

FEBRUARY 18, 2014

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



February 18, 2014

Scot Fitzgerald
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF140128

Reference: (1) SOW, Mod 2, #36587, Release 3
(2) MSC-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Program Plan

This letter contains the following information for sample delivery group WSCF140128

- * Cover Sheet (Attachment 1)
- * Narrative (Attachment 2)
- * Analytical Results (Attachment 3)
- * Sample Receipt Information (Attachment 4)

Very truly yours,

A handwritten signature in black ink, appearing to read "Joseph Hale", is positioned above the typed name.

Electronically signed by Joseph Hale

For Lab Manager, Dan T. Smith

WSCF Analytical Lab

(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF140128

Data Deliverable Date 02/18/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
I14-014	B2XY3	140128001	WATER	01/17/14	01/17/14
I14-014	B2XY1	140128002	WATER	01/17/14	01/17/14
I14-014	B2XY0	140128003	WATER	01/17/14	01/17/14
W14-001	B2V359	140128004	WATER	01/17/14	01/17/14

ATTACHMENT 2

NARRATIVE

Consisting of 7 pages
Including cover page

Introduction

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW)*, to Contract 39818, Revision 4, "WSCF ANALYTICAL SERVICES FOR GROUNDWATER."

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

- Sample Issue Resolution Form SDR14-092 regarding refrigerator temperature failure is attached to this report.
- Sample Issue Resolution Form SDR14-086 regarding 8260 LCS failure is attached to this report.

The following generic data qualifiers (i.e., B, C, D, J and U) may be applicable to this report, as appropriate.

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **C** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were C flagged (applies to inorganic and wet chemical analyses).
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **B (organic analyses)** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were B flagged.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.
- **o** – LCS recovery outside established laboratory acceptance limits.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report* for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group.

Analytical Note(s):

- Nitrate – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable QC controls are within the established limits.

Hexavalent Chromium – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group.

Analytical Note(s):

- Matrix Spike result is outside established laboratory limits. Affected sample results in this batch were “N” flagged.
- Duplicate failed due to high turbidity in the sample.
- All other applicable QC controls are within the established limits.

ICP-AES Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

Total Dissolved Solids – The hold time requirement for this analysis was met. A Duplicate, Blank and Laboratory Control Sample were analyzed for this sample delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

Total Organic Carbon – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

Total Organic Halides – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

Organic Comments

Semi-VOA – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Sample B2V359 (140128004) did not meet the acceptance limits for surrogate 2,4,6-Tribromophenol. Sample results were not flagged. The quality control report was flagged for surrogate recovery failure.
- All other applicable QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- 1,1-Dichloroethene, 1,1-Dichloroethane, 1,1,1-Trichloroethane, Carbon disulfide and trans-1,2-Dichloroethene – Matrix Spike and/or Matrix Spike Duplicate recoveries did not meet established laboratory acceptance limits. Affected sample results in this batch were “T” flagged.
- Carbon disulfide did not meet the LCS acceptance limits. Sample results for these analytes were “o” flagged.
- All other applicable QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to Technetium & Tritium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

Tritium:

- All applicable QC controls are within the established limits.

Attachment 2
Narrative
WSCF140128

Technetium-99:

- All applicable QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

SAMPLE ISSUE RESOLUTION

SIR NUM SDR14-086
REV NUM 0
DATE INITIATED 1/28/2014

SAMPLE EVENT INFORMATION

SAF NUM(S) X13-002, X14-012, S14-001, I14-014, I14-012, X14-003
OPERABLE UNIT(S) 100-KR-4, NONE
PROJECT(S) CERC14, SURV14, SURV13
SAMPLE EVENT TITLE(S) CERC14, SURV14, SURV13
LABORATORY Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES 13
SAMPLE NUMBERS B2R1K5, B2T640, B2T678, B2TXV2, B2TXY0, B2TXY6, B2TY16, B2TYH9, B2TYK6, B2V016, B2V040, B2V045, B2VW37
SAMPLE MATRIX WATER
COLLECTION DATE 1/17/2014 - 1/23/2014
SDG NUM WSCF140159, WSCF140128, WSCF140192, WSCF140184, WSCF140191, WSCF140183, WSCF140129, WSCF140127

ISSUE BACKGROUND

CLASS Laboratory Issue
TYPE Quality Control Failure
DESCRIPTION LCS recovery for the following 8260 compound was outside the control limits. The MS and MSD recoveries were also outside the control limits. The blank was non-detect. The samples were non-detect.
Carbon disulfide = 137.1% (75-125) LCS
Carbon disulfide = 150% (75-125) MS
Carbon disulfide = 157.5% (75-125) MSD

DISPOSITION

DESCRIPTION Proposed Disposition: Report the data as-is and note the LCS, MS and MSD failures in the case narrative.
JUSTIFICATION ACCEPTED DISPOSITION: Accept proposed resolution.

SUBMITTED BY: Joe Hale/WSCF Date: 1/28/14
ACCEPTED BY: Karen Waters-Husted and Scot Fitzgerald/CHPRC Date: 1/29/14

SAMPLE ISSUE RESOLUTION

SIR NUM SDR14-092
REV NUM 0
DATE INITIATED 2/11/2014

SAMPLE EVENT INFORMATION

SAF NUM(S) X14-021, S14-001, I13-032, W14-002, W14-001, W14-011, I14-014
OPERABLE UNIT(S) 200-ZP-1, NONE
PROJECT(S) CERC14, SURV14, CERC13, RCRA14
SAMPLE EVENT TITLE(S) CERC14, SURV14, CERC13, RCRA14
LABORATORY Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES 168
SAMPLE NUMBERS B2PHW6, B2PHW7, B2RP77, B2TXV2, B2TXV6, B2TY10, B2TY16, B2TY22, B2V1H1, B2V1H2, B2V1H3, B2V1H4, B2V1H5, B2V1H6, B2V1J0, B2V1J1, B2V1J2, B2V1J3, B2V1J4, B2V1J5, B2V1J6, B2V1J7, B2V1J8, B2V1J9, B2V1K0, B2V1K1, B2V1K2, B2V1K3, B2V1K4, B2V1K5, B2V1K6, B2V1K7, B2V1K8, B2V1K9, B2V1L0, B2V1L1, B2V1L2, B2V1L3, B2V1L4, B2V1L5, B2V1L6, B2V1L7, B2V1L8, B2V1L9, B2V1M0, B2V1M1, B2V1M2, B2V1M3, B2V1M4, B2V1M5, B2V1M6, B2V1M7, B2V1M8, B2V1P1, B2V1P2, B2V1P3, B2V1P7, B2V1P8, B2V1P9, B2V1R6, B2V1R7, B2V1R8, B2V1R9, B2V1T0, B2V1T1, B2V1T2, B2V1T3, B2V1T4, B2V1T5, B2V1T6, B2V1T7, B2V1T8, B2V1T9, B2V1V0, B2V1V1, B2V1V2, B2V1V3, B2V294, B2V2B8, B2V2C5, B2V2D2, B2V2D9, B2V2F6, B2V2H3, B2V2H8, B2V2K8, B2V2K9, B2V2L0, B2V2L1, B2V2L2, B2V2M6, B2V2N0, B2V2N7, B2V2P0, B2V2P2, B2V2P4, B2V2P7, B2V2P9, B2V2R2, B2V2R6, B2V2R8, B2V2T0, B2V2T5, B2V2T9, B2V2V7, B2V2W1, B2V2W5, B2V2W9, B2V2X3, B2V2X7, B2V2Y1, B2V2Y5, B2V2Y9, B2V303, B2V307, B2V311, B2V315, B2V319, B2V323, B2V327, B2V331, B2V335, B2V339, B2V343, B2V358, B2V359, B2V398, B2V3B4, B2V3C2, B2V3C5, B2V3D1, B2V3D8, B2V3F6, B2V3F9, B2V3H0, B2V3H1, B2V3J1, B2V3J2, B2V3J3, B2V3J4, B2V3J5, B2V3J6, B2V3J7, B2V3J8, B2V3J9, B2V5L0, B2V5L1, B2V5L2, B2V5L3, B2V634, B2V7T1, B2V7T8, B2VHV1, B2VHV6, B2VHW8, B2VHX3, B2VWM3, B2VWM4, B2VWMS, B2VWM6, B2VWN5, B2VWN6, B2VWN7, B2VWN8, B2VWP7, B2VWP8, B2VWP9, B2VWR0

SAMPLE MATRIX WATER
COLLECTION DATE 1/17/2014 - 2/6/2014
SDG NUM WSCF140182, WSCF140141, WSCF140154, WSCF140264, WSCF140185, WSCF140205, WSCF140243, WSCF140199, WSCF140232, WSCF140128, WSCF140143, WSCF140225, WSCF140262, WSCF140233, WSCF140278, WSCF140247, WSCF140212, WSCF140223, WSCF140246, WSCF140209, WSCF140186, WSCF140276, WSCF140129, WSCF140201, WSCF140208, WSCF140144, WSCF140147, WSCF140263, WSCF140177, WSCF140127

ISSUE BACKGROUND CLASS Laboratory Issue
TYPE Instrument Failure/Facility Outage
DESCRIPTION On 2/6/14, at approximately 10pm the fridge with TOX, TOC, and SVOA (See attached detailed sample list) samples went out of temp at 6.2C. The temp continued to rise to around 17C when the samples were removed ~8am on Friday 2/7/14. The samples were moved to a fridge that was within temp specs.
DISPOSITION DESCRIPTION PROPOSED DISPOSITION: Analyze the samples and note the issue in the narrative. OR Cancel the
JUSTIFICATION ACCEPTED DISPOSITION: Analyze the samples and note the issue in the narrative.
SUBMITTED BY: Heather Medley/WSCF Date: 2/11/14
ACCEPTED BY: Scot Fitzgerald & Karen Waters-Husted/CHPRC Date: 2/11/14

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 59 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF140128
Report Date February 18, 2014

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Marisol Avila

Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7005. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226559	226559	2	BLANK	104285	BLANK		Anions by Ion Chromatography (Water)
226559	226559	3	LCS	104286	LCS		Anions by Ion Chromatography (Water)
226559	226559	4	MS	104287	B2V3M9(140121004MS)	140121004	Anions by Ion Chromatography (Water)
226559	226559	5	MSD	104288	B2V3M9(140121004MSD)	140121004	Anions by Ion Chromatography (Water)
226559	226559	14	SAMPLE	140128002	B2TXY1		Anions by Ion Chromatography (Water)
226570	226570	1	BLANK	104362	BLANK		Hexavalent chromium Discrete Analyzer
226570	226570	3	LCS	104364	LCS		Hexavalent chromium Discrete Analyzer
226570	226570	4	DUP	104365	B2TY19(140129001DUP)	140129001	Hexavalent chromium Discrete Analyzer
226570	226570	5	MS	104366	B2TY19(140129001MS)	140129001	Hexavalent chromium Discrete Analyzer
226570	226570	9	SAMPLE	140128001	B2TXY3		Hexavalent chromium Discrete Analyzer
227247	227365	4	BLANK	105290	BLANK		ICP-6010 - All possible metals
227247	227365	7	LCS	105292	LCS		ICP-6010 - All possible metals
227247	227365	9	MS	105293	B2V5L9(140120014MS)	140120014	ICP-6010 - All possible metals
227247	227365	10	MSD	105294	B2V5L9(140120014MSD)	140120014	ICP-6010 - All possible metals
227247	227365	26	SAMPLE	140128003	B2TXY0		ICP-6010 - All possible metals
227347	227348	1	BLANK	105461	BLANK		Total Organic Halides
227347	227348	2	LCS	105462	LCS		Total Organic Halides
227347	227348	19	MS	105468	B2V1N5(140125004MS)	140125004	Total Organic Halides
227347	227348	20	MSD	105469	B2V1N5(140125004MSD)	140125004	Total Organic Halides
227347	227348	24	SAMPLE	140128004	B2V359		Total Organic Halides
227548	227667	4	BLANK	105752	BLANK		ICP-2008 MS All possible metal
227548	227667	5	LCS	105753	LCS		ICP-2008 MS All possible metal
227548	227667	7	MS	105754	B2V3L5(140127003MS)	140127003	ICP-2008 MS All possible metal

Batch QC List

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
227548	227667	8	MSD	105755	B2V3L5(140127003MSD)	140127003	ICP-2008 MS All possible metal
227548	227667	13	SAMPLE	140128003	B2TXY0		ICP-2008 MS All possible metal

Batch QC List

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226664	227252	1	BLANK	104614	BLANK		SW-846 8270D Semivolatiles
226664	227252	2	LCS	104615	LCS		SW-846 8270D Semivolatiles
226664	227252	3	MS	104616	B2V356(140124001MS)	140124001	SW-846 8270D Semivolatiles
226664	227252	4	MSD	104617	B2V356(140124001MSD)	140124001	SW-846 8270D Semivolatiles
226664	227252	9	SAMPLE	140128004	B2V359		SW-846 8270D Semivolatiles

Batch QC List

Attention Scot Fitzgerald
Department Organic, Volatiles

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226822	226823	1	BLANK	104802	BLANK		SW-846 8260B Volatiles
226822	226823	2	LCS	104803	LCS		SW-846 8260B Volatiles
226822	226823	3	MS	104804	B2TXY6(140127004MS)	140127004	SW-846 8260B Volatiles
226822	226823	4	MSD	104805	B2TXY6(140127004MSD)	140127004	SW-846 8260B Volatiles
226822	226823	7	SAMPLE	140128003	B2TXY0		SW-846 8260B Volatiles

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226599	226633	1	BLANK	104384	BLANK		TC99 by Liquid Scintillation
226599	226633	2	LCS	104385	LCS		TC99 by Liquid Scintillation
226599	226633	4	DUP	104386	B2VPP3(140134001DUP)	140134001	TC99 by Liquid Scintillation
226599	226633	5	MS	104387	B2VPP3(140134001MS)	140134001	TC99 by Liquid Scintillation
226599	226633	9	SAMPLE	140128003	B2TXY0		TC99 by Liquid Scintillation
226654	227257	1	BLANK	104564	BLANK		Tritium by LSC
226654	227257	2	LCS	104565	LCS		Tritium by LSC
226654	227257	4	DUP	104566	B2VWD3(140155003DUP)	140155003	Tritium by LSC
226654	227257	5	MSPK	104567	B2VWD3(140155003MSP)		Tritium by LSC
226654	227257	7	SAMPLE	140128003	B2TXY0		Tritium by LSC

Batch QC List

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226709	226709	1	LCS	104673	LCS		Total Alkalinity as mg/L CaCO3 (Water)
226709	226709	2	DUP	104674	B2V3M8(140120017DUP)	140120017	Total Alkalinity as mg/L CaCO3 (Water)
226709	226709	11	SAMPLE	140128003	B2TX0		Total Alkalinity as mg/L CaCO3 (Water)
226709	226709	13	LCS	104675	LCS		Total Alkalinity as mg/L CaCO3 (Water)
226709	226709	19	LCS	104676	LCS		Total Alkalinity as mg/L CaCO3 (Water)
226828	226828	1	BLANK	104839	BLANK		Total Dissolved Solids 180 C Dry
226828	226828	2	LCS	104840	LCS		Total Dissolved Solids 180 C Dry
226828	226828	3	DUP	104841	B2TX06(140127004DUP)	140127004	Total Dissolved Solids 180 C Dry
226828	226828	6	SAMPLE	140128003	B2TX0		Total Dissolved Solids 180 C Dry
227831	227831	2	BLANK	105981	BLANK		Total Organic Carbon
227831	227831	3	LCS	105982	LCS		Total Organic Carbon
227831	227831	4	MS	105983	B2TX06(140127004MS)	140127004	Total Organic Carbon
227831	227831	5	MSD	105984	B2TX06(140127004MSD)	140127004	Total Organic Carbon
227831	227831	8	SAMPLE	140128004	B2V359		Total Organic Carbon

Method Reference

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140128

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-265-403	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
LA-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmission Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmission Spectrometry
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.
LA-523-444	Total Organic Halides Based on SW-846 Method 9020B		
	EPA SW-846	9020B	Total Organic Halides (TOX)
	HEIS	9020_TOX	Total Organic Halides (TOX)
LA-533-410	Anion Analysis by Ion Chromatography		
	EPA-600/R-94-111	300.0	Determination of Inorganic Anions by Ion Chromatography
	HEIS	300.0_ANIONS_IC	Determination of Inorganic Anions by Ion Chromatography

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Scot Fitzgerald
Department Organic, Semivolatiles

Group # WSCF140128

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-523-456	Semivolatile Sample Analysis by SW-846 Method 8270D		
	EPA SW-846	8000B	Determinative Chromagraphic Separations
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	8270D	Semivolatile Organic Compounds by Gas
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
			Chromatography/Mass Spectrometry (GC/MS)
	HEIS	8270_SVOA_GCMS	Semivolatile Organic Compounds by Gas
			Chromatography/Mass Spectrometry(GC/MS)

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Scot Fitzgerald
Department Organic, Volatiles

Group # WSCF140128

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-523-455	Volatile Sample Analysis by SW-846 Method 8260B		
	EPA SW-846	8000B	Determinative Chromographic Separations
	EPA SW-846	8260B	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
	HEIS	8260_VOA_GCMS	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF140128

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-218-413	Tritium By Ion Removal Using Eichrom Resin Columns (Prep)		
	N/A	PREP METHOD	
LA-438-402	Determination of Technetium-99 by RAD Disk Filtration & Liquid Scintillation Counting		
	N/A	PREP METHOD	
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Scot Fitzgerald
Department Wet Chemistry

Group # WSCF140128

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-531-411	Alkalinity		
	SM	2320	Alkalinity
	HEIS	2320_ALKALINITY	Alkalinity
LA-344-406	Total Organic Carbon (TOC) Based on SW-846		
	EPA SW-846	9060	Total Organic Carbon
	HEIS	9060_TOC	Total Organic Carbon
LA-519-422	Total Dissolved Solids Dried at 180 C		
	Standard Methods	SM2540C	Filterable Residue
	HEIS	2540C_TDS	Residue, Filterable

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Sample # 140128001
 SAF# 114-014
 Sample ID B2TXY3

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										01/17/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403	BN	0.00420		mg/L	1	0.0020	0.0050	01/17/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Sample # 140128002
 SAF# 114-014
 Sample ID B2TXY1

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
01/17/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.278		ug/mL	2	0.050	1.0	01/17/14
Chloride	16887-00-6	LA-533-410	D	35.7		ug/mL	2	0.12	0.80	01/17/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	01/17/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	01/17/14
Nitrate-N	NO3-N	LA-533-410	D	9.59		ug/mL	2	0.040	0.20	01/17/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	01/17/14
Sulfate	14808-79-8	LA-533-410	D	68.7		ug/mL	2	0.22	1.1	01/17/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Sample # 140128003
 SAF# I14-014
 Sample ID B2TX0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										02/06/14
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411		81.0		ug/L	1	40	50	02/13/14
Magnesium	7439-95-4	LA-505-411		19500		ug/L	1	60	750	02/13/14
Potassium	7440-09-7	LA-505-411		5580		ug/L	1	250	4000	02/13/14
Sodium	7440-23-5	LA-505-411		22900		ug/L	1	100	500	02/13/14
Calcium	7440-70-2	LA-505-411		62200		ug/L	1	50	1000	02/13/14
ICPMS Prep (W)										02/13/14
ICP-2008 MS All possible metal										
Aluminum	7429-90-5	LA-505-412	UD	<20		ug/L	2	20	100	02/13/14
Manganese	7439-96-5	LA-505-412	D	2.60		ug/L	2	0.20	2.0	02/13/14
Nickel	7440-02-0	LA-505-412	D	8.73		ug/L	2	0.20	2.0	02/13/14
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	02/13/14
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	02/13/14
Barium	7440-39-3	LA-505-412	D	70.8		ug/L	2	0.40	4.0	02/13/14
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	02/13/14
Cadmium	7440-43-9	LA-505-412	BD	0.352		ug/L	2	0.10	1.0	02/13/14
Chromium	7440-47-3	LA-505-412	D	19.5		ug/L	2	0.20	2.0	02/13/14
Cobalt	7440-48-4	LA-505-412	BD	0.392		ug/L	2	0.10	0.50	02/13/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Sample # 140128003
 SAF# 114-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Copper	7440-50-8	LA-505-412	BD	1.48		ug/L	2	0.20	2.0	02/13/14
Vanadium	7440-62-2	LA-505-412	D	24.2		ug/L	2	0.40	4.0	02/13/14
Zinc	7440-66-6	LA-505-412	BD	5.93		ug/L	2	4.0	20	02/13/14
Lead	7439-92-1	LA-505-412	BD	0.152		ug/L	2	0.10	1.0	02/13/14
Molybdenum	7439-98-7	LA-505-412	D	5.79		ug/L	2	0.10	1.0	02/13/14
Strontium	7440-24-6	LA-505-412	D	240		ug/L	2	0.40	2.0	02/13/14
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	02/13/14
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	02/13/14
Uranium	7440-61-1	LA-505-412	D	17.0		ug/L	2	0.10	0.50	02/13/14
Arsenic	7440-38-2	LA-505-412	BD	2.97		ug/L	2	0.40	4.0	02/13/14
Selenium	7782-49-2	LA-505-412	BD	3.05		ug/L	2	2.0	20	02/13/14
Thorium	7440-29-1	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	02/13/14
Boron	7440-42-8	LA-505-412	D	32.3		ug/L	2	4.0	10	02/13/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
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 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Sample # 140128004
 SAF# W14-001
 Sample ID B2V359

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										01/20/14
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444		22.1		ug/L	1	5.0	15	01/20/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Sample # 140128004
 SAF# W14-001
 Sample ID B2V359

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for 8270 (W) CLE										01/22/14
SW-846 8270D Semivolatiles										
4-Nitrophenol	100-02-7	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
Phenol	108-95-2	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
Pentachlorophenol	87-86-5	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2-Chlorophenol	95-57-8	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2,4-Dimethylphenol	105-67-9	LA-523-456	U	<2		ug/L	1	2	2	01/30/14
2,4-Dichlorophenol	120-83-2	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2,4-Dinitrophenol	51-28-5	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
4,6-Dinitro-2-methylphenol	534-52-1	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2-Nitrophenol	88-75-5	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2-Methylphenol	95-48-7	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2,4,5-Trichlorophenol	95-95-4	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
3 & 4 Methylphenol, Total	65794-96-9	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2,4,6-Trichlorophenol	88-06-2	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
2,3,4,6-Tetrachlorophenol	58-90-2	LA-523-456	U	<1		ug/L	1	1	2	01/30/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Sample # 140128004
 SAF# W14-001
 Sample ID B2V359

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
2,6-Dichlorophenol	87-65-0	LA-523-456	U	<1		ug/L	1	1	2	01/30/14
Dinoseb(..dinitromethyl phenol)	88-85-7	LA-523-456	U	<1		ug/L	1	1	2	01/30/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Sample # 140128003
 SAF# 114-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for 8260B (W)										01/24/14
SW-846 8260B Volatiles										
1,1-Dichloroethene	75-35-4	LA-523-455	UT	<1		ug/L	1	1	5	01/25/14
Trichloroethene	79-01-6	LA-523-455	U	<0.5		ug/L	1	0.5	1	01/25/14
Benzene	71-43-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Toluene	108-88-3	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Chlorobenzene	108-90-7	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,1-Dichloroethane	75-34-3	LA-523-455	UT	<1		ug/L	1	1	5	01/25/14
Ethylbenzene	100-41-4	LA-523-455	U	<1		ug/L	1	1	4	01/25/14
Styrene	100-42-5	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,2-Dichloroethane	107-06-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Methyl isobutyl ketone	108-10-1	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Dibromochloromethane	124-48-1	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Tetrachloroethene	127-18-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Total Xylenes	1330-20-7	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Total 1,2-Dichloroethene	540-59-0	LA-523-455	U	<1		ug/L	1	1	5	01/25/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < PQL (or EQL) >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - GC/MS or N - Non GC/MS - MS/MSD recovery outside control limits
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Sample # 140128003
 SAF# I14-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Carbon tetrachloride	56-23-5	LA-523-455	U	<1		ug/L	1	1	3	01/25/14
2-Hexanone	591-78-6	LA-523-455	U	<5		ug/L	1	5	20	01/25/14
Acetone	67-64-1	LA-523-455	U	<5		ug/L	1	5	20	01/25/14
Chloroform	67-66-3	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,1,1-Trichloroethane	71-55-6	LA-523-455	UT	<1		ug/L	1	1	5	01/25/14
Bromomethane	74-83-9	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Chloromethane	74-87-3	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Chloroethane	75-00-3	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Vinyl chloride	75-01-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Methylene chloride	75-09-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Carbon disulfide	75-15-0	LA-523-455	UoT	<1		ug/L	1	1	5	01/25/14
Bromoform	75-25-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Bromodichloromethane	75-27-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,2-Dichloropropane	78-87-5	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Methyl ethyl ketone	78-93-3	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1-Butanol	71-36-3	LA-523-455	U	<50		ug/L	1	50	100	01/25/14
Tetrahydrofuran	109-99-9	LA-523-455	U	<2		ug/L	1	2	10	01/25/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < PQL (or EQL) >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - GC/MS or N - Non GC/MS - MS/MSD recovery outside control limits
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Sample # 140128003
 SAF# I14-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Trichlorofluoromethane	75-69-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
trans-1,2-Dichloroethene	156-60-5	LA-523-455	UT	<1		ug/L	1	1	5	01/25/14
Acetonitrile	75-05-8	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
cis-1,2-Dichloroethene	156-59-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Propionitrile	107-12-0	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	<1		ug/L	1	1	4	01/25/14
Isobutyl alcohol	78-83-1	LA-523-455	U	<5		ug/L	1	5	20	01/25/14
Iodomethane	74-88-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,1,1,2-Tetrachloroethane	630-20-6	LA-523-455	U	<0.5		ug/L	1	0.5	2	01/25/14
1,2,3-Trichloropropane	96-18-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,2-Dibromo-3-chloropropane	96-12-8	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
1,2-Dibromoethane	106-93-4	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Acrolein	107-02-8	LA-523-455	U	<5		ug/L	1	5	20	01/25/14
Acrylonitrile	107-13-1	LA-523-455	U	<5		ug/L	1	5	20	01/25/14
Allyl chloride	107-05-1	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Methylene bromide	74-95-3	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Dichlorodifluoromethane	75-71-8	LA-523-455	U	<2		ug/L	1	2	10	01/25/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < PQL (or EQL) >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - GC/MS or N - Non GC/MS - MS/MSD recovery outside control limits
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Sample # 140128003
 SAF# 114-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Ethyl methacrylate	97-63-2	LA-523-455	U	<1		ug/L	1	1	5	01/25/14
Methacrylonitrile	126-98-7	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Methyl methacrylate	80-62-6	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Trans-1,4-dichloro-2-butene	110-57-6	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Vinyl acetate	108-05-4	LA-523-455	U	<2		ug/L	1	2	10	01/25/14
Chloroprene	126-99-8	LA-523-455	U	<1		ug/L	1	1	5	01/25/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - Exceeds the calibration range (GC/MS).
 J - Analyte < PQL (or EQL) >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - GC/MS or N - Non GC/MS - MS/MSD recovery outside control limits
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140128

Sample # 140128003
 SAF# 114-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										01/21/14
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421		63	14	pCi/L	1	6.5		01/24/14
Tritium by LSC EICHROM WA/LIQ PREP										01/22/14
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		2900	630	pCi/L	1	250		02/02/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

Sample # 140128003
 SAF# 114-014
 Sample ID B2TXY0

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
01/22/14										
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		120		mg/L	1	1	10	01/22/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		01/22/14
Bicarbonate	71-52-3	LA-531-411		120		mg/L	1	1		01/22/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		01/22/14
01/23/14										
Total Dissolved Solids 180 C Dry										
Total Dissolved Solids	TDS	LA-519-422		371		mg/L	1	10	50	01/23/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

Sample # 140128004
 SAF# W14-001
 Sample ID B2V359

Matrix WATER
 Sampled 01/17/14
 Received 01/17/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										02/12/14
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406		0.411		mg/L	1	0.10	0.30	02/12/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analytical Batch 226559 (QC Batch: 226559) Test Anions by Ion Chromatography (Water)
 Associated Samples 140128002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104285								
Fluoride	16984-48-8	<0.025		ug/mL					U	01/17/14
Chloride	16887-00-6	<0.060		ug/mL					U	01/17/14
Nitrite-N	NO2-N	<0.020		ug/mL					U	01/17/14
Bromide	24959-67-9	<0.11		ug/mL					U	01/17/14
Nitrate-N	NO3-N	<0.020		ug/mL					U	01/17/14
Phosphate-P	PO4-P	<0.050		ug/mL					U	01/17/14
Sulfate	14808-79-8	<0.11		ug/mL					U	01/17/14
LCS		QC Sample #104286								
Fluoride	16984-48-8	0.945		ug/mL	95.5	90 - 110				01/17/14
Chloride	16887-00-6	1.82		ug/mL	91.9	90 - 110				01/17/14
Nitrite-N	NO2-N	1.03		ug/mL	105.7	90 - 110				01/17/14
Bromide	24959-67-9	3.96		ug/mL	101	90 - 110				01/17/14
Nitrate-N	NO3-N	0.886		ug/mL	100	90 - 110				01/17/14
Phosphate-P	PO4-P	1.94		ug/mL	101.4	90 - 110				01/17/14
Sulfate	14808-79-8	4.00		ug/mL	102	90 - 110				01/17/14
MS		QC Sample #104287								
		Original 140121004								

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Fluoride	16984-48-8		0.963	ug/mL	96.3	80 - 120			D	01/17/14
Chloride	16887-00-6		1.74	ug/mL	87	80 - 120			D	01/17/14
Nitrite-N	NO2-N		0.953	ug/mL	96.4	80 - 120			D	01/17/14
Bromide	24959-67-9		3.94	ug/mL	99.5	80 - 120			D	01/17/14
Nitrate-N	NO3-N		0.714	ug/mL	79.8	80 - 120			DX	01/17/14
Phosphate-P	PO4-P		1.87	ug/mL	96.7	80 - 120			D	01/17/14
Sulfate	14808-79-8		3.75	ug/mL	94.7	80 - 120			D	01/17/14
MSD		QC Sample #104288								
		Original 140121004				Paired 104287				
Fluoride	16984-48-8		1.02	ug/mL	102	80 - 120	4.20	20	D	01/17/14
Chloride	16887-00-6		1.71	ug/mL	85.5	80 - 120	0.20	20	D	01/17/14
Nitrite-N	NO2-N		0.951	ug/mL	96.3	80 - 120	0.20	20	D	01/17/14
Bromide	24959-67-9		3.93	ug/mL	99.3	80 - 120	0.20	20	D	01/17/14
Nitrate-N	NO3-N		0.710	ug/mL	79.4	80 - 120	0.00	20	DX	01/17/14
Phosphate-P	PO4-P		1.81	ug/mL	93.8	80 - 120	3.00	20	D	01/17/14
Sulfate	14808-79-8		3.79	ug/mL	95.6	80 - 120	0.10	20	D	01/17/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analytical Batch 226570 (QC Batch: 226570) Test Hexavalent chromium Discrete Analyzer
 Associated Samples 140128001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #104362							
Hexavalent chromium LCS	18540-29-9	<0.0020		mg/L					U	01/17/14
			QC Sample #104364							
Hexavalent chromium DUP	18540-29-9	0.0496		mg/L	99.2	90 - 110				01/17/14
			QC Sample #104365							
			Original 140129001							
Hexavalent chromium MS	18540-29-9	<0.0020		mg/L			119.10	20	* UX	01/17/14
			QC Sample #104366							
			Original 140129001							
Hexavalent chromium	18540-29-9	0.0315		mg/L	78.8	85 - 115			N	01/17/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140128

Analytical Batch 226633 (QC Batch: 226599) Test TC99 by Liquid Scintillation
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Technetium-99	14133-76-7		1.9	pCi/L					U	01/24/14
LCS										
Technetium-99	14133-76-7		270	pCi/L	102.9	80 - 120				01/24/14
DUP										
Technetium-99	14133-76-7		43	pCi/L			18.80	20		01/24/14
MS										
Technetium-99	14133-76-7		1100	pCi/L	101.6	75 - 125				01/24/14

* - QC result out of range n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

Analytical Batch 226709 (QC Batch: 226709) Test Total Alkalinity as mg/L CaCO3 (Water)
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS			QC Sample #104673							
Total Alkalinity as CaCO3	ALKALINITY	96		mg/L	96.3	80 - 120				01/22/14
DUP			QC Sample #104674							
			Original 140120017							
Total Alkalinity as CaCO3	ALKALINITY	84		mg/L			0.00	20		01/22/14
LCS			QC Sample #104675							
Total Alkalinity as CaCO3	ALKALINITY	98		mg/L	98.3	80 - 120				01/22/14
LCS			QC Sample #104676							
Total Alkalinity as CaCO3	ALKALINITY	98		mg/L	97.8	80 - 120				01/22/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analytical Batch 226823 (QC Batch: 226822) Test SW-846 8260B Volatiles
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104802								
1,1-Dichloroethene	75-35-4	<1		ug/L					U	01/24/14
Trichloroethene	79-01-6	<0.5		ug/L					U	01/24/14
Benzene	71-43-2	<1		ug/L					U	01/24/14
Toluene	108-88-3	<1		ug/L					U	01/24/14
Chlorobenzene	108-90-7	<1		ug/L					U	01/24/14
1,1-Dichloroethane	75-34-3	<1		ug/L					U	01/24/14
Ethylbenzene	100-41-4	<1		ug/L					U	01/24/14
Styrene	100-42-5	<1		ug/L					U	01/24/14
cis-1,3-Dichloropropene	10061-01-5	<1		ug/L					U	01/24/14
trans-1,3-Dichloropropene	10061-02-6	<1		ug/L					U	01/24/14
1,2-Dichloroethane	107-06-2	<1		ug/L					U	01/24/14
Methyl isobutyl ketone	108-10-1	<1		ug/L					U	01/24/14
Dibromochloromethane	124-48-1	<1		ug/L					U	01/24/14
Tetrachloroethene	127-18-4	<1		ug/L					U	01/24/14
Total Xylenes	1330-20-7	<1		ug/L					U	01/24/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
Total 1,2-Dichloroethene	540-59-0		<1	ug/L				U	01/24/14
Carbon tetrachloride	56-23-5		<1	ug/L				U	01/24/14
2-Hexanone	591-78-6		<5	ug/L				U	01/24/14
Acetone	67-64-1		<5	ug/L				U	01/24/14
Chloroform	67-66-3		<1	ug/L				U	01/24/14
1,1,1-Trichloroethane	71-55-6		<1	ug/L				U	01/24/14
Bromomethane	74-83-9		<1	ug/L				U	01/24/14
Chloromethane	74-87-3		<2	ug/L				U	01/24/14
Chloroethane	75-00-3		<2	ug/L				U	01/24/14
Vinyl chloride	75-01-4		<1	ug/L				U	01/24/14
Methylene chloride	75-09-2		<1	ug/L				U	01/24/14
Carbon disulfide	75-15-0		<1	ug/L				Uo	01/24/14
Bromoform	75-25-2		<1	ug/L				U	01/24/14
Bromodichloromethane	75-27-4		<1	ug/L				U	01/24/14
1,2-Dichloropropane	78-87-5		<1	ug/L				U	01/24/14
Methyl ethyl ketone	78-93-3		<1	ug/L				U	01/24/14
1,1,2-Trichloroethane	79-00-5		<1	ug/L				U	01/24/14
1,1,1,2-Tetrachloroethane	79-34-5		<1	ug/L				U	01/24/14
1-Butanol	71-36-3		<50	ug/L				U	01/24/14
Tetrahydrofuran	109-99-9		<2	ug/L				U	01/24/14
Trichlorofluoromethane	75-69-4		<1	ug/L				U	01/24/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% RecovLimits	RPD	RPD Limit	RQ	Analyzed
trans-1,2-Dichloroethene	156-60-5		<1	ug/L				U	01/24/14
Acetonitrile	75-05-8		<2	ug/L				U	01/24/14
cis-1,2-Dichloroethene	156-59-2		<1	ug/L				U	01/24/14
Propionitrile	107-12-0		<2	ug/L				U	01/24/14
1,4-Dichlorobenzene	106-46-7		<1	ug/L				U	01/24/14
Isobutyl alcohol	78-83-1		<5	ug/L				U	01/24/14
Iodomethane	74-88-4		<1	ug/L				U	01/24/14
1,1,1,2-Tetrachloroethane	630-20-6		<0.5	ug/L				U	01/24/14
1,2,3-Trichloropropane	96-18-4		<1	ug/L				U	01/24/14
1,2-Dibromo-3-chloropropane	96-12-8		<1	ug/L				U	01/24/14
1,2-Dibromoethane	106-93-4		<1	ug/L				U	01/24/14
Acrolein	107-02-8		<5	ug/L				U	01/24/14
Acrylonitrile	107-13-1		<5	ug/L				U	01/24/14
Allyl chloride	107-05-1		<1	ug/L				U	01/24/14
Methylene bromide	74-95-3		<1	ug/L				U	01/24/14
Dichlorodifluoromethane	75-71-8		<2	ug/L				U	01/24/14
Ethyl methacrylate	97-63-2		<1	ug/L				U	01/24/14
Methacrylonitrile	126-98-7		<2	ug/L				U	01/24/14
Methyl methacrylate	80-62-6		<2	ug/L				U	01/24/14
Trans-1,4-dichloro-2-butene	110-57-6		<2	ug/L				U	01/24/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Vinyl acetate	108-05-4		<2	ug/L					U	01/24/14
Chloroprene	126-99-8		<1	ug/L					U	01/24/14
LCS			QC Sample #104803							
1,1-Dichloroethene	75-35-4		31	ug/L	123.8	75 - 125				01/24/14
Trichloroethene	79-01-6		24	ug/L	96.8	75 - 125				01/24/14
Benzene	71-43-2		26	ug/L	104.7	75 - 125				01/24/14
Toluene	108-88-3		25	ug/L	100.9	75 - 125				01/24/14
Chlorobenzene	108-90-7		25	ug/L	99.5	75 - 125				01/24/14
1,1-Dichloroethane	75-34-3		30	ug/L	121	75 - 125				01/24/14
Ethylbenzene	100-41-4		25	ug/L	100.2	75 - 125				01/24/14
Styrene	100-42-5		26	ug/L	103.4	75 - 125				01/24/14
trans-1,3-Dichloropropene	10061-02-6		24	ug/L	97.7	75 - 125				01/24/14
1,2-Dichloroethane	107-06-2		25	ug/L	101.4	75 - 125				01/24/14
1,1,1-Trichloroethane	71-55-6		31	ug/L	124.4	75 - 125				01/24/14
Dibromochloromethane	124-48-1		27	ug/L	106.5	75 - 125				01/24/14
Carbon disulfide	75-15-0		34	ug/L	137.1	75 - 125			o	01/24/14
Bromoform	75-25-2		28	ug/L	111	75 - 125				01/24/14
Bromodichloromethane	75-27-4		27	ug/L	109.2	75 - 125				01/24/14
1,2-Dichloropropane	78-87-5		24	ug/L	97.4	75 - 125				01/24/14
1,1,2-Trichloroethane	79-00-5		26	ug/L	102.3	75 - 125				01/24/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
1,1,2,2-Tetrachloroethane	79-34-5		27	ug/L	108.3	75 - 125				01/24/14
trans-1,2-Dichloroethene	156-60-5		30	ug/L	119.3	75 - 125				01/24/14
cis-1,2-Dichloroethene	156-59-2		29	ug/L	117.4	75 - 125				01/24/14
MS			QC Sample #104804							
			Original 140127004							
1,1-Dichloroethene	75-35-4		34	ug/L	135.8	75 - 125			T	01/25/14
Trichloroethene	79-01-6		25	ug/L	100.9	75 - 125				01/25/14
Benzene	71-43-2		26	ug/L	105.1	75 - 125				01/25/14
Toluene	108-88-3		26	ug/L	103.4	75 - 125				01/25/14
Chlorobenzene	108-90-7		25	ug/L	101.9	75 - 125				01/25/14
1,1-Dichloroethane	75-34-3		32	ug/L	128.8	75 - 125			T	01/25/14
Ethylbenzene	100-41-4		26	ug/L	102.5	75 - 125				01/25/14
Styrene	100-42-5		26	ug/L	105.3	75 - 125				01/25/14
trans-1,3-Dichloropropene	10061-02-6		25	ug/L	101.4	75 - 125				01/25/14
1,2-Dichloroethane	107-06-2		26	ug/L	105.9	75 - 125				01/25/14
1,1,1-Trichloroethane	71-55-6		32	ug/L	127	75 - 125			T	01/25/14
Dibromochloromethane	124-48-1		27	ug/L	109.5	75 - 125				01/25/14
Carbon disulfide	75-15-0		38	ug/L	150	75 - 125			oT	01/25/14
Bromoform	75-25-2		29	ug/L	115.6	75 - 125				01/25/14
Bromodichloromethane	75-27-4		29	ug/L	114.3	75 - 125				01/25/14
1,2-Dichloropropane	78-87-5		25	ug/L	101.9	75 - 125				01/25/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
1,1,2-Trichloroethane	79-00-5		27	ug/L	107	75 - 125				01/25/14	
1,1,2,2-Tetrachloroethane	79-34-5		29	ug/L	117	75 - 125				01/25/14	
trans-1,2-Dichloroethene	156-60-5		29	ug/L	116.6	75 - 125				01/25/14	
cis-1,2-Dichloroethene	156-59-2		30	ug/L	118.6	75 - 125				01/25/14	
MSD			QC Sample #104805								
			Original	140127004				Paired	104804		
1,1-Dichloroethene	75-35-4		35	ug/L	138.1	75 - 125	1.60	20	T	01/25/14	
Trichloroethene	79-01-6		25	ug/L	100.2	75 - 125	0.70	20		01/25/14	
Benzene	71-43-2		26	ug/L	105.9	75 - 125	0.80	20		01/25/14	
Toluene	108-88-3		26	ug/L	104.4	75 - 125	0.90	20		01/25/14	
Chlorobenzene	108-90-7		26	ug/L	102.3	75 - 125	0.40	20		01/25/14	
1,1-Dichloroethane	75-34-3		34	ug/L	135.7	75 - 125	5.20	20	T	01/25/14	
Ethylbenzene	100-41-4		26	ug/L	105.1	75 - 125	2.50	20		01/25/14	
Styrene	100-42-5		27	ug/L	106.9	75 - 125	1.50	20		01/25/14	
trans-1,3-Dichloropropene	10061-02-6		25	ug/L	101.5	75 - 125	0.10	20		01/25/14	
1,2-Dichloroethane	107-06-2		26	ug/L	104.4	75 - 125	1.40	20		01/25/14	
1,1,1-Trichloroethane	71-55-6		34	ug/L	137	75 - 125	7.60	20	T	01/25/14	
Dibromochloromethane	124-48-1		27	ug/L	108	75 - 125	1.40	20		01/25/14	
Carbon disulfide	75-15-0		39	ug/L	157.5	75 - 125	4.90	20	oT	01/25/14	
Bromoform	75-25-2		29	ug/L	114.2	75 - 125	1.20	20		01/25/14	
Bromodichloromethane	75-27-4		28	ug/L	111.5	75 - 125	2.50	20		01/25/14	

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
1,2-Dichloropropane	78-87-5		25	ug/L	101.5	75 - 125	0.40	20		01/25/14
1,1,2-Trichloroethane	79-00-5		26	ug/L	105.1	75 - 125	1.80	20		01/25/14
1,1,2,2-Tetrachloroethane	79-34-5		29	ug/L	114.2	75 - 125	2.50	20		01/25/14
trans-1,2-Dichloroethene	156-60-5		32	ug/L	126.1	75 - 125	7.80	20	T	01/25/14
cis-1,2-Dichloroethene	156-59-2		31	ug/L	122.7	75 - 125	3.40	20		01/25/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

Analytical Batch 226828 (QC Batch: 226828)
 Associated Samples 140128003

Test Total Dissolved Solids 180 C Dry

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104839								
Total Dissolved Solids	TDS		<10	mg/L					U	01/23/14
LCS		QC Sample #104840								
Total Dissolved Solids	TDS		622	mg/L	100.3	80 - 120				01/23/14
DUP		QC Sample #104841								
		Original 140127004								
Total Dissolved Solids	TDS		257	mg/L			0.80	5		01/23/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analytical Batch 227252 (QC Batch: 226664) Test SW-846 8270D Semivolatiles
 Associated Samples 140128004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104614								
4-Nitrophenol	100-02-7	<1		ug/L					U	01/30/14
Phenol	108-95-2	<1		ug/L					U	01/30/14
4-Chloro-3-methylphenol	59-50-7	<1		ug/L					U	01/30/14
Pentachlorophenol	87-86-5	<1		ug/L					U	01/30/14
2-Chlorophenol	95-57-8	<1		ug/L					U	01/30/14
2,4-Dimethylphenol	105-67-9	<2		ug/L					U	01/30/14
2,4-Dichlorophenol	120-83-2	<1		ug/L					U	01/30/14
2,4-Dinitrophenol	51-28-5	<1		ug/L					U	01/30/14
4,6-Dinitro-2-methylphenol	534-52-1	<1		ug/L					U	01/30/14
2-Nitrophenol	88-75-5	<1		ug/L					U	01/30/14
2-Methylphenol	95-48-7	<1		ug/L					U	01/30/14
2,4,5-Trichlorophenol	95-95-4	<1		ug/L					U	01/30/14
3 & 4 Methylphenol, Total	65794-96-9	<1		ug/L					U	01/30/14
2,4,6-Trichlorophenol	88-06-2	<1		ug/L					U	01/30/14
2,3,4,6-Tetrachlorophenol	58-90-2	<1		ug/L					U	01/30/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
2,6-Dichlorophenol	87-65-0		<1	ug/L					U	01/30/14
Dinoseb(.dinitromethylphenol)	88-85-7		<1	ug/L					U	01/30/14
LCS		QC Sample #104615								
4-Nitrophenol	100-02-7		11	ug/L	36.9	5 - 88				01/30/14
Phenol	108-95-2		11	ug/L	36.9	18 - 89				01/30/14
4-Chloro-3-methylphenol	59-50-7		23	ug/L	78.2	62 - 109				01/30/14
Pentachlorophenol	87-86-5		15	ug/L	49.1	17 - 125				01/30/14
2-Chlorophenol	95-57-8		20	ug/L	67	55 - 109				01/30/14
2-Methylphenol	95-48-7		20	ug/L	68.2	59 - 107				01/30/14
2-Nitrophenol	88-75-5		22	ug/L	73.1	48 - 113				01/30/14
2,4-Dimethylphenol	105-67-9		22	ug/L	73.6	58 - 113				01/30/14
2,4-Dichlorophenol	120-83-2		22	ug/L	73.6	52 - 110				01/30/14
MS		QC Sample #104616								
		Original 140124001								
4-Nitrophenol	100-02-7		10	ug/L	33.2	15 - 57				01/30/14
Phenol	108-95-2		10	ug/L	33.8	24 - 65				01/30/14
4-Chloro-3-methylphenol	59-50-7		24	ug/L	78.4	56 - 115				01/30/14
Pentachlorophenol	87-86-5		16	ug/L	53	32 - 127				01/30/14
2-Chlorophenol	95-57-8		20	ug/L	67.3	52 - 113				01/30/14
2-Methylphenol	95-48-7		21	ug/L	69.2	46 - 114				01/30/14
2-Nitrophenol	88-75-5		22	ug/L	74.3	51 - 114				01/30/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
2,4-Dimethylphenol	105-67-9		23	ug/L	75.1	46 - 124				01/30/14
2,4-Dichlorophenol	120-83-2		23	ug/L	75.2	50 - 114				01/30/14
MSD		QC Sample #104617								
		Original	140124001					Paired	104616	
4-Nitrophenol	100-02-7		10	ug/L	33.3	15 - 57	0.30	20		01/30/14
Phenol	108-95-2		9.8	ug/L	32.5	24 - 65	3.80	20		01/30/14
4-Chloro-3-methylphenol	59-50-7		23	ug/L	77.7	56 - 115	0.90	20		01/30/14
Pentachlorophenol	87-86-5		17	ug/L	57.2	32 - 127	7.50	20		01/30/14
2-Chlorophenol	95-57-8		20	ug/L	66.7	52 - 113	0.90	20		01/30/14
2-Methylphenol	95-48-7		20	ug/L	66.2	46 - 114	4.40	20		01/30/14
2-Nitrophenol	88-75-5		21	ug/L	71.2	51 - 114	4.30	20		01/30/14
2,4-Dimethylphenol	105-67-9		22	ug/L	74	46 - 124	1.50	20		01/30/14
2,4-Dichlorophenol	120-83-2		22	ug/L	73.8	50 - 114	1.90	20		01/30/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140128

Analytical Batch 227257 (QC Batch: 226654) Test Tritium by LSC
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Tritium LCS	10028-17-8		-16	pCi/L					U	02/02/14
Tritium DUP	10028-17-8		3300	pCi/L	100.4	80 - 120				02/02/14
Tritium MSPK	10028-17-8		140	pCi/L			42.10	20	* U	02/02/14
Tritium	10028-17-8		19000	pCi/L	93.8	75 - 125				02/02/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analytical Batch 227348 (QC Batch: 227347) Test Total Organic Halides
 Associated Samples 140128004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #105461							
Total Organic Halides	59473-04-0		<5.0	ug/L					U	01/20/14
LCS										
			QC Sample #105462							
Total Organic Halides	59473-04-0		402	mg/L	100.6	80 - 120				01/20/14
MS										
			QC Sample #105468							
			Original 140125004							
Total Organic Halides	59473-04-0		37.6	ug/L	94.1	75 - 125				01/20/14
MSD										
			QC Sample #105469							
			Original 140125004							
Total Organic Halides	59473-04-0		43.6	ug/L	109	75 - 125	8.90	20	Paired 105468	01/20/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analytical Batch 227365 (QC Batch: 227247) Test ICP-6010 - All possible metals
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #105290								
Iron	7439-89-6	<40		ug/L					U	02/13/14
Magnesium	7439-95-4	<60		ug/L					U	02/13/14
Potassium	7440-09-7	<250		ug/L					U	02/13/14
Sodium	7440-23-5	<100		ug/L					U	02/13/14
Calcium	7440-70-2	<50		ug/L					U	02/13/14
LCS		QC Sample #105292								
Iron	7439-89-6	978		ug/L	97.8	80 - 120				02/13/14
Magnesium	7439-95-4	9820		ug/L	98.2	80 - 120				02/13/14
Potassium	7440-09-7	10400		ug/L	104.5	80 - 120				02/13/14
Sodium	7440-23-5	10300		ug/L	103.4	80 - 120				02/13/14
Calcium	7440-70-2	19700		ug/L	98.3	80 - 120				02/13/14
MS		QC Sample #105293								
		Original 140120014								
Iron	7439-89-6	1030		ug/L	103.1	75 - 125				02/13/14
Magnesium	7439-95-4	10700		ug/L	107.3	75 - 125				02/13/14
Potassium	7440-09-7	10900		ug/L	109.1	75 - 125				02/13/14
Sodium	7440-23-5	10900		ug/L	108.8	75 - 125				02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Calcium	7440-70-2		21600	ug/L	108	75 - 125				02/13/14
MSD			QC Sample #105294							
			Original	140120014				Paired	105293	
Iron	7439-89-6		1100	ug/L	109.8	75 - 125	6.30	20		02/13/14
Magnesium	7439-95-4		11100	ug/L	110.9	75 - 125	1.60	20		02/13/14
Potassium	7440-09-7		10800	ug/L	108	75 - 125	0.70	20		02/13/14
Sodium	7440-23-5		10500	ug/L	105.1	75 - 125	1.10	20		02/13/14
Calcium	7440-70-2		24700	ug/L	123.5	75 - 125	5.50	20		02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analytical Batch 227667 (QC Batch: 227548) Test ICP-2008 MS All possible metal
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #105752								
Aluminum	7429-90-5	<10		ug/L					U	02/13/14
Manganese	7439-96-5	<0.10		ug/L					U	02/13/14
Nickel	7440-02-0	<0.10		ug/L					U	02/13/14
Silver	7440-22-4	<0.050		ug/L					U	02/13/14
Antimony	7440-36-0	<0.30		ug/L					U	02/13/14
Barium	7440-39-3	<0.20		ug/L					U	02/13/14
Beryllium	7440-41-7	<0.10		ug/L					U	02/13/14
Cadmium	7440-43-9	<0.050		ug/L					U	02/13/14
Chromium	7440-47-3	<0.10		ug/L					U	02/13/14
Cobalt	7440-48-4	<0.050		ug/L					U	02/13/14
Copper	7440-50-8	<0.10		ug/L					U	02/13/14
Vanadium	7440-62-2	<0.20		ug/L					U	02/13/14
Zinc	7440-66-6	<2.0		ug/L					U	02/13/14
Lead	7439-92-1	<0.050		ug/L					U	02/13/14
Molybdenum	7439-98-7	<0.050		ug/L					U	02/13/14
Strontium	7440-24-6	<0.20		ug/L					U	02/13/14
Thallium	7440-28-0	<0.050		ug/L					U	02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Tin	7440-31-5		<0.050	ug/L					U	02/13/14
Uranium	7440-61-1		<0.050	ug/L					U	02/13/14
Arsenic	7440-38-2		<0.20	ug/L					U	02/13/14
Selenium	7782-49-2		<1.0	ug/L					U	02/13/14
Thorium	7440-29-1		<0.10	ug/L					U	02/13/14
Boron	7440-42-8		<2.0	ug/L					U	02/13/14
LCS			QC Sample #105753							
Aluminum	7429-90-5		394	ug/L	98.6	85 - 115				02/13/14
Manganese	7439-96-5		40.0	ug/L	100.1	85 - 115				02/13/14
Nickel	7440-02-0		39.7	ug/L	99.3	85 - 115				02/13/14
Silver	7440-22-4		44.8	ug/L	112	85 - 115				02/13/14
Antimony	7440-36-0		41.1	ug/L	102.7	85 - 115				02/13/14
Barium	7440-39-3		41.6	ug/L	104	85 - 115				02/13/14
Beryllium	7440-41-7		42.7	ug/L	106.7	85 - 115				02/13/14
Cadmium	7440-43-9		41.2	ug/L	103.1	85 - 115				02/13/14
Chromium	7440-47-3		40.5	ug/L	101.3	85 - 115				02/13/14
Cobalt	7440-48-4		40.8	ug/L	102	85 - 115				02/13/14
Copper	7440-50-8		41.0	ug/L	102.4	85 - 115				02/13/14
Vanadium	7440-62-2		39.6	ug/L	99	85 - 115				02/13/14
Zinc	7440-66-6		39.6	ug/L	99	85 - 115				02/13/14
Lead	7439-92-1		40.5	ug/L	101.1	85 - 115				02/13/14
Molybdenum	7439-98-7		40.5	ug/L	101.2	85 - 115				02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Strontium	7440-24-6		390	ug/L	97.5	85 - 115				02/13/14
Thallium	7440-28-0		40.3	ug/L	100.7	85 - 115				02/13/14
Tin	7440-31-5		41.8	ug/L	104.4	85 - 115				02/13/14
Uranium	7440-61-1		43.4	ug/L	108.6	85 - 115				02/13/14
Arsenic	7440-38-2		41.9	ug/L	104.7	85 - 115				02/13/14
Selenium	7782-49-2		41.5	ug/L	103.7	85 - 115				02/13/14
Thorium	7440-29-1		43.0	ug/L	107.6	85 - 115				02/13/14
Boron	7440-42-8		43.9	ug/L	109.7	85 - 115				02/13/14
MS			QC Sample #105754							
			Original 140127003							
Aluminum	7429-90-5		394	ug/L	98.4	70 - 130				02/13/14
Manganese	7439-96-5		38.7	ug/L	96.7	70 - 130				02/13/14
Nickel	7440-02-0		38.3	ug/L	95.9	70 - 130				02/13/14
Silver	7440-22-4		42.3	ug/L	105.8	70 - 130				02/13/14
Antimony	7440-36-0		40.5	ug/L	101.2	70 - 130				02/13/14
Barium	7440-39-3		41.1	ug/L	102.9	70 - 130				02/13/14
Beryllium	7440-41-7		37.9	ug/L	94.7	70 - 130				02/13/14
Cadmium	7440-43-9		40.3	ug/L	100.9	70 - 130				02/13/14
Chromium	7440-47-3		39.6	ug/L	99	70 - 130				02/13/14
Cobalt	7440-48-4		39.0	ug/L	97.5	70 - 130				02/13/14
Copper	7440-50-8		37.7	ug/L	94.4	70 - 130				02/13/14
Vanadium	7440-62-2		40.7	ug/L	101.7	70 - 130				02/13/14
Zinc	7440-66-6		38.5	ug/L	96.2	70 - 130				02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Lead	7439-92-1		37.5	ug/L	93.7	70 - 130				02/13/14
Molybdenum	7439-98-7		40.8	ug/L	101.9	70 - 130				02/13/14
Strontium	7440-24-6		384	ug/L	96	70 - 130				02/13/14
Thallium	7440-28-0		37.6	ug/L	93.9	70 - 130				02/13/14
Tin	7440-31-5		41.1	ug/L	102.7	70 - 130				02/13/14
Uranium	7440-61-1		41.9	ug/L	104.8	70 - 130				02/13/14
Arsenic	7440-38-2		40.6	ug/L	101.5	70 - 130				02/13/14
Selenium	7782-49-2		41.0	ug/L	102.5	70 - 130				02/13/14
Thorium	7440-29-1		41.5	ug/L	103.6	70 - 130				02/13/14
Boron	7440-42-8		38.8	ug/L	97	70 - 130				02/13/14
MSD			QC Sample #105755							
			Original	140127003					Paired 105754	
Aluminum	7429-90-5		408	ug/L	102.1	70 - 130	3.70	20		02/13/14
Manganese	7439-96-5		41.0	ug/L	102.5	70 - 130	5.70	20		02/13/14
Nickel	7440-02-0		39.2	ug/L	97.9	70 - 130	2.10	20		02/13/14
Silver	7440-22-4		42.2	ug/L	105.6	70 - 130	0.20	20		02/13/14
Antimony	7440-36-0		40.5	ug/L	101.3	70 - 130	0.00	20		02/13/14
Barium	7440-39-3		41.3	ug/L	103.2	70 - 130	0.10	20		02/13/14
Beryllium	7440-41-7		37.4	ug/L	93.5	70 - 130	1.20	20		02/13/14
Cadmium	7440-43-9		40.4	ug/L	101	70 - 130	0.10	20		02/13/14
Chromium	7440-47-3		41.9	ug/L	104.7	70 - 130	4.70	20		02/13/14
Cobalt	7440-48-4		40.4	ug/L	101.1	70 - 130	3.60	20		02/13/14
Copper	7440-50-8		39.8	ug/L	99.5	70 - 130	5.30	20		02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Vanadium	7440-62-2		42.7	ug/L	106.8	70 - 130	3.20	20		02/13/14
Zinc	7440-66-6		41.8	ug/L	104.5	70 - 130	6.20	20		02/13/14
Lead	7439-92-1		37.8	ug/L	94.4	70 - 130	0.70	20		02/13/14
Molybdenum	7439-98-7		40.7	ug/L	101.8	70 - 130	0.10	20		02/13/14
Strontium	7440-24-6		376	ug/L	94.1	70 - 130	1.30	20		02/13/14
Thallium	7440-28-0		38.0	ug/L	95	70 - 130	1.10	20		02/13/14
Tin	7440-31-5		41.3	ug/L	103.2	70 - 130	0.50	20		02/13/14
Uranium	7440-61-1		42.5	ug/L	106.2	70 - 130	1.30	20		02/13/14
Arsenic	7440-38-2		41.2	ug/L	103.1	70 - 130	1.50	20		02/13/14
Selenium	7782-49-2		39.1	ug/L	97.7	70 - 130	4.60	20		02/13/14
Thorium	7440-29-1		42.0	ug/L	105	70 - 130	1.30	20		02/13/14
Boron	7440-42-8		38.6	ug/L	96.6	70 - 130	0.30	20		02/13/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140128

Analytical Batch 227831 (QC Batch: 227831) Test Total Organic Carbon
 Associated Samples 140128004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #105981								
Total Organic Carbon	TOC		<0.045	mg/L					U	02/12/14
LCS		QC Sample #105982								
Total Organic Carbon	TOC		2.07	mg/L	103.4	80 - 120				02/12/14
MS		QC Sample #105983								
		Original 140127004								
Total Organic Carbon	TOC		2.00	mg/L	100.1	75 - 125				02/12/14
MSD		QC Sample #105984								
		Original 140127004								
Total Organic Carbon	TOC		2.03	mg/L	101.7	75 - 125	1.30	20	Paired 105983	02/12/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analytical Batch 226823 (QC Batch: 226822) Test SW-846 8260B Volatiles
 Associated Samples 140128003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104802								
1,2-Dichloroethane-d4	17060-07-0				100.5	75 - 125				01/24/14
Toluene-d8	2037-26-5				97.3	75 - 125				01/24/14
4-Bromofluorobenzene	460-00-4				96.7	75 - 125				01/24/14
LCS		QC Sample #104803								
1,2-Dichloroethane-d4	17060-07-0				107.8	75 - 125				01/24/14
Toluene-d8	2037-26-5				95.8	75 - 125				01/24/14
4-Bromofluorobenzene	460-00-4				98.5	75 - 125				01/24/14
MS		QC Sample #104804								
		Original 140127004								
1,2-Dichloroethane-d4	17060-07-0				107.8	75 - 125				01/25/14
Toluene-d8	2037-26-5				95.3	75 - 125				01/25/14
4-Bromofluorobenzene	460-00-4				98.4	75 - 125				01/25/14
MSD		QC Sample #104805								
		Original 140127004								
1,2-Dichloroethane-d4	17060-07-0				104	75 - 125	n/a		Paired 104804	01/25/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Volatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Toluene-d8	2037-26-5				96	75 - 125	n/a			01/25/14
4-Bromofluorobenzene	460-00-4				97.3	75 - 125	n/a			01/25/14
SAMPLE			Sample #140128003							
1,2-Dichloroethane-d4	17060-07-0				107.3	75 - 125				01/25/14
Toluene-d8	2037-26-5				98.6	75 - 125				01/25/14
4-Bromofluorobenzene	460-00-4				99.4	75 - 125				01/25/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analytical Batch 227252 (QC Batch: 226664) Test SW-846 8270D Semivolatiles
 Associated Samples 140128004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #104614								
2-Fluorophenol	367-12-4				57.6	34 - 103				01/30/14
Phenol-d5	4165-62-2				41.9	10 - 93				01/30/14
Nitrobenzene-d5	4165-60-0				80.9	49 - 133				01/30/14
2-Methylnaphthalene-d10	7297-45-2				82.1	60 - 135				01/30/14
2-Fluorobiphenyl	321-60-8				78.1	48 - 132				01/30/14
2,4,6-Tribromophenol	118-79-6				53.2	33 - 134				01/30/14
Fluoranthene-d10	93951-69-0				77.8	62 - 139				01/30/14
Terphenyl-d14	98904-43-9				86.6	56 - 138				01/30/14
LCS		QC Sample #104615								
2-Fluorophenol	367-12-4				56.4	34 - 103				01/30/14
Phenol-d5	4165-62-2				43.5	10 - 93				01/30/14
Nitrobenzene-d5	4165-60-0				84.4	49 - 133				01/30/14
2-Methylnaphthalene-d10	7297-45-2				84	60 - 135				01/30/14
2-Fluorobiphenyl	321-60-8				77.1	48 - 132				01/30/14
2,4,6-Tribromophenol	118-79-6				65.3	33 - 134				01/30/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Fluoranthene-d10	93951-69-0				79	62 - 139				01/30/14
Terphenyl-d14	98904-43-9				89.1	56 - 138				01/30/14
MS		QC Sample #104616								
		Original 140124001								
2-Fluorophenol	367-12-4				52.8	34 - 103				01/30/14
Phenol-d5	4165-62-2				38.1	10 - 93				01/30/14
Nitrobenzene-d5	4165-60-0				84.5	49 - 133				01/30/14
2-Methylnaphthalene-d10	7297-45-2				84.5	60 - 135				01/30/14
2-Fluorobiphenyl	321-60-8				76.1	48 - 132				01/30/14
2,4,6-Tribromophenol	118-79-6				65.9	33 - 134				01/30/14
Fluoranthene-d10	93951-69-0				77.1	62 - 139				01/30/14
Terphenyl-d14	98904-43-9				84.4	56 - 138				01/30/14
MSD		QC Sample #104617								
		Original 140124001								
		Paired 104616								
2-Fluorophenol	367-12-4				50	34 - 103	n/a			01/30/14
Phenol-d5	4165-62-2				36.5	10 - 93	n/a			01/30/14
Nitrobenzene-d5	4165-60-0				83.4	49 - 133	n/a			01/30/14
2-Methylnaphthalene-d10	7297-45-2				82.5	60 - 135	n/a			01/30/14
2-Fluorobiphenyl	321-60-8				76.4	48 - 132	n/a			01/30/14
2,4,6-Tribromophenol	118-79-6				66.8	33 - 134	n/a			01/30/14
Fluoranthene-d10	93951-69-0				80.9	62 - 139	n/a			01/30/14
Terphenyl-d14	98904-43-9				88.2	56 - 138	n/a			01/30/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Organic, Semivolatiles

Group # WSCF140128

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE		Sample #140128004								
2-Fluorophenol	367-12-4				46	34 - 103				01/30/14
Phenol-d5	4165-62-2				30.8	10 - 93				01/30/14
Nitrobenzene-d5	4165-60-0				79.1	49 - 133				01/30/14
2-Methylnaphthalene-d10	7297-45-2				76.3	60 - 135				01/30/14
2-Fluorobiphenyl	321-60-8				75.3	48 - 132				01/30/14
2,4,6-Tribromophenol	118-79-6				32.8	33 - 134			X	01/30/14
Fluoranthene-d10	93951-69-0				74.1	62 - 139				01/30/14
Terphenyl-d14	98904-43-9				92.4	56 - 138				01/30/14

* - QC result out of range

n/a - Not Applicable

Analytical Comment Report

Attention: Scot Fitzgerald

Group #

WSCF140128

140128004

B2V359

Department Organic, Semivolatiles

Analyte 2,4,6-Tribromophenol - SW-846 8270D Semivolatiles
 [1] Surrogate recovery outside of established laboratory control limits.

Quality Control Comments

Department Inorganic

104287 B2V3M9(140121004MS)

Analyte Nitrate-N - Anions by Ion Chromatography (Water)

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

104288 B2V3M9(140121004MSD)

Analyte Nitrate-N - Anions by Ion Chromatography (Water)

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

104365 B2TY19(140129001DUP)

Analyte Hexavalent chromium - Hexavalent chromium Discrete Analyzer

[1] Duplicate failed due to high turbidity in the sample. Sample was rechecked twice outside of hold time, and results confirm the result of 0.0071.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 6 pages
Including cover page

Sample Receipt

Waste Sampling and Characterization Facility
P.O. Box 650 S3-30, Richland WA 99352
Phone: (509) 373-7005/FAX: (509) 372-0456

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
 Richland, WA 99352

ATTN: Scot Fitzgerald

Customer Code: CHPRC
CA CN: 401647
Work Order #: 140128
Customer Work ID: I14-014-065
Due Date: 02/18/2014

The following samples were received from you on 1/17/2014 2:00:00 PM. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact WSCF Client Services. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
140128001	B2TXY3	WATER	1/17/2014 13:16	1/17/2014 14:00
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
140128002	B2TXY1	WATER	1/17/2014 13:16	1/17/2014 14:00
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140128003	B2TXY0	WATER	1/17/2014 13:16	1/17/2014 14:00
Procedure		Compound List		
ICP-2008 M S All possible metal		200.8 ICPM S GW01		
ICP-6010 - All possible metals		Fe,Mg,K,Na,Ca		
SW-846 8260B Volatiles		8260 GCM S IX + Addons		
TC99 by Liquid Scintillation		Tc-99		
Total Alkalinity as mg/L CaCO3 (Water)		Alkalinity,Carbonate,Bicarbonate,Hydroxyl Ion		
Total Dissolved Solids 180 C Dry		TDS		
Tritium by LSC		H3		
Sample #	Sample ID	Matrix	Collected	Received
140128004	B2V359 (W14-001)	WATER	1/17/2014 13:16	1/17/2014 14:00
Procedure		Compound List		
SW-846 8270D Semivolatiles		8270 Phenolic GC Common		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		

Sample Receipt

Chain of Custody

CH2M Hill Plateau Remediation Company				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# 114-014-065	
								Page 1 of 1	
Collector	Robert Crow	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650	Purchase Order/Charge Code	300071ES20		
SAF No.	114-014	Sampling Origin	Hanford Site	Logbook No.	HNF-N-506 61151	Ice Chest No.	N/A		
Project Title	22P1, JANUARY 2014	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A				
Shipped To (Lab)	Waste Sampling & Characterization	Priority:	31 Days	Office Property No.	N/A				
Protocol	CERCLA	POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/MTA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.		PRIORITY		SPECIAL INSTRUCTIONS 200 Area Generator Knowledge Information Form applies. The CACDN for analytical work at WSCF is 401647.		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No	Filter *	Date	Time	No./Type Container	1x500-mL aG	7196_CR6: COMMON	Sample Analysis	Holding Time	24 Hours
BZTYX3	N	1-17-14	1316						Cool-4C
									Preservative

Relinquished By	Robert Crow	Print	<i>Robert Crow</i>	Sign		Date/Time	JAN 17 2014 1400	Received By	A Frazier	Print	<i>A Frazier</i>	Sign		Date/Time	JAN 17 2014 1400																																										
Relinquished By		Date/Time		Received By		Date/Time		Received By		Date/Time		Date/Time		<table border="0"> <tr> <td>5</td><td>=</td><td>Soil</td> <td>DS</td><td>=</td><td>Dryum Solids</td> </tr> <tr> <td>SE</td><td>=</td><td>Sediment</td> <td>DL</td><td>=</td><td>Dryum Liquids</td> </tr> <tr> <td>SO</td><td>=</td><td>Solid</td> <td>T</td><td>=</td><td>Tissue</td> </tr> <tr> <td>SL</td><td>=</td><td>Sludge</td> <td>WL</td><td>=</td><td>Wipe</td> </tr> <tr> <td>W</td><td>=</td><td>Water</td> <td>L</td><td>=</td><td>Liquid</td> </tr> <tr> <td>O</td><td>=</td><td>Oil</td> <td>V</td><td>=</td><td>Vegetation</td> </tr> <tr> <td>A</td><td>=</td><td>Air</td> <td>X</td><td>=</td><td>Other</td> </tr> </table>		5	=	Soil	DS	=	Dryum Solids	SE	=	Sediment	DL	=	Dryum Liquids	SO	=	Solid	T	=	Tissue	SL	=	Sludge	WL	=	Wipe	W	=	Water	L	=	Liquid	O	=	Oil	V	=	Vegetation	A	=	Air	X	=	Other
5	=	Soil	DS	=	Dryum Solids																																																				
SE	=	Sediment	DL	=	Dryum Liquids																																																				
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SL	=	Sludge	WL	=	Wipe																																																				
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O	=	Oil	V	=	Vegetation																																																				
A	=	Air	X	=	Other																																																				
Relinquished By		Date/Time		Received By		Date/Time		Received By		Date/Time		Date/Time		<table border="0"> <tr> <td>FINAL SAMPLE DISPOSITION</td> <td>Disposal Method (e.g., Return to customer, per lab procedure, used in process)</td> <td>Disposed By</td> <td></td> <td>Date/Time</td> <td></td> </tr> </table>		FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By		Date/Time																																					
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By		Date/Time																																																					

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A-6004-642 (REV 2)

Sample Receipt

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
114-014-063
Page 1 of 1

Collector	Robert Crow	Contact/Requester	Karen Waters-Fusted	Telephone No.	509-376-4650
SAT No.	114-014	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ESS20
Project Title	22P1, JANUARY 2014	Logbook No.	HNF-N-506 <u>61151</u>	ke Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
** ** Contain Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 408.1.			200 Area Generator Knowledge Information Form applies. The CACH for analytical work at WSCF is 40.647.		
** ** Contain Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 408.1.			Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Hold Time	Preservative
BZTX1	2	N	W	1/17/14	1316	1X500-ML P 300.2_ANICNS_IC: COMMON 300.2_ANICNS_IC: GW/02	48 Hours	Cool-4C

Chain of Custody

Relinquished By	Robert Crow	Print	Sign	Date/Time	Received By	T A Frazier	Print	Sign	Date/Time	Matrix *
Relinquished By	<i>R Crow</i>			JAN 17 2014 1400	Received By	<i>T A Frazier</i>			JAN 17 2014 1400	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By					Received By					DS = Dross Solids DL = Dross Liquids T = Tissue WL = Wire L = Liquid V = Vegetation X = Other
Relinquished By					Received By					
FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process)										

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A-6004-642 (REV 2)

Sample Receipt

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 114-014-062
Page 1 of 1

Collector	Robert Crow	Contact/Requester	Karen Walters-Husted	Telephone No.	509-376-4650
SAF No.	114-014	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071FNS20
Project Title	ZZP1, JANUARY 2014	Logbook No.	HNF-N-506 61151	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 408.1.			SPECIAL INSTRUCTIONS 200 Area Generator Knowledge Information Form applies. The CACN for analytical work at WSCF is 40/047.		
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					

Sample No.	Filter	Date	Time	Nc/Type Container	Sample Analysis	Holding Time	Preservative
B21XY0 3	N	1-17-14	1316	1X500-mL G/P	160.1 TDS: COMMON	7 Days	Cool-4C
B21XY0	N			1X500-mL G/P	200.3 METALS ICPMS: GW C1; 6010 METALS ICP: GW 04	6 Months	HNO3 to pH <2
B21XY0	N			1X250-mL G/P	2320 ALKALINITY: GW 01	14 Days	Cool-4C
B21XY0	N			3x40-ml bags*	82RU_VOA_GCMS_IX: COMMON	14 Days	HCl or H2SO4 to pH <2/Cool-4C
B21XY0	N			1x1 L G/P	TC99_3MDSK_LSC: COMMON	6 Months	HCl to pH <2
B21XY0	N	1-17-14	1316	1X250-mL G	TRITIUM_ELE_LSC: COMMON	6 Months	None

Requested By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Robert Crow		R Crow	JAN 17 2014 1403	TA Frazier		[Signature]	JAN 17 2014 1403	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Dross Solids JL = Drain Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	Disposal Method (e.g., Return to customer, per lab procedure, used in process)

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A-6004-042 (REV 2)

Sample Receipt

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
W14-001-160
Page 1 of 1

Collector	Robert Crow	Contact/Requester	Karen Waters-Fusted	Telephone No.	509-376-4650
SAF No.	W14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ESS20
Project Title	RCRA, JANUARY 2014	Logbook No.	HNF-N-506 <u>61151</u>	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	RCRA	Priority:	31 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** ** Contain Radioactive Material, it concentrations that may or may not be regulated for transportation per 49 CFR/ATA
 Dangerous Goods Regulations but are not releasable per DOT Order 458.1.

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACH for analytical work at WSECT is 401647.

Sample No.	Filter	+	Date	Time	No./Type Container	Received By	Sample Analysis	Hold Time	Preservative
B2V359	4	N	W	1-17-14	4x1-L BG	827C_PHENOLIC_GC: COMMON	7/40 Days	Cool-4C	
B2V359	1	N	W	1-17-14	1x1-L aGe ⁶	907C_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C	
B2V359	1	N	W	1-17-14	1x250-mL aG	906C_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C	

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Robert Crow	<i>R Crow</i>		JAN 17 2014 1400	TA Frazier	<i>TA Frazier</i>		JAN 17 2014 1400
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

MATRIX *

S = Soil	DS = Dams Solids
SE = Sediment	DL = Drain Liquids
SO = Solid	T = Tissue
SL = Sludge	WT = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By: _____ Date/Time: _____

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