

June 3, 2014

REVISION 1

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



April 23, 2014

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF140541

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 WSCF140541

- * 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 # WSCF140541

Data Deliverable Date 04/28/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
S14-003	B2W277	140541001	WATER	03/25/14	03/25/14
S14-003	B2W278	140541002	WATER	03/25/14	03/25/14
S14-003	B2W268	140541003	WATER	03/25/14	03/25/14
S14-003	B2W271	140541004	WATER	03/25/14	03/25/14
S14-003	B2W270	140541005	WATER	03/25/14	03/25/14
S14-003	B2W275	140541006	WATER	03/25/14	03/25/14
S14-003	B2W156	140541007	WATER	03/25/14	03/25/14
S14-003	B2W158	140541008	WATER	03/25/14	03/25/14
S14-003	B2W152	140541009	WATER	03/25/14	03/25/14
S14-003	B2W176	140541010	WATER	03/25/14	03/25/14
S14-003	B2W175	140541011	WATER	03/25/14	03/25/14
S14-003	B2W169	140541012	WATER	03/25/14	03/25/14

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Attachment 2
Narrative
WSCF140541

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.

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

Attachment 2
Narrative
WSCF140541

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):

- 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.

Radiochemistry Comments

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

Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

Strontium-89/90:

- 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	SDR14-144
	REV NUM	0
	DATE INITIATED	4/8/2014

SAMPLE EVENT INFORMATION

SAF NUM(S) S14-003
OPERABLE UNIT(S) NONE
PROJECT(S) SURV14
SAMPLE EVENT TITLE(S) SURV14
LABORATORY Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B2W176
SAMPLE MATRIX WATER
COLLECTION DATE 3/24/2014 - 3/24/2014
SDG NUM WSCF140541

ISSUE BACKGROUND

CLASS Chain of Custody Issue (Field)
TYPE Incorrect Relinquish/Receipt Date/Time
DESCRIPTION Sample #B2W176 (COC # S14-003-257), the sample date appears to be incorrect. There is no indication on the chain of custody that the sample was stored overnight but the sample date and the relinquished dates are different.

DISPOSITION

DESCRIPTION PROPOSED DISPOSITION: Document the anomaly, insert the SIR into the data package and close the SIR.
JUSTIFICATION ACCEPTED DISPOSITION: Accept the proposed resolution.
 SUBMITTED BY: Gayelyn Gibson/CHPRC Date: 4/8/14
 ACCEPTED BY: Susan Puckett/CHPRC Date: 4/8/14

SAMPLE ISSUE RESOLUTION

SIR NUM SDR14-145
REV NUM 0
DATE INITIATED 4/8/2014

SAMPLE EVENT INFORMATION

SAF NUM(S) X14-032
OPERABLE UNIT(S) 100-HR-3
PROJECT(S) CERC14
SAMPLE EVENT TITLE(S) CERC14
LABORATORY Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B2W9R2
SAMPLE MATRIX
COLLECTION DATE 4/4/2014 - 4/4/2014
SDG NUM WSCF140618

ISSUE BACKGROUND

CLASS Chain of Custody Issue (Field)
TYPE No Logbook Number
DESCRIPTION COC # X14-032-016 (Sample #B2W9R2), the logbook information is missing.

DISPOSITION

DESCRIPTION PROPOSED DISPOSITION: Document the excursion, insert the SIR into the data package and close the SIR.

JUSTIFICATION ACCEPTED DISPOSITION: Accept the proposed resolution.

SUBMITTED BY: Gayelyn Gibson/CHPRC Date: 4/8/14
 ACCEPTED BY: Susan Puckett/CHPRC Date: 4/8/14

A-6003-640 (03/30)

PAGE 1 of 1

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 35 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 # WSCF140541
Report Date April 23, 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.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140541

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
230419	230419	2	BLANK	107855	BLANK		Anions by Ion Chromatography (Water)
230419	230419	3	LCS	107856	LCS		Anions by Ion Chromatography (Water)
230419	230419	4	MS	107857	B2VXB9(140539001MS)	140539001	Anions by Ion Chromatography (Water)
230419	230419	5	MSD	107858	B2VXB9(140539001MSD)	140539001	Anions by Ion Chromatography (Water)
230419	230419	7	SAMPLE	140541001	B2W277		Anions by Ion Chromatography (Water)
230419	230419	8	SAMPLE	140541002	B2W278		Anions by Ion Chromatography (Water)
230419	230419	9	SAMPLE	140541003	B2W268		Anions by Ion Chromatography (Water)
230419	230419	10	SAMPLE	140541004	B2W271		Anions by Ion Chromatography (Water)
230419	230419	11	SAMPLE	140541005	B2W270		Anions by Ion Chromatography (Water)
230419	230419	12	SAMPLE	140541006	B2W275		Anions by Ion Chromatography (Water)
232045	232062	4	BLANK	109180	BLANK		3E-2008 ICP-MS 3 Elements
232045	232062	5	LCS	109181	LCS		3E-2008 ICP-MS 3 Elements
232045	232062	6	SAMPLE	140541007	B2W156		3E-2008 ICP-MS 3 Elements
232045	232062	7	MS	109182	B2W156(140541007MS)	140541007	3E-2008 ICP-MS 3 Elements
232045	232062	8	MSD	109183	B2W156(140541007MSD)	140541007	3E-2008 ICP-MS 3 Elements
232045	232062	9	SAMPLE	140541008	B2W158		3E-2008 ICP-MS 3 Elements
232045	232062	10	SAMPLE	140541009	B2W152		3E-2008 ICP-MS 3 Elements
232045	232062	11	SAMPLE	140541010	B2W176		3E-2008 ICP-MS 3 Elements
232045	232062	12	SAMPLE	140541011	B2W175		3E-2008 ICP-MS 3 Elements
232045	232062	13	SAMPLE	140541012	B2W169		3E-2008 ICP-MS 3 Elements

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF140541

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
230427	230798	1	BLANK	107900	BLANK		Strontium 89/90 (GPC/GEA)
230427	230798	2	LCS	107901	LCS		Strontium 89/90 (GPC/GEA)
230427	230798	3	DUP	107902	B2W156(140541007DUP) 140541007		Strontium 89/90 (GPC/GEA)
230427	230798	5	SAMPLE	140541007	B2W156		Strontium 89/90 (GPC/GEA)
230427	230798	6	SAMPLE	140541008	B2W158		Strontium 89/90 (GPC/GEA)
230427	230798	7	SAMPLE	140541010	B2W176		Strontium 89/90 (GPC/GEA)
230427	230798	8	SAMPLE	140541011	B2W175		Strontium 89/90 (GPC/GEA)
230427	230798	9	SAMPLE	140541012	B2W169		Strontium 89/90 (GPC/GEA)

Attention Scot Fitzgerald
Department Wet Chemistry

Group # WSCF140541

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
230587	230587	1	LCS	108004	LCS		Total Alkalinity as mg/L CaCO3 (Water)
230587	230587	2	DUP	108005	B2W328(140552001DUP) 140552001		Total Alkalinity as mg/L CaCO3 (Water)
230587	230587	4	SAMPLE	140541007	B2W156		Total Alkalinity as mg/L CaCO3 (Water)
230587	230587	5	SAMPLE	140541008	B2W158		Total Alkalinity as mg/L CaCO3 (Water)
230587	230587	6	SAMPLE	140541009	B2W152		Total Alkalinity as mg/L CaCO3 (Water)
230587	230587	10	LCS	108006	LCS		Total Alkalinity as mg/L CaCO3 (Water)

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

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-505-412	Determination of Trace Elements in Waters & Wastes by ICP Mass Spectrometry		Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	EPA-600/R-94-111	200.8	
LA-533-410	Anion Analysis by Ion Chromatography		Determination of Inorganic Anions by Ion Chromatography
	EPA-600/R-94-111	300.0	
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.
	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>

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF140541

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-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation
	HEIS SRTOT_SEP_PRECIP_GPC Strontium 89/90, by Sr-Spec Sep.

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>

Attention Scot Fitzgerald
Department Wet Chemistry

Group # WSCF140541

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

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>

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541001
 SAF# S14-003
 Sample ID B2W277

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.259		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	D	22.7		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	03/25/14
Nitrate-N	NO3-N	LA-533-410	D	5.63		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	D	44.4		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541002
 SAF# S14-003
 Sample ID B2W278

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.050		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	UD	<0.12		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	03/25/14
Nitrate-N	NO3-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	UD	<0.22		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541003
 SAF# S14-003
 Sample ID B2W268

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.225		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	D	11.2		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	03/25/14
Nitrate-N	NO3-N	LA-533-410	D	3.12		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	D	34.3		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541004
 SAF# S14-003
 Sample ID B2W271

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.258		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	D	20.8		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	03/25/14
Nitrate-N	NO3-N	LA-533-410	D	5.18		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	D	54.2		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541005
 SAF# S14-003
 Sample ID B2W270

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.219		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	D	16.5		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Nitrate-N	NO3-N	LA-533-410	D	5.41		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	D	42.1		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541006
 SAF# S14-003
 Sample ID B2W275

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
03/25/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.267		ug/mL	2	0.050	1.0	03/25/14
Chloride	16887-00-6	LA-533-410	D	21.9		ug/mL	2	0.12	0.80	03/25/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	03/25/14
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.50	03/25/14
Nitrate-N	NO3-N	LA-533-410	D	5.11		ug/mL	2	0.040	0.20	03/25/14
Phosphate-P	PO4-P	LA-533-410	UD	<0.10		ug/mL	2	0.10	1.0	03/25/14
Sulfate	14808-79-8	LA-533-410	D	53.7		ug/mL	2	0.22	1.1	03/25/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541007
 SAF# S14-003
 Sample ID B2W156

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412		8.74		ug/L	1	0.050	0.25	04/22/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541008
 SAF# S14-003
 Sample ID B2W158

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	52.8		ug/L	2	0.10	0.50	04/22/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541009
 SAF# S14-003
 Sample ID B2W152

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	82.4		ug/L	2	0.10	0.50	04/22/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541010
 SAF# S14-003
 Sample ID B2W176

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	24.1		ug/L	2	0.10	0.50	04/22/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541011
 SAF# S14-003
 Sample ID B2W175

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	04/22/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Sample # 140541012
 SAF# S14-003
 Sample ID B2W169

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep 3-Elements (W)										04/21/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	42.8		ug/L	2	0.10	0.50	04/22/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Sample # 140541007
 SAF# S14-003
 Sample ID B2W156

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										04/01/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406	U	0.95	.81	pCi/L	1	1.3		04/15/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Sample # 140541008
 SAF# S14-003
 Sample ID B2W158

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										04/01/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		0.99	.56	pCi/L	1	0.79		04/15/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Sample # 140541010
 SAF# S14-003
 Sample ID B2W176

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										04/01/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		1.9	.72	pCi/L	1	0.82		04/15/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Sample # 140541011
 SAF# S14-003
 Sample ID B2W175

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										04/01/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		1.4	.67	pCi/L	1	0.88		04/15/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Sample # 140541012
 SAF# S14-003
 Sample ID B2W169

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										04/01/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406	U	0.56	.54	pCi/L	1	0.85		04/15/14

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.

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140541

Sample # 140541007
 SAF# S14-003
 Sample ID B2W156

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/02/14										
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		110		mg/L	1	1	10	04/02/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		04/02/14
Bicarbonate	71-52-3	LA-531-411		110		mg/L	1	1		04/02/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/02/14

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

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140541

Sample # 140541008
 SAF# S14-003
 Sample ID B2W158

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/02/14										
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		120		mg/L	1	1	10	04/02/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		04/02/14
Bicarbonate	71-52-3	LA-531-411		120		mg/L	1	1		04/02/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/02/14

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

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140541

Sample # 140541009
 SAF# S14-003
 Sample ID B2W152

Matrix WATER
 Sampled 03/25/14
 Received 03/25/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/02/14										
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		90		mg/L	1	1	10	04/02/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		04/02/14
Bicarbonate	71-52-3	LA-531-411		90		mg/L	1	1		04/02/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/02/14

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

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Analytical Batch 230419 (QC Batch: 230419) Test Anions by Ion Chromatography (Water)
 Associated Samples 140541001, 140541002, 140541003, 140541004, 140541005, 140541006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #107855								
Fluoride	16984-48-8	<0.025		ug/mL					U	03/25/14
Chloride	16887-00-6	<0.060		ug/mL					U	03/25/14
Nitrite-N	NO2-N	<0.020		ug/mL					U	03/25/14
Bromide	24959-67-9	<0.11		ug/mL					U	03/25/14
Nitrate-N	NO3-N	<0.020		ug/mL					U	03/25/14
Phosphate-P	PO4-P	<0.050		ug/mL					U	03/25/14
Sulfate	14808-79-8	<0.11		ug/mL					U	03/25/14
LCS		QC Sample #107856								
Fluoride	16984-48-8	0.949		ug/mL	95.8	90 - 110				03/25/14
Chloride	16887-00-6	1.92		ug/mL	96.9	90 - 110				03/25/14
Nitrite-N	NO2-N	1.03		ug/mL	105.1	90 - 110				03/25/14
Bromide	24959-67-9	3.96		ug/mL	100.9	90 - 110				03/25/14
Nitrate-N	NO3-N	0.903		ug/mL	102	90 - 110				03/25/14
Phosphate-P	PO4-P	1.91		ug/mL	100	90 - 110				03/25/14
Sulfate	14808-79-8	3.82		ug/mL	97.4	90 - 110				03/25/14
MS		QC Sample #107857								
		Original 140539001								

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
Fluoride	16984-48-8		0.946	ug/mL	94.6	80 - 120			BD	03/25/14	
Chloride	16887-00-6		1.93	ug/mL	96.7	80 - 120			D	03/25/14	
Nitrite-N	NO2-N		0.958	ug/mL	96.9	80 - 120			D	03/25/14	
Bromide	24959-67-9		3.87	ug/mL	97.7	80 - 120			D	03/25/14	
Nitrate-N	NO3-N		0.880	ug/mL	98.5	80 - 120			D	03/25/14	
Phosphate-P	PO4-P		2.08	ug/mL	107.9	80 - 120			D	03/25/14	
Sulfate	14808-79-8		4.07	ug/mL	102.8	80 - 120			D	03/25/14	
MSD			QC Sample #107858								
			Original 140539001					Paired 107857			
Fluoride	16984-48-8		0.905	ug/mL	90.5	80 - 120	4.40	20	BD	03/25/14	
Chloride	16887-00-6		1.93	ug/mL	96.7	80 - 120	0.00	20	D	03/25/14	
Nitrite-N	NO2-N		0.955	ug/mL	96.6	80 - 120	0.30	20	D	03/25/14	
Bromide	24959-67-9		3.94	ug/mL	99.5	80 - 120	1.80	20	D	03/25/14	
Nitrate-N	NO3-N		0.860	ug/mL	96.2	80 - 120	1.80	20	D	03/25/14	
Phosphate-P	PO4-P		1.97	ug/mL	102.2	80 - 120	1.90	20	D	03/25/14	
Sulfate	14808-79-8		3.85	ug/mL	97.2	80 - 120	1.40	20	D	03/25/14	

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140541

Analytical Batch 230587 (QC Batch: 230587) Test Total Alkalinity as mg/L CaCO3 (Water)
 Associated Samples 140541007, 140541008, 140541009

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS		QC Sample #108004								
Total Alkalinity as CaCO3	ALKALINITY		97	mg/L	97	80 - 120				04/02/14
DUP		QC Sample #108005								
		Original 140552001								
Total Alkalinity as CaCO3	ALKALINITY		91	mg/L			5.60	20		04/02/14
LCS		QC Sample #108006								
Total Alkalinity as CaCO3	ALKALINITY		96	mg/L	95.5	80 - 120				04/02/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Analytical Batch 230798 (QC Batch: 230427) Test Strontium 89/90 (GPC/GEA)
 Associated Samples 140541007, 140541008, 140541010, 140541011, 140541012

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #107900								
Strontium-89_90	SR-RAD		0.41	pCi/L					U	04/15/14
LCS		QC Sample #107901								
Strontium-89_90	SR-RAD		37	pCi/L	101.4	80 - 120				04/15/14
DUP		QC Sample #107902								
		Original 140541007								
Strontium-89_90	SR-RAD	0.95	0.94	pCi/L			0.70	20		04/15/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140541

Analytical Batch 232062 (QC Batch: 232045) Test 3E-2008 ICP-MS 3 Elements
 Associated Samples 140541007, 140541008, 140541009, 140541010, 140541011, 140541012

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109180								
Uranium	7440-61-1		<0.050	ug/L					U	04/22/14
LCS		QC Sample #109181								
Uranium	7440-61-1		36.2	ug/L	90.4	85 - 115				04/22/14
MS		QC Sample #109182								
		Original 140541007								
Uranium	7440-61-1	8.74	45.5	ug/L	113.6	70 - 130				04/22/14
MSD		QC Sample #109183								
		Original 140541007								
Uranium	7440-61-1	8.74	39.0	ug/L	97.4	70 - 130	12.70	20	Paired 109182	04/22/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140541

Analytical Batch 230798 (QC Batch: 230427) Test Strontium 89/90 (GPC/GEA)
 Associated Samples 140541007, 140541008, 140541010, 140541011, 140541012

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Strontium Nitrate	10042-76-9			mg	84.3	25 - 105				04/15/14
LCS										
Strontium Nitrate	10042-76-9			mg	87.6	25 - 105				04/15/14
DUP										
Strontium Nitrate	10042-76-9	6.8		mg	79.3	25 - 105	n/a			04/15/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	56.2	25 - 105				04/15/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	90.1	25 - 105				04/15/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	86	25 - 105				04/15/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	80.2	25 - 105				04/15/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

June 3, 2014

REVISION 1

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF140541

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE		Sample #140541012								
Strontium Nitrate	10042-76-9			mg	82.6	25 - 105				04/15/14
* - QC result out of range				n/a - Not Applicable						

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 15 pages
Including cover page

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 #: 140541
Customer Work ID: S14-003-309
Due Date: 04/28/2014 **(R031)**

The following samples were received from you on 3/25/2014 2:50:00 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
140541001	B2W277	WATER	3/25/2014 08:58	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541002	B2W278	WATER	3/25/2014 07:00	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541003	B2W268	WATER	3/25/2014 10:18	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541004	B2W271	WATER	3/25/2014 11:02	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541005	B2W270	WATER	3/25/2014 12:35	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541006	B2W275	WATER	3/25/2014 13:51	3/25/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,Br,NO3,P04,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140541007	B2W156	WATER	3/25/2014 12:35	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Strontium 89/90 (GPC/GEA)		SR89/90		
Total Alkalinity as mg/L CaCO3 (Water)		Alkalinity,Carbonate,Bicarbonate,Hydroxyl Ion		

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

Sample #	Sample ID	Matrix	Collected	Received
140541008	B2W158	WATER	3/25/2014 11:02	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Strontium 89/90 (GPC/GEA)		SR89/90		
Total Alkalinity as mg/L CaCO ₃ (Water)		Alkalinity, Carbonate, Bicarbonate, Hydroxyl Ion		
Sample #	Sample ID	Matrix	Collected	Received
140541009	B2W152	WATER	3/25/2014 10:18	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Total Alkalinity as mg/L CaCO ₃ (Water)		Alkalinity, Carbonate, Bicarbonate, Hydroxyl Ion		
Sample #	Sample ID	Matrix	Collected	Received
140541010	B2W176	WATER	3/25/2014 08:58	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Strontium 89/90 (GPC/GEA)		SR89/90		
Sample #	Sample ID	Matrix	Collected	Received
140541011	B2W175	WATER	3/25/2014 07:00	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Strontium 89/90 (GPC/GEA)		SR89/90		
Sample #	Sample ID	Matrix	Collected	Received
140541012	B2W169	WATER	3/25/2014 13:51	3/25/2014 14:50
Procedure		Compound List		
3E-2008 IC P-MS 3 Elements		U		
Strontium 89/90 (GPC/GEA)		SR89/90		

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S14-003-309**
Page 1 of 1

Collector	LD-Wall CHPRC	Contact/Requester	Karen Walters-Husted	Telephone No.	509-376-4650
SAF No.	S14-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071EN20
Project Title	SURV. MARCH 2014	Logbook No.	HNF-N-506 6 C / 9 Z	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Precedent	SURV	Priority:	31 Days	OnSite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** 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 498.1. 140541 140451 3-25-14 3-25-14			Hold Time Site Wide Generator Know edge Information Form applies. The CACN for analytical work at WSCP is 40 days. DC NOT batch different fiscal years in the same SDC. (CHPRC memo)		
Sample No.	Filter	Date	Time	Nc/Type Container	Sample Analysis
B2W277	1	N	W	3-25-14	0858
				1X500-ML P	300.2 ANIONS_IC: COMMON 300.2 ANIONS_IC: GW 02
					48 Hours
					Preservative C001-4C
*** 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 498.1.			Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

Chain of Custody

Relinquished By	LD-Wall CHPRC	Signature	Signature	Date/Time	Received By	Print	Signature	Date/Time
Relinquished By				MAR 25 2014 1450	TA Mizia			MAR 25 2014
Relinquished By								
Relinquished By								
Relinquished By								
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By				

Matrix *	DS	DS
S = Soil	-	Drum Solids
SE = Sediment	-	Drum Liquids
SO = Solid	-	Tissue
SL = Sludge	-	Wipe
W = Water	-	Liquid
O = Oil	-	Vegetation
A = Air	-	Other

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A-5004-042 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # S14-003-310	
Collector LD Wall CHPRC		Contact/Requester Karen Walters-Husted		Telephone No. 509-376-4650		Purchase Order/Charge Code 300071ES20		Page 1 of 1	
SAF No. S14-003		Sampling Origin Hanford Site		Logbook No. HNF-N-506 601 72		Ice Chest No. N/A		Bill of Lading/Air Bill No. N/A	
Project Title SURV. MARCH 2014		Method of Shipment GOVERNMENT VEHICLE		Priority: 31 Days		Offsite Property No. N/A		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Shipped To (Lab) Waste Sampling & Characterization		Protocol SURV		SPECIAL INSTRUCTIONS PRIORITY		Held Time 48 HOURS		Preservative COOL-4C	
<p>*** 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.</p> <p>Site Wide Generator Knowledge Information Form applies. The CACN for analytical work at WSCP is 40 047. DC NOT back different fiscal years in the same SDC. (CHPRC memo)</p>									
Sample No.	Filter	*	Date	Time	Nc/Type Container	Sample Analysis	Sample Analysis	Holding Time	Preservative
B2N276	2	N	3-25-14	0700	1X500-mL P	300.2 ANIONS IC: COMMON 300.2 ANIONS IC: GW 02		48 HOURS	COOL-4C

Relinquished By LD Wall CHPRC	Signature <i>[Signature]</i>	Date/Time MAR 25 2014 1450	Received By TA Maria Roman Es.	Date/Time MAR 25 2014 1450	Matrix *	
Relinquished By	Signature	Date/Time	Received By	Date/Time	\$ = Soil	
Relinquished By	Signature	Date/Time	Received By	Date/Time	SE = Sediment	
Relinquished By	Signature	Date/Time	Received By	Date/Time	SD = Solid	
Relinquished By	Signature	Date/Time	Received By	Date/Time	SL = Sludge	
Relinquished By	Signature	Date/Time	Received By	Date/Time	W = Water	
Relinquished By	Signature	Date/Time	Received By	Date/Time	O = Oil	
Relinquished By	Signature	Date/Time	Received By	Date/Time	A = Air	
Relinquished By	Signature	Date/Time	Received By	Date/Time	CS = Deena Solids	
Relinquished By	Signature	Date/Time	Received By	Date/Time	DL = Drain Liquids	
Relinquished By	Signature	Date/Time	Received By	Date/Time	T = Tissue	
Relinquished By	Signature	Date/Time	Received By	Date/Time	W1 = Wipe	
Relinquished By	Signature	Date/Time	Received By	Date/Time	Y = Liquid	
Relinquished By	Signature	Date/Time	Received By	Date/Time	V = Vegetation	
Relinquished By	Signature	Date/Time	Received By	Date/Time	X = Other	
FINAL SAMPLE DISPOSITION					Disposal Method (e.g. Return to customer, per lab procedure, used in process)	Disposed By

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A-0004-042 (REV 2)

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # S14-003-300		
						Page 1 of 1		
Collector	LD Weil CHPRC	Contact/Requester	Karen Waters-Husted		Telephone No.	509-376-4650		
SAF No.	S14-003	Sampling Origin	Hanford Site		Purchase Order/Charge Code	3C0071ESS20		
Project Title	SURV. MARCH 2014	Logbook No.	HNF-N-506 <i>62192</i>		Ice Chest No.	N/A		
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE		Bill of Lading/Air Bill No.	N/A		
Precedent	SURV	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/191A.TA Dangerous Good Regulations but are not releasable per DOE Order 438.1. SPECIAL INSTRUCTIONS: Hold Time Site Wide Generator Knowledge Information From applies. The CACH for analytical work at WSCCT is 40/647 DO NOT touch different fiscal years in the same SDOG. (CHPRC memo)								
Sample No.	Filter	*	Date	Time	Nc/Type Container	Sample Analysis	Preservative	
B2W268	3	N	3-25-14	1018	1x500-ml P	300.0_ANIONS_IC: COMMON 300.0_ANIONS_IC: GW 02	48 Hours	Couf-4C

Relinquished By	<i>LD Weil</i>	Sign	<i>[Signature]</i>	Date/Time	1450	Received By	<i>TA [Signature]</i>	Sign	<i>[Signature]</i>	Date/Time	1450
Relinquished By	CHPRC	Date/Time	MAR 25 2014	Received By	<i>[Signature]</i>	Date/Time	MAR 25 2014	MATRIX * S = Soil DS = Drain Solids SE = Sediment DL = Drain Liquids SO = Solid T = Tissue SL = Sludge W1 = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other			
Relinquished By		Date/Time		Received By		Date/Time		Disposed By Date/Time			
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)											

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A 6004 942 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S14-003-303**
Page 1 of 1

Collector	L.D. Wall CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4550
SAT No.	S14-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV, MARCH 2014	Logbook No.	HNF-N-505 60 / 9-2	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Product	SURV	Priority:	31 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Certain Radioactive Material at concentrations that may or may not be regulated for transportation per 19 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 4-98.1.

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACN for analytical work at WSCP is 401647.
 DO NOT batch different fiscal years in the same SIXT (CHPRC memo).

Total Activity Exemption: Yes No

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Sample Analysis	Holding Time	Preservative
BZWZ/1	4	N	3-25-14	1102	1X500-ML P	300.0 ANIONS IC: COMMION: 300.0 ANIONS IC: GW 02		48 HOURS	C201-4C

Chain of Custody

Relinquished By	L.D. Wall CHPRC	Signature	<i>[Signature]</i>	Date/Time	MAR 25 2014 1450	Received By	TA FINEZ CHPRC	Signature	<i>[Signature]</i>	Date/Time	MAR 25 2014 1450	Matrix *	DS = Durr Solids DL = Durr Liquids T = Tissue W1 = Wipe L = Liquid Y = Vegetation X = Other
Relinquished By		Date/Time		Received By		Date/Time		S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air					
Relinquished By		Date/Time		Received By		Date/Time							
Relinquished By		Date/Time		Received By		Date/Time							
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per the procedure, used in process)										Disposed By		Date/Time

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A-0004-042 (REV 2)

CH2M/Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S14-003-302**
Page 1 of 1

Collector	L.D. Wall CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S14-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071FES20
Project Title	SURV, MARCH 2014	Logbook No.	HNF-N-506 <i>601 92</i>	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	SURV	Priority:	31 Days PRIORITY	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** Contains Radioactive Material concentration that may or may not be regulated for transportation per 49 CFR/NTA
 Dangerous Goods Regulations but are not releasable per DOE Order 438.1.

SPECIAL INSTRUCTIONS **Hold Time** **Total Activity Exemption:** Yes No
 Site Wide Generator Knowledge Information Form applies.
 The CACN for analytical work at WSCF is 40,047.
 DO NOT batch different fiscal years in the same SICK (CHPRC memo)

Sample No.	Filter	*	Date	Time	Net/Type Container	Sample Analyte	Holding Time	Preservative
B2VZ70	5	N	3-25-14	1235	1x500-mL P	300.0 ANIONS IC: COMMON; 300.0 ANIONS IC: GW 01	48 HOURS	COOL-4C

Chain of Custody

Relinquished By	Print L.D. Wall CHPRC	Sign <i>[Signature]</i>	Date/Time MAR 25 2014	Received By	Print TA Muzin	Sign <i>[Signature]</i>	Date/Time MAR 25 2014
Relinquished By				Received By			
Relinquished By				Received By			
Relinquished By				Received By			

Matrix *
 S = Soil DS = Dross Solids
 SE = Sediment DL = Drums/Liquids
 SO = Solid T = Tissue
 SL = Sludge W1 = 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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CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S14-003-307
Page 1 of 1

Collector	LD Weil CHPMC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S14-003	Sampling Origin	Hamford Site	Purchase Order/Charge Code	300071FES20
Project Title	SURV, MARCH 2014	Logbook No.	HNF-N-506 60 / 92	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	SURV	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 19 CFR/ATA
 Dangerous Goods Regulations (see not releasable per DOT Order 438.1)

SPECIAL INSTRUCTIONS
 Site With Container Knowledge Information Form apply.
 The CACN for analytical work a WSCF is 401647
 DO NOT batch different fiscal years in the same SDG. (CHPRC memo)

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2WZ15	6	N	W	3-25-14	1351	300.0 ANIONS_IC: COMMON; 300.0 ANIONS_IC: GW 02	48 HOURS	C201-4C

Relinquished By	RD Weil CHPMC	Sign	Date/Time	1450 MAR 25 2014	Received By	Print	Sign	Date/Time	1450 MAR 25 2014	Matrix *
Relinquished By			Date/Time		Received By			Date/Time		S - Soil SD - Sediment S - Solid SL - Sludge W - Water O - Oil A - Air
Relinquished By			Date/Time		Received By			Date/Time		DS - Drum Solids DL - Drum Liquids - - Tissue W/I - Wipe L - Liquid Y - Vegetation - - Other
Relinquished By			Date/Time		Received By			Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per the procedure, used in process)									

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A-G004-042 (REV 2)

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S14-003-249
Page 1 of 1

Collector	LD Wall CHPMC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No	S14-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV. MARCH 2014	Logbook No.	HNF-N-506 <u>60 / 92</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	SURV	Priority:	31 Days	Onsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	
** ** 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 438.1. DO NOT handle different fiscal years in the same SDG. (CHPMC memo)		Site Wide Generator Knowledge Information Form applies. The CACTY for analytical work at WSCF is 401547. DO NOT blend different fiscal years in the same SDG. (CHPMC memo)		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		
B2W156	7	N	W	3-25-14	1235	1x503-mL G/P	200 & METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B2W156	1	N	W	3-25-14	1235	1x1-L G/P	SRTOT_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B2W156	1	N	W	3-25-14	1235	1x250-mL G/P	2320_ALKALINITY: GW 01	14 Days	Cool-4C

Chain of Custody

Relinquished By	LD Wall CHPMC	Sign	<i>[Signature]</i>	Date/Time	MAR 25 2014 1450	Received By	TA Maria CHPMC	Print	<i>[Signature]</i>	Sign	<i>[Signature]</i>	Date/Time	MAR 25 2014 1450
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time		Date/Time	
Matrix * S = Soil DS = Drum Solids SL = Sediment DL = Drum Liquids SD = Solid T = Tissue SL = Sludge WT = Wipe W = Water I = Ingrid O = Oil Y = Yeast A = Air X = Other													
Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By: _____ Date/Time: _____													

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A-8004-842 (REV 2)

CH2M/Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S14-003-250

Page 1 of 1

Collector	LD Wall CHPMD	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S14-003	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071BS20
Project Title	SURV, MARCH 2014	Logbook No.	HNF-N-506 60 / 9 2	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	SURV	Priority:	31 Days PRIORITY	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** ** Contain Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA
 Dangerous Goods Regulations that are not releasable per DOT Order 4581.

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies
 The CMCN for analytical work at WSCF is 401647.
 DO NOT batch different fiscal years in the same SID. (CHPRC memo)

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2W158	8	3-25-14	1102	1250-ML G/P	ZC0.8 METALS, JCFMS: Uranium (1)	6 Months	HNO3 to pH <2
B2W158	N	3-25-14	1102	1X1L G/P	SRTC_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B2W158	N	3-25-14	1102	1250-ML G/P	2320_ALKALINITY: GW 01	14 Days	COO-4C

Chain of Custody

Relinquished By	LD Wall CHPMD	Sign	LD Wall	Date/Time	MAR 25 2014 1150	Received By	KEESY	Sign	KEESY	Date/Time	MAR 25 2014 1453	Matrix *	SE = Soil SC = Sediment SL = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By		Date/Time		Received By		Date/Time		Matrix *	DS = Dism solids DL = Drain Liquids T = Tissue W1 = Wipe L = Liquid V = Vegetation X = Other				
Relinquished By		Date/Time		Received By		Date/Time		Disposed By		Date/Time			

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A-0004-042 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CO.C.# S14-003-256
Page 1 of 1

Collector	LD Weil CHPMO	Contact/Requester	Karen Waters-Hirsted	Telephone No.	509-376-4650
SAF No.	S14-003	Sampling Origin	Hamford Site	Purchase Order/Charge Code	300071ES2U
Project Title	SURV, MARCH 2014	Logbook No.	HNF-N-506 60 / 72	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	SURV	Priority	31 Days PRIORITY	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/171A
 Dangerous Goods Regulations but are not classable per DOE Order 438.1.

SPECIAL INSTRUCTIONS Hold Time
 Site With Generator Knowledge Information Form applies.
 The CACN for analytical work at WSCF is 401547.
 DO NOT batch different fiscal years in the same SD's. (CHPRC memo)

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Hold Time	Preservative
B2W175	N	3-25-14	0700	1X500-mL GP	Zn & METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B2W175	N	3-25-14	0700	1x1-L GP	SRTOT_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

Relinquished By	LD Weil CHPMO	Print Sign	LD Weil	Date/Time	MAR 25 2014	Received By	KEPISBT	Print Sign	KEPISBT	Date/Time	MAR 25 2014	Matrix *	DS - Deum Solids DL - Dnum Liquids T - Tarace WT - Wipe L - Liquid Y - Vegetation X - Other
Relinquished By		Date/Time		Date/Time		Received By		Date/Time		Date/Time		S - Soil SE - Sediment SD - Solid SL - Sludge W - Water O - Oil A - Air	
Relinquished By		Date/Time		Date/Time		Received By		Date/Time		Date/Time		Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposal Dy

Chain of Custody

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