

DECEMBER 19, 2012

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



December 19, 2012

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF121503

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 WSCF121503

- * 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 # WSCF121503

Data Deliverable Date 12/28/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
X13-005	B2MK49	121503001	WATER	11/27/12	11/27/12
X13-005	B2MK55	121503002	WATER	11/27/12	11/27/12
X13-005	B2MKF6	121503003	WATER	11/27/12	11/27/12
X13-005	B2MKW5	121503004	WATER	11/27/12	11/27/12
X13-005	B2MKW9	121503005	WATER	11/27/12	11/27/12
X13-005	B2ML73	121503006	WATER	11/27/12	11/27/12
X13-005	B2ML70	121503007	WATER	11/27/12	11/27/12
X13-005	B2ML67	121503008	WATER	11/27/12	11/27/12
X13-005	B2MKW8	121503009	WATER	11/27/12	11/27/12
X13-005	B2ML78	121503010	WATER	11/27/12	11/27/12
X13-005	B2ML76	121503011	WATER	11/27/12	11/27/12

ATTACHMENT 2

NARRATIVE

Consisting of 3 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), Master Contract 39818, Revision 3, "Laboratory Analytical Services to CHPRC Soil and Groundwater Remediation Project."*

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.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Attachment 2
Narrative
WSCF121503

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

- Batch QC 210822
 - Sulfate – 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.

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.

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.

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 31 pages
Including cover page

DECEMBER 19, 2012

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF121503
Report Date December 19, 2012

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 # WSCF121503

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210822	210822	2	BLANK	85588	BLANK		Anions by Ion Chromatography (Water)
210822	210822	3	LCS	85589	LCS		Anions by Ion Chromatography (Water)
210822	210822	4	DUP	85590	B2MM11(121499017DUP	121499017	Anions by Ion Chromatography (Water)
210822	210822	5	MS	85591	B2MM11(121499017MS)	121499017	Anions by Ion Chromatography (Water)
210822	210822	6	MSD	85592	B2MM11(121499017MSD	121499017	Anions by Ion Chromatography (Water)
210822	210822	13	SAMPLE	121503001	B2MK49		Anions by Ion Chromatography (Water)
210822	210822	14	SAMPLE	121503002	B2MK55		Anions by Ion Chromatography (Water)
210822	210822	15	SAMPLE	121503003	B2MKF6		Anions by Ion Chromatography (Water)
210822	210822	16	SAMPLE	121503004	B2MKW5		Anions by Ion Chromatography (Water)
210823	210823	2	BLANK	85595	BLANK		Anions by Ion Chromatography (Water)
210823	210823	3	LCS	85596	LCS		Anions by Ion Chromatography (Water)
210823	210823	4	DUP	85597	B2MKW9(121503005DUP	121503005	Anions by Ion Chromatography (Water)
210823	210823	5	MS	85598	B2MKW9(121503005MS)	121503005	Anions by Ion Chromatography (Water)
210823	210823	6	MSD	85599	B2MKW9(121503005MS	121503005	Anions by Ion Chromatography (Water)
210823	210823	8	SAMPLE	121503005	B2MKW9		Anions by Ion Chromatography (Water)
211262	211317	5	BLANK	86048	BLANK		ICP-6010 - All possible metals
211262	211317	7	LCS	86050	LCS		ICP-6010 - All possible metals
211262	211317	9	MS	86051	B2MM08(121501017MS)	121501017	ICP-6010 - All possible metals
211262	211317	10	MSD	86052	B2MM08(121501017MSD	121501017	ICP-6010 - All possible metals
211262	211317	12	SAMPLE	121503010	B2ML78		ICP-6010 - All possible metals
211262	211317	13	SAMPLE	121503011	B2ML76		ICP-6010 - All possible metals

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121503

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210931	211518	1	BLANK	85726	BLANK		Strontium 89/90 (GPC/GEA)
210931	211518	2	LCS	85727	LCS		Strontium 89/90 (GPC/GEA)
210931	211518	3	DUP	85728	B2ML73(121503006DUP)	121503006	Strontium 89/90 (GPC/GEA)
210931	211518	4	SAMPLE	121503006	B2ML73		Strontium 89/90 (GPC/GEA)
210931	211518	5	SAMPLE	121503007	B2ML70		Strontium 89/90 (GPC/GEA)
210931	211518	6	SAMPLE	121503008	B2ML67		Strontium 89/90 (GPC/GEA)
210931	211518	7	SAMPLE	121503009	B2MKW8		Strontium 89/90 (GPC/GEA)
210931	211518	8	SAMPLE	121503011	B2ML76		Strontium 89/90 (GPC/GEA)

Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

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-505-411	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-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 Radiochemistry

Group # WSCF121503

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 Inorganic

Group # WSCF121503

Sample # 121503001
 SAF# X13-005
 Sample ID B2MK49

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/27/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.0496		ug/mL	2	0.046	0.14	11/27/12
Chloride	16887-00-6	LA-533-410	D	2.73		ug/mL	2	0.12	0.81	11/27/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0565		ug/mL	2	0.038	0.20	11/27/12
Nitrate-N	NO3-N	LA-533-410	D	0.564		ug/mL	2	0.038	0.20	11/27/12
Sulfate	14808-79-8	LA-533-410	D	18.4		ug/mL	2	0.22	2.1	11/27/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503002
 SAF# X13-005
 Sample ID B2MK55

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/27/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.046		ug/mL	2	0.046	0.14	11/27/12
Chloride	16887-00-6	LA-533-410	BD	0.787		ug/mL	2	0.12	0.81	11/27/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0401		ug/mL	2	0.038	0.20	11/27/12
Nitrate-N	NO3-N	LA-533-410	UD	<0.038		ug/mL	2	0.038	0.20	11/27/12
Sulfate	14808-79-8	LA-533-410	D	10.4		ug/mL	2	0.22	2.1	11/27/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503003
 SAF# X13-005
 Sample ID B2MKF6

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/27/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.0510		ug/mL	2	0.046	0.14	11/27/12
Chloride	16887-00-6	LA-533-410	D	4.82		ug/mL	2	0.12	0.81	11/27/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0477		ug/mL	2	0.038	0.20	11/27/12
Nitrate-N	NO3-N	LA-533-410	BD	0.0710		ug/mL	2	0.038	0.20	11/27/12
Sulfate	14808-79-8	LA-533-410	D	26.5		ug/mL	2	0.22	2.1	11/27/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503004
 SAF# X13-005
 Sample ID B2MKW5

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/27/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.117		ug/mL	2	0.046	0.14	11/27/12
Chloride	16887-00-6	LA-533-410	D	1.61		ug/mL	2	0.12	0.81	11/27/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0668		ug/mL	2	0.038	0.20	11/27/12
Nitrate-N	NO3-N	LA-533-410	BD	0.134		ug/mL	2	0.038	0.20	11/27/12
Sulfate	14808-79-8	LA-533-410	D	12.4		ug/mL	2	0.22	2.1	11/27/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503005
 SAF# X13-005
 Sample ID B2MKW9

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/27/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.046		ug/mL	2	0.046	0.14	11/27/12
Chloride	16887-00-6	LA-533-410	BD	0.778		ug/mL	2	0.12	0.81	11/27/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0539		ug/mL	2	0.038	0.20	11/27/12
Nitrate-N	NO3-N	LA-533-410	D	0.260		ug/mL	2	0.038	0.20	11/27/12
Sulfate	14808-79-8	LA-533-410	D	14.2		ug/mL	2	0.22	2.1	11/27/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503010
 SAF# X13-005
 Sample ID B2ML78

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										12/10/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<19		ug/L	1	19	95	12/11/12
Magnesium	7439-95-4	LA-505-411		11000		ug/L	1	4.0	20	12/11/12
Manganese	7439-96-5	LA-505-411	B	5.60		ug/L	1	4.0	20	12/11/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Potassium	7440-09-7	LA-505-411		2100		ug/L	1	76	380	12/11/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Sodium	7440-23-5	LA-505-411		6650		ug/L	1	10	50	12/11/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	12/11/12
Barium	7440-39-3	LA-505-411		48.5		ug/L	1	4.0	20	12/11/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Chromium	7440-47-3	LA-505-411	B	15.9		ug/L	1	5.0	25	12/11/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Vanadium	7440-62-2	LA-505-411	U	<5.0		ug/L	1	5.0	25	12/11/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	12/11/12
Calcium	7440-70-2	LA-505-411		49600		ug/L	1	49	240	12/11/12
Strontium	7440-24-6	LA-505-411		222		ug/L	1	9.0	45	12/11/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503010
 SAF# X13-005
 Sample ID B2ML78

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503011
 SAF# X13-005
 Sample ID B2ML76

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										12/10/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411		814		ug/L	1	19	95	12/11/12
Magnesium	7439-95-4	LA-505-411		11500		ug/L	1	4.0	20	12/11/12
Manganese	7439-96-5	LA-505-411		67.9		ug/L	1	4.0	20	12/11/12
Nickel	7440-02-0	LA-505-411	B	6.80		ug/L	1	4.0	20	12/11/12
Potassium	7440-09-7	LA-505-411		2150		ug/L	1	76	380	12/11/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Sodium	7440-23-5	LA-505-411		6770		ug/L	1	10	50	12/11/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	12/11/12
Barium	7440-39-3	LA-505-411		67.3		ug/L	1	4.0	20	12/11/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Chromium	7440-47-3	LA-505-411	B	17.7		ug/L	1	5.0	25	12/11/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12
Copper	7440-50-8	LA-505-411	B	11.0		ug/L	1	4.0	20	12/11/12
Vanadium	7440-62-2	LA-505-411	U	<5.0		ug/L	1	5.0	25	12/11/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	12/11/12
Calcium	7440-70-2	LA-505-411		51900		ug/L	1	49	240	12/11/12
Strontium	7440-24-6	LA-505-411		234		ug/L	1	9.0	45	12/11/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Sample # 121503011
 SAF# X13-005
 Sample ID B2ML76

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	12/11/12

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.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121503

Sample # 121503006
 SAF# X13-005
 Sample ID B2ML73

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										12/11/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		2.4	.93	pCi/L	1	1.1		12/12/12

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
 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 # WSCF121503

Sample # 121503007
 SAF# X13-005
 Sample ID B2ML70

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										12/11/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		4.0	1.2	pCi/L	1	1.1		12/12/12

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
 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 # WSCF121503

Sample # 121503008
 SAF# X13-005
 Sample ID B2ML67

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										12/11/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		2.4	.94	pCi/L	1	1.2		12/12/12

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
 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 # WSCF121503

Sample # 121503009
 SAF# X13-005
 Sample ID B2MKW8

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										12/11/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		3.8	1.2	pCi/L	1	1.2		12/12/12

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
 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 # WSCF121503

Sample # 121503011
 SAF# X13-005
 Sample ID B2ML76

Matrix WATER
 Sampled 11/27/12
 Received 11/27/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										12/11/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		4.4	1.3	pCi/L	1	1.1		12/12/12

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
 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.

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analytical Batch 210822 (QC Batch: 210822) Test Anions by Ion Chromatography (Water)
 Associated Samples 121503001, 121503002, 121503003, 121503004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #85588								
Fluoride	16984-48-8	<0.023		ug/mL					U	11/27/12
Chloride	16887-00-6	<0.058		ug/mL					U	11/27/12
Nitrite-N	NO2-N	<0.019		ug/mL					U	11/27/12
Nitrate-N	NO3-N	<0.019		ug/mL					U	11/27/12
Sulfate	14808-79-8	<0.11		ug/mL					U	11/27/12
LCS		QC Sample #85589								
Fluoride	16984-48-8	0.979		ug/mL	98.9	90 - 110				11/27/12
Chloride	16887-00-6	1.88		ug/mL	95	90 - 110				11/27/12
Nitrite-N	NO2-N	1.01		ug/mL	103	90 - 110				11/27/12
Nitrate-N	NO3-N	0.899		ug/mL	101.6	90 - 110				11/27/12
Sulfate	14808-79-8	4.06		ug/mL	103.5	90 - 110				11/27/12
DUP		QC Sample #85590								
		Original 121499017								
Fluoride	16984-48-8	0.151		ug/mL			3.80	20	D	11/27/12
Chloride	16887-00-6	6.66		ug/mL			0.10	20	D	11/27/12
Nitrite-N	NO2-N	<0.038		ug/mL			0.00	20	UD	11/27/12
Nitrate-N	NO3-N	2.49		ug/mL			0.60	20	D	11/27/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate	14808-79-8		47.9	ug/mL			0.10	20	D	11/27/12
MS			QC Sample #85591							
			Original 121499017							
Fluoride	16984-48-8		0.950	ug/mL	95	80 - 120			D	11/27/12
Chloride	16887-00-6		1.95	ug/mL	97.7	80 - 120			D	11/27/12
Nitrite-N	NO2-N		0.941	ug/mL	95.3	80 - 120			D	11/27/12
Nitrate-N	NO3-N		0.977	ug/mL	109.2	80 - 120			D	11/27/12
Sulfate	14808-79-8		4.78	ug/mL	120.7	80 - 120			DX	11/27/12
MSD			QC Sample #85592							
			Original 121499017						Paired 85591	
Fluoride	16984-48-8		0.940	ug/mL	94	80 - 120	0.90	20	D	11/27/12
Chloride	16887-00-6		1.78	ug/mL	89	80 - 120	2.00	20	D	11/27/12
Nitrite-N	NO2-N		0.920	ug/mL	93.1	80 - 120	2.30	20	D	11/27/12
Nitrate-N	NO3-N		0.923	ug/mL	103.2	80 - 120	1.60	20	D	11/27/12
Sulfate	14808-79-8		4.15	ug/mL	104.8	80 - 120	1.20	20	DX	11/27/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analytical Batch 210823 (QC Batch: 210823) Test Anions by Ion Chromatography (Water)
 Associated Samples 121503005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #85595								
Fluoride	16984-48-8	<0.023		ug/mL					U	11/27/12
Chloride	16887-00-6	<0.058		ug/mL					U	11/27/12
Nitrite-N	NO2-N	<0.019		ug/mL					U	11/27/12
Nitrate-N	NO3-N	<0.019		ug/mL					U	11/27/12
Sulfate	14808-79-8	<0.11		ug/mL					U	11/27/12
LCS		QC Sample #85596								
Fluoride	16984-48-8	0.949		ug/mL	95.8	90 - 110				11/27/12
Chloride	16887-00-6	1.86		ug/mL	93.8	90 - 110				11/27/12
Nitrite-N	NO2-N	0.991		ug/mL	101.3	90 - 110				11/27/12
Nitrate-N	NO3-N	0.886		ug/mL	100	90 - 110				11/27/12
Sulfate	14808-79-8	3.96		ug/mL	101.1	90 - 110				11/27/12
DUP		QC Sample #85597								
		Original 121503005								
Fluoride	16984-48-8	<0.046	<0.046	ug/mL			11.30	20	UD	11/27/12
Chloride	16887-00-6	0.778	0.781	ug/mL			0.40	20	BD	11/27/12
Nitrite-N	NO2-N	0.0539	0.0549	ug/mL			1.80	20	BD	11/27/12
Nitrate-N	NO3-N	0.260	0.260	ug/mL			0.20	20	D	11/27/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analytical Batch 211317 (QC Batch: 211262) Test ICP-6010 - All possible metals
 Associated Samples 121503010, 121503011

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #86048								
Iron	7439-89-6	<19		ug/L					U	12/11/12
Magnesium	7439-95-4	<4.0		ug/L					U	12/11/12
Manganese	7439-96-5	<4.0		ug/L					U	12/11/12
Nickel	7440-02-0	<4.0		ug/L					U	12/11/12
Potassium	7440-09-7	<76		ug/L					U	12/11/12
Silver	7440-22-4	<4.0		ug/L					U	12/11/12
Sodium	7440-23-5	<10		ug/L					U	12/11/12
Antimony	7440-36-0	<36		ug/L					U	12/11/12
Barium	7440-39-3	<4.0		ug/L					U	12/11/12
Cadmium	7440-43-9	<4.0		ug/L					U	12/11/12
Chromium	7440-47-3	<5.0		ug/L					U	12/11/12
Cobalt	7440-48-4	<4.0		ug/L					U	12/11/12
Copper	7440-50-8	<4.0		ug/L					U	12/11/12
Vanadium	7440-62-2	<5.0		ug/L					U	12/11/12
Zinc	7440-66-6	<5.0		ug/L					U	12/11/12
Calcium	7440-70-2	<49		ug/L					U	12/11/12
Strontium	7440-24-6	<9.0		ug/L					U	12/11/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium	7440-41-7		<4.0	ug/L					U	12/11/12
LCS			QC Sample #86050							
Iron	7439-89-6		1040	ug/L	103.5	80 - 120				12/11/12
Magnesium	7439-95-4		10600	ug/L	105.8	80 - 120				12/11/12
Manganese	7439-96-5		1040	ug/L	104.4	80 - 120				12/11/12
Nickel	7440-02-0		1010	ug/L	100.6	80 - 120				12/11/12
Potassium	7440-09-7		11200	ug/L	111.9	80 - 120				12/11/12
Silver	7440-22-4		1030	ug/L	103.4	80 - 120				12/11/12
Sodium	7440-23-5		10600	ug/L	105.8	80 - 120				12/11/12
Antimony	7440-36-0		1050	ug/L	104.7	80 - 120				12/11/12
Barium	7440-39-3		1060	ug/L	105.7	80 - 120				12/11/12
Cadmium	7440-43-9		1020	ug/L	102.3	80 - 120				12/11/12
Chromium	7440-47-3		1040	ug/L	104	80 - 120				12/11/12
Cobalt	7440-48-4		1020	ug/L	101.6	80 - 120				12/11/12
Copper	7440-50-8		1050	ug/L	104.9	80 - 120				12/11/12
Vanadium	7440-62-2		1030	ug/L	102.8	80 - 120				12/11/12
Zinc	7440-66-6		1050	ug/L	105.2	80 - 120				12/11/12
Calcium	7440-70-2		21000	ug/L	105	80 - 120				12/11/12
Strontium	7440-24-6		1010	ug/L	100.7	80 - 120				12/11/12
Beryllium	7440-41-7		1040	ug/L	103.8	80 - 120				12/11/12
MS			QC Sample #86051							
			Original 121501017							
Iron	7439-89-6		1040	ug/L	103.5	75 - 125				12/11/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Magnesium	7439-95-4		10800	ug/L	107.6	75 - 125				12/11/12
Manganese	7439-96-5		1020	ug/L	102.1	75 - 125				12/11/12
Nickel	7440-02-0		985	ug/L	98.5	75 - 125				12/11/12
Potassium	7440-09-7		11200	ug/L	111.7	75 - 125				12/11/12
Silver	7440-22-4		1020	ug/L	101.9	75 - 125				12/11/12
Sodium	7440-23-5		10700	ug/L	107.1	75 - 125				12/11/12
Antimony	7440-36-0		1040	ug/L	104.4	75 - 125				12/11/12
Barium	7440-39-3		1040	ug/L	104.3	75 - 125				12/11/12
Cadmium	7440-43-9		1010	ug/L	101.3	75 - 125				12/11/12
Chromium	7440-47-3		1010	ug/L	101.4	75 - 125				12/11/12
Cobalt	7440-48-4		985	ug/L	98.5	75 - 125				12/11/12
Copper	7440-50-8		1030	ug/L	103.2	75 - 125				12/11/12
Vanadium	7440-62-2		1010	ug/L	101.3	75 - 125				12/11/12
Zinc	7440-66-6		1040	ug/L	104.1	75 - 125				12/11/12
Calcium	7440-70-2		21800	ug/L	109	75 - 125				12/11/12
Strontium	7440-24-6		999	ug/L	99.9	75 - 125				12/11/12
Beryllium	7440-41-7		1030	ug/L	102.8	75 - 125				12/11/12
MSD			QC Sample #86052							
			Original	121501017				Paired	86051	
Iron	7439-89-6		1010	ug/L	100.6	75 - 125	2.80	20		12/11/12
Magnesium	7439-95-4		11000	ug/L	109.7	75 - 125	0.90	20		12/11/12
Manganese	7439-96-5		1010	ug/L	101.3	75 - 125	0.80	20		12/11/12
Nickel	7440-02-0		966	ug/L	96.6	75 - 125	1.90	20		12/11/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121503

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Potassium	7440-09-7		11400	ug/L	114.5	75 - 125	1.70	20		12/11/12
Silver	7440-22-4		1020	ug/L	102	75 - 125	0.00	20		12/11/12
Sodium	7440-23-5		11200	ug/L	111.8	75 - 125	2.00	20		12/11/12
Antimony	7440-36-0		1050	ug/L	104.7	75 - 125	0.30	20		12/11/12
Barium	7440-39-3		1050	ug/L	105.4	75 - 125	1.00	20		12/11/12
Cadmium	7440-43-9		1010	ug/L	100.7	75 - 125	0.60	20		12/11/12
Chromium	7440-47-3		1000	ug/L	100.3	75 - 125	1.10	20		12/11/12
Cobalt	7440-48-4		972	ug/L	97.2	75 - 125	1.30	20		12/11/12
Copper	7440-50-8		1040	ug/L	103.8	75 - 125	0.60	20		12/11/12
Vanadium	7440-62-2		1010	ug/L	101.2	75 - 125	0.10	20		12/11/12
Zinc	7440-66-6		1040	ug/L	103.6	75 - 125	0.50	20		12/11/12
Calcium	7440-70-2		21700	ug/L	108.3	75 - 125	0.20	20		12/11/12
Strontium	7440-24-6		990	ug/L	99	75 - 125	0.70	20		12/11/12
Beryllium	7440-41-7		1020	ug/L	102.1	75 - 125	0.70	20		12/11/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121503

Analytical Batch 211518 (QC Batch: 210931) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 121503006, 121503007, 121503008, 121503009, 121503011

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Strontium-89_90 LCS	SR-RAD		-0.50	pCi/L					U	12/12/12
Strontium-89_90 DUP	SR-RAD		92	pCi/L	104	80 - 120				12/12/12
Strontium-89_90 SAMPLE	SR-RAD	2.4	2.3	pCi/L			5.50	20		12/12/12
Strontium Nitrate SAMPLE	10042-76-9			mg	75.2	25 - 105				12/12/12
Strontium Nitrate SAMPLE	10042-76-9			mg	75.2	25 - 105				12/12/12
Strontium Nitrate SAMPLE	10042-76-9			mg	72.7	25 - 105				12/12/12
Strontium Nitrate	10042-76-9			mg	71.1	25 - 105				12/12/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121503

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			Sample #121503011							
Strontium Nitrate	10042-76-9			mg	73.6	25 - 105				12/12/12
BLANK			QC Sample #85726							
Strontium Nitrate	10042-76-9			mg	64.5	25 - 105				12/12/12
LCS			QC Sample #85727							
Strontium Nitrate	10042-76-9			mg	76	25 - 105				12/12/12
DUP			QC Sample #85728							
			Original 121503006							
Strontium Nitrate	10042-76-9	9.1		mg	78.5	25 - 105	n/a			12/12/12

* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF121503

Quality Control Comments

Department Inorganic

85591 B2MM11(121499017MS)

Analyte Sulfate - Anions by Ion Chromatography (Water)

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

85592 B2MM11(121499017MSD)

Analyte Sulfate - Anions by Ion Chromatography (Water)

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

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 13 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
 Richland, WA 99352

ATTN: Scot Fitzgerald

Customer Code: CHPRC

PO #: 403899

Work Order #: 121503

Profile #: X13-005-139

Proj. Mgr.:

Phone:

The following samples were received from you on 11/27/2012 1:20:00 PM. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
		Tests scheduled		
121503001	B2MK49	WATER	11/27/2012 09:47	11/27/2012 13:20
		IC-W		
121503002	B2MK55	WATER	11/27/2012 11:15	11/27/2012 13:20
		IC-W		
121503003	B2MKF6	WATER	11/27/2012 10:47	11/27/2012 13:20
		IC-W		
121503004	B2MKW5	WATER	11/27/2012 11:01	11/27/2012 13:20
		IC-W		
121503005	B2MKW9	WATER	11/27/2012 11:34	11/27/2012 13:20
		IC-W		
121503006	B2ML73	WATER	11/27/2012 11:49	11/27/2012 13:20
		SR89/90-W		
121503007	B2ML70	WATER	11/27/2012 12:25	11/27/2012 13:20
		SR89/90-W		
121503008	B2ML67	WATER	11/27/2012 12:16	11/27/2012 13:20
		SR89/90-W		
121503009	B2MKW8	WATER	11/27/2012 11:34	11/27/2012 13:20
		SR89/90-W		
121503010	B2ML78	WATER	11/27/2012 11:58	11/27/2012 13:20
		6010-W		
121503011	B2ML76	WATER	11/27/2012 11:58	11/27/2012 13:20

Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134

6010-W; SR89/90-W

Test Acronym Description

Test Acronym	Description
6010-W	ICP-AES (W)
IC-W	Anions by IC (W)
SR89/90-W	Strontium 89/90 (GPC) (W)

CH2MHill Plateau Remediation
Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
X13-005-139
Page 1 of 1

Collector J. Aguilar	Contact/Requester Karen Waters-Husted	Telephone No. 376-4650
SAF No. X13-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 303064ES20
Project Title AQUIFER TUBES, NOVEMBER 2012	Logbook No. HNF-N-506 52 / 7, 8	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 are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (19901993)
 Site Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 403899. FY12 and FY13 samples cannot be in the same SDX.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Hold Time	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Preservative
B2MK49	N	11-27-12	0947	1X500-mL P	300.0_ANIONS_IC: List-1 (5)	48 Hours			Cool-4C

Retransferred By <i>J. Aguilar</i>	Received By <i>Cynthia R Johnson</i>	Date/Time 11-27-12 1330	Date/Time 11-27-12 1330	Matrix *
Retransferred By	Received By	Date/Time	Date/Time	S - Soil
Retransferred By	Received By	Date/Time	Date/Time	SE - Sediment
Retransferred By	Received By	Date/Time	Date/Time	SD - Solid
Retransferred By	Received By	Date/Time	Date/Time	SI - Sludge
Retransferred By	Received By	Date/Time	Date/Time	W - Water
Retransferred By	Received By	Date/Time	Date/Time	O - Oil
Retransferred By	Received By	Date/Time	Date/Time	A - Air
Retransferred By	Received By	Date/Time	Date/Time	DS - Drum Solids
Retransferred By	Received By	Date/Time	Date/Time	DL - Drum Liquids
Retransferred By	Received By	Date/Time	Date/Time	T - Tissue
Retransferred By	Received By	Date/Time	Date/Time	WI - Wipe
Retransferred By	Received By	Date/Time	Date/Time	L - Lined
Retransferred By	Received By	Date/Time	Date/Time	V - Vegetation
Retransferred By	Received By	Date/Time	Date/Time	- Other

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

PRINTED O 10/9/2012 A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **X13-005-142**
 Page 1 of 1

Collector <i>J. Aguilar</i>	SAF No. X13-005	Contact/Requester Karen Waters-Flusted	Telephone No. 376-4650
Project Title AQUIFER TUBES, NOVEMBER 2012	Waste Sampling & Characterization	Sampling Origin Hanford Site	Purchase Order/Charge Code 303064ESS20
Shipped To (Lab) SURY	Method of Shipment GOVERNMENT VEHICLE	Logbook No. HNF-N-506 52/ 2g	Ice Chest No. N/A
Protocol SURY	Priority: 31 Days	Bill of Lading/Air Bill No. N/A	Offsite Property No. N/A
POSSIBLE SAMPLE HAZARDS/REMARKS ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)			
Sample No. B2MK55	Filter N	Date 11-27-12	Time 1115
No./Type Container 1x500-ml P	Sample Analysis 306.0_ANIONS_IC>List-1 (5)	Holding Time 48 Hours	Preservative Cool-4C
SPECIAL INSTRUCTIONS Site Wide Generator Knowledge Information Form applies The CACN for all analytical work at WSCF is 403899 FY12 and FY13 samples cannot be in the same SDG.			
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Relinquished By <i>J. Aguilar</i>	Thru <i>2</i>	Sign <i>[Signature]</i>	Date/Time 11-27-12	Received By <i>Cynthia R Johnson</i>	Sign <i>[Signature]</i>	Date/Time 11-27-12	Matrix *
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	DS -- Drum Solids DL -- Drum Liquids T -- Tissue WI -- Wine L -- Liquid V -- Vegetation X -- Other
Relinquished By			Date/Time	Received By		Date/Time	
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)				Disposed By Date/Time			

Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # X13-005-192	
Collector <i>S. Aguilera</i>	Contact/Requester Karen Waters-Husted	Telephone No. 376-4650	Page 1 of 1				
SAF No. X13-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 303064ES20					
Project Title AQUIFER TUBES, NOVEMBER 2012	Logbook No. HNF-N-506 52/7,8	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 are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)			SPECIAL INSTRUCTIONS Site Wide Generator Knowledge Information Form applies The CACN for all analytical work at WSCF is 403899 FY12 and FY13 samples cannot be in the same SDG				
Sample No. B2MKF6 3	Filter N	Date 11-27-12	Time 1047	No./Type Container 1x500-mL P	Sample Analysis 300.0_ANIONS_IC_List-1 (9)	Holding Time 48 Hours	Preservative COOL-4C

Relinquished By <i>S. Aguilera</i>	Print <i>[Signature]</i>	Sign	Date/Time 11-27-12 1330	Received By Cynthia R Johnson	Print <i>[Signature]</i>	Sign	Date/Time 11-27-12 1330	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	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	DS - Drum Solids DL - Drum Liquids T - Tissue WI - Wipe L - Liquid V - Vegetation X - Other
FINAL SAMPLE DISPOSITION				Disposal Method (e.g. Return to customer, per lab procedure, used in process)				Date/Time

PRINTED ON 10/9/2012

A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # X13-005-258	
Collector <i>J. Aguilar</i> X13-005		Contract/Requester	Karen Waters-Husted Hartford Site		Telephone No.	376-4650	
Project Title	AQUIFER TUBES, NOVEMBER 2012	Sampling Origin	HNF-N-506 52 / 7,8		Purchase Order/Charge Code	303064ES20	
Shipped To (Lab)	Waste Sampling & Characterization	Logbook No.	GOVERNMENT VEHICLE		Ice Chest No.	N/A	
Protocol	SURV	Method of Shipment	GOVERNMENT VEHICLE		Bill of Lading/Air Bill No.	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 3100.5 (1990/1993)		Priorities:	31 Days		Offsite Property No.	N/A	
		SPECIAL INSTRUCTIONS		Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
		Site Wide Generic Knowledge Information Form applies. The CACN for all analytical work at WSCF is 403899. FY12 and FY13 samples cannot be in the same SDG.					
Sample No.	Filter	Date	No./Type Container	Sample Analysis	Holding Time	Preservative	
BMKW5 4	N	11-27-12	1x500-mL P	300.0 ANIONS, IC, List-1 (5)	48 Hours	Cool-4C	

Retransquished By	<i>J. Aguilar</i>	Sign	Date/Time	Received By	<i>Cynthia R Johnson</i>	Sign	Date/Time	Matrix *
Retransquished By			11-27-12 1330	Received By				S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge W1 = Wipe W = Water L = Liquid O = Oil V = Vapour A = Air X = Other
Retransquished By				Received By				
Retransquished By				Received By				
FINAL SAMPLE DISPOSITION		Dispose Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		Date/Time		

PRINTED ON 10/9/2012

A-8004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **X13-005-261**
 Page 1 of 1

Collector	<i>J. Aguilar</i>	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	X13-005	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064ES20
Project Title	AQUIFER TUBES, NOVEMBER 2012	Logbook No.	HNF-N-506 <i>52 / 78</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	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Certain Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACN for all analytical work at WSCF is 403899.
 FY12 and FY13 samples cannot be in the same SDG.

Total Activity Exemption: Yes No

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2MKW9	N	W	11-27-12	1134	1x500 mL P	300_0_ANIONS_IC: List 1 (6)	48 Hours	Cool-AC

Relinquished By	<i>J. Aguilar</i>	Print	Sign	Date/Time	Received By	<i>Cynthia R Johnson</i>	Date	Sign	Date/Time	Matrix *
Relinquished By				11-27-12	Received By				11-27-12	S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air
Relinquished By					Received By					DS - Drum Solids DL - Drum Liquids T - Tissue WI - 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) _____ Date/Time _____

PRINTED 0 10/9/2012

A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **X13-005-322**
 Page 1 of 1

Collector	J. Aquilera	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	X13-005	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064ES20
Project Title	AQUIFER TUBES, NOVEMBER 2012	Logbook No.	HNF-N-506 52 / 7A\$	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 are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) ***		SPECIAL INSTRUCTIONS Site Wide Generation Knowledge Information From applics. The CACT for all analytical work at WSCF is 443899 FY12 and FY13 samples cannot be in the same SDG.		Total Activity Exemption:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	B2M173	Filter	N	Date	11-27-12
		Time	1149	No./Type Container	1x1 L G/P
				Sample Analysis	Strontium 89.90 - Total Sr
				Holding Time	6 Months
				Preservative	HNO3 to pH <2

Relinquished By	J. Aquilera	Print	Signature	Date/Time	11-27-12 1330	Received By	Cynthia R Johnson	Print	Signature	Date/Time	11-27-12 1330
Relinquished By				Date/Time		Received By				Date/Time	
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 lab procedure, used in process)		Disposed By		Date/Time					

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

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # X13-005-320
Collector	<i>J. Aquilar</i>	Contact/Requester	Karen Waters-Husted		Telephone No.	376-4650
SAF No.	X13-005	Sampling Origin	Hanford Site		Purchase Order/Charge Code	303064ES20
Project Title	AQUIFER TUBES, NOVEMBER 2012	Logbook No.	HNF-N-506_52 / 2, g		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 are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)						
Sample No.	Filter	Date	No./Type Container	Structure	Sample Analysis	Hold Time
BZML70	N	11-27-12	1x1 L GP	89.80 -- Total Sr		6 Months
						Preservative HNO3 to pH <2
SPECIAL INSTRUCTIONS Site Wide Generic Knowledge Information Form applies. The CACN for all analytical work at WSCF is 403899. FY12 and FY13 samples cannot be in the same SDG.						
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time	

Relinquished By	<i>J. Aquilar</i>	Date/Time	11-27-12	1330	Received By	<i>Cynthia R Johnson</i>	Date/Time	11-27-12	1330	Matrix *
Relinquished By		Date/Time			Received By		Date/Time			S -- Soil
Relinquished By		Date/Time			Received By		Date/Time			SE -- Sediment
Relinquished By		Date/Time			Received By		Date/Time			SO -- Solid
Relinquished By		Date/Time			Received By		Date/Time			SL -- Sludge
Relinquished By		Date/Time			Received By		Date/Time			W -- Water
Relinquished By		Date/Time			Received By		Date/Time			O -- Oil
Relinquished By		Date/Time			Received By		Date/Time			A -- Air
Relinquished By		Date/Time			Received By		Date/Time			DS -- Drum Solids
Relinquished By		Date/Time			Received By		Date/Time			DL -- Drum Liquids
Relinquished By		Date/Time			Received By		Date/Time			T -- Tissue
Relinquished By		Date/Time			Received By		Date/Time			WI -- Wipe
Relinquished By		Date/Time			Received By		Date/Time			L -- Liquid
Relinquished By		Date/Time			Received By		Date/Time			V -- Vegetation
Relinquished By		Date/Time			Received By		Date/Time			X -- Other

PRINTED 0 10/9/2012

A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company				C.O.C. # X13-005-318			
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				Page 1 of 1			
Collector	J. Aguiler			Contact/Requester	Karen Waters-Husted		
SAF No.	X13-005			Sampling Origin	Hanford Site		
Project Title	AQUIFER TUBES, NOVEMBER 2012			Logbook No.	HNF-N-506 52 / 7, 8		
Shipped To (Lab)	Waste Sampling & Characterization			Method of Shipment	GOVERNMENT VEHICLE		
Protocol	SURV			Priority:	31 Days		
POSSIBLE SAMPLE HAZARDS/REMARKS				SPECIAL INSTRUCTIONS			
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5100.5 (1990/1993)				Site Wide Generator Knowledge Information Form applies. The CACHS for all analytical work at WSCF is 403899. FY12 and FY13 samples cannot be in the same SDS.			
Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time
BZML67	N	W	11-27-12	1216	1X1 L GP	Strontium: 89.00 -- Total Sr	6 Months
							Preservative
							IN03 to pH -2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
J. Aguiler			11-27-12 1320	Gynthia R Johnson			11-27-12 1320
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
FINAL SAMPLE DISPOSITION				Matrix *			
Disposal Method (e.g. Return to customer, per lab procedure, used in process)				S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids T - Tissue WI - Wipe L - Label V - Vespation X - Other			
Dispersed By				Date/Time			

PRINTED ON 10/9/2012

A-6004-942 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
X13-005-260
Page 1 of 1

Collector	J. Aguilar		Contact/Requester	Karen Waters-Husted		Telephone No.	376-4650	
SAF No.	X13-005		Sampling Origin	Hanford Site		Purchase Order/Charge Code	303064ES20	
Project Title	AQUIFER TUBES, NOVEMBER 2012		Logbook No.	HNF-N-506 52 / 7 8		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	
<p>POSSIBLE SAMPLE HAZARDS/REMARKS</p> <p>*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5600.5 (1990/1993)</p>								
Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2MKW8	N	W	11-27-12	1134	1x1 L GSP	Strontium 89.00 -- Total Sr	6 Months	HNO3 to pH <2
<p>SPECIAL INSTRUCTIONS</p> <p>Site Waste Generator Knowledge Information Form applies The CACON for all analytical work at WSCF is 403899. FY12 and FY13 samples cannot be in the same SDO.</p>								
						Total Activity Exemption:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Relinquished By	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
J. Aguilar	[Signature]	11-27-12 1330	Cynthia R Johnson	[Signature]	11-27-12 1330		S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Sign	Date/Time	Received By	Print	Sign	Date/Time	DS = Drum Solids DL = Drum Leachate T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Sign	Date/Time	Received By	Print	Sign	Date/Time	
<p>FINAL SAMPLE DISPOSITION</p> <p>Disposal Method (e.g., Return to customer, per lab procedure, used in process)</p> <p>Disposed By</p>							

PRINTED 0 10/9/2012

A-5004-842 (REV 2)

Chain of Custody

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
X13-005-324
Page 1 of 1

Collector	J. Aguilar	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	X13-005	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303064ES20
Project Title	AQUIFER TUBES, NOVEMBER 2012	Logbook No.	HNF-N-506 52/78	Ice Chest No.	N/A
Shipped To (LAW)	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 are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5480.5 (1990/1993) ***

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies
 The CACN for all analysed work at WSCF is 403899.
 FY12 and FY13 samples cannot be in the same SDG.

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Hold Time	Preservative
B2ML78	Y	11-27-12	1158	1x500-ML GIP	6010_METALS_ICP: List-3 (18)	6 Months	HN03 to pH <2
B2ML76	N	11-27-12	1158	1x500-ML GIP	6010_METALS_ICP: List-3 (18)	6 Months	HN03 to pH <2
B2ML76	N	11-27-12	1158	1x1-L GIP	Strontium-89,90 -- Total Sr	6 Months	HN03 to pH <2

Relinquished By	J. Aguilar	Print	Signature	Date/Time	11-27-12 1320	Received By	Cynthia R. Johnson	Print	Signature	Date/Time	11-27-12 1320	Matrix *
Relinquished By				Date/Time		Received By				Date/Time		S = Soil
Relinquished By				Date/Time		Received By				Date/Time		SE = Sediment
Relinquished By				Date/Time		Received By				Date/Time		SO = Solid
Relinquished By				Date/Time		Received By				Date/Time		SL = Sludge
Relinquished By				Date/Time		Received By				Date/Time		W = Water
Relinquished By				Date/Time		Received By				Date/Time		O = Oil
Relinquished By				Date/Time		Received By				Date/Time		A = Air
Relinquished By				Date/Time		Received By				Date/Time		DS = Drum Solids
Relinquished By				Date/Time		Received By				Date/Time		DL = Drum Liquids
Relinquished By				Date/Time		Received By				Date/Time		T = Tissue
Relinquished By				Date/Time		Received By				Date/Time		WL = Wipe
Relinquished By				Date/Time		Received By				Date/Time		L = Liquid
Relinquished By				Date/Time		Received By				Date/Time		V = Vegetation
Relinquished By				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 Date/Time