

DECEMBER 06, 2012

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



December 6, 2012

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF121446

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 WSCF121446

- * 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 # WSCF121446
Data Deliverable Date 12/10/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
S13-011	B2MMN0	121446001	WATER	11/08/12	11/08/12
S13-011	B2MMW4	121446002	WATER	11/08/12	11/08/12
S13-011	B2MMW3	121446003	WATER	11/08/12	11/08/12
S13-011	B2MMW5	121446004	WATER	11/08/12	11/08/12
S13-011	B2MMW2	121446005	WATER	11/08/12	11/08/12

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
WSCF121446

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):

- Chloride and 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.

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

- All 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):

- Calcium and Sodium were detected in the Blank and evaluated.
- All other 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, Matrix Spike (Matrix Spikes apply only to Tritium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

Gross Alpha / Gross Beta:

- All applicable QC controls are within the established limits.

Tritium:

- 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 29 pages
Including cover page

DECEMBER 06, 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 # WSCF121446
Report Date December 6, 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 # WSCF121446

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210015	210015	2	BLANK	84767	BLANK		Anions by Ion Chromatography (Water)
210015	210015	3	LCS	84768	LCS		Anions by Ion Chromatography (Water)
210015	210015	4	DUP	84769	B2MK83(121444005DUP)	121444005	Anions by Ion Chromatography (Water)
210015	210015	5	MS	84770	B2MK83(121444005MS)	121444005	Anions by Ion Chromatography (Water)
210015	210015	6	MSD	84771	B2MK83(121444005MSD)	121444005	Anions by Ion Chromatography (Water)
210015	210015	10	SAMPLE	121446003	B2MMW3		Anions by Ion Chromatography (Water)
210329	210329	1	BLANK	85055	BLANK		Hexavalent chromium Discrete Analyzer
210329	210329	3	LCS	85057	LCS		Hexavalent chromium Discrete Analyzer
210329	210329	4	DUP	85058	B2MK84(121444001DUP)	121444001	Hexavalent chromium Discrete Analyzer
210329	210329	5	MS	85059	B2MK84(121444001MS)	121444001	Hexavalent chromium Discrete Analyzer
210329	210329	9	SAMPLE	121446001	B2MMN0		Hexavalent chromium Discrete Analyzer
210329	210329	10	SAMPLE	121446002	B2MMW4		Hexavalent chromium Discrete Analyzer
210746	210922	5	BLANK	85447	BLANK		ICP-6010 - All possible metals
210746	210922	7	LCS	85449	LCS		ICP-6010 - All possible metals
210746	210922	8	SAMPLE	121446004	B2MMW5		ICP-6010 - All possible metals
210746	210922	9	MS	85450	B2MMW5(121446004MS)	121446004	ICP-6010 - All possible metals
210746	210922	10	MSD	85451	B2MMW5(121446004MS)	121446004	ICP-6010 - All possible metals
210746	210922	11	SAMPLE	121446005	B2MMW2		ICP-6010 - All possible metals

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121446

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210218	210645	1	BLANK	84848	BLANK		GAB Discrete analysis Alpha only
210218	210645	2	LCS	84849	LCS		GAB Discrete analysis Alpha only
210218	210645	4	DUP	84850	B2MK80(121444006DUP)	121444006	GAB Discrete analysis Alpha only
210218	210645	6	SAMPLE	121446005	B2MMW2		GAB Discrete analysis Alpha only
210218	210646	1	BLANK	84848	BLANK		GAB Discrete analysis Beta only
210218	210646	2	LCS	84849	LCS		GAB Discrete analysis Beta only
210218	210646	4	DUP	84850	B2MK80(121444006DUP)	121444006	GAB Discrete analysis Beta only
210218	210646	6	SAMPLE	121446005	B2MMW2		GAB Discrete analysis Beta only
210248	210721	1	BLANK	84931	BLANK		Tritium by LSC
210248	210721	2	LCS	84932	LCS		Tritium by LSC
210248	210721	3	SAMPLE	121446005	B2MMW2		Tritium by LSC
210248	210721	4	DUP	84933	B2MMW2(121446005DU)	121446005	Tritium by LSC
210248	210721	5	MS	84934	B2MMW2(121446005MS)	121446005	Tritium by LSC

Batch QC List

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF121446

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210122	210122	1	LCS	84826	LCS		Total Alkalinity as mg/L CaCO3 (Water)
210122	210122	5	DUP	84827	B2LLT4(121422001DUP)	121422001	Total Alkalinity as mg/L CaCO3 (Water)
210122	210122	13	LCS	84828	LCS		Total Alkalinity as mg/L CaCO3 (Water)
210122	210122	17	SAMPLE	121446005	B2MMW2		Total Alkalinity as mg/L CaCO3 (Water)
210122	210122	19	LCS	84829	LCS		Total Alkalinity as mg/L CaCO3 (Water)

Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

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

LA-265-403	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
LA-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmission Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmission Spectrometry
LA-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 # WSCF121446

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-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC
LA-508-415	Operation Of The Protean 2-Inch Alpha/Beta Counting System For Gross Alpha/ Beta Samples		
	HEIS	ALPHA_GPC	Gross Alpha by GPC
	HEIS	BETA_GPC	Gross Beta by GPC
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium beta isotopic, GPC

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

Method Reference

Attention Scot Fitzgerald
Department Wet Chemistry

Group # WSCF121446

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 # WSCF121446

Sample # 121446001
 SAF# S13-011
 Sample ID B2MMN0

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										11/08/12
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.00990		mg/L	1	0.0020	0.0050	11/08/12

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 # WSCF121446

Sample # 121446002
 SAF# S13-011
 Sample ID B2MMW4

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										11/08/12
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.0626		mg/L	1	0.0020	0.0050	11/08/12

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 # WSCF121446

Sample # 121446003
 SAF# S13-011
 Sample ID B2MMW3

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/08/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.106		ug/mL	2	0.046	0.14	11/08/12
Chloride	16887-00-6	LA-533-410	D	6.86		ug/mL	2	0.12	0.81	11/08/12
Nitrite-N	NO2-N	LA-533-410	UD	<0.038		ug/mL	2	0.038	0.20	11/08/12
Nitrate-N	NO3-N	LA-533-410	D	0.962		ug/mL	2	0.038	0.20	11/08/12
Sulfate	14808-79-8	LA-533-410	D	33.9		ug/mL	2	0.22	2.1	11/08/12

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 # WSCF121446

Sample # 121446004
 SAF# S13-011
 Sample ID B2MMW5

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/28/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<19		ug/L	1	19	95	11/29/12
Magnesium	7439-95-4	LA-505-411		12000		ug/L	1	4.0	20	11/29/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Potassium	7440-09-7	LA-505-411		5240		ug/L	1	76	380	11/29/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Sodium	7440-23-5	LA-505-411		4930		ug/L	1	10	50	11/29/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/29/12
Barium	7440-39-3	LA-505-411		118		ug/L	1	4.0	20	11/29/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Chromium	7440-47-3	LA-505-411		69.8		ug/L	1	5.0	25	11/29/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Vanadium	7440-62-2	LA-505-411		29.6		ug/L	1	5.0	25	11/29/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/29/12
Calcium	7440-70-2	LA-505-411		32400		ug/L	1	49	240	11/29/12
Strontium	7440-24-6	LA-505-411		237		ug/L	1	9.0	45	11/29/12

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 # WSCF121446

Sample # 121446004
 SAF# S13-011
 Sample ID B2MMW5

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

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	11/29/12

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 # WSCF121446

Sample # 121446005
 SAF# S13-011
 Sample ID B2MMW2

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/28/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	B	41.5		ug/L	1	19	95	11/29/12
Magnesium	7439-95-4	LA-505-411		11900		ug/L	1	4.0	20	11/29/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Potassium	7440-09-7	LA-505-411		5230		ug/L	1	76	380	11/29/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Sodium	7440-23-5	LA-505-411		4860		ug/L	1	10	50	11/29/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/29/12
Barium	7440-39-3	LA-505-411		117		ug/L	1	4.0	20	11/29/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Chromium	7440-47-3	LA-505-411		69.7		ug/L	1	5.0	25	11/29/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/29/12
Copper	7440-50-8	LA-505-411	B	5.40		ug/L	1	4.0	20	11/29/12
Vanadium	7440-62-2	LA-505-411		31.0		ug/L	1	5.0	25	11/29/12
Zinc	7440-66-6	LA-505-411	B	15.7		ug/L	1	5.0	25	11/29/12
Calcium	7440-70-2	LA-505-411		31800		ug/L	1	49	240	11/29/12
Strontium	7440-24-6	LA-505-411		235		ug/L	1	9.0	45	11/29/12

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 # WSCF121446

Sample # 121446005
 SAF# S13-011
 Sample ID B2MMW2

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

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	11/29/12

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 # WSCF121446

Sample # 121446005
 SAF# S13-011
 Sample ID B2MMW2

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GAB Prep for Discrete Analysis (W)										11/20/12
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415	U	0.69	1.6	pCi/L	1	2.7		12/03/12
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		5.6	2.5	pCi/L	1	3.7		12/03/12
Tritium by LSC EICHROM WA/LIQ PREP										11/14/12
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		670	240	pCi/L	1	290		11/22/12

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 Wet Chemistry

Group # WSCF121446

Sample # 121446005
 SAF# S13-011
 Sample ID B2MMW2

Matrix WATER
 Sampled 11/08/12
 Received 11/08/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										11/12/12
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		89		mg/L	1	1	10	11/12/12

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.

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analytical Batch 210015 (QC Batch: 210015) Test Anions by Ion Chromatography (Water)
 Associated Samples 121446003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #84767								
Fluoride	16984-48-8	<0.023		ug/mL					U	11/08/12
Chloride	16887-00-6	<0.058		ug/mL					U	11/08/12
Nitrite-N	NO2-N	<0.019		ug/mL					U	11/08/12
Nitrate-N	NO3-N	<0.019		ug/mL					U	11/08/12
Sulfate	14808-79-8	<0.11		ug/mL					U	11/08/12
LCS		QC Sample #84768								
Fluoride	16984-48-8	0.968		ug/mL	97.7	90 - 110				11/08/12
Chloride	16887-00-6	1.98		ug/mL	100.1	90 - 110				11/08/12
Nitrite-N	NO2-N	1.06		ug/mL	108.5	90 - 110				11/08/12
Nitrate-N	NO3-N	0.947		ug/mL	107	90 - 110				11/08/12
Sulfate	14808-79-8	4.12		ug/mL	105	90 - 110				11/08/12
DUP		QC Sample #84769								
		Original 121444005								
Fluoride	16984-48-8	0.100		ug/mL			4.90	20	BD	11/08/12
Chloride	16887-00-6	21.9		ug/mL			4.40	20	D	11/08/12
Nitrite-N	NO2-N	<0.038		ug/mL			0.00	20	UD	11/08/12
Nitrate-N	NO3-N	6.59		ug/mL			4.40	20	D	11/08/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate	14808-79-8		52.8	ug/mL			4.70	20	D	11/08/12
MS			QC Sample #84770							
			Original 121444005							
Fluoride	16984-48-8		0.962	ug/mL	96.2	80 - 120			D	11/08/12
Chloride	16887-00-6		2.54	ug/mL	127.1	80 - 120			DX	11/08/12
Nitrite-N	NO2-N		0.950	ug/mL	96.1	80 - 120			D	11/08/12
Nitrate-N	NO3-N		0.982	ug/mL	109.8	80 - 120			D	11/08/12
Sulfate	14808-79-8		4.51	ug/mL	114	80 - 120			DX	11/08/12
MSD			QC Sample #84771							
			Original 121444005						Paired 84770	
Fluoride	16984-48-8		0.948	ug/mL	94.8	80 - 120	1.30	20	D	11/08/12
Chloride	16887-00-6		2.26	ug/mL	113.2	80 - 120	1.20	20	DX	11/08/12
Nitrite-N	NO2-N		0.930	ug/mL	94.1	80 - 120	2.10	20	D	11/08/12
Nitrate-N	NO3-N		0.842	ug/mL	94.1	80 - 120	1.90	20	D	11/08/12
Sulfate	14808-79-8		3.44	ug/mL	86.8	80 - 120	2.00	20	DX	11/08/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF121446

Analytical Batch 210122 (QC Batch: 210122) Test Total Alkalinity as mg/L CaCO3 (Water)
 Associated Samples 121446005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS			QC Sample #84826							
Total Alkalinity as CaCO3	ALKALINITY	97		mg/L	97.4	80 - 120				11/12/12
DUP			QC Sample #84827							
			Original 121422001							
Total Alkalinity as CaCO3	ALKALINITY	200		mg/L			0.00	20		11/12/12
LCS			QC Sample #84828							
Total Alkalinity as CaCO3	ALKALINITY	97		mg/L	97.3	80 - 120				11/12/12
LCS			QC Sample #84829							
Total Alkalinity as CaCO3	ALKALINITY	97		mg/L	97.2	80 - 120				11/12/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analytical Batch 210329 (QC Batch: 210329) Test Hexavalent chromium Discrete Analyzer
 Associated Samples 121446001, 121446002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #85055							
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	11/08/12
LCS			QC Sample #85057							
Hexavalent chromium	18540-29-9		0.0509	mg/L	101.8	90 - 110				11/08/12
DUP			QC Sample #85058							
			Original 121444001							
Hexavalent chromium	18540-29-9		<0.0020	mg/L			50.00	20	* U	11/08/12
MS			QC Sample #85059							
			Original 121444001							
Hexavalent chromium	18540-29-9		0.0435	mg/L	108.8	85 - 115				11/08/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121446

Analytical Batch 210645 (QC Batch: 210218)
 Associated Samples 121446005

Test GAB Discrete analysis Alpha only

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #84848								
Gross Alpha LCS	12587-46-1		-1.2	pCi/L					U	12/03/12
		QC Sample #84849								
Gross Alpha DUP	12587-46-1		56	pCi/L	94.4	80 - 120				12/03/12
		QC Sample #84850								
		Original 121444006								
Gross Alpha	12587-46-1		0.089	pCi/L			180.80	20	* U	12/03/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121446

Analytical Batch 210646 (QC Batch: 210218) Test GAB Discrete analysis Beta only
 Associated Samples 121446005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #84848								
Gross Beta	12587-47-2		0.053	pCi/L					U	12/03/12
LCS		QC Sample #84849								
Gross Beta	12587-47-2		250	pCi/L	99.1	80 - 120				12/03/12
DUP		QC Sample #84850								
		Original 121444006								
Gross Beta	12587-47-2		-0.42	pCi/L			-93.50	20	* U	12/03/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121446

Analytical Batch 210721 (QC Batch: 210248) Test Tritium by LSC
 Associated Samples 121446005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
				QC Sample #84931						
Tritium	10028-17-8		51	pCi/L					U	11/22/12
LCS				QC Sample #84932						
Tritium	10028-17-8		3500	pCi/L	112.6	80 - 120				11/22/12
DUP				QC Sample #84933						
				Original 121446005						
Tritium	10028-17-8	670	620	pCi/L			7.20	20		11/22/12
MS				QC Sample #84934						
				Original 121446005						
Tritium	10028-17-8	670	22000	pCi/L	105	75 - 125				11/22/12

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

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analytical Batch 210922 (QC Batch: 210746) Test ICP-6010 - All possible metals
 Associated Samples 121446004, 121446005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #85447								
Iron	7439-89-6	<19		ug/L					U	11/29/12
Magnesium	7439-95-4	<4.0		ug/L					U	11/29/12
Manganese	7439-96-5	<4.0		ug/L					U	11/29/12
Nickel	7440-02-0	<4.0		ug/L					U	11/29/12
Potassium	7440-09-7	<76		ug/L					U	11/29/12
Silver	7440-22-4	<4.0		ug/L					U	11/29/12
Sodium	7440-23-5	13.0		ug/L					B	11/29/12
Antimony	7440-36-0	<36		ug/L					U	11/29/12
Barium	7440-39-3	<4.0		ug/L					U	11/29/12
Cadmium	7440-43-9	<4.0		ug/L					U	11/29/12
Chromium	7440-47-3	<5.0		ug/L					U	11/29/12
Cobalt	7440-48-4	<4.0		ug/L					U	11/29/12
Copper	7440-50-8	<4.0		ug/L					U	11/29/12
Vanadium	7440-62-2	<5.0		ug/L					U	11/29/12
Zinc	7440-66-6	<5.0		ug/L					U	11/29/12
Calcium	7440-70-2	89.5		ug/L					B	11/29/12
Strontium	7440-24-6	<9.0		ug/L					U	11/29/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium LCS	7440-41-7		<4.0	ug/L					U	11/29/12
QC Sample #85449										
Iron	7439-89-6		1030	ug/L	103.2	80 - 120				11/29/12
Magnesium	7439-95-4		10500	ug/L	105.2	80 - 120				11/29/12
Manganese	7439-96-5		1040	ug/L	104.2	80 - 120				11/29/12
Nickel	7440-02-0		1020	ug/L	101.5	80 - 120				11/29/12
Potassium	7440-09-7		11000	ug/L	109.8	80 - 120				11/29/12
Silver	7440-22-4		1040	ug/L	104	80 - 120				11/29/12
Sodium	7440-23-5		10700	ug/L	107	80 - 120				11/29/12
Antimony	7440-36-0		1050	ug/L	105.2	80 - 120				11/29/12
Barium	7440-39-3		1060	ug/L	106.3	80 - 120				11/29/12
Cadmium	7440-43-9		1030	ug/L	102.9	80 - 120				11/29/12
Chromium	7440-47-3		1040	ug/L	103.7	80 - 120				11/29/12
Cobalt	7440-48-4		1010	ug/L	101.3	80 - 120				11/29/12
Copper	7440-50-8		1050	ug/L	105.1	80 - 120				11/29/12
Vanadium	7440-62-2		1020	ug/L	102.5	80 - 120				11/29/12
Zinc	7440-66-6		1050	ug/L	105.1	80 - 120				11/29/12
Calcium	7440-70-2		20900	ug/L	104.4	80 - 120				11/29/12
Strontium	7440-24-6		1010	ug/L	100.9	80 - 120				11/29/12
Beryllium MS	7440-41-7		1040	ug/L	104.2	80 - 120				11/29/12
QC Sample #85450										
Original 121446004										
Iron	7439-89-6	<19	1020	ug/L	102	75 - 125				11/29/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121446

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Potassium	7440-09-7	5240	10700	ug/L	106.7	75 - 125	0.10	20		11/29/12
Silver	7440-22-4	<4.0	1020	ug/L	101.6	75 - 125	0.50	20		11/29/12
Sodium	7440-23-5	4930	10200	ug/L	102.5	75 - 125	0.00	20		11/29/12
Antimony	7440-36-0	<36	1030	ug/L	102.9	75 - 125	0.80	20		11/29/12
Barium	7440-39-3	118	1030	ug/L	103	75 - 125	0.50	20		11/29/12
Cadmium	7440-43-9	<4.0	1000	ug/L	100.3	75 - 125	0.30	20		11/29/12
Chromium	7440-47-3	69.8	1000	ug/L	100.2	75 - 125	0.60	20		11/29/12
Cobalt	7440-48-4	<4.0	976	ug/L	97.6	75 - 125	0.20	20		11/29/12
Copper	7440-50-8	<4.0	1020	ug/L	102.3	75 - 125	1.00	20		11/29/12
Vanadium	7440-62-2	29.6	1000	ug/L	100.2	75 - 125	0.70	20		11/29/12
Zinc	7440-66-6	<5.0	1020	ug/L	102.5	75 - 125	0.90	20		11/29/12
Calcium	7440-70-2	32400	19800	ug/L	99.2	75 - 125	0.70	20		11/29/12
Strontium	7440-24-6	237	963	ug/L	96.3	75 - 125	0.70	20		11/29/12
Beryllium	7440-41-7	<4.0	1020	ug/L	101.8	75 - 125	0.50	20		11/29/12

* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF121446

Quality Control Comments

Department Inorganic

84770 B2MK83(121444005MS)

Analyte Chloride - Anions by Ion Chromatography (Water)

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

Analyte Sulfate - Anions by Ion Chromatography (Water)

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

84771 B2MK83(121444005MSD)

Analyte Chloride - Anions by Ion Chromatography (Water)

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

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 6 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 #: 401647

Work Order #: 121446

Profile #: S13-011-263

Proj. Mgr.:

Phone:

The following samples were received from you on 11/8/2012 11:50:00 AM. 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				
121446001	B2MMN0	WATER	11/8/2012 08:46	11/8/2012 11:50
		CR6DA-W		
121446002	B2MMW4	WATER	11/8/2012 09:53	11/8/2012 11:50
		CR6DA-W		
121446003	B2MMW3	WATER	11/8/2012 09:53	11/8/2012 11:50
		IC-W		
121446004	B2MMW5	WATER	11/8/2012 09:53	11/8/2012 11:50
		6010-W		
121446005	B2MMW2	WATER	11/8/2012 09:53	11/8/2012 11:50
		6010-W; ALK-W; GAB-AO-W; GAB-BO-W; H3-COL-W		

Test Acronym Description

Test Acronym	Description
6010-W	ICP-AES (W)
ALK-W	Total Alkalinity (W)
CR6DA-W	Cr6 (W Discrete analyzer)
GAB-AO-W	Gross Alpha/Beta (A only)(W)
GAB-BO-W	Gross Alpha/Beta (B only)(W)
H3-COL-W	Tritium by EICHRUM Column (W)
IC-W	Anions by IC (W)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

S13-011-263

Page 1 of 1

Collector	F. M. Hall	Contact/Requester	Karen Walters-Husted	Telephone No.	376-4650
SAF No.	S13-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	30007IES20
Project Title	SURV. NOVEMBER 2012	Logbook No.	HNF-N-506 49176	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	BILL of Lading/AIR BILL No.	N/A
Protocol	CERCLA	Priority:	31 Days	OFFICE 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
 FY12 and FY13 samples cannot be in the same SDX. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.

Sample No	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B21446	N	11-8-12	0846	14500-mL aG	7196_CR6_Hexavalent Chromium (1)	24 Hours	Cool-4C

Relinquished By	F. M. Hall	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
				NOV 08 2012 1150				NOV 08 2012 1150
Relinquished By				Date/Time	Received By			Date/Time
Relinquished By				Date/Time	Received By			Date/Time
Relinquished By				Date/Time	Received By			Date/Time

S	= Soil	DS	= Dross Solids
SE	= Sediment	DL	= Dross Liquids
SO	= Solid	T	= Tissue
SL	= Sludge	WL	= Waste
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

PRINTED O 10/10/2012 A-6004-642 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
S13-011-297
Page 1 of 1

Collector	F. M. Hill	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	S13-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV, NOVEMBER 2012	Logbook No.	HNF-N-506-49176	Ice Check No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority	31 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1992/1993)

SPECIAL INSTRUCTIONS
 FY12 and FY13 samples cannot be in the same SDG. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2MMW4	N	11-8-12	0953	1x500-mL SG	7196_CRG6: Hexavalent Chromium (1)	24 Hours	Cool-4C

Relinquished By	Print F. M. Hill	Sign <i>[Signature]</i>	Date/Time NOV 08 2012 1150	Received By	Print A. Hudson	Sign <i>[Signature]</i>	Date/Time NOV 08 2012 1120	Matrix *
Relinquished By			Date/Time	Received By			Date/Time	S - Soil SE - Sediment SO - Soil 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 - 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 0 10/10/2012

A-6004-842 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S13-011-296
Page 1 of 1

Collector	F. M. Hall	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	S13-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV, NOVEMBER 2012	Logbook No.	HNF-N-506 49 / 76	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DDE Order 3400 5 (1990/1993)

SPECIAL INSTRUCTIONS
 FY12 and FY13 samples cannot be in the same SDC. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 101817.

Sample No.	B2MMW3	Filter	N	Date	11-8-12	Time	0953	No./Type Container	1x500-mL P	Sample Analysis	300.0_ANIONS_IC: List-1 (5)	Holding Time	48 hours	Preservative	Cool-4C
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Total Activity Exemption Yes No

Retransmitted By	F. M. Hall	Print	Sign	Date/Time	NOV 08 2012 1150	Received By	OP Hudson	Print	Sign	Date/Time	NOV 08 2012 1150
Retransmitted By				Date/Time		Received By				Date/Time	
Retransmitted By				Date/Time		Received By				Date/Time	
Retransmitted By				Date/Time		Received By				Date/Time	

Matrix *

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	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

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # S13-011-295
Page 1 of 1

Collector	F.M. Hall	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
S.A.F. No.	S13-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ESS20
Project Title	SURV. NOVEMBER 2012	Logbook No.	HNF-N-506 49122	Lee Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ***Certain Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5100.5 (1990/1993)

SPECIAL INSTRUCTIONS
 FY12 and FY13 samples cannot be in the same SDG. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
DMMMW5	Y	11-8-12	0953	1x500-ml GPF	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B2MMW2	N			1x250-ml GPF	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool-4C
B2MMW2	N			1x500-ml GPF	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B2MMW2	N			1x500-ml GPF	ALPHABETA_GPC: Alpha discrete + Beta (2)	6 Months	HNO3 to pH <2
B2MMW2	N			1x250-ml G	TRITIUM_EIE_LSC: Tritium (1)	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By	F.M. Hall	<i>[Signature]</i>	NOV 08 2012 1150	Received By	CH Hudon	<i>[Signature]</i>	NOV 08 2012 1150	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By				Received By				DS = Drum Spills DL = Drum Liquids T = Tissue WT = Waste L = Leachate V = Vegetation Other
Relinquished By				Received By				

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