.39751	23.68908
IN	115	83220.22900	83220.22900	0.000	0.00000	0.00000	0.00000
CD	111	25.56866	41450.13700	1.851	25.05342	25.66827	25.98430
CU	63	24.60287	82583.51900	3.904	23.60945	24.67260	25.52656
MO	98	24.67448	93623.40000	7.614	22.75300	24.76298	26.50745
SB	121	25.20571	143215.54000	3.171	24.46498	25.09939	26.05275
BI	209	69700.39800	69700.39800	0.000	0.00000	0.00000	0.00000
PB	208	24.47465	502225.37200	3.301	24.20125	23.83885	25.38385
TL	203	24.49125	150616.15800	2.711	24.48238	23.83179	25.15959
C	13	9143.86000	9143.86000	0.000	0.00000	0.00000	0.00000
P	31	6902.36000	6902.36000	0.000	0.00000	0.00000	0.00000
S	34	185988.20600	185988.20600	0.000	0.00000	0.00000	0.00000
CL	37	12824044	12824044	0.000	0.00000	0.00000	0.00000
TB	159	109178.85600	109178.85600	0.000	0.00000	0.00000	0.00000
XPB 208	208	24.55791	267717.63900	3.541	24.05643	24.05532	25.56200

Run Name: 1623102E02 Date/Time: 08/18/2016 8:22:35
Tube Number: 23
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	153087.99600	153087.99600	0.000	0.00000	0.00000	0.00000
AL	27	-0.77771	9814.35400	21.400	-0.83777	-0.90578	-0.58959
CA	43	13.29150	996.37800	15.437	15.65581	11.97821	12.24048
K	39	5.06249	853764.87000	141.935	-0.48673	2.49526	13.17895
MG	24	0.55402	3083.97500	5.771	0.53278	0.59079	0.53850
NA	23	-7.37340	18557.24300	4.130	-7.71078	-7.11897	-7.29045
GE	72	153928.18700	153928.18700	0.000	0.00000	0.00000	0.00000
AS	75	-0.01433	3800.71500	2196.819	0.34573	-0.23810	-0.15063
FE	54	-28.37521	35396.41300	9.820	-29.01429	-30.78672	-25.32463
SE	82	-0.92438	1494.42700	164.895	0.74947	-2.23252	-1.29011
TI	47	1.47947	8112.05500	45.390	2.19962	0.87038	1.36842
IN	115	79526.61400	79526.61400	0.000	0.00000	0.00000	0.00000
CD	111	-0.00124	66.11400	335.447	-0.00279	-0.00438	0.00347
CU	63	0.00217	139.33500	40.663	0.00145	0.00190	0.00315
MO	98	0.10253	733.83600	52.213	0.04205	0.12173	0.14382
SB	121	0.18801	1470.42500	25.245	0.13775	0.19421	0.23207
BI	209	66923.94000	66923.94000	0.000	0.00000	0.00000	0.00000
PB	208	0.00903	332.33800	14.177	0.00844	0.01050	0.00815
TL	203	0.06733	482.68000	43.009	0.03691	0.07051	0.09456
C	13	8276.56300	8276.56300	0.000	0.00000	0.00000	0.00000
P	31	5668.37000	5668.37000	0.000	0.00000	0.00000	0.00000
S	34	197150.67500	197150.67500	0.000	0.00000	0.00000	0.00000
CL	37	12536373	12536373	0.000	0.00000	0.00000	0.00000
TB	159	108118.67900	108118.67900	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.00941	161.00300	18.560	0.00829	0.01143	0.00852

Run Name: 1623102E02
Tube Number: 24
Sample Number: **8523846**

Date/Time: 08/18/2016 8:26:22
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	189803.30900	189803.30900	0.000	0.00000	0.00000	0.00000
AL	27	2184.56708	8603178.70700	5.442	2140.32369	2319.22651	2094.15104
CA	43	21389.25692	289148.35700	1.402	21630.88012	21483.13619	21053.75444
K	39	2071.38634	11466083.18700	5.802	2037.66188	2204.81959	1971.67756
MG	24	5150.54921	12952425.54600	4.752	5121.42941	5408.56343	4921.65478
NA	23	39149.60527	146742500.79600	4.191	38799.93986	40936.99704	37711.87890
GE	72	160635.14100	160635.14100	0.000	0.00000	0.00000	0.00000
AS	75	6.37980	11755.73800	5.641	6.20246	6.79392	6.14302
FE	54	16357.01476	5576390.10400	3.888	15651.90348	16887.32860	16531.81219
SE	82	-1.11398	1535.76500	135.607	-1.48106	0.54637	-2.40725
TI	47	207.74098	112057.48000	3.691	199.36193	209.44989	214.41111
IN	115	78307.58100	78307.58100	0.000	0.00000	0.00000	0.00000
CD	111	0.17132	328.37600	13.311	0.18083	0.14530	0.18782
CU	63	54.96080	173474.79100	4.942	51.91360	55.84156	57.12723
MO	98	29.82353	106570.59500	2.981	28.84110	30.05699	30.57250
SB	121	0.79607	4692.48500	7.359	0.73160	0.81059	0.84603
BI	209	67235.29800	67235.29800	0.000	0.00000	0.00000	0.00000
PB	208	3.26866	64796.01600	4.606	3.16205	3.20305	3.44088
TL	203	0.02887	260.67200	40.703	0.01707	0.02896	0.04057
C	13	8423.34200	8423.34200	0.000	0.00000	0.00000	0.00000
P	31	67647.11700	67647.11700	0.000	0.00000	0.00000	0.00000
S	34	286467.57700	286467.57700	0.000	0.00000	0.00000	0.00000
CL	37	14431065	14431065	0.000	0.00000	0.00000	0.00000
TB	159	109816.96500	109816.96500	0.000	0.00000	0.00000	0.00000
XPB 208	208	3.24710	34174.17300	4.617	3.17935	3.14301	3.41893

Run Name: 1623102E02
Tube Number: 25
Sample Number: **8528577**

Date/Time: 08/18/2016 8:30:10
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	193158.71200	193158.71200	0.000	0.00000	0.00000	0.00000
AL	27	998.84089	4012143.15000	7.973	984.51775	1084.66814	927.33678
CA	43	28722.89989	394611.65800	3.658	27518.61089	29196.80648	29453.28231
K	39	2287.81825	12780109.21400	3.516	2224.77026	2378.42223	2260.26227
MG	24	6392.21326	16361863.90300	2.409	6292.06888	6569.50065	6315.07025
NA	23	6175.65409	23597160.85100	4.314	5873.50955	6276.54270	6376.91002
GE	72	161816.40100	161816.40100	0.000	0.00000	0.00000	0.00000
AS	75	12.49162	19354.47500	2.287	12.16257	12.67629	12.63601
FE	54	5871.34958	2042234.80300	8.855	5612.40325	6469.90008	5531.74540
SE	82	-1.02820	1557.10100	144.070	0.67514	-2.01519	-1.74457
TI	47	173.16340	95253.19400	4.246	172.86345	180.66036	165.96639
IN	115	80532.87500	80532.87500	0.000	0.00000	0.00000	0.00000
CD	111	0.17518	342.71200	11.279	0.15775	0.19664	0.17114
CU	63	22.61276	73406.62600	8.623	20.38686	24.01899	23.43242
MO	98	4.48096	16765.87200	8.401	4.04628	4.69632	4.70027
SB	121	0.45363	2945.00100	13.371	0.38866	0.50876	0.46346
BI	209	73318.10600	73318.10600	0.000	0.00000	0.00000	0.00000
PB	208	5.30124	114505.46100	6.395	4.91213	5.45856	5.53302
TL	203	0.01005	163.00300	92.240	-0.00060	0.01442	0.01632
C	13	7966.35300	7966.35300	0.000	0.00000	0.00000	0.00000
P	31	62777.27200	62777.27200	0.000	0.00000	0.00000	0.00000
S	34	213634.16300	213634.16300	0.000	0.00000	0.00000	0.00000
CL	37	13446545	13446545	0.000	0.00000	0.00000	0.00000
TB	159	114492.36600	114492.36600	0.000	0.00000	0.00000	0.00000
XPB 208	208	5.33870	61236.11100	6.650	4.93359	5.48699	5.59551

Run Name: 1623102E02
Tube Number: 26
Sample Number: **8528581**

Date/Time: 08/18/2016 8:33:56
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	190658.07800	190658.07800	0.000	0.00000	0.00000	0.00000
AL	27	341.01090	1361680.43000	3.348	331.04748	338.51700	353.46822
CA	43	26038.57393	353081.98900	3.516	25083.61297	26908.50784	26123.60099
K	39	2620.55741	14290578.02200	3.995	2506.45804	2712.22134	2642.99285
MG	24	7850.88326	19809120.18400	5.754	7329.27626	8115.58178	8107.79174
NA	23	9583.24486	36098060.79400	5.741	9199.49477	9336.66217	10213.57764
GE	72	157882.59800	157882.59800	0.000	0.00000	0.00000	0.00000
AS	75	14.96361	21840.42700	2.441	14.54978	15.24104	15.10000
FE	54	13384.66883	4493123.99700	0.962	13377.00651	13259.88418	13517.11578
SE	82	-0.64030	1563.76800	167.410	-1.74161	-0.57886	0.39958
TI	47	27.30317	21069.76300	6.368	29.28776	26.04778	26.57396
IN	115	80975.08400	80975.08400	0.000	0.00000	0.00000	0.00000
CD	111	0.04621	142.58700	33.864	0.04312	0.06318	0.03234
CU	63	30.53390	99631.69100	6.506	28.95331	29.88448	32.76390
MO	98	21.40385	79127.33000	5.806	20.06053	21.63836	22.51267
SB	121	0.42919	2829.30900	8.287	0.40100	0.41743	0.46915
BI	209	68976.83900	68976.83900	0.000	0.00000	0.00000	0.00000
PB	208	0.61483	12645.68200	1.601	0.60358	0.61901	0.62189
TL	203	0.00031	95.00100	1321.245	-0.00433	0.00167	0.00360
C	13	8533.41500	8533.41500	0.000	0.00000	0.00000	0.00000
P	31	76837.53300	76837.53300	0.000	0.00000	0.00000	0.00000
S	34	221232.83900	221232.83900	0.000	0.00000	0.00000	0.00000
CL	37	14455965	14455965	0.000	0.00000	0.00000	0.00000
TB	159	105097.63600	105097.63600	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.62413	6798.35300	1.143	0.62087	0.61922	0.63231

Run Name: 1623102E02
Tube Number: 27
Sample Number: **8528582**

Date/Time: 08/18/2016 8:37:45
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	176076.64900	176076.64900	0.000	0.00000	0.00000	0.00000
AL	27	871.39176	3187668.98400	8.319	792.05059	887.94896	934.17572
CA	43	6887.82629	86878.31500	6.580	6546.78400	6714.59759	7402.09728
K	39	1318.95780	7107926.64500	9.625	1209.80312	1288.79512	1458.27518
MG	24	1888.72703	4400206.97400	7.134	1795.95894	1826.93634	2043.28581
NA	23	79317.50806	275173413.32200	8.387	75980.25437	74994.48876	86977.78105
GE	72	156166.93200	156166.93200	0.000	0.00000	0.00000	0.00000
AS	75	5.76248	10683.55000	5.988	5.86403	5.37804	6.04539
FE	54	16359.82476	5393233.98800	11.022	14885.61242	15823.53014	18370.33171
SE	82	-0.41871	1572.10300	259.175	0.71920	-1.44211	-0.53322
TI	47	72.01095	42531.33700	7.135	70.58064	67.73936	77.71286
IN	115	78957.88700	78957.88700	0.000	0.00000	0.00000	0.00000
CD	111	-0.02250	32.93900	64.387	-0.00855	-0.02147	-0.03747
CU	63	33.26445	105990.61300	2.823	32.56685	34.33232	32.89418
MO	98	31.38804	113130.69400	1.699	31.91999	30.85331	31.39082
SB	121	1.00211	5844.92100	2.841	0.96926	1.01743	1.01964
BI	209	63180.24200	63180.24200	0.000	0.00000	0.00000	0.00000
PB	208	1.88653	35111.63800	7.012	1.75631	1.88248	2.02080
TL	203	0.00753	126.00200	60.535	0.00484	0.00496	0.01280
C	13	7822.93000	7822.93000	0.000	0.00000	0.00000	0.00000
P	31	40076.89400	40076.89400	0.000	0.00000	0.00000	0.00000
S	34	298970.81400	298970.81400	0.000	0.00000	0.00000	0.00000
CL	37	14215734	14215734	0.000	0.00000	0.00000	0.00000
TB	159	107996.74400	107996.74400	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.88647	18641.68000	6.578	1.78801	1.84554	2.02587

Run Name: 1623102E02
Tube Number: 28
Sample Number: **8528583**

Date/Time: 08/18/2016 8:41:32
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	194529.41200	194529.41200	0.000	0.00000	0.00000	0.00000
AL	27	657.10643	2654266.84600	10.085	584.20659	713.68974	673.42294
CA	43	19980.14528	276444.47800	4.406	18991.65202	20680.02403	20268.75980
K	39	2880.70151	15892246.02600	7.793	2644.51961	3091.31590	2906.26903
MG	24	6543.60347	16810250.29100	9.609	5973.86016	7218.23180	6438.71845
NA	23	24620.91230	94380438.47200	7.149	22979.53019	26479.62098	24403.58572
GE	72	160953.95200	160953.95200	0.000	0.00000	0.00000	0.00000
AS	75	75.05312	95494.54700	5.517	71.08215	79.34465	74.73255
FE	54	4580.38159	1593233.48700	8.978	4221.28299	5028.99553	4490.86625
SE	82	-0.73758	1577.10300	229.368	-2.48779	0.88895	-0.61389
TI	47	56.46222	36057.48200	8.708	53.23650	62.12112	54.02905
IN	115	83868.63800	83868.63800	0.000	0.00000	0.00000	0.00000
CD	111	0.05672	164.73000	6.545	0.06077	0.05348	0.05589
CU	63	6.50572	22004.83000	10.850	5.82041	7.23049	6.46627
MO	98	6.80592	26197.59600	11.841	5.95856	7.56270	6.89650
SB	121	2.29045	13496.84200	9.806	2.07678	2.52460	2.26997
BI	209	70200.81700	70200.81700	0.000	0.00000	0.00000	0.00000
PB	208	2.29636	47581.76000	6.155	2.14206	2.41958	2.32745
TL	203	0.00480	124.00200	110.678	-0.00103	0.00605	0.00937
C	13	8319.92700	8319.92700	0.000	0.00000	0.00000	0.00000
P	31	32567.15400	32567.15400	0.000	0.00000	0.00000	0.00000
S	34	278043.01700	278043.01700	0.000	0.00000	0.00000	0.00000
CL	37	14241268	14241268	0.000	0.00000	0.00000	0.00000
TB	159	106275.48600	106275.48600	0.000	0.00000	0.00000	0.00000
XPB 208	208	2.30845	25387.82100	6.477	2.15137	2.44902	2.32496

Run Name: 1623102E02
Tube Number: 29
Sample Number: **8528584**

Date/Time: 08/18/2016 8:45:20
Batch: 162297050004A
Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: EPA600-EW-PW

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	202294.81700	202294.81700	0.000	0.00000	0.00000	0.00000
AL	27	280.06737	1190810.16400	5.571	291.15105	262.22411	286.82695
CA	43	24769.55055	356686.89200	0.578	24794.77926	24898.30289	24615.56950
K	39	4102.97084	23143046.64600	2.012	4141.79613	4008.16024	4158.95616
MG	24	12721.42148	34115183.42900	1.239	12664.33677	12600.25582	12899.67185
NA	23	49729.83515	198787305.69000	2.441	48384.34638	50062.91576	50742.24332
GE	72	161315.08200	161315.08200	0.000	0.00000	0.00000	0.00000
AS	75	17.52704	25455.30400	0.792	17.67340	17.39724	17.51050
FE	54	17648.18028	6036071.51100	5.121	17108.87781	17144.03541	18691.62761
SE	82	-0.73719	1586.77100	162.830	0.63893	-1.56875	-1.28176
TI	47	21.03730	18357.64000	5.418	21.77436	19.72450	21.61305
IN	115	80214.12500	80214.12500	0.000	0.00000	0.00000	0.00000
CD	111	-0.02012	37.46900	67.217	-0.00628	-0.03330	-0.02077
CU	63	25.81289	83570.03200	3.868	24.92153	26.89166	25.62549
MO	98	33.33737	121994.32600	3.170	33.36879	34.37802	32.26531
SB	121	0.31320	2173.85400	5.450	0.29386	0.32615	0.31959
BI	209	64747.10600	64747.10600	0.000	0.00000	0.00000	0.00000
PB	208	0.88034	16925.71700	1.583	0.86433	0.88977	0.88692
TL	203	-0.00026	85.33400	1686.127	-0.00524	0.00229	0.00218
C	13	8513.38800	8513.38800	0.000	0.00000	0.00000	0.00000
P	31	71690.04600	71690.04600	0.000	0.00000	0.00000	0.00000
S	34	224453.49900	224453.49900	0.000	0.00000	0.00000	0.00000
CL	37	14225842	14225842	0.000	0.00000	0.00000	0.00000
TB	159	108865.00600	108865.00600	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.86447	8811.13800	2.250	0.84207	0.87704	0.87431

Run Name: 1623102E02 Date/Time: 08/18/2016 8:49:07
Tube Number: 30
Sample Number: **LLC**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	156714.93800	156714.93800	0.000	0.00000	0.00000	0.00000
AL	27	129.46442	432982.13600	2.777	127.67642	133.60333	127.11352
CA	43	217.40978	3288.74500	3.129	220.48950	222.12732	209.61253
K	39	250.77525	1896766.40500	4.847	247.50183	264.23079	240.59312
MG	24	134.53001	281335.01200	3.017	135.13058	138.25545	130.20402
NA	23	252.30182	822682.08500	1.913	248.71453	257.79055	250.40039
GE	72	160238.37900	160238.37900	0.000	0.00000	0.00000	0.00000
AS	75	1.83932	6215.17100	22.019	1.40996	1.89351	2.21449
FE	54	116.58214	85741.84900	7.922	116.19084	107.54868	126.00690
SE	82	2.00148	1777.79600	103.983	2.13937	1.24285	1.90097
TI	47	15.06084	15230.60500	11.722	16.94237	13.44083	14.79930
IN	115	81547.77700	81547.77700	0.000	0.00000	0.00000	0.00000
CD	111	0.50345	867.93100	4.538	0.48836	0.52974	0.49227
CU	63	2.22873	7456.02400	6.780	2.05463	2.30578	2.32579
MO	98	0.66195	2830.63500	6.931	0.61047	0.69852	0.67687
SB	121	1.06085	6355.81200	6.506	0.98406	1.11773	1.08076
BI	209	68697.83800	68697.83800	0.000	0.00000	0.00000	0.00000
PB	208	1.03018	20992.58700	1.546	1.01999	1.04853	1.02202
TL	203	0.56623	3522.47000	3.283	0.54481	0.57590	0.57800
C	13	9437.40200	9437.40200	0.000	0.00000	0.00000	0.00000
P	31	7546.08900	7546.08900	0.000	0.00000	0.00000	0.00000
S	34	186421.34100	186421.34100	0.000	0.00000	0.00000	0.00000
CL	37	12737440	12737440	0.000	0.00000	0.00000	0.00000
TB	159	110125.00000	110125.00000	0.000	0.00000	0.00000	0.00000
XPB 208	208	1.02914	11121.77400	1.348	1.02616	1.04427	1.01701

Run Name: 1623102E02 Date/Time: 08/18/2016 8:52:53
Tube Number: 31
Sample Number: **ICSA**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	159278.35000	159278.35000	0.000	0.00000	0.00000	0.00000
AL	27	9142.74856	30175320.94700	1.841	9255.02267	9223.96046	8949.26254
CA	43	9827.64306	112003.97500	1.118	9737.20070	9795.76738	9949.96109
K	39	9882.77284	42643485.92400	1.680	10045.09776	9889.91170	9713.30906
MG	24	9561.03324	20166072.59100	3.893	9923.60683	9579.65105	9179.84185
NA	23	9576.54749	30104812.69700	7.150	9854.70450	10078.37987	8796.55810
GE	72	163548.42500	163548.42500	0.000	0.00000	0.00000	0.00000
AS	75	-0.25997	3743.02400	185.773	-0.03910	0.07306	-0.81388
FE	54	9782.18345	3406856.02300	8.594	8969.14051	9729.47284	10647.93700
SE	82	-1.37517	1537.76600	77.719	-0.46998	-1.10129	-2.55423
TI	47	209.83706	114885.58200	9.072	189.45013	212.91138	227.14966
IN	115	84008.51300	84008.51300	0.000	0.00000	0.00000	0.00000
CD	111	0.03101	123.04700	115.683	-0.00329	0.06827	0.02804
CU	63	0.25916	1017.38000	2.168	0.25694	0.26555	0.25500
MO	98	204.45460	781269.84700	4.216	214.39093	200.00457	198.96829
SB	121	-0.04892	205.67000	6.412	-0.05198	-0.04907	-0.04571
BI	209	68377.01400	68377.01400	0.000	0.00000	0.00000	0.00000
PB	208	0.02234	607.01100	5.109	0.02195	0.02145	0.02363
TL	203	0.00062	95.33500	750.337	-0.00448	0.00171	0.00464
C	13	13784.70400	13784.70400	0.000	0.00000	0.00000	0.00000
P	31	1870711	1870711	0.000	0.00000	0.00000	0.00000
S	34	372964.60500	372964.60500	0.000	0.00000	0.00000	0.00000
CL	37	12506543	12506543	0.000	0.00000	0.00000	0.00000
TB	159	112087.81000	112087.81000	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.02317	311.34000	11.211	0.02310	0.02061	0.02580

Run Name: 1623102E02 Date/Time: 08/18/2016 8:56:37
Tube Number: 32
Sample Number: **ICSAB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	156257.22500	156257.22500	0.000	0.00000	0.00000	0.00000
AL	27	9711.07162	31455486.07800	2.229	9960.25566	9569.85419	9603.10502
CA	43	10199.14165	113969.36700	0.993	10091.02738	10291.81507	10214.58250
K	39	10350.54114	43784762.37700	2.781	10681.87999	10207.11161	10162.63181
MG	24	9905.15334	20512442.07900	2.925	10223.88463	9657.63850	9833.93689
NA	23	9768.66762	30183215.39500	2.629	10063.53774	9648.32880	9594.13631
GE	72	160683.59900	160683.59900	0.000	0.00000	0.00000	0.00000
AS	75	19.02216	27181.26500	1.413	18.80742	19.32346	18.93559
FE	54	10068.00221	3450407.63200	5.011	9684.35885	9880.18352	10639.46425
SE	82	-0.90774	1561.10100	96.349	-1.81289	-0.84305	-0.06728
TI	47	208.70984	112538.42800	2.902	204.89471	205.54125	215.69356
IN	115	83072.76500	83072.76500	0.000	0.00000	0.00000	0.00000
CD	111	20.17192	32669.35600	1.633	20.37064	20.35345	19.79167
CU	63	20.71554	69506.76200	0.745	20.77671	20.53994	20.82999
MO	98	202.87755	766829.91300	3.639	210.79992	201.64399	196.18873
SB	121	-0.05540	166.66900	8.997	-0.06039	-0.05540	-0.05042
BI	209	68133.79800	68133.79800	0.000	0.00000	0.00000	0.00000
PB	208	0.02704	699.34700	1.561	0.02731	0.02655	0.02726
TL	203	0.00107	98.00100	349.514	-0.00317	0.00243	0.00396
C	13	14115.05600	14115.05600	0.000	0.00000	0.00000	0.00000
P	31	1910467	1910467	0.000	0.00000	0.00000	0.00000
S	34	376258.66300	376258.66300	0.000	0.00000	0.00000	0.00000
CL	37	8298191	8298191	0.000	0.00000	0.00000	0.00000
TB	159	110967.83300	110967.83300	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.02694	350.67400	6.270	0.02715	0.02851	0.02515

Run Name: 1623102E02 Date/Time: 08/18/2016 9:00:22
Tube Number: 33
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	158287.38500	158287.38500	0.000	0.00000	0.00000	0.00000
AL	27	2396.09799	7862820.48100	5.366	2253.59731	2431.27068	2503.42598
CA	43	2451.28973	28397.14700	2.884	2370.12321	2484.27931	2499.46665
K	39	2430.98503	11072625.84300	2.388	2363.95740	2463.87569	2465.12199
MG	24	2389.92979	5010935.95100	3.965	2284.37162	2417.72219	2467.69558
NA	23	2342.42027	7359625.93000	4.235	2263.58237	2309.87576	2453.80269
GE	72	161162.92600	161162.92600	0.000	0.00000	0.00000	0.00000
AS	75	24.24006	33635.24000	3.652	23.23190	24.88975	24.59852
FE	54	2980.36303	1057123.53100	3.132	2904.39235	3084.58114	2952.11561
SE	82	25.59930	4619.12600	6.226	25.26705	27.33300	24.19786
TI	47	21.98960	18818.24100	4.161	21.92249	22.93641	21.10991
IN	115	83365.90700	83365.90700	0.000	0.00000	0.00000	0.00000
CD	111	25.06039	40707.46000	2.254	24.75728	24.71191	25.71199
CU	63	24.88210	83712.57300	4.704	23.73776	24.83144	26.07709
MO	98	25.68954	97831.46700	2.492	25.01766	26.29229	25.75868
SB	121	25.16359	143292.25300	2.947	24.53754	24.97063	25.98259
BI	209	70931.18900	70931.18900	0.000	0.00000	0.00000	0.00000
PB	208	24.75034	516320.19600	5.528	23.20756	25.81587	25.22760
TL	203	24.37408	152320.74800	8.234	22.15974	24.88945	26.07304
C	13	8843.64700	8843.64700	0.000	0.00000	0.00000	0.00000
P	31	6388.74800	6388.74800	0.000	0.00000	0.00000	0.00000
S	34	168633.44400	168633.44400	0.000	0.00000	0.00000	0.00000
CL	37	12326079	12326079	0.000	0.00000	0.00000	0.00000
TB	159	110756.88300	110756.88300	0.000	0.00000	0.00000	0.00000
XPB 208	208	24.70455	273925.59300	3.288	23.87757	25.50136	24.73471

Run Name: 1623102E02 Date/Time: 08/18/2016 9:04:09
Tube Number: 34
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

Element	MASS	CONC. MEAN (ppb)	CPS MEAN	%RSD	INTEGRATIONS #1	#2	#3
SC	45	161642.98200	161642.98200	0.000	0.00000	0.00000	0.00000
AL	27	-0.92636	9877.74100	15.645	-0.92430	-1.07231	-0.78248
CA	43	3.21447	935.70700	207.679	8.35413	5.61995	-4.33068
K	39	-15.36849	814558.31500	11.209	-15.31522	-13.67314	-17.11712
MG	24	0.21510	2530.47700	6.718	0.22766	0.21834	0.19931
NA	23	-8.74471	15236.31600	1.654	-8.90589	-8.70193	-8.62630
GE	72	157030.74000	157030.74000	0.000	0.00000	0.00000	0.00000
AS	75	-0.21704	3608.02400	278.646	-0.88059	-0.07370	0.30318
FE	54	-16.36054	40026.50700	37.805	-20.97671	-18.77193	-9.33299
SE	82	-0.39473	1576.77000	402.674	-1.73183	-0.81505	1.36268
TI	47	0.05567	7573.08600	511.134	0.08562	-0.24267	0.32407
IN	115	84976.83900	84976.83900	0.000	0.00000	0.00000	0.00000
CD	111	-0.01205	52.84500	26.717	-0.00835	-0.01420	-0.01361
CU	63	-0.00209	134.33500	200.662	-0.00267	0.00236	-0.00596
MO	98	0.15149	981.18700	34.247	0.09490	0.16275	0.19681
SB	121	0.13888	1296.07200	18.767	0.11478	0.13532	0.16654
BI	209	66774.04700	66774.04700	0.000	0.00000	0.00000	0.00000
PB	208	0.00233	199.66900	16.678	0.00196	0.00274	0.00230
TL	203	0.05682	423.67700	31.450	0.03717	0.06118	0.07210
C	13	6869.01300	6869.01300	0.000	0.00000	0.00000	0.00000
P	31	6118.59200	6118.59200	0.000	0.00000	0.00000	0.00000
S	34	177532.58500	177532.58500	0.000	0.00000	0.00000	0.00000
CL	37	12384367	12384367	0.000	0.00000	0.00000	0.00000
TB	159	110689.13500	110689.13500	0.000	0.00000	0.00000	0.00000
XPB 208	208	0.00237	87.00100	33.017	0.00151	0.00303	0.00259

Instrument Tuning Report (ICPMS #10007)

File Name: default.tun

File Path: C:\elandata\Tuning

Sample Date/Time: 8/17/2016 11:25:55AM

Number of Replicates: 6

Method File: c:\elandata\Method\dailytune.mth

Measured Mass must be within +/- 0.1 amu of the Exact Mass.

Measured Peak Width must be > or = to 0.640 AND < or = to 0.660.

Analyte	EXACT MASS	MEAS. MASS	Mass DAC	RES. DAC	MEAS. PK. WIDTH
CE	139.905	139.879	33880	2146	0.610
IN	114.904	114.929	27796	2131	0.600
LI	6.015	6.027	1331	2084	0.557
MG	23.985	23.979	5698	2090	0.544
PB	207.977	207.979	50438	2191	0.616
RH	102.905	102.929	24884	2122	0.600
U	238.050	238.027	57741	2215	0.610

Summary: Verify that the RSD is less than 5 for the following masses.

Mass	Meas. Intens. Mean	Meas. Intens. RSD
140.000	344427.249	0.733
115.000	319256.569	0.989
6.000	8252.080	1.414
24.000	41834.324	1.118
208.000	162275.654	1.018
103.000	259500.109	1.483
238.000	281245.177	0.788

Mercury Data

Metals in Liquid

eurofins | Lancaster Laboratories Environmental

Mercury Run Data Report

Data File Name: 1623102.M07

Run Name: 1623101M07

Instrument No.: 17384

Element: Hg

Analyst Employee ID: 354

Reviewed By	Reviewed Date
Damary Valentin	08/18/2016 11:09AM
Nina C Haller	08/29/2016 9:01AM

Verified By:	Verified Date
Jennifer L Moyer	08/18/2016 1:45PM
Nina C Haller	08/29/2016 9:01AM

Method Reference Name(s):

EPA 245.1 rev 3

SW-846 7470A

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

1 Burn Date/Time: 08/18/2016 06:31

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0		1	1	1.00

AVG (ppb)	Intensity
0.0000	135.0

2 Burn Date/Time: 08/18/2016 06:33

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0.2		1	1	1.00

AVG (ppb)	Intensity
0.0000	1748.0

3 Burn Date/Time: 08/18/2016 06:35

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0.5		1	1	1.00

AVG (ppb)	Intensity
0.0000	4086.0

4 Burn Date/Time: 08/18/2016 06:37

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S1.0		1	1	1.00

AVG (ppb)	Intensity
0.0000	8767.0

5 Burn Date/Time: 08/18/2016 06:39

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S2.5		1	1	1.00

AVG (ppb)	Intensity
0.0000	22789.0

6 Burn Date/Time: 08/18/2016 06:41

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S5.0		1	1	1.00

AVG (ppb)	Intensity
0.0000	45351.0

CorrelationCoefficient = 1.00000
Slope = 9103.6473800000
Y-Intercept = -146.2593100000

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

7 Burn Date/Time: 08/18/2016 06:43

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
ICV		1	1	1.00

AVG (ppb)	Intensity
2.3849	21566.0

8 Burn Date/Time: 08/18/2016 06:46

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
ICB		1	1	1.00

AVG (ppb)	Intensity
0.0170	6.0

9 Burn Date/Time: 08/18/2016 06:48

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CRA		1	1	1.00

AVG (ppb)	Intensity
0.2204	1858.0

10 Burn Date/Time: 08/18/2016 06:50

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 1		1	1	1.00

AVG (ppb)	Intensity
1.0185	9125.0

11 Burn Date/Time: 08/18/2016 06:52

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 1		1	1	1.00

AVG (ppb)	Intensity
0.0203	36.0

12 Burn Date/Time: 08/18/2016 06:54

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
PBW	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0320	143.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

13 Burn Date/Time: 08/18/2016 06:56

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
LCSW	**********	1	1	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9227	8253.0		

14 Burn Date/Time: 08/18/2016 06:58

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523838	U*********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0181	16.0		

15 Burn Date/Time: 08/18/2016 07:00

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523841	D*********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0299	124.0		

16 Burn Date/Time: 08/18/2016 07:02

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523839	R*********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.8561	7646.0		

17 Burn Date/Time: 08/18/2016 07:04

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523843	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0239	69.0		

18 Burn Date/Time: 08/18/2016 07:06

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523844	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0330	152.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

19 Burn Date/Time: 08/18/2016 07:08

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523845	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0510	316.0		

20 Burn Date/Time: 08/18/2016 07:10

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523846	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0344	165.0		

21 Burn Date/Time: 08/18/2016 07:12

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8528577	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0345	166.0		

22 Burn Date/Time: 08/18/2016 07:14

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 2		1	1	1.00

AVG (ppb)	Intensity
1.0245	9180.0

23 Burn Date/Time: 08/18/2016 07:16

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 2		1	1	1.00

AVG (ppb)	Intensity
0.0350	170.0

24 Burn Date/Time: 08/18/2016 07:18

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8528581	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0311	135.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

25 Burn Date/Time: 08/18/2016 07:20

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8528582	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0349	169.0		

26 Burn Date/Time: 08/18/2016 07:22

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8528583	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0317	140.0		

27 Burn Date/Time: 08/18/2016 07:24

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8528584	**********	40	40	1.00	162295714002

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0260	88.0		

28 Burn Date/Time: 08/18/2016 07:27

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
PBW	**********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0570	370.0		

29 Burn Date/Time: 08/18/2016 07:29

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
LCSW	**********	1	1	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9623	8613.0		

30 Burn Date/Time: 08/18/2016 07:31

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8518611	U*********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0254	83.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

31 Burn Date/Time: 08/18/2016 07:33

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8518611	D*********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0361	180.0		

32 Burn Date/Time: 08/18/2016 07:35

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8518611	R*********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9360	8374.0		

33 Burn Date/Time: 08/18/2016 07:37

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523157	**********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0212	44.0		

34 Burn Date/Time: 08/18/2016 07:39

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 3		1	1	1.00

AVG (ppb)	Intensity
0.9887	8854.0

35 Burn Date/Time: 08/18/2016 07:41

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 3		1	1	1.00

AVG (ppb)	Intensity
0.0169	5.0

36 Burn Date/Time: 08/18/2016 07:43

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8525277	**********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0283	109.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

37 Burn Date/Time: 08/18/2016 07:45

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8524579	**********	40	40	1.00	162305714001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0341	162.0		

38 Burn Date/Time: 08/18/2016 07:47

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
PBW	**********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0325	147.0		

39 Burn Date/Time: 08/18/2016 07:49

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
LCSW	**********	1	1	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9986	8944.0		

40 Burn Date/Time: 08/18/2016 07:51

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520951	U*********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0225	56.0		

41 Burn Date/Time: 08/18/2016 07:53

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520951	D*********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0319	142.0		

42 Burn Date/Time: 08/18/2016 07:55

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520951	R*********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	1.0106	9053.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

43 Burn Date/Time: 08/18/2016 07:57

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520951	M*********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	1.0100	9048.0		

44 Burn Date/Time: 08/18/2016 07:59

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520949	**********	40	40	1.00	162305713003

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0215	47.0		

45 Burn Date/Time: 08/18/2016 08:01

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
PBW	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0282	108.0		

46 Burn Date/Time: 08/18/2016 08:03

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 4		1	1	1.00

AVG (ppb)	Intensity
1.0060	9011.0

47 Burn Date/Time: 08/18/2016 08:05

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 4		1	1	1.00

AVG (ppb)	Intensity
0.0186	21.0

48 Burn Date/Time: 08/18/2016 08:07

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
LCSW	**********	1	1	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9367	8380.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

49 Burn Date/Time: 08/18/2016 08:09

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523455	U*********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0199	33.0		

50 Burn Date/Time: 08/18/2016 08:11

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523455	D*********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0291	116.0		

51 Burn Date/Time: 08/18/2016 08:13

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523455	R*********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.9499	8500.0		

52 Burn Date/Time: 08/18/2016 08:15

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523455	M*********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.8934	7986.0		

53 Burn Date/Time: 08/18/2016 08:18

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520985	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0114	-45.0		

54 Burn Date/Time: 08/18/2016 08:20

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520986	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0255	84.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

55 Burn Date/Time: 08/18/2016 08:22

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520987	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0289	115.0		

56 Burn Date/Time: 08/18/2016 08:24

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520988	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0259	87.0		

57 Burn Date/Time: 08/18/2016 08:26

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520990	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0293	118.0		

58 Burn Date/Time: 08/18/2016 08:28

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 5		1	1	1.00

AVG (ppb)	Intensity
0.9968	8927.0

59 Burn Date/Time: 08/18/2016 08:30

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 5		1	1	1.00

AVG (ppb)	Intensity
0.0166	3.0

60 Burn Date/Time: 08/18/2016 08:32

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8520991	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0273	100.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

61 Burn Date/Time: 08/18/2016 08:34

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523432	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0264	92.0		

62 Burn Date/Time: 08/18/2016 08:36

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523433	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0281	107.0		

63 Burn Date/Time: 08/18/2016 08:38

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523434	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0477	286.0		

64 Burn Date/Time: 08/18/2016 08:40

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523435	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0589	388.0		

65 Burn Date/Time: 08/18/2016 08:42

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523436	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0264	92.0		

66 Burn Date/Time: 08/18/2016 08:44

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523437	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0266	94.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

67 Burn Date/Time: 08/18/2016 08:46

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523438	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0253	82.0		

68 Burn Date/Time: 08/18/2016 08:48

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523440	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0276	103.0		

69 Burn Date/Time: 08/18/2016 08:50

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523441	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0266	94.0		

70 Burn Date/Time: 08/18/2016 08:52

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 6		1	1	1.00

AVG (ppb)	Intensity
1.0151	9094.0

71 Burn Date/Time: 08/18/2016 08:54

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 6		1	1	1.00

AVG (ppb)	Intensity
0.0182	17.0

72 Burn Date/Time: 08/18/2016 08:56

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523442	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0273	100.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

73 Burn Date/Time: 08/18/2016 08:58

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523443	**********	8	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0394	210.0		

74 Burn Date/Time: 08/18/2016 09:00

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523444	**********	40	40	1.00	162295713005

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0275	102.0		

75 Burn Date/Time: 08/18/2016 09:03

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
PBW	**********	40	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0307	131.0		

76 Burn Date/Time: 08/18/2016 09:05

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
LCSW	**********	1	1	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	1.0150	9093.0		

77 Burn Date/Time: 08/18/2016 09:07

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523753	U*********	4	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0197	31.0		

78 Burn Date/Time: 08/18/2016 09:09

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523753	D*********	4	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0332	154.0		

LANCASTER LABORATORIES

Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

79 Burn Date/Time: 08/18/2016 09:11

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523753	R*********	4	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	1.4488	13043.0		

80 Burn Date/Time: 08/18/2016 09:13

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523753	M*********	4	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	1.4736	13269.0		

81 Burn Date/Time: 08/18/2016 09:15

Sample Number	Class	Initial Vol / Wt	Final Vol	DF	Batch Number
8523471	**********	1	40	1.00	162305713001

V	AVG (ppb)	Intensity	Re-read	Re-digest
	0.0859	634.0		

82 Burn Date/Time: 08/18/2016 09:17

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 7		1	1	1.00

AVG (ppb)	Intensity
0.9903	8868.0

83 Burn Date/Time: 08/18/2016 09:19

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 7		1	1	1.00

AVG (ppb)	Intensity
0.0197	31.0

84 Burn Date/Time: 08/18/2016 09:21

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CRA		1	1	1.00

AVG (ppb)	Intensity
0.2213	1866.0

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Run Name: 1623101M07

Analyst ID: 354.00

Instrument ID: 17384

CV Element: Hg

85 Burn Date/Time: 08/18/2016 09:23

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCV 8		1	1	1.00

AVG (ppb)	Intensity
1.0154	9097.0

86 Burn Date/Time: 08/18/2016 09:25

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
CCB 8		1	1	1.00

AVG (ppb)	Intensity
0.0169	5.0

Extraction/Distillation/Digestion Logs

Metals in Liquid

LLENS Worksheet for 5716 ICP EPA 600

Batch# 16 231 5716 004

Balance ID#: CLEAR **Start Time:** 8/18/16 22:00 **End Time:** 8/19/16 2:00 **Hot Block:** 12

Pipette ID: W/1000
Reflux Cap Lot#: 1512329-6140QK

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HCL	P16-169F	0.50
1:1 HNO3	P16-173D	1.00
ICP PW LCS	1619434#1	1.00
ICP Spike 1A	1616510#17	1.00
ICP Spike 1B	1616511#17	1.00

Method Ref: EPA 200.7

	SampleID	Date Due	C	ST	P	H	PH<2	BC	Vessel Lot#	Comments
1)	PBW	.							1512329	
2)	LCSW	.							1512329	
3)	**8523838U**	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
4)	**8523839R**	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
5)	**8523841D**	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
6)	8523843	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
7)	8523844	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
8)	8523845	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
9)	8523846	08/24/16 10:00		PW	S8		Y	008a	1512329	T2 for all elements
10)	8528577	08/26/16 09:30		PW	N8		Y	008a	1512329	T2 for all elements
11)	8528581	08/26/16 09:30		PW	N8		Y	008a	1512329	T2 for all elements
12)	8528582	08/26/16 09:30		PW	N8		Y	008a	1512329	T2 for all elements
13)	8528583	08/26/16 09:30		PW	N8		Y	008a	1512329	T2 for all elements
14)	8528584	08/26/16 09:30		PW	N8		Y	008a	1512329	T2 for all elements

Prep Employee: 862
8/19/2016
v 1.0.1

Batch# 16 231 5716 004

LLENS Batch Chronology and Change Log - ICP EPA 600

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		8/18/16 10:04	862
2)	Sample Vol		8/19/16 1:08	862
3)	Final Vol	CLEAR	8/19/16 1:08	862
4)	Trial		8/19/16 1:08	862
5)	Upload Prep	US19PCC0669	8/19/16 3:16	862

Sample ID	Analysis	D	Operation	Measurement	Original Entry				Data Changed		
					Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason

Analysis: 5716 ICP EPA 600

Batch# 16 231 5716 004

Sample ID	Due Date	P	EPA#	SDG#	Initial Volume	Final Volume	Trial
PBW					50.0000	50.0000	1
LCSW					1.0000	1.0000	1
8523838U	08/24/16	S8	06100	MOO90-01BKG	50.0000	50.0000	2
8523839R	08/24/16	S8	06100	MOO90-01MS	50.0000	50.0000	2
8523841D	08/24/16	S8	06100	MOO90-01DUP	50.0000	50.0000	2
8523843	08/24/16	S8	99901	MOO90-03	50.0000	50.0000	2
8523844	08/24/16	S8	06120	MOO90-04	50.0000	50.0000	2
8523845	08/24/16	S8	06140	MOO90-05	50.0000	50.0000	2
8523846	08/24/16	S8	99902	MOO90-06	50.0000	50.0000	2
8528577	08/26/16	N8	10660	MOO91-01	50.0000	50.0000	2
8528581	08/26/16	N8	10680	MOO91-05	50.0000	50.0000	2
8528582	08/26/16	N8	10685	MOO91-06	50.0000	50.0000	2
8528583	08/26/16	N8	10620	MOO91-07	50.0000	50.0000	2
8528584	08/26/16	N8	10622	MOO91-08	50.0000	50.0000	2

LLENS Worksheet for 7050 ICP/MS EPA 600 Water

Batch# 16 229 7050 004

Balance ID#: 10685 **Start Time:** 8/17/16 6:50 **End Time:** 8/17/16 11:45 **Hot Block:** 13

Pipette ID: JU06758
Reflux Cap Lot#: 1512329-6132-NK

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HCL	P16-169F	0.50
1:1 HNO3	P16-173D	1.00
ICP/MS Spike	1614727#3	0.50
LCS	1614727#3	0.50

Method Ref: EPA 200.8

	SampleID	Date Due	C	ST	P	H	PH<2	BC	Vessel Lot#	Comments
1)	PBW	.							1512329	
2)	LCSW	.							1512329	
3)	**8523838U**	08/24/16 10:00		PW	S8		Y	008a	1512329	
4)	**8523839R**	08/24/16 10:00		PW	S8		Y	008a	1512329	
5)	**8523841D**	08/24/16 10:00		PW	S8		Y	008a	1512329	
6)	8523843	08/24/16 10:00		PW	S8		Y	008a	1512329	
7)	8523844	08/24/16 10:00		PW	S8		Y	008a	1512329	
8)	8523845	08/24/16 10:00		PW	S8		Y	008a	1512329	
9)	8523846	08/24/16 10:00		PW	S8		Y	008a	1512329	
10)	8528577	08/26/16 09:30		PW	N8		Y	008a	1512329	
11)	8528581	08/26/16 09:30		PW	N8		Y	008a	1512329	
12)	8528582	08/26/16 09:30		PW	N8		Y	008a	1512329	
13)	8528583	08/26/16 09:30		PW	N8		Y	008a	1512329	
14)	8528584	08/26/16 09:30		PW	N8		Y	008a	1512329	

Prep Employee: 10287
8/17/2016
v 1.0.1

Batch# 16 229 7050 004

LLENS Batch Chronology and Change Log - ICP/MS EPA 600 Water

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		8/16/16 11:07	10287
2)	Sample Vol		8/17/16 6:02	10287
3)	Final Vol	10685	8/17/16 6:02	10287
4)	Trial		8/17/16 6:02	10287
5)	Trial		8/17/16 6:02	10287
6)	Upload Prep	US19LAB00001	8/17/16 11:51	3282

Sample ID	Analysis	D	Operation	Measurement	Original Entry				Data Changed		
					Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason

Analysis: 7050 ICP/MS EPA 600 Water

Batch# 16 229 7050 004

Sample ID	Due Date	P	EPA#	SDG#	Initial Volume	Final Volume	Trial
PBW					50.0000	50.0000	1
LCSW					1.0000	1.0000	1
8523838U	08/24/16	S8	06100	MOO90-01BKG	50.0000	50.0000	1
8523839R	08/24/16	S8	06100	MOO90-01MS	50.0000	50.0000	1
8523841D	08/24/16	S8	06100	MOO90-01DUP	50.0000	50.0000	1
8523843	08/24/16	S8	99901	MOO90-03	50.0000	50.0000	1
8523844	08/24/16	S8	06120	MOO90-04	50.0000	50.0000	1
8523845	08/24/16	S8	06140	MOO90-05	50.0000	50.0000	1
8523846	08/24/16	S8	99902	MOO90-06	50.0000	50.0000	1
8528577	08/26/16	N8	10660	MOO91-01	50.0000	50.0000	1
8528581	08/26/16	N8	10680	MOO91-05	50.0000	50.0000	1
8528582	08/26/16	N8	10685	MOO91-06	50.0000	50.0000	1
8528583	08/26/16	N8	10620	MOO91-07	50.0000	50.0000	1
8528584	08/26/16	N8	10622	MOO91-08	50.0000	50.0000	1

LLENS Worksheet for 5714 Hg EPA 600 Digest

Batch# 16 229 5714 002

Balance ID#: 10685 **Start Time:** 8/17/16 9:35 **End Time:** 8/17/16 11:35 **Hot Block:** 12

Pipette ID: W/1000

Reflux Cap Lot#: 1512329-6132-NK

Spike/Reagent	Lot#	Volume Added(mL)
5%K2S2O8	P16-216B	3.20
5%KMnO4	P16-214C	6.00
H2SO4	161151	2.00
HNO3	137345	1.00
LCS 40ppb Hg	P16-228F	1.00
NaCl/NH2OH.HCl	P16-209E	2.40
Spike 40ppb Hg	P16-228F	1.00

Method Ref: EPA 245.1

	SampleID	Date Due	C	ST	P	H	PH<2	BC	Vessel Lot#	Comments
1)	PBW	.							1512329	
2)	LCSW	.							1512329	
3)	**8523838U**	08/24/16 10:00		PW	S8		Y	008a	1512329	
4)	**8523839R**	08/24/16 10:00		PW	S8		Y	008a	1512329	
5)	**8523841D**	08/24/16 10:00		PW	S8		Y	008a	1512329	
6)	8523843	08/24/16 10:00		PW	S8		Y	008a	1512329	
7)	8523844	08/24/16 10:00		PW	S8		Y	008a	1512329	
8)	8523845	08/24/16 10:00		PW	S8		Y	008a	1512329	
9)	8523846	08/24/16 10:00		PW	S8		Y	008a	1512329	
10)	8528577	08/26/16 09:30		PW	N8		Y	008a	1512329	
11)	8528581	08/26/16 09:30		PW	N8		Y	008a	1512329	
12)	8528582	08/26/16 09:30		PW	N8		Y	008a	1512329	
13)	8528583	08/26/16 09:30		PW	N8		Y	008a	1512329	
14)	8528584	08/26/16 09:30		PW	N8		Y	008a	1512329	

Prep Employee: 3282

8/17/2016

v 1.0.1

Batch# 16 229 5714 002

LLENS Batch Chronology and Change Log - Hg EPA 600 Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		8/16/16 11:25	3282
2)	Sample Vol		8/17/16 8:46	3282
3)	Final Vol	10685	8/17/16 8:46	3282
4)	Trial		8/17/16 8:46	3282
5)	Trial		8/17/16 8:46	3282
6)	Upload Prep	US19LAB00001	8/17/16 11:38	3282

Sample ID	Analysis	D	Operation	Measurement	Original Entry				Data Changed		
					Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason

Analysis: 5714 Hg EPA 600 Digest

Batch# 16 229 5714 002

Sample ID	Due Date	P	EPA#	SDG#	Initial Volume	Dilution	Final Volume	Trial
PBW					40.0000		40.0000	1
LCSW					1.0000		1.0000	1
8523838U	08/24/16	S8	06100	MOO90-01BKG	40.0000		40.0000	1
8523839R	08/24/16	S8	06100	MOO90-01MS	40.0000		40.0000	1
8523841D	08/24/16	S8	06100	MOO90-01DUP	40.0000		40.0000	1
8523843	08/24/16	S8	99901	MOO90-03	40.0000		40.0000	1
8523844	08/24/16	S8	06120	MOO90-04	40.0000		40.0000	1
8523845	08/24/16	S8	06140	MOO90-05	40.0000		40.0000	1
8523846	08/24/16	S8	99902	MOO90-06	40.0000		40.0000	1
8528577	08/26/16	N8	10660	MOO91-01	40.0000		40.0000	1
8528581	08/26/16	N8	10680	MOO91-05	40.0000		40.0000	1
8528582	08/26/16	N8	10685	MOO91-06	40.0000		40.0000	1
8528583	08/26/16	N8	10620	MOO91-07	40.0000		40.0000	1
8528584	08/26/16	N8	10622	MOO91-08	40.0000		40.0000	1

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg 5700 std Cal ~~ICV~~	H16-215M						1	6	137345
2	ICV	N	1.0mg/L Cont	15	8-9-16	H16-215C	0.25mL			
3	CCV	O	1.0mg/L Cal			H16-215A	0.20mL			
4	CRA	P	0.1mg/L Cont			H16-215D	0.20mL			
5	Potassium Persulfate	H16-216A	$K_2S_2O_8$	6	4-13-21	124923 #3	100.02g			
6	Stannous Chloride	H16-216B	$SnCl_2$	6	1-18-17	134169 #-2	200.02g			
7	Stannous Chloride	H16-216C	$SnCl_2$	6	1-18-17	134169 #2	200.04g			
8	Hg 1.0mg/L Inter Cal	H16-217A	Hg 10mg/L Cal	15	9-04-16	H16-064U	1.0ml			
9	0.1mg/L Inter Cal	B	1.0mg/L Cal	15	8-11-16	H16-217A				
10	1.0mg/L Inter Cont	C	10mg/L Cont	XX	1-22-17	J2HG02128				
11	0.1mg/L Inter Cont	D	1.0mg/L Cont	15	8-11-16	H16-217D				
12	Hg 5700 ICV	E					0.25ml	1	6	137345
13	CCV	F	Hg 1.0mg/L Cal			H16-217A	0.20			
14	CRA	G	Hg 0.1mg/L Cont			H16-217D	0.20			
15	Std Cal	H	Hg 0.1mg/L Cal			H16-217B	0.20			
16		I					0.50			
17		J	Hg 1.0mg/L Cal			H16-217A	0.20			
18		K					0.25			
19		L					0.50			
20		M								

Key – Manufacturer (M•)

1 – Aldrich Chemical
2 – Conostan Specialty Products
3 – EM Science
4 – Fisher Scientific
5 – High-Purity Standards
6 – J. T. Baker
7 – Johnson Matthey
8 – Leeman Labs
9 – Mallinckrodt
10 – Plasma Pure
11 – Solutions Plus
12 – SPEX Industries
13 – VWR Scientific
14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)
xx · Inorganic 8-4-16 DV35L

17 235388

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used			Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #						
1	2mL H2SO4 ~~HNO3~~ ~~HCl~~	4	161151 8/2/16	3.2 $K_2S_2O_8$ 16.0mL $KMnO_4$		H16-169P H16-148P	100	0.0 µg/L	KNC382	8-2-16	8-9-16	RT
2							100	2.5				
3							200	1.0				
4							100	0.2				
5							2000	5%	DN354	8-03-16	8-03-16	RT
6	200	6	123882				2000	10%				
7	200	6	123882				2000	10%				
8				To vol w/ 0.15%	HNO3	H16-162P	10	1.0	DN354	8-04-16	8-11-16	RT
9								0.1				
10								1.0				
11								0.1				
12	2mL H2SO4	4	161151	3.2mL $K_2S_2O_8$ 16mL $KMnO_4$		H16-169P H16-148P	100	2.5 µg/L				
13							200	1.0				
14							100	0.2				
15								0.2				
16								0.5				
17							200	1.0				
18							100	2.5				
19								5.0				
20								0.0				

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
F = Element Specific

RT = Room Temperature Storage

* units are mL unless otherwise specified
** units are mg/L unless otherwise specified

b

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg 5700 ICV	H16-217N	Hg 1.0mg/L Cont	15	8-11-16	H16-217C	0.25ml	1	6	137345
2	↓ CCV	O	Hg 1.0mg/L Cal	↓	↓	H16-217A	0.20	↓	↓	↓
3	↓ CRA	P	Hg 0.1mg/L Cont	↓	↓	H16-217D	0.20	↓	↓	↓
4	Hg 5701 ICV	Q	Hg 1.0mg/L Cont	↓	↓	H16-217C	0.25ml			
5	↓ CCV	R	Hg 1.0mg/L Cal	↓	↓	H16-217A	0.10			
6	↓ CCV	S	↓	↓	↓	↓	0.10			
7	↓ CCV	T	↓	↓	↓	↓	0.10			
8	↓ CRA	U	Hg 0.1mg/L Cont	↓	↓	H16-217D	0.20			
9	↓ Std Cal	V	Hg 0.1mg/L Cal	↓	↓	H16-217B	0.20			
10	↓	W	↓	↓	↓	↓	0.50			
11	↓	X	Hg 1.0mg/L Cal	↓	↓	H16-217A	0.10			
12	↓	Y	↓	↓	↓	↓	0.25			
13	↓	Z	↓	↓	↓	↓	0.50			
14	↓	AA								
15	↓ ICV	BB	Hg 1.0mg/L Cont	15	8-11-16	H16-217C	0.25ml			
16	Aqua Regia	↓ CC						15	6	137345
17	Hg 1.0mg/L Inter Cal	H16-221A	Hg 10mg/L Cal	15	9-04-16	H16-064U	1.0ml			
18	↓ 0.1mg/L Inter Cal	B	1.0mg/L Cal	15	8-15-16	H16-221A	↓			
19	↓ 1.0mg/L Inter Cont	C	10mg/L Cont	XX	1-22-17	J2416021138	↓			
20	↓ 0.1mg/L Inter Cont	↓ D	↓ 1.0mg/L Cont	15	8-15-16	H16-221C	↓			

Key – Manufacturer (M•)

1 – Aldrich Chemical
2 – Conostan Specialty Products
3 – EM Science
4 – Fisher Scientific
5 – High-Purity Standards
6 – J. T. Baker
7 – Johnson Matthey
8 – Leeman Labs
9 – Mallinckrodt
10 – Plasma Pure
11 – Solutions Plus
12 – SPEX Industries
13 – VWR Scientific
14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)

xx: Inorganic 8-8-16 DV 35

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used								
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1	2ml H_2SO_4	4	161151	3.2ml $K_2S_2O_8$ 6ml $KMnO_4$		H16-164P H16-148P	100	2.5ug/L	DU354	8-04-16	8-11-16	RT
2	↓	↓	↓	↓	↓	↓	200	1.0	↓	↓	↓	↓
3	↓	↓	↓	↓	↓	↓	100	0.2	↓	↓	↓	↓
4				5ml Aqua Regia 15ml $KMnO_4$		H16-217 H16-148P	↓	2.5	↓	↓	↓	↓
5				↓	↓	↓	↓	1.0	↓	↓	↓	↓
6								1.0				
7								1.0				
8								0.2				
9								0.2				
10								0.5				
11								1.0				
12								2.5				
13								5.0				
14								0.0				
15				↓	↓	↓	↓	2.5	↓	↓	↓	↓
16	45	6	123882				60	1:3	↓	↓	8-04-16	↓
17				To volume 0.15	ml HNO_3	H16-112P	10	1.0	DU354	8-08-16	8-15-16	RT
18				↓	↓	↓	↓	0.1	↓	↓	↓	↓
19								1.0				
20				↓	↓	↓	↓	0.1	↓	↓	↓	↓

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
F = Element Specific

RT = Room Temperature Storage

* units are mL unless otherwise specified
** units are mg/L unless otherwise specified

b

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg 5701 ICV	H16-221E	Hg 1.0mg/L Cont	15	8-15-16	H16-221C	0.25ml			
2	CCV	F	Hg 1.0mg/L Cal			H16-221A	0.10			
3	CCV	G					0.10			
4	CCV	H					0.10			
5	CRA	I	Hg 0.1mg/L Cont			H16-221D	0.20			
6	Std Cal	J	Hg 0.1mg/L Cal			H16-221B	0.20			
7		K					0.50			
8		L	Hg 1.0mg/L Cal			H16-221A	0.10			
9		M					0.25			
10		N					0.50			
11		O								
12	ICV	P	Hg 1.0mg/L Cont	15	8-15-16	H16-221C	0.25ml			
13	Aqua Regia	Q						15	6	137345
14	Hg 1.0mg/L Inter Cal	H16-222A	Hg 1.0mg/L Cal	15	9-04-16	H16-0644	1.0ml			
15	0.1mg/L Inter Cal	B	1.0mg/L Cal	15	8-16-16	H16-222A				
16	1.0mg/L Inter Cont	C	10mg/L Cont	XX	1-22-17	J2H602138				
17	0.1mg/L Inter Cont	D	1.0mg/L Cont	15	8-16-16	H16-222C				
18	Hg 5700 ICV	E					0.25ml	1	6	137345
19	CCV	F	Hg 1.0mg/L Cal			H16-222A	0.20			
20	CRA	G	Hg 0.1mg/L Cont			H16-222D	0.20			

Key – Manufacturer (M•)

1 – Aldrich Chemical
2 – Conostan Specialty Products
3 – EM Science
4 – Fisher Scientific
5 – High-Purity Standards
6 – J. T. Baker
7 – Johnson Matthey
8 – Leeman Labs
9 – Mallinckrodt
10 – Plasma Pure
11 – Solutions Plus
12 – SPEX Industries
13 – VWR Scientific
14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)

XX - Inorganic 8-9-16 DVSK

a

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used									
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1				5ml Aqua-Regia 15ml KMnO4		H16-201 H16-180P	100	2.5ug/L	DW354	8-08-16	8-15-16	RT
2								1.0				
3								1.0				
4								1.0				
5								0.2				
6								0.2				
7								0.5				
8								1.0				
9								2.5				
10								5.0				
11								0.0				
12								2.5				
13	45	6	123882				100	1:3			8-08-16	
14				To vol w/0.15% HNO3		H16-112P	10	1.0	DW354	8-09-16	8-16-16	RT
15								0.1				
16								1.0				
17								0.1				
18	2ml H2SO4	4	161151	3.2ml H2SO8 6ml KMnO4		H16-169P H16-180P	100	2.5ug/L				
19							200	1.0				
20							100	0.2				

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
F = Element Specific

RT = Room Temperature Storage

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** units are mg/L unless otherwise specified

b

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form-1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg-5700 Std Cal	H16.222H	Hg-0.1mg/L Cal	15	8-16-16	H16.222B	0.20 ml	1	6	137345
2	↓	↓ I	↓	↓		↓	0.50	↓	↓	↓
3		J	Hg-1.0mg/L Cal			H16.222A	0.20			
4		K	↓			↓	0.25			
5		L	↓	↓		↓	0.50 ↓			
6	↓	M								
7	ICV	N	Hg-1.0mg/L Cont	15	8-16-16	H16.222C	0.25 ml			
8	CCV	O	Hg-1.0mg/L Cal	↓	↓	H16.222A	0.20			
9	↓ CRA	P	Hg-0.1mg/L Cont	↓	↓	H16.222D	0.20 ↓	↓	↓	↓
10	Stannous Chloride	Q	$SnCl_2$	6	1-18-17	134169 #2	200.05g			
11	↓	R	↓	↓	↓	↓ #2 & 3	200.00g			
12	↓	↓ S	↓	↓	↓	↓ #3	200.02g			
13										
14										
15										
16										
17										
18										
19										
20										

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14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used			Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #						
1	2ml H2SO4	4	161151	3.2ml H2O2 08 4ml KMnO4		H16-1649P H16-1806P	100	0.2ug/L	DU354	8-09-16	8-16-16	RT
2							100	0.5				
3							200	1.0				
4							100	2.5				
5								5.0				
6								0.0				
7								2.5				
8							200	1.0				
9							100	0.2				
10	900	6	123882				2000	10%			2-09-17	
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
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D = La_2O_3 (10%)
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Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg 5700 Std Cal	H16225I	Hg 0.1mg/L Cal	15	8-19-16	H16225B	0.50ml	1	6	1373345
2		J	Hg 1.0mg/L Cal			H16225A	0.20			
3		K					0.25			
4		L					0.50			
5		M								
6	ICV	N	Hg 1.0mg/L Cont	15	8-19-16	H16225C	0.25ml			
7	CCV	O	Hg 1.0mg/L Cal			H16225A	0.20			
8	CRA	P	Hg 0.1mg/L Cont			H16225D	0.20			
9	Hg 5701 ICV	Q	Hg 1.0mg/L Cont			H16225C	0.25			
10	CCV	R	Hg 1.0mg/L Cal			H16225A	0.10			
11	CCV	S					0.10			
12	CCV	T					0.10			
13	CRA	U	Hg 0.1mg/L Cont			H16225D	0.20			
14	Std Cal	V	Hg 0.1mg/L Cal			H16225B	0.20			
15		W					0.50			
16		X	Hg 1.0mg/L Cal			H16225A	0.10			
17		Y					0.25			
18		Z					0.50			
19		AA								
20	ICV	BB	Hg 1.0mg/L Cont	15	8-19-16	H16225C	0.25ml			

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a

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Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used								
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1	2ml H2SO4	4	161151	2.2ml H2SO4 6ml KMnO4		HL6-1647 HL6-1807	100	0.5	DL1354	8-12-16	8-19-16	RT
2							200	1.0				
3							100	2.5				
4								5.0				
5								0.0				
6								2.5				
7							200	1.0				
8							100	0.2				
9				5ml Aqua Regia 15ml KMnO4		HL6-2258C HL6-1807		2.5				
10								1.0				
11								1.0				
12								1.0				
13								0.2				
14								0.2				
15								0.5				
16								1.0				
17								2.5				
18								5.0				
19								0.0				
20								2.5				

Footnotes

Key (••) – Other Used

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B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
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** units are mg/L unless otherwise specified

b

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Aqua Regia	H16-235cc						15	6	137345
2	Stannous Chloride	235DD	SnCl2	6	1-18-17	134169#4	200.0 g			
3	1.0 mg/L Hg Cont	H16-227A	Hg 1.0 mg/L Cont	16	1-22-17	J2H602138	1.0 mL			
4	0.1 mg/L Hg Cont	H16-229B	Hg 1.0 mg/L Cont	15	8-23-16	H16-229A	1.0 mL			
5	Hg-1.0 mg/L Inter Cal	H16-230A	Hg-1.0 mg/L Cal	15	9-04-16	H16-0644	1.0 ml			
6	0.1 mg/L Inter Cal	B	1.0 mg/L Cal	15 (30)	8-18-16 (8-24-16)	H16-230A				
7	1.0 mg/L Inter Cont	C	1.0 mg/L Cont	XX	1-22-17	J2HG02138				
8	0.1 mg/L Inter Cont	D	1.0 mg/L Cont	15 (30)	8-18-16 (8-24-16)	H16-230C				
9	Hg 5700 ICV	E			8-24-16		0.25 ml	1	6	137345
10	CCV	F	Hg-1.0 mg/L Cal			H16-230A	0.20			
11	CRA	G	Hg-0.1 mg/L Cont			H16-230D	0.20			
12	Std Cal	H	Hg-0.1 mg/L Cal			H16-230B	0.30			
13		I					0.50			
14		J	Hg-1.0 mg/L Cal			H16-230A	0.20			
15		K					0.25			
16		L					0.50			
17		M								
18	ICV	N	Hg-1.0 mg/L Cont	15	8-24-16	H16-230C	0.25 ml			
19	CCV	O	Hg-1.0 mg/L Cal			H16-230A	0.20			
20	CRA	P	Hg-0.1 mg/L Cont			H16-230D	0.20			

(30) 8-24-16 [illegible]

Key – Manufacturer (M•)

1 – Aldrich Chemical
2 – Conostan Specialty Products
3 – EM Science
4 – Fisher Scientific
5 – High-Purity Standards
6 – J. T. Baker
7 – Johnson Matthey
8 – Leeman Labs
9 – Mallinckrodt
10 – Plasma Pure
11 – Solutions Plus
12 – SPEX Industries
13 – VWR Scientific
14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)
16 – Inorganic Ventures

[illegible] 8-16-16

a

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used									
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1	45	6	1233882	—	—	—	60	1:3	DU354	8-12-16	8-12-16	RT
2	200	↓	↓	—	—	—	2000	10%	↓	↓	2-12-17	RT
3	—	—	—	to vol w/ 4.5% HNO3		H16-1128	10	1.0	DMS	8-16-16	8-23-16	RT
4	—	—	—	↓	↓	↓	10	0.1	↓	↓	↓	↓
5	—	—	—	To volume 0.15% HNO3		H16-1129	10	1.0	DU354	8-17-16	8-24-16	RT
6	—	—	—	↓	↓	↓	↓	0.1	↓	↓	↓	↓
7	—	—	—	↓	↓	↓	↓	1.0	↓	↓	↓	↓
8	—	—	—	↓	↓	↓	↓	0.1	↓	↓	↓	↓
9	2ml H2SO4	4	161151	3.2ml K2S2O8 6ml KMnO4		H16-1129 H16-1801	100	2.5ug/L	↓	↓	↓	↓
10	↓	↓	↓	↓	↓	↓	200	1.0	↓	↓	↓	↓
11	↓	↓	↓	↓	↓	↓	100	0.2	↓	↓	↓	↓
12	↓	↓	↓	↓	↓	↓	↓	0.2	↓	↓	↓	↓
13	↓	↓	↓	↓	↓	↓	↓	0.5	↓	↓	↓	↓
14	↓	↓	↓	↓	↓	↓	200	1.0	↓	↓	↓	↓
15	↓	↓	↓	↓	↓	↓	100	2.5	↓	↓	↓	↓
16	↓	↓	↓	↓	↓	↓	↓	5.0	↓	↓	↓	↓
17	↓	↓	↓	↓	↓	↓	↓	0.0	↓	↓	↓	↓
18	↓	↓	↓	↓	↓	↓	↓	2.5	↓	↓	↓	↓
19	↓	↓	↓	↓	↓	↓	200	1.0	↓	↓	↓	↓
20	↓	↓	↓	↓	↓	↓	100	0.2	↓	↓	↓	↓

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
F = Element Specific

RT = Room Temperature Storage

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b

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Document Title: Standard/Reagent Preparation Log		
Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Hg-1.0mg/L InterCal	H16-232A	Hg-10mg/L Cal	15	1-25-17	H16-207B	1.0 ml			
2	0.1mg/L InterCal	B	1.0mg/L Cal	15	8-26-16	H16-232A				
3	1.0mg/L InterCont	C	10mg/L Cont	XX	1-22-17	J2HG02138				
4	0.1mg/L Inter Cont	D	1.0mg/L Cont	15	8-26-16	H16-232C				
5	Hg 5701 ICV	E					0.25ml			
6	CCV	F	Hg-1.0mg/L Cal			H16-232A	0.10			
7	CCV	G					0.10			
8	CCV	H					0.10			
9	CRA	I	Hg-0.1mg/L Cont			H16-232D	0.20			
10	Std Cal	J	Hg-0.1mg/L Cal			H16-232B	0.20			
11		K					0.50			
12		L	Hg-1.0mg/L Cal			H16-232A	0.10			
13		M					0.25			
14		N					0.50			
15		O								
16	ICV	P	Hg-1.0mg/L	15	8-26-16	H16-232C	0.25ml			
17	Agua Regia	Q						15	1	137345
18	Stannous Chloride	R	SnCl2	6	1-18-17	134169	200.06g			
19	Hydroxylamine	H16-235A	NH2OH·HCL	6	1-3-22	142595	240.00g			
20			NaCl	6	7-08-20	123071	240.08g			

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13 – VWR Scientific
14 – EMD
15 – Prepared in house
XX – Other (footnote Manuf.)
XX: Inorganic 8-19-16 DV354

a

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Document Title: Standard/Reagent Preparation Log

Eurofins Document Reference: 1-P-QM-FOR-9009818 | Revision: 2 | Historical Reference: Form 1105

Effective date: Feb 20, 2015 | Status: Effective

	HCl Used			Other Used									
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1				To vol w/ 0.15%	HNO3	H16-112P	10	1.0	DL354	8-19-16	8-26-16	RT
2								0.1				
3								1.0				
4								0.1				
5				5ml Aqua Regia 15ml HNO3		H16-232Q H16-180P	100	2.5 ug/L				
6								1.0				
7								1.0				
8								1.0				
9								0.2				
10								0.2				
11								0.5				
12								1.0				
13								2.5				
14								5.0				
15								0.0				
16								2.5				
17	45	6	123882				60	1.3			8-19-16	
18	200						2000	10%			~~8-19-17~~ 1-18-17	
19							2000	12%	DL354	8-22-16	8-22-17	RT
20												

8-18-16 DL354

Footnotes

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C = KCl
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b

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Eurofins Document Reference: 1-P-QM-FOR-9009818	Revision: 2	Historical Reference: Form 1105
Effective date: Feb 20, 2015	Status: Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Permanganate	H16-235B	KMnO4	6	11-20-20	121730 #3	100.09g			
2	Stannous Chloride	H16-235C	SnCl2	6	1-18-17	134169 #17 #65	200.08g			
3	Hg 1.0 mg/L Inter Cal	H16-236A	Hg 10 mg/L Cal	15	1-25-17	H16-207B	1.0 ml			
4	0.1 mg/L Inter Cal	B	1.0 mg/L Cal	15	8-30-16	H16-236A				
5	1.0 mg/L Inter Cont	C	10 mg/L Cont	xx	1-22-17	J2HG02138				
6	0.1 mg/L Inter Cont	D	1.0 mg/L Cont	15	8-30-16	H16-236C				
7	Hg 5700 ICV	E					0.25 ml	1	6	137345
8	CCV	F	Hg 1.0 mg/L Cal			H16-236A	0.20			
9	CRA	G	Hg 0.1 mg/L Cont			H16-236D	0.20			
10	Std Cal	H	Hg 0.1 mg/L Cal			H16-236B	0.20			
11		I					0.50			
12		J	Hg 1.0 mg/L Cal			H16-236A	0.20			
13		K					0.25			
14		L					0.50			
15		M								
16	ICV	N	Hg 1.0 mg/L Cont	15	8-30-16	H16-236C	0.25 ml			
17	CCV	O	Hg 1.0 mg/L Cal			H16-236A	0.20			
18	CRA	P	Hg 0.1 mg/L Cont			H16-236D	0.20			
19										
20										

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xx - Inorganic 8-23-16 DV354

a

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Effective date: Feb 20, 2015	Status: Effective	

	HCl Used			Other Used									
	Vol (mL)	M•	Lot #	Vol (mL*)	•• M•	Lot #	Final Vol (mL)	Final Conc (mg/L**)	Init/ Emp #	Prep Date (MM/DD/YY)	Expire Date (MM/DD/YY)	Storage
1							2000	5%	DU354	8-22-16	2-22-17	RT
2	200	6	123882				2000	10%	↓	↓	1-18-17	RT
3				To volume w/ 0.15% HNO3		H16-1129	10	1.0	DU354	8-23-16	8-30-16	RT
4								0.1				
5								1.0				
6								0.1				
7	2ml H2SO4	4	161151	3.2ml K2S2O8 6ml KMnO4		H16-1695 H16-1805	100	2.5ug/L				
8							200	1.0				
9							100	0.2				
10								0.2				
11								0.5				
12							200	1.0				
13							100	2.5				
14								5.0				
15								0.0				
16								2.5				
17							200	1.0				
18							100	0.2				
19												
20												

Footnotes

Key (••) – Other Used

A = $CaCl_2$ (0.053%)
B = CsCl (10%)
C = KCl
D = La_2O_3 (10%)
E = Al $(NO_3)_3$ (40%)
F = Element Specific

RT = Room Temperature Storage

* units are mL unless otherwise specified
** units are mg/L unless otherwise specified

b

Instrumental Wet Chemistry Data

Case Narrative/Conformance Summary

Instrumental Wet Chemistry

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8528577	TW106-160	X		1	
8528581	TW106-180	X		1	
8528582	TW106-185	X		1	
8528583	TW106-200	X		1	
8528584	TW106-220	X		1	

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.
See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

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

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Abbreviation Key

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

Quality Control and Calibration Summary Forms

Instrumental Wet Chemistry

Lancaster Laboratories Environmental

Quality Control Reference List
Instrumental Water Quality

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Fraction: Instrumental Wet Chemistry

Analysis	Batch Number	Sample Number	Analysis Date
Total Organic Carbon	16240298701A	P24098AB	08/26/2016 23:47:00
		P24098AQ	08/26/2016 23:34:00
		8528577	08/27/2016 01:18:00
		8528581	08/27/2016 01:31:00
		8528582	08/27/2016 01:58:00
		8528583	08/27/2016 02:11:00
		8528584	08/27/2016 02:24:00

Lancaster Laboratories Environmental

Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: MOO91
Matrix: LIQUID

Fraction: Instrumental Wet Chemistry

16240298701A / P24098AB Parameter	**ME**	**Analysis Date**	**Blank Results**	**Units**	**DL**	**LOD**	**LOQ**
Total Organic Carbon	TOC	08/26/16	N.D.	mg/l	0.50	1.0	1.0

Lancaster Laboratories Environmental

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: MOO91
Matrix: LIQUID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: P24098AQ	Batch: **16240298701A** (Sample number(s): 8528577, 8528581-8528584)								
Parameter	**ME**	**Spike Added mg/l**	**LCS Conc mg/l**	**LCSD Conc mg/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Total Organic Carbon	TOC	25	24.59	NA	98	NA	91-113	NA	NA

Lancaster Laboratories Environmental

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TOC

SDG: MOO91

Instrument ID: 12177
Calibration Date: 08/12/2016

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
TOC	11132	57420	73021	173105	341801	639699	0.9995

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

Concentration units: mg/L

Batch Numbers: 16240298701A
Run Start Dates: 08/26/2016
Run Names: 1623902G04

	TOC		
Sample	True	Result	%Rec
ICV	25	23.454	94
ICB	0	ND	NA
Low Chk	12.5	13.393	107
High Chk	40	41.190	103
CCV2	25	26.085	104
CCB	0	ND	NA
CCV2	25	26.793	107
CCB	0	ND	NA
CCV2	25	26.115	104
CCB	0	ND	NA

* = Out of Specification are immediately followed by two acceptable CCVs

Raw Data

Instrumental Wet Chemistry

Lancaster Laboratories Environmental

LOQ/MDL Summary
Instrumental Water Quality

SDG: MOO91

Fraction: Instrumental Wet Chemistry

00273: Total Organic Carbon **Analyte Name**	**Default DL**	**Default LOD**	**Default LOQ**	**Units**
Total Organic Carbon	.5	1	1.0	mg/l

Calibration Information Location

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Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1622501G04

Data File Name: 16225CALG04.G04

Run Start Date/Time: 08/12/2016 7:24

Instrument Number: 12177

Instrument Name: O.I. Analytical Aurora 1030

TOC CALIB.

Analyst: Clinton M Wilson 2987

Book ID	Page Number
230463	73

Initial Calibration Summary

Standards	Area Counts	True (mg/L)
S0	1398	0
S1.0	11132	1.0
S7.5	57420	7.5
S10.0	73021	10.0
S25.0	173105	25.0
S50.0	341801	50.0
S100.0	639699	100.0

File Name:	16225CALG04.G04
Calibration Date/Time:	8/12/2016 7:24:53AM
Correlation Coefficient:	0.99947
Y Intercept:	8741.61743
Slope:	6389.58490

QC Values

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

Reviewed By: CMW 2987 Reviewed Date 8-12-16

Verified By: 8/15 Verified Date 8/13/16

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1622501G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/12/2016 7:24

0 CLEANUP	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	0.00000		6445

Comments:

Injection # Date/Time: 08/12/2016 7:35

1 RINSE	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	0.00000		1460

Comments:

Injection # Date/Time: 08/12/2016 7:40

2 MBLANK	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	0.00000		2120

Comments:

Injection # Date/Time: 08/12/2016 7:50

3 S0	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	0.00000		1398

Comments:

Injection # Date/Time: 08/12/2016 8:00

4 S1.0	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	1.00000		11132

Comments:

Injection # Date/Time: 08/12/2016 8:07

5 S7.5	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	7.50000		57420

Comments:

Injection # Date/Time: 08/12/2016 8:14

6 S10.0	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	10.00000		73021

Comments:

Injection # Date/Time: 08/12/2016 8:21

7 S25.0	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
	1.0	25.00000		173105

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1622501G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/12/2016 8:28

Injection #	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
8 S50.0	1.0	50.00000		341801

Comments:

Injection # Date/Time: 08/12/2016 8:36

Injection #	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
9 S100.0	1.0	100.00000		639699

Comments:

Injection # Date/Time: 08/12/2016 8:45

Injection #	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
10 RINSE	1.0	0.00000		1803

Comments:

Injection # Date/Time: 08/12/2016 8:53

Injection #	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
11 ICV	1.0	23.45400		158609

Comments: 94% IS

Injection # Date/Time: 08/12/2016 9:00

Injection #	Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
12 ICB	1.0	0.00000		1596

Comments:

Ver. 1.0.8

User ID:JSM00495 Name:James Mathiot

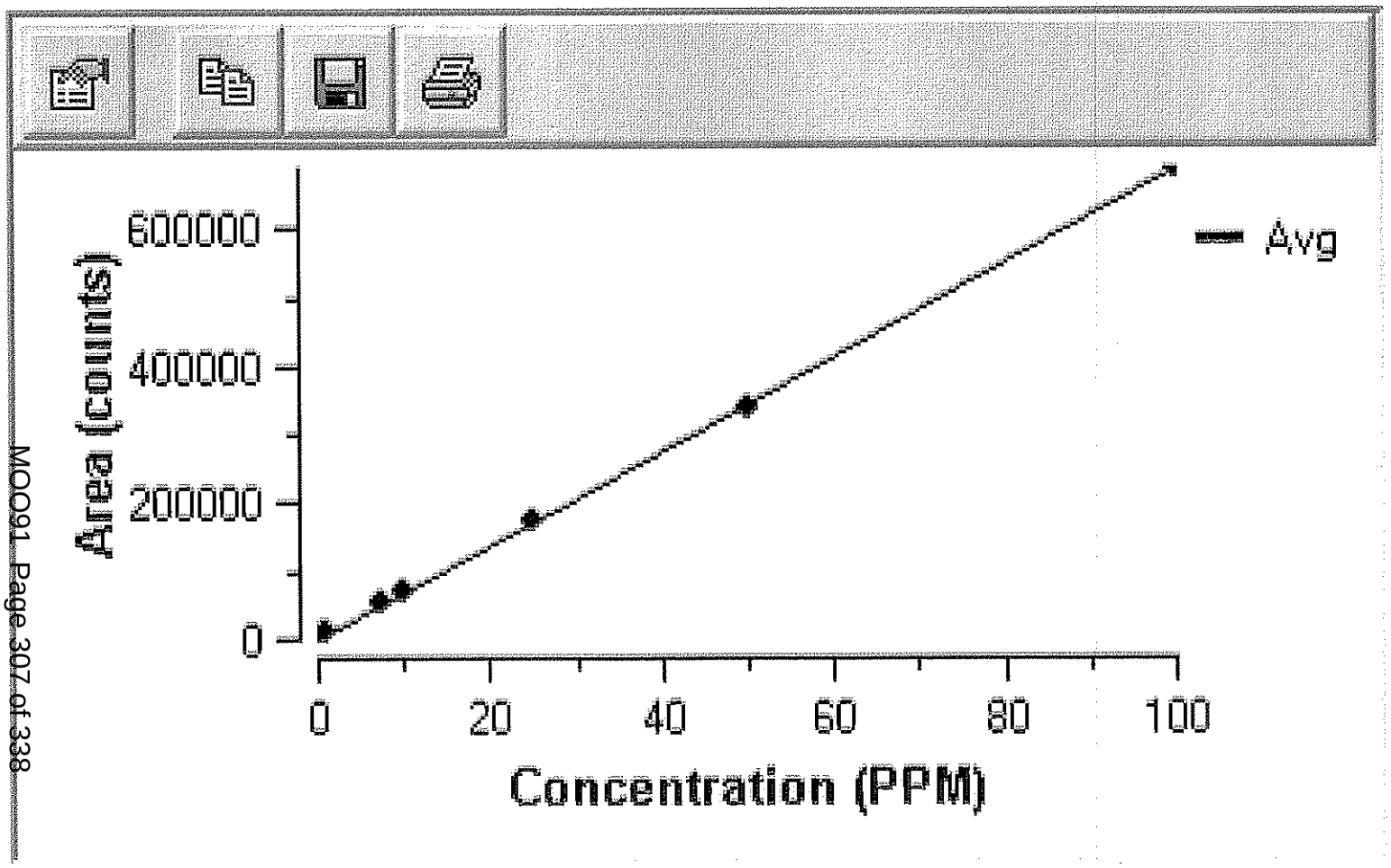
Title:Senior Scientis Dept:4027

Calibration - Quick View -TOC

Revision: 10-LLTOC DEC 3 - Dec 03, 2015; 10-26-50 AM
Modified By: toc
Date Created: 2015/12/03; 10:26 AM
Last Modified: 2016/08/11; 05:59 PM
Last Calibrated: 2016/08/11; 07:26 PM

RF(ugC/k-cnt): 0.2916
R2: 0.9999
Reagent Blank(cts): 854
Offset Area(cts): 1,863
Offset Mass(ugC): -0.54

Std #	Conc (PPM)	Volume (mL)	# Reps	Area	Std. Dev	%RSD	Date Analysed
RW	0.000	2.000	1	2,069	0	0.00	2016-08-11; 06:41PM
1	1.000	2.000	1	9,248	0	0.00	2016-08-11; 06:51PM
2	7.500	2.000	1	54,531	0	0.00	2016-08-11; 06:58PM
3	10.000	2.000	1	68,932	0	0.00	2016-08-11; 07:05PM
4	25.000	2.000	1	174,987	0	0.00	2016-08-11; 07:12PM
5	50.000	2.000	1	341,455	0	0.00	2016-08-11; 07:19PM
6	100.000	2.000	1	689,195	0	0.00	2016-08-11; 07:26PM


Area (counts)
600000
400000
200000
0
0
20
40
60
80
100
Concentration (PPM)
Avg

Calibration Information Location

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Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04

Data File Name: 16240G04.G04

Run Start Date/Time: 08/26/2016 22:33

Instrument Number: 12177

Instrument Name: O.I. Analytical Aurora 1030

Analyst: Clinton M Wilson 2987

Book ID	Page Number
230463	73

Initial Calibration Summary

Standards	Area Counts	True (mg/L)
S0	1398	0
S1.0	11132	1.0
S7.5	57420	7.5
S10.0	73021	10.0
S25.0	173105	25.0
S50.0	341801	50.0
S100.0	639699	100.0

File Name:	16225CALG04.G04
Calibration Date/Time:	8/12/2016 7:24:53AM
Correlation Coefficient:	0.99947
Y Intercept:	8741.61743
Slope:	6389.58490

QC Values

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

Reviewed By:	Reviewed Date
Erik J Frederiksen	08/29/2016 08:39
Joseph E McKenzie	08/29/2016 00:03

Verified By:	Verified Date
Erik J Frederiksen	08/29/2016 08:39
Nicole M Veety	08/31/2016 15:20

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/26/2016 22:33

0 CLEANUP

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		6623

Comments:

Injection # Date/Time: 08/26/2016 22:43

1 RINSE

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		1767

Comments:

Injection # Date/Time: 08/26/2016 22:59

2 25 TIC

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	25.95000		174550

Comments:

Injection # Date/Time: 08/26/2016 23:06

3 LOW

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	13.39300		94319

Comments:

Injection # Date/Time: 08/26/2016 23:13

4 HIGH

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	41.19000		271927

Comments:

Injection # Date/Time: 08/26/2016 23:20

5 CCV2

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.08500	% Recovery = 104	175416

Comments:

Injection # Date/Time: 08/26/2016 23:27

6 CCB

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		1950

Comments:

Injection # Date/Time: 08/26/2016 23:34 Batch: 16240298701A Class: ********** Element: TOC Verified ☐

7 LCS

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	25.53400	23.63700	24.58550	171890	159769

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection #	Date/Time	Batch	Class	SDG	Element	Verified	Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
8 PB	08/26/2016 23:47	16240298701A	**********		TOC		1.0	0.00000	0.00000	0.00000	2028	2189
9 LCS	08/27/2016 0:00	16240298702A	**********		TOC		1.0	28.68600	26.37600	27.53100	192035	177275
10 PB	08/27/2016 0:13	16240298702A	**********		TOC		1.0	0.00000	0.00000	0.00000	2201	1694
11 8529294	08/27/2016 0:26	16240298701A	U*********	WSR67	TOC	V	1.0	0.38800	0.28900	0.33850	11222	10586
12 8529295	08/27/2016 0:39	16240298701A	R*********	WSR67	TOC	V	1.0	11.99500	11.46100	11.72800	85385	81971
13 8529296	08/27/2016 0:52	16240298701A	**********	WSR67	TOC		1.0	0.42700	0.25900	0.34300	11467	10394
14 8529297	08/27/2016 1:06	16240298701A	D*********	WSR67	TOC	V	1.0	0.62500	0.55500	0.59000	12733	12286
15 8528577	08/27/2016 1:18	16240298701A	**********	MOO91	TOC	V	1.0	1.61700	1.83100	1.72400	19071	20441

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/27/2016 1:31 Batch: 16240298701A Class: ********** SDG:MOO91 Element: TOC Verified

16 **8528581**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	1.94100	2.15700	2.04900	21140	22524	

Comments:

Injection # Date/Time: 08/27/2016 1:44

17 **CCV2**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.79300		179937

% Recovery = 107

Comments:

Injection # Date/Time: 08/27/2016 1:51

18 **CCB**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		1790

Comments:

Injection # Date/Time: 08/27/2016 1:58 Batch: 16240298701A Class: ********** SDG:MOO91 Element: TOC Verified

19 **8528582**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	1.63200	1.79900	1.71550	19168	20238	

Comments:

Injection # Date/Time: 08/27/2016 2:11 Batch: 16240298701A Class: ********** SDG:MOO91 Element: TOC Verified

20 **8528583**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	2.00600	2.25600	2.13100	21556	23154	

Comments:

Injection # Date/Time: 08/27/2016 2:24 Batch: 16240298701A Class: ********** SDG:MOO91 Element: TOC Verified

21 **8528584**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	2.13100	2.74300	2.43700	22359	26270	

Comments:

Injection # Date/Time: 08/27/2016 2:36 Batch: 16240298701A Class: ********** SDG:WSR67 Element: TOC Verified

22 **8529298**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.28100	0.27100	0.27600	10537	10472	

Comments:

Injection # Date/Time: 08/27/2016 2:50 Batch: 16240298701A Class: ********** SDG:WSR67 Element: TOC Verified

23 **8529299**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.58800	0.47400	0.53100	12501	11768	

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # 24 — Date/Time: 08/27/2016 3:03 Batch: 16240298701A Class: ********** SDG: NBR77 Element: TOC Verified: V

8530428

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	4.25000	4.68700	4.46850	35897	38690

Comments:

Injection # 25 — Date/Time: 08/27/2016 3:16 Batch: 16240298701B Class: U********* SDG: NFP77 Element: TOC Verified: V

8529968

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.00000	0.00000	6773	7075

Comments:

Injection # 26 — Date/Time: 08/27/2016 3:28 Batch: 16240298701B Class: D********* SDG: NFP77 Element: TOC Verified: V

8529968

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.00000	0.00000	6486	6824

Comments:

Injection # 27 — Date/Time: 08/27/2016 3:41 Batch: 16240298701B Class: R********* SDG: NFP77 Element: TOC Verified: ☐

8529968

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	11.24400	11.70100	11.47250	80592	83504

Comments:

Injection # 28 — Date/Time: 08/27/2016 3:54 Batch: 16240298701B Class: ********** SDG: NFP77 Element: TOC Verified: V

8529967

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	51.81000	56.06500	53.93750	339787	366972

Comments:

Injection # 29 — Date/Time: 08/27/2016 4:07

CCV2

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.11500		175604

% Recovery = 104

Comments:

Injection # 30 — Date/Time: 08/27/2016 4:15

CCB

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		3272

Comments:

Injection # 31 — Date/Time: 08/27/2016 4:22 Batch: 16240298701B Class: ********** SDG: NFP77 Element: TOC Verified: ☐

8529971

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
500.0	1.71400	1.25500	742.25000	19692	16761

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
32	08/27/2016 4:35	16240298701B	**********	NFP77	TOC	V
8529972						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.16900	0.08450	8083	9818

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
33	08/27/2016 4:47	16240298701B	**********	NFP77	TOC	V
8529973						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	6.75700	7.03600	6.89650	51916	53701

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
34	08/27/2016 5:00	16240298701B	**********	NFP77	TOC	V
8529974						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.28100	0.14050	8714	10535

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
35	08/27/2016 5:14	16240298701B	**********	NFP77	TOC	V
8529975						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	6.04000	4.48200	5.26100	47334	37379

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
36	08/27/2016 5:26	16240298701B	**********	MOO92	TOC	V
8531401						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	1.58100	3.03200	2.30650	18840	28111

Comments:

Injection #	Date/Time	Batch	Class	Element	Verified
37	08/27/2016 5:39	16240298701B	**********	TOC	V
8531481					

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.14600	0.52900	0.33750	9673	12122

Comments:

Injection #	Date/Time	Batch	Class	Element	Verified
38	08/27/2016 5:51	16240298701B	**********	TOC	V
8531483					

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.12600	0.06300	8068	9544

Comments:

Injection #	Date/Time	Batch	Class	Element	Verified
39	08/27/2016 6:04	16240298702A	U*********	TOC	V
8531485					

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.04800	0.25200	0.15000	9045	10352

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # **40** Date/Time: 08/27/2016 6:16 Batch: 16240298702A Class: D********* Element: TOC Verified [V]

8531485

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.07900	0.25500	0.16700	9246	10373

Comments:

Injection # **41** Date/Time: 08/27/2016 6:29

CCV2

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.04100		175131

% Recovery = 104

Comments:

Injection # **42** Date/Time: 08/27/2016 6:36

CCB

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		1891

Comments:

Injection # **43** Date/Time: 08/27/2016 6:43 Batch: 16240298702A Class: R********* Element: TOC Verified [ ]

8531485

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	11.32500	12.02500	11.67500	81101	85574

Comments:

Injection # **44** Date/Time: 08/27/2016 6:56 Batch: 16240298702A Class: ********** Element: TOC Verified [V]

8531487

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.86000	1.22800	1.04400	14235	16590

Comments:

Injection # **45** Date/Time: 08/27/2016 7:09 Batch: 16240298702A Class: ********** Element: TOC Verified [V]

8531489

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.23700	0.54500	0.39100	10258	12222

Comments:

Injection # **46** Date/Time: 08/27/2016 7:22 Batch: 16240298702A Class: ********** Element: TOC Verified [V]

8531491

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.07000	0.03500	8336	9190

Comments:

Injection # **47** Date/Time: 08/27/2016 7:34 Batch: 16240298702A Class: ********** Element: TOC Verified [V]

8531493

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.09100	0.04550	8242	9321

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/27/2016 7:47 Batch: 16240298702A Class: ********** Element: TOC Verified

48 **8531495**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	7.34300	8.07600	7.70950	55657	60346	

Comments:

Injection # Date/Time: 08/27/2016 8:00 Batch: 16240298702A Class: ********** SDG: WSR70 Element: TOC Verified

49 **8531795**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.33500	0.49200	0.41350	10880	11881	

Comments:

Injection # Date/Time: 08/27/2016 8:13 Batch: 16240298702A Class: ********** SDG: WSR70 Element: TOC Verified

50 **8531796**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.66900	0.71500	0.69200	13016	13309	

Comments:

Injection # Date/Time: 08/27/2016 8:26 Batch: 16240298702A Class: ********** SDG: WSR71 Element: TOC Verified

51 **8531799**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.00000	0.00000	0.00000	3586	3876	

Comments:

Injection # Date/Time: 08/27/2016 8:38 Batch: 16240298702A Class: ********** SDG: WSR71 Element: TOC Verified

52 **8531800**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.00000	0.00000	0.00000	4605	4623	

Comments:

Injection # Date/Time: 08/27/2016 8:51

53 **CCV2**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.80800		180033

% Recovery = 107

Comments:

Injection # Date/Time: 08/27/2016 8:58

54 **CCB**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		1444

Comments:

Injection # Date/Time: 08/27/2016 9:06 Batch: 16240298702B Class: U********* SDG: CAP25 Element: TOC Verified

55 **8535850**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	V
1.0	0.72200	0.81100	0.76650	13355	13925	

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
56	08/27/2016 9:19	16240298702B	D*********	CAP25	TOC	V
8535850						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.67900	0.92700	0.80300	13081	14661

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
57	08/27/2016 9:32	16240298702B	R*********	CAP25	TOC	
8535850						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	12.23200	12.58700	12.40950	86896	89166

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
58	08/27/2016 9:45	16240298702B	**********	PFO30	TOC	V
8535860						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.91900	0.97300	0.94600	14614	14964

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
59	08/27/2016 9:58	16240298702B	**********	HPG01	TOC	V
8535979						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.00000	0.00000	0.00000	5849	6483

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
60	08/27/2016 10:10	16240298702B	**********	HPG01	TOC	V
8535982						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.48600	0.65800	0.57200	11847	12947

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
61	08/27/2016 10:23	16240298702B	**********	HPG01	TOC	V
8535985						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	0.90900	1.15800	1.03350	14550	16141

Comments:

Injection #	Date/Time	Batch	Class	SDG	Element	Verified
62	08/27/2016 10:36	16240298702B	**********	HPG01	TOC	V
8535988						

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	1.54500	1.95300	1.74900	18619	21218

Comments:

Injection #	Date/Time	Batch	Class	Element	Verified
63	08/27/2016 10:50	16240298702B	**********	TOC	V
8532088					

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2
1.0	12.58800	12.01100	12.29950	89174	85486

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Injection # Date/Time: 08/27/2016 11:03 Batch: 16240298702B Class: ********** Element: TOC Verified

64 **8533889**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	Verified
1.0	2.56800	2.72400	2.64600	25156	26144	V

Comments:

Injection # Date/Time: 08/27/2016 11:16

65 **CCV2**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	26.07400		175343

% Recovery = 104

Comments:

Injection # Date/Time: 08/27/2016 11:25

66 **CCB**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		3634

Comments:

Injection # Date/Time: 08/27/2016 11:31 Batch: 16240298702B Class: ********** Element: TOC Verified

67 **8533890**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	Verified
1.0	2.62700	2.95000	2.78850	25526	27591	V

Comments:

Injection # Date/Time: 08/27/2016 11:44 Batch: 16240298702B Class: ********** SDG: MOO93 Element: TOC Verified

68 **8534012**

Dil Factor	Raw Result 1 (mg/L)	Raw Result 2 (mg/L)	Calculated Average Result (mg/L)	Area Count 1	Area Count 2	Verified
1.0	1.50800	1.88800	1.69800	18373	20805	V

Comments:

Injection # Date/Time: 08/27/2016 11:57

69 **CCV2**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	25.95400		174578

% Recovery = 104

Comments:

Injection # Date/Time: 08/27/2016 12:05

70 **CCB**

Dil Factor	Raw Result (mg/L)	Calculated Result (mg/L)	Area Count
1.0	0.00000		2354

Comments:

Lancaster Laboratories Instrumental Water Quality Report

Run Name: 1623902G04 Instrument Number: 12177

Analyst ID: 2987

Wet Chemistry Data

Case Narrative/Conformance Summary

Wet Chemistry

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Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Water Quality

Fraction: Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8528577	TW106-160	X		1	
8528581	TW106-180	X		1	
8528582	TW106-185	X		1	
8528583	TW106-200	X		1	
8528584	TW106-220	X		1	

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.
See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

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

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Lancaster Laboratories Environmental

Case Narrative/Conformance Summary

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Water Quality

Fraction: Wet Chemistry

Abbreviation Key

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

QC Summary

Wet Chemistry

Lancaster Laboratories Environmental

Quality Control Reference List
Water Quality

CLIENT: EA Engineering, Science & Tech
SDG: MOO91

Fraction: Wet Chemistry

Analysis	Batch Number	Sample Number	Analysis Date
Total Dissolved Solids	16231021201A	PB23141B	08/18/2016 08:13:00
		LC23141Q	08/18/2016 08:13:00
		8528577	08/18/2016 06:55:00
		8528581	08/18/2016 06:55:00
Total Dissolved Solids	16231021202A	PB23142B	08/18/2016 13:52:00
		LC23142Q	08/18/2016 13:52:00
		8528582	08/18/2016 07:03:00
		8528583	08/18/2016 07:03:00
		8528584	08/18/2016 07:03:00

Lancaster Laboratories Environmental

Quality Control Summary
Method Blank
Water Quality
SDG: MOO91
Matrix: LIQUID

Fraction: Wet Chemistry

16231021201A / PB23141B Parameter	**ME**	**Analysis Date**	**Blank Results**	**Units**	**DL**	**LOD**	**LOQ**
Total Dissolved Solids	G	08/18/16	N.D.	mg/l	9.7	30.0	30.0

16231021202A / PB23142B Parameter	**ME**	**Analysis Date**	**Blank Results**	**Units**	**DL**	**LOD**	**LOQ**
Total Dissolved Solids	G	08/18/16	N.D.	mg/l	9.7	30.0	30.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: MOO91
Matrix: LIQUID

Water Quality
Fraction: Wet Chemistry

LCS: LC23141Q	Batch: **16231021201A** (Sample number(s): 8528577, 8528581)								
Parameter	**ME**	**Spike Added mg/l**	**LCS Conc mg/l**	**LCSD Conc mg/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Total Dissolved Solids	G	200	182	NA	91	NA	70-124	NA	NA

LCS: LC23142Q	Batch: **16231021202A** (Sample number(s): 8528582-8528584)								
Parameter	**ME**	**Spike Added mg/l**	**LCS Conc mg/l**	**LCSD Conc mg/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Total Dissolved Solids	G	200	192	NA	96	NA	70-124	NA	NA

Raw Data

Wet Chemistry

Lancaster Laboratories Environmental

LOQ/MDL Summary
Water Quality

SDG: MOO91

Fraction: Wet Chemistry

00212: Total Dissolved Solids Analyte Name	Default DL	Default LOD	Default LOQ	Units
Total Dissolved Solids	9.7	30	30.0	mg/l

LLENS Worksheet for 0212 Total Dissolved Solids - Stability Batch# 16 231 0212 01

Oven ID #: 6605 Temperature In: 182 Temperature Out: 180°C

Balance ID #: 18958 Filter Lt# 9707601 Date/Time last beaker into 180C oven 8/18/16 @ 2127

Std. Ref. (book/pg.): 238042/27 Date/Time beakers removed from 180C oven 8-19-16 @ 0301

	SampleID	Date Added	C	H	Crucible ID	Vol.	BC	Comments	Analysis
1)	BLK	08/18/16 08:13			GA	200	—		
2)	LCS 200	08/18/16 08:13			FO	100	—		
3)	8522495	08/18/16 06:55			RICH	100	5A		00212
4)	**8523004U**	08/18/16 06:55			EM	50	5A		00212
5)	**8523004D**	08/18/16 08:13			PIG	50	5A		00212
6)	8523718	08/18/16 06:55			FRAT	25	5A		00212
7)	8523721	08/18/16 06:55			252	50	4A		00212
8)	8523722	08/18/16 06:55			BIN	100	4A		00212
9)	8523898	08/18/16 06:55			INTO	50	5B		00212
10)	8523899	08/18/16 06:55			XX	25	5B		00212
11)	8524486	08/18/16 06:55			WTS	100	4A		00212
12)	8524690	08/18/16 06:55			ZO	100	4A		00212
13)	8524771	08/18/16 06:55			7103	25	4A		00212
14)	8524894	08/18/16 06:55			BEST	200	4A		00212
15)	8524971	08/18/16 06:55			2011	25	4A		00212
16)	8524973	08/18/16 06:55			BOI	100	4A		00212
17)	**8525269U**	08/18/16 06:55			ZOOM	25	5A		00212
18)	**8525269R**	08/18/16 08:13		HU③	~~BABY~~	25	5A	10 mL of 4000mg/L	00212
19)	**8525269D**	08/18/16 08:13			MAN	25	5A		00212
20)	8525427	08/18/16 06:55			64	100	5A		00212
21)	8525428	08/18/16 06:55			RENQ	100	5A		00212
22)	8525434	08/18/16 06:55			SHOW	100	4A		00212
23)	8525711	08/18/16 06:55			POOR	100	4A		00212
24)	8528577	08/18/16 06:55			PUG	100	4A		00212
25)	8528581	08/18/16 06:55			SEA	100	4A		00212

③ KDL 10250 8-18-16

Signature: Karen D. Lausch Date 8-18-16

Reviewed by: RK Date 8/21/16

Date/Time/Temp Worksheet for 0212 Total Dissolved Solids - Sta Batch# 16 231 0212 01 Reviewed by: [illegible] Date 8/24/16

SampleID	Crucible ID	IN TEMP 181°C	OUT TEMP 181	IN TEMP 182	OUT TEMP 182	IN TEMP 182	OUT TEMP 180	IN TEMP	OUT TEMP	IN TEMP	OUT TEMP	IN TEMP	OUT TEMP	C
1) BLK	GA	8-19-16 @0532	8-19-16 0802	✓										
2) LCS 200	FO			✓										
3) 8522495	RICH			8-19-16 1026	8-19-16 1231		~~8-19-16 1710~~	② SLB 9246 8-19-16						
4) **8523004U**	EM			✓										
5) **8523004D**	PIG			✓										
6) 8523718	FRAT			✓										
7) 8523721	252			✓										
8) 8523722	BIN			✓										
9) 8523898	INTO			✓										
10) 8523899	XX			✓										
11) 8524486	WTS			8-19-16 1026	8-19-16 1231	8-19-16 1501	8-19-16 1710							
12) 8524690	ZO			✓										
13) 8524771	7103			✓										
14) 8524894	BEST			✓										
15) 8524971	2011			✓										
16) 8524973	BOI			✓										
17) **8525269U**	ZOOM			✓										
18) **8525269R**	HU			✓										
19) **8525269D**	MAN			✓										
20) 8525427	64			8-19-16 1026	8-19-16 1231									
21) 8525428	RENQ			↓	↓	8-1916 1501	8-19-16 1710							
22) 8525434	SHOW			✓										
23) 8525711	POOR			✓										
24) 8528577	PUG			8-19-16 1026	8-19-16 1231	8-19-16 1501	8-19-16 1710							
25) 8528581	SEA			✓										

Batch# 16 231 0212 01

LLENS Batch Chronology and Change Log - Total Dissolved Solids - Stability Required

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		8/18/16 6:55	10250
2)	Tare Weight	CLEAR	8/18/16 13:47	10250
3)	Spiking Info		8/18/16 13:49	10250
4)	Sample Volumes		8/18/16 13:50	10250
5)	Final Dry Weight 1	18958	8/19/16 5:13	8994
6)	Final Dry Weight 2	18958	8/19/16 10:11	9526
7)	Final Dry Weight 4	18958	8/19/16 19:31	9246
8)	Calculate/Transmit	US19INS0679	8/19/16 19:33	9246

Sample ID	Analysis	D	Operation	Measurement	Original Entry				Data Changed	
					Date/Time	Data	Units	Analyst	Date/Time	AnalystReason

Analysis: 0212 Total Dissolved Solids - Stability Required

Batch# 16 231 0212 01

Sample ID	BMAN	Crucible ID	Tare Wt	Volume	Dry wt#1	Dry wt#2	Dry wt#3	Dry wt#4	Dry wt#5	Dry wt#6	Dry wt#7	Dry wt#8	Spk Added	%Rel Diff	TDS(mg/L)
BLK	A	GA	138.0529	200.00	138.0515	138.0520									-7.00
LCS 200	A	FO	137.4487	100.00	137.4669	137.4675									182.00
8522495	A00212	RICH	113.5239	100.00	113.5364	113.5356	113.5379								117.00
8523004U	B00212	EM	126.5628	50.00	126.5928	126.5956									600.00
8523004D	B00212	PIG	125.2137	50.00	125.2446	125.2479								2.96	618.00
8523718	A00212	FRAT	135.3104	25.00	135.3453	135.3477									1396.00
8523721	A00212	252	134.6721	50.00	134.6988	134.6987									532.00
8523722	A00212	BIN	129.5158	100.00	129.5664	129.5688									506.00
8523898	A00212	INTO	113.3211	50.00	113.3734	113.3738									1046.00
8523899	A00212	XX	134.0586	25.00	134.0821	134.0833									940.00
8524486	A00212	WTS	117.3630	100.00	117.4206	117.4182		117.4190							552
8524690	A00212	ZO	135.9069	100.00	135.9352	135.9359									283.00
8524771	A00212	7103	140.1023	25.00	140.1229	140.1249									824.00
8524894	A00212	BEST	129.7270	200.00	129.7440	129.7445									85.00
8524971	A00212	2011	114.5807	25.00	114.6412	114.6427									2420.00
8524973	A00212	BOI	135.7190	100.00	135.7621	135.7625									431.00
8525269U	A00212	ZOOM	129.4545	25.00	129.4817	129.4820									1088.00
8525269R	A00212	HU	127.5973	25.00	127.6582	127.6608							1600.00		2436.00
8525269D	A00212	MAN	115.9609	25.00	115.9860	115.9886								8.03	1004.00
8525427	A00212	64	129.6559	100.00	129.6920	129.6910	129.6932								351.00
8525428	A00212	RENQ	116.3298	100.00	116.3861	116.3834	116.3792	116.3798							494.00
8525434	A00212	SHOW	116.6584	100.00	116.6806	116.6808									222.00
8525711	A00212	POOR	130.8879	100.00	130.9201	130.9205									322.00
8528577	A00212	PUG	134.7103	100.00	134.7302	134.7294		134.7311							191
8528581	A00212	SEA	112.1434	100.00	112.1625	112.1623									189.00

Sample ID	SPK Aliquot	SPK Conc	SPK Volume
8525269R	10.00	4000.00	25.00

8/21/16

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Tare Weight Summary

Batch# 16 231 0212 01

Analysis: 0212 Total Dissolved Solids - Stability Requ

Sample ID	ID	Wt.	Analyst	Date/Time
BLK	GA	138.0529	10250	8/18/16 10:27
LCS 200	FO	137.4487	10250	8/18/16 10:30
8522495	RICH	113.5239	10250	8/18/16 10:31
8523004	EM	126.5628	10250	8/18/16 10:30
8523004DUP	PIG	125.2137	10250	8/18/16 10:18
8523718	FRAT	135.3104	10250	8/18/16 10:28
8523721	252	134.6721	10250	8/18/16 10:28
8523722	BIN	129.5158	10250	8/18/16 10:29
8523898	INTO	113.3211	10250	8/18/16 10:23
8523899	XX	134.0586	10250	8/18/16 10:25
8524486	WTS	117.3630	10250	8/18/16 10:26
8524690	ZO	135.9069	10250	8/18/16 10:20
8524771	7103	140.1023	10250	8/18/16 10:27
8524894	BEST	129.7270	10250	8/18/16 10:21
8524971	2011	114.5807	10250	8/18/16 10:22
8524973	BOI	135.7190	10250	8/18/16 10:22
8525269	ZOOM	129.4545	10250	8/18/16 10:19
8525269MS	HU	127.5973	10250	8/18/16 10:32
8525269DUP	MAN	115.9609	10250	8/18/16 10:20
8525427	64	129.6559	10250	8/18/16 10:32
8525428	RENQ	116.3298	9526	8/17/16 12:00
8525434	SHOW	116.6584	10250	8/18/16 10:15
8525711	POOR	130.8879	10250	8/18/16 10:17
8528577	PUG	134.7103	10250	8/18/16 10:17
8528581	SEA	112.1434	10250	8/18/16 10:17

LLENS Worksheet for 0212 Total Dissolved Solids - Stability Batch# 16 231 0212 02

Oven ID #: 6605 Temperature In: 181 Temperature Out: 182

Balance ID #: 18958 Filter Lt# 9707601 Date/Time last beaker into 180C oven 8-19-16@ 0254

Std. Ref. (book/pg.): 238042/27 Date/Time beakers removed from 180C oven 8-19-16 0728

	SampleID	Date Added	C	H	Crucible ID	Vol.	BC	Comments	Analysis
1)	BLK	08/18/16 13:52			JHP	200	—		
2)	LCS 200	08/18/16 13:52			1017	100	—		
3)	8524895	08/18/16 07:03			GOAT	200	4A		00212
4)	8525149	08/18/16 07:03			ERM	100	5B		00212
5)	8525150	08/18/16 07:03			NOEL	200	5B		00212
6)	8525151	08/18/16 07:03			J19	200	5B		00212
7)	8525152	08/18/16 07:03			T4	100	5B		00212
8)	**8525712U**	08/18/16 07:03			TAC	100	4A		00212
9)	**8525712R**	08/18/16 13:52			BINE	100	4A	10mL of 4000 mg/L	00212
10)	**8525712D**	08/18/16 13:52			IFJ	100	4A		00212
11)	8528396	08/18/16 07:03			WORD	100	5A		00212
12)	8528397	08/18/16 07:03			FKEG	100	5A		00212
13)	8528398	08/18/16 07:03			LUV	(2.5) 25	5A	10mL → 100 mL	00212
14)	8528399	08/18/16 07:03			C3P	100	5A		00212
15)	8528401	08/18/16 07:03			HEY	25	23A		00212
16)	**8528509U**	08/18/16 07:03			BLOW	10	5B		00212
17)	**8528509D**	08/18/16 13:52			JAVA	10	5B		00212
18)	8528582	08/18/16 07:03			DIP	100	4A		00212
19)	8528583	08/18/16 07:03			BLUE	200	4A		00212
20)	8528584	08/18/16 07:03			BRT	100	4A		00212
21)	8529227	08/18/16 07:03			L7Q	200	5A		00212
22)	8529494	08/18/16 07:03			RU	100	5A		00212
23)	8529890	08/18/16 07:03			V5	200	4B		00212
24)	8529891	08/18/16 07:03			6BL	200	4B		00212
25)	8529892	08/18/16 07:03			KIP	200	4B		00212

Signature: Karen O. Lausch Date 8-18-16

Reviewed by: [illegible] Date 8/21/16

Date/Time/Temp Worksheet for 0212 Total Dissolved Solids - Sta Batch# 16 231 0212 02 Reviewed by: 19/18 Date 8/21/16

	SampleID	Crucible ID	IN TEMP 187	OUT TEMP 182	IN TEMP 182	OUT TEMP 180	IN TEMP	OUT TEMP	IN TEMP	OUT TEMP	IN TEMP	OUT TEMP	IN TEMP	OUT TEMP	C
1)	BLK	JHP	8-19-16 958	8-19-16 1112	~~8-19-16~~ (3)										
2)	LCS 200	1017													
3)	8524895	GOAT													
4)	8525149	ERM													
5)	8525150	NOEL			8-19-16 1343	8-19-16 1710									
6)	8525151	J19													
7)	8525152	T4													
8)	**8525712U**	TAC			8-19-16 1343	8-19-16 1710									
9)	**8525712R**	BINE													
10)	**8525712D**	TFJ													
11)	8528396	WORD													
12)	8528397	FKEG			8-19-16 1343	8-19-16 1710									
13)	8528398	LUV													
14)	8528399	C3P													
15)	8528401	HEY													
16)	**8528509U**	BLOW													
17)	**8528509D**	JAVA													
18)	8528582	DIP													
19)	8528583	BLUE													
20)	8528584	BRT			8-19-16 1343	8-19-16 1710									
21)	8529227	L7Q													
22)	8529494	RU													
23)	8529890	V5													
24)	8529891	6BL			8-19-16 1343	8-19-16 1710									
25)	8529892	KIP													

(3) KDL 10250 8-19-16

231 0212 02

n Chronology and Change Log - Total Dissolved Solids - Stability Required

	Instrument	Operation Date	ANALYST
ion		8/18/16 7:03	10250
t	18958	8/18/16 15:34	10250
		8/18/16 15:37	10250
umes		8/18/16 15:37	10250
eight 1	18958	8/19/16 9:45	9526
eight 2	18958	8/19/16 13:14	10250
eight 3	18958	8/19/16 19:34	9246
ransmit	US19INS0679	8/19/16 19:38	9246

				Original Entry				Data Changed	
alysis	D	Operation	Measurement	Date/Time	Data	Units	Analyst	Date/Time	AnalystReason
212	1	Final Dry Weight 2	Dry wt#2	8/19/16 13:27	126.8609	(g)	10250	8/19/16 13:35	10250 Wrong entry
	1	Final Dry Weight 2	Dry wt#2	8/19/16 13:35	112.1127	(g)	10250	8/19/16 13:35	10250 Wrong entry

Analysis: 0212 Total Dissolved Solids - Stability Required

Batch# 16 231 0212 02

Sample ID	BMAN	Crucible ID	Tare Wt	Volume	Dry wt#1	Dry wt#2	Dry wt#3	Dry wt#4	Dry wt#5	Dry wt#6	Dry wt#7	Dry wt#8	Spk Added	%Rel Diff	TDS(mg/L)
BLK	A	JHP	112.1135	200.00	112.1131	112.1128									-3.50
LCS 200	A	1017	101.2546	100.00	101.2738	101.2746									192.00
8524895	A00212	GOAT	103.8602	200.00	103.8890	103.8894									144.00
8525149	A00212	ERM	127.3161	100.00	127.3368	127.3364									203.00
8525150	A00212	NOEL	136.7225	200.00	136.7675	136.7661	136.7675								218.00
8525151	A00212	J19	129.4812	200.00	129.5135	129.5133									160.50
8525152	A00212	T4	133.0093	100.00	133.0689	133.0696									596.00
8525712U	A00212	TAC	126.7888	100.00	126.8356	126.8341	126.8354								453.00
8525712R	A00212	BINE	132.2013	100.00	132.2863	132.2863							400.00		850.00
8525712D	A00212	TFJ	127.0275	100.00	127.0721	127.0716								2.68	441.00
8528396	A00212	WORD	132.5664	100.00	132.5871	132.5867									203.00
8528397	A00212	FKEG	132.3638	100.00	132.3946	132.3940	132.3937								299.00
8528398	A00212	LUV	115.2442	2.50	115.2708	115.2697	115.2704								10200.00
8528399	A00212	C3P	126.5486	100.00	126.5898	126.5873	126.5874								387.00
8528401	A00212	HEY	129.1741	25.00	129.2146	129.2141									1600.00
8528509U	B00212	BLOW	98.6476	10.00	98.7134	98.7149									6580.00
8528509D	B00212	JAVA	116.4587	10.00	116.5219	116.5219								4.03	6320.00
8528582	A00212	DIP	129.0138	100.00	129.0446	129.0443									305.00
8528583	A00212	BLUE	115.9165	200.00	115.9643	115.9647									239.00
8528584	A00212	BRT	116.2997	100.00	116.3378	116.3369	116.3383								372.00
8529227	A00212	L7Q	134.4778	200.00	134.4875	134.4872									47.00
8529494	A00212	RU	126.8225	100.00	126.8620	126.8634									395.00
8529890	A00212	V5	137.9316	200.00	137.9688	137.9683									183.50
8529891	A00212	6BL	129.7542	200.00	129.7733	129.7715	129.7717								86.50
8529892	A00212	KIP	126.3437	200.00	126.3710	126.3719									136.50

Sample ID	SPK Aliquot	SPK Conc	SPK Volume
8525712R	10.00	4000.00	100.00

8/15 8/21/16

8/19/2016

Tare Weight Summary

Batch# 16 231 0212 02

Analysis: 0212 Total Dissolved Solids - Stability Requ

Sample ID	ID	Wt.	Analyst	Date/Time
BLK	JHP	112.1135	10250	8/18/16 10:31
LCS 200	1017	101.2546	9526	8/17/16 11:58
8524895	GOAT	103.8602	9526	8/17/16 11:54
8525149	ERM	127.3161	9526	8/17/16 11:59
8525150	NOEL	136.7225	9526	8/17/16 11:56
8525151	J19	129.4812	9526	8/17/16 11:57
8525152	T4	133.0093	9526	8/17/16 11:47
8525712	TAC	126.7888	9526	8/17/16 11:57
8525712MS	BINE	132.2013	9526	8/17/16 11:51
8525712DUP	TFJ	127.0275	9526	8/17/16 11:58
8528396	WORD	132.5664	9526	8/17/16 11:49
8528397	FKEG	132.3638	9526	8/17/16 11:53
8528398	LUV	115.2442	9526	8/17/16 11:54
8528399	C3P	126.5486	9526	8/17/16 11:38
8528401	HEY	129.1741	9526	8/17/16 11:38
8528509	BLOW	98.6476	9526	8/17/16 11:40
8528509DUP	JAVA	116.4587	9526	8/17/16 11:41
8528582	DIP	129.0138	9526	8/17/16 11:34
8528583	BLUE	115.9165	9526	8/17/16 11:35
8528584	BRT	116.2997	9526	8/17/16 11:36
8529227	L7Q	134.4778	9526	8/17/16 11:37
8529494	RU	126.8225	9526	8/17/16 11:28
8529890	V5	137.9316	9526	8/17/16 11:32
8529891	6BL	129.7542	9526	8/17/16 11:32
8529892	KIP	126.3437	9526	8/17/16 11:33