

JULY 25, 2012

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



July 25, 2012

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF120786

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 WSCF120786

- * 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 # WSCF120786
 Data Deliverable Date 07/30/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
S12-007	B2LDN4	120786001	WATER	06/15/12	06/15/12
S12-007	B2LDD6	120786002	WATER	06/15/12	06/15/12
S12-011	B2J9R3	120786003	WATER	06/15/12	06/15/12
S12-011	B2J9R6	120786004	WATER	06/15/12	06/15/12
S12-011	B2J9R7	120786005	WATER	06/15/12	06/15/12
S12-011	B2J9R4	120786006	WATER	06/15/12	06/15/12

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
WSCF120786

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):

- Fluoride and Nitrite – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near or below the minimum detectable level. No flags issued.
- 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):

- Sodium and Calcium – 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.

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):

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:

- Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near the minimum detectable activity. No flags issued.
- All other 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 25 pages
Including cover page

JULY 25, 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 # WSCF120786
Report Date July 25, 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 # WSCF120786

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
203251	203251	2	BLANK	76893	BLANK		Anions by Ion Chromatography (Water)
203251	203251	3	LCS	76894	LCS		Anions by Ion Chromatography (Water)
203251	203251	4	DUP	76895	B2KRJ0(120780001DUP)	120780001	Anions by Ion Chromatography (Water)
203251	203251	5	MS	76896	B2KRJ0(120780001MS)	120780001	Anions by Ion Chromatography (Water)
203251	203251	6	MSD	76897	B2KRJ0(120780001MSD)	120780001	Anions by Ion Chromatography (Water)
203251	203251	10	SAMPLE	120786001	B2LDN4		Anions by Ion Chromatography (Water)
203251	203251	11	SAMPLE	120786002	B2LDD6		Anions by Ion Chromatography (Water)
203251	203251	12	SAMPLE	120786003	B2J9R3		Anions by Ion Chromatography (Water)
203251	203251	13	SAMPLE	120786003	B2J9R3		Anions by Ion Chromatography (Water)
203472	203689	5	BLANK	77003	BLANK		ICP-6010 - All possible metals
203472	203689	7	LCS	77005	LCS		ICP-6010 - All possible metals
203472	203689	9	MS	77006	B2L0C8(120778012MS)	120778012	ICP-6010 - All possible metals
203472	203689	10	MSD	77007	B2L0C8(120778012MSD)	120778012	ICP-6010 - All possible metals
203472	203689	23	SAMPLE	120786005	B2J9R7		ICP-6010 - All possible metals
203472	203689	24	SAMPLE	120786006	B2J9R4		ICP-6010 - All possible metals

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF120786

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
203466	203859	4	SAMPLE	120786004	B2J9R6		Tritium by LSC
203466	203859	5	DUP	76982	B2KWD0(120791019DUP)	120791019	Tritium by LSC
203466	203859	6	MS	76983	B2KWD0(120791019MS)	120791019	Tritium by LSC
203466	203859	17	BLANK	76980	BLANK		Tritium by LSC
203466	203859	18	LCS	76981	LCS		Tritium by LSC
203705	204941	1	BLANK	77391	BLANK		Strontium 89/90 (GPC/GEA)
203705	204941	2	LCS	77392	LCS		Strontium 89/90 (GPC/GEA)
203705	204941	3	DUP	77393	B2KRH8(120781001DUP)	120781001	Strontium 89/90 (GPC/GEA)
203705	204941	7	SAMPLE	120786004	B2J9R6		Strontium 89/90 (GPC/GEA)

Method Reference

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

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 # WSCF120786

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.
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC

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

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786001
SAF# S12-007
Sample ID B2LDN4

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
06/15/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.046		ug/mL	2	0.046	0.14	06/15/12
Chloride	16887-00-6	LA-533-410	D	12.7		ug/mL	2	0.12	0.81	06/15/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0683		ug/mL	2	0.038	0.20	06/15/12
Bromide	24959-67-9	LA-533-410	UD	<0.22		ug/mL	2	0.22	0.96	06/15/12
Nitrate-N	NO3-N	LA-533-410	D	8.26		ug/mL	2	0.038	0.20	06/15/12
Phosphate-P	PO4-P	LA-533-410	UD	<0.084		ug/mL	2	0.084	0.72	06/15/12
Sulfate	14808-79-8	LA-533-410	D	91.5		ug/mL	2	0.22	2.1	06/15/12

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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786002
SAF# S12-007
Sample ID B2LDD6

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
06/15/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.0713		ug/mL	2	0.046	0.14	06/15/12
Chloride	16887-00-6	LA-533-410	D	2.48		ug/mL	2	0.12	0.81	06/15/12
Nitrite-N	NO2-N	LA-533-410	UD	<0.038		ug/mL	2	0.038	0.20	06/15/12
Nitrate-N	NO3-N	LA-533-410	D	0.709		ug/mL	2	0.038	0.20	06/15/12
Sulfate	14808-79-8	LA-533-410	D	14.5		ug/mL	2	0.22	2.1	06/15/12

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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786003
SAF# S12-011
Sample ID B2J9R3

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
06/15/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.046		ug/mL	2	0.046	0.14	06/15/12
Chloride	16887-00-6	LA-533-410	D	19.2		ug/mL	2	0.12	0.81	06/15/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0826		ug/mL	2	0.038	0.20	06/15/12
Nitrate-N	NO3-N	LA-533-410	D	9.50		ug/mL	2	0.038	0.20	06/15/12
Sulfate	14808-79-8	LA-533-410	D	176		ug/mL	10	1.1	10	06/15/12

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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786005
SAF# S12-011
Sample ID B2J9R7

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										06/25/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<19		ug/L	1	19	95	06/26/12
Magnesium	7439-95-4	LA-505-411		17900		ug/L	1	4.0	20	06/26/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Potassium	7440-09-7	LA-505-411		3950		ug/L	1	76	380	06/26/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Sodium	7440-23-5	LA-505-411		22700		ug/L	1	10	50	06/26/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	06/26/12
Barium	7440-39-3	LA-505-411		130		ug/L	1	4.0	20	06/26/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Chromium	7440-47-3	LA-505-411		35.7		ug/L	1	5.0	25	06/26/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Vanadium	7440-62-2	LA-505-411	B	6.30		ug/L	1	5.0	25	06/26/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	06/26/12
Calcium	7440-70-2	LA-505-411		1.00E5		ug/L	1	49	240	06/26/12
Strontium	7440-24-6	LA-505-411		476		ug/L	1	9.0	45	06/26/12

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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF120786

Sample # 120786005
 SAF# S12-011
 Sample ID B2J9R7

Matrix WATER
 Sampled 06/15/12
 Received 06/15/12

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	06/26/12

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 diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786006
SAF# S12-011
Sample ID B2J9R4

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										06/25/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	B	57.9		ug/L	1	19	95	06/26/12
Magnesium	7439-95-4	LA-505-411		17800		ug/L	1	4.0	20	06/26/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Potassium	7440-09-7	LA-505-411		3940		ug/L	1	76	380	06/26/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Sodium	7440-23-5	LA-505-411		22500		ug/L	1	10	50	06/26/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	06/26/12
Barium	7440-39-3	LA-505-411		129		ug/L	1	4.0	20	06/26/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Chromium	7440-47-3	LA-505-411		38.2		ug/L	1	5.0	25	06/26/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	06/26/12
Vanadium	7440-62-2	LA-505-411	U	<5.0		ug/L	1	5.0	25	06/26/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	06/26/12
Calcium	7440-70-2	LA-505-411		1.00E5		ug/L	1	49	240	06/26/12
Strontium	7440-24-6	LA-505-411		477		ug/L	1	9.0	45	06/26/12

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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Sample # 120786006
SAF# S12-011
Sample ID B2J9R4

Matrix WATER
Sampled 06/15/12
Received 06/15/12

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	06/26/12

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)
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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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120786

Sample # 120786004
SAF# S12-011
Sample ID B2J9R6

Matrix WATER
Sampled 06/15/12
Received 06/15/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium 89/90 WATER/LIQUID PREP										07/16/12
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406		30	6.1	pCi/L	1	0.73		07/20/12
Tritium by LSC EICHROM WA/LIQ PREP										06/20/12
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		2700	610	pCi/L	1	310		06/26/12

MDL = Minimum Detection Limit	B - Analyte was detected in both the BLANK and SAMPLE
RQ = Result Qualifier	U - Analyzed for but not detected above limiting criteria.
TP Err = Total Propagated Error	N - Spike Recovery is Outside Control Limits.
DF = Dilution Factor	X, Y or Z - See comment detail and/or narrative.
+ - Indicates more than nine qualifier	PQL is equivalent to Estimated Quantitation Limit (EQL)

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analytical Batch 203251 (QC Batch: 203251) **Test** Anions by Ion Chromatography (Water)
Associated Samples 120786001, 120786002, 120786003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #76893								
Fluoride	16984-48-8	<0.023		ug/mL					U	06/15/12
Chloride	16887-00-6	<0.058		ug/mL					U	06/15/12
Nitrite-N	NO2-N	<0.019		ug/mL					U	06/15/12
Bromide	24959-67-9	<0.11		ug/mL					U	06/15/12
Nitrate-N	NO3-N	<0.019		ug/mL					U	06/15/12
Phosphate-P	PO4-P	<0.042		ug/mL					U	06/15/12
Sulfate	14808-79-8	<0.11		ug/mL					U	06/15/12
LCS		QC Sample #76894								
Fluoride	16984-48-8	0.921		ug/mL	93	90 - 110				06/15/12
Chloride	16887-00-6	2.00		ug/mL	100.9	90 - 110				06/15/12
Nitrite-N	NO2-N	0.962		ug/mL	98.3	90 - 110				06/15/12
Bromide	24959-67-9	3.80		ug/mL	97	90 - 110				06/15/12
Nitrate-N	NO3-N	0.888		ug/mL	100.3	90 - 110				06/15/12
Phosphate-P	PO4-P	1.90		ug/mL	99.5	90 - 110				06/15/12
Sulfate	14808-79-8	3.96		ug/mL	101	90 - 110				06/15/12
DUP		QC Sample #76895								
		Original 120780001								

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Fluoride	16984-48-8		0.0841	ug/mL			28.50	20	* BXD	06/15/12
Chloride	16887-00-6		8.87	ug/mL			1.00	20	D	06/15/12
Nitrite-N	NO2-N		0.0599	ug/mL			34.40	20	* BXD	06/15/12
Bromide	24959-67-9		<0.22	ug/mL			200.00	20	* UD	06/15/12
Nitrate-N	NO3-N		3.15	ug/mL			1.60	20	D	06/15/12
Phosphate-P	PO4-P		<0.084	ug/mL			200.00	20	* UD	06/15/12
Sulfate	14808-79-8		43.7	ug/mL			0.20	20	D	06/15/12
MS										
QC Sample #76896										
Original 120780001										
Fluoride	16984-48-8		0.960	ug/mL	96	80 - 120			D	06/15/12
Chloride	16887-00-6		2.02	ug/mL	101	80 - 120			D	06/15/12
Nitrite-N	NO2-N		0.969	ug/mL	98.1	80 - 120			D	06/15/12
Bromide	24959-67-9		4.34	ug/mL	109.7	80 - 120			D	06/15/12
Nitrate-N	NO3-N		0.874	ug/mL	97.8	80 - 120			D	06/15/12
Phosphate-P	PO4-P		1.97	ug/mL	102.2	80 - 120			D	06/15/12
Sulfate	14808-79-8		3.84	ug/mL	97	80 - 120			D	06/15/12
MSD										
QC Sample #76897										
Original 120780001										
Paired 76896										
Fluoride	16984-48-8		0.946	ug/mL	94.6	80 - 120	0.90	20	D	06/15/12
Chloride	16887-00-6		1.82	ug/mL	91	80 - 120	1.90	20	D	06/15/12
Nitrite-N	NO2-N		0.906	ug/mL	91.7	80 - 120	5.90	20	D	06/15/12
Bromide	24959-67-9		3.93	ug/mL	99.3	80 - 120	9.90	20	D	06/15/12
Nitrate-N	NO3-N		0.881	ug/mL	98.5	80 - 120	0.30	20	D	06/15/12
Phosphate-P	PO4-P		1.95	ug/mL	100.9	80 - 120	1.00	20	D	06/15/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate	14808-79-8		3.60	ug/mL	90.9	80 - 120	0.40	20	D	06/15/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analytical Batch 203689 (QC Batch: 203472)
Associated Samples 120786005, 120786006

Test ICP-6010 - All possible metals

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #77003								
Iron	7439-89-6	<19		ug/L					U	06/26/12
Magnesium	7439-95-4	<4.0		ug/L					U	06/26/12
Manganese	7439-96-5	<4.0		ug/L					U	06/26/12
Nickel	7440-02-0	<4.0		ug/L					U	06/26/12
Potassium	7440-09-7	<76		ug/L					U	06/26/12
Silver	7440-22-4	<4.0		ug/L					U	06/26/12
Sodium	7440-23-5	<10		ug/L					U	06/26/12
Antimony	7440-36-0	<36		ug/L					U	06/26/12
Barium	7440-39-3	<4.0		ug/L					U	06/26/12
Cadmium	7440-43-9	<4.0		ug/L					U	06/26/12
Chromium	7440-47-3	<5.0		ug/L					U	06/26/12
Cobalt	7440-48-4	<4.0		ug/L					U	06/26/12
Copper	7440-50-8	<4.0		ug/L					U	06/26/12
Vanadium	7440-62-2	<5.0		ug/L					U	06/26/12
Zinc	7440-66-6	<5.0		ug/L					U	06/26/12
Calcium	7440-70-2	<49		ug/L					U	06/26/12
Strontium	7440-24-6	<9.0		ug/L					U	06/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF120786

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium	7440-41-7		<4.0	ug/L					U	06/26/12
LCS			QC Sample #77005							
Iron	7439-89-6		1000	ug/L	100.1	80 - 120				06/26/12
Magnesium	7439-95-4		10600	ug/L	105.9	80 - 120				06/26/12
Manganese	7439-96-5		1030	ug/L	103.4	80 - 120				06/26/12
Nickel	7440-02-0		1000	ug/L	100.3	80 - 120				06/26/12
Potassium	7440-09-7		10600	ug/L	106.4	80 - 120				06/26/12
Silver	7440-22-4		1000	ug/L	100.5	80 - 120				06/26/12
Sodium	7440-23-5		10700	ug/L	107.3	80 - 120				06/26/12
Antimony	7440-36-0		1040	ug/L	103.5	80 - 120				06/26/12
Barium	7440-39-3		1040	ug/L	103.6	80 - 120				06/26/12
Cadmium	7440-43-9		1040	ug/L	104.1	80 - 120				06/26/12
Chromium	7440-47-3		1020	ug/L	102.4	80 - 120				06/26/12
Cobalt	7440-48-4		1000	ug/L	100.5	80 - 120				06/26/12
Copper	7440-50-8		1060	ug/L	105.7	80 - 120				06/26/12
Vanadium	7440-62-2		1020	ug/L	101.7	80 - 120				06/26/12
Zinc	7440-66-6		1060	ug/L	106	80 - 120				06/26/12
Calcium	7440-70-2		20900	ug/L	104.6	80 - 120				06/26/12
Strontium	7440-24-6		1000	ug/L	100.4	80 - 120				06/26/12
Beryllium	7440-41-7		1040	ug/L	103.8	80 - 120				06/26/12
MS			QC Sample #77006							
			Original 120778012							
Iron	7439-89-6		1020	ug/L	102	75 - 125				06/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Magnesium	7439-95-4		9990	ug/L	99.9	75 - 125				06/26/12
Manganese	7439-96-5		1020	ug/L	102.5	75 - 125				06/26/12
Nickel	7440-02-0		987	ug/L	98.7	75 - 125				06/26/12
Potassium	7440-09-7		10200	ug/L	101.6	75 - 125				06/26/12
Silver	7440-22-4		991	ug/L	99.1	75 - 125				06/26/12
Sodium	7440-23-5		8780	ug/L	87.8	75 - 125			X	06/26/12
Antimony	7440-36-0		1020	ug/L	102.3	75 - 125				06/26/12
Barium	7440-39-3		1000	ug/L	100.3	75 - 125				06/26/12
Cadmium	7440-43-9		1040	ug/L	103.6	75 - 125				06/26/12
Chromium	7440-47-3		1020	ug/L	101.7	75 - 125				06/26/12
Cobalt	7440-48-4		989	ug/L	98.9	75 - 125				06/26/12
Copper	7440-50-8		1020	ug/L	101.5	75 - 125				06/26/12
Vanadium	7440-62-2		1010	ug/L	101.1	75 - 125				06/26/12
Zinc	7440-66-6		1050	ug/L	105.3	75 - 125				06/26/12
Calcium	7440-70-2		18900	ug/L	94.5	75 - 125			X	06/26/12
Strontium	7440-24-6		999	ug/L	99.9	75 - 125				06/26/12
Beryllium	7440-41-7		1030	ug/L	103.2	75 - 125				06/26/12
MSD			QC Sample #77007							
			Original	120778012					Paired	77006
Iron	7439-89-6		1010	ug/L	100.9	75 - 125	1.00	20		06/26/12
Magnesium	7439-95-4		9860	ug/L	98.6	75 - 125	0.40	20		06/26/12
Manganese	7439-96-5		1020	ug/L	102.3	75 - 125	0.00	20		06/26/12
Nickel	7440-02-0		975	ug/L	97.5	75 - 125	1.20	20		06/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120786

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Potassium	7440-09-7		9950	ug/L	99.5	75 - 125	1.80	20		06/26/12
Silver	7440-22-4		987	ug/L	98.7	75 - 125	0.40	20		06/26/12
Sodium	7440-23-5		7670	ug/L	76.7	75 - 125	1.80	20	X	06/26/12
Antimony	7440-36-0		1020	ug/L	102.4	75 - 125	0.00	20		06/26/12
Barium	7440-39-3		999	ug/L	99.9	75 - 125	0.90	20		06/26/12
Cadmium	7440-43-9		1030	ug/L	103	75 - 125	1.00	20		06/26/12
Chromium	7440-47-3		1010	ug/L	101.4	75 - 125	1.00	20		06/26/12
Cobalt	7440-48-4		982	ug/L	98.2	75 - 125	0.70	20		06/26/12
Copper	7440-50-8		1010	ug/L	100.8	75 - 125	1.00	20		06/26/12
Vanadium	7440-62-2		1010	ug/L	100.7	75 - 125	0.00	20		06/26/12
Zinc	7440-66-6		1050	ug/L	104.7	75 - 125	0.00	20		06/26/12
Calcium	7440-70-2		18600	ug/L	93.2	75 - 125	0.30	20	X	06/26/12
Strontium	7440-24-6		1000	ug/L	100	75 - 125	0.00	20		06/26/12
Beryllium	7440-41-7		1030	ug/L	102.9	75 - 125	0.00	20		06/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120786

Analytical Batch 203859 (QC Batch: 203466)
Associated Samples 120786004

Test Tritium by LSC

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #76980							
Tritium	10028-17-8		-70	pCi/L					U	06/26/12
LCS										
			QC Sample #76981							
Tritium	10028-17-8		3100	pCi/L	99.7	80 - 120				06/26/12
DUP										
			QC Sample #76982							
			Original 120791019							
Tritium	10028-17-8		4.6E4	pCi/L			2.20	20		06/26/12
MS										
			QC Sample #76983							
			Original 120791019							
Tritium	10028-17-8		20000	pCi/L	92.6	75 - 125				06/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120786

Analytical Batch 204941 (QC Batch: 203705)
Associated Samples 120786004

Test Strontium 89/90 (GPC/GEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #77391							
Strontium-89_90	SR-RAD		0.61	pCi/L					U	07/20/12
LCS										
			QC Sample #77392							
Strontium-89_90	SR-RAD		89	pCi/L	99.3	80 - 120				07/20/12
DUP										
			QC Sample #77393							
			Original 120781001							
Strontium-89_90	SR-RAD		1.9	pCi/L			53.30	20	* X	07/20/12
SAMPLE										
			Sample #120786004							
Strontium Nitrate	10042-76-9			mg/sample	80.2	25 - 105				07/20/12
BLANK										
			QC Sample #77391							
Strontium Nitrate	10042-76-9			mg/sample	60.3	25 - 105				07/20/12
LCS										
			QC Sample #77392							
Strontium Nitrate	10042-76-9			mg/sample	81	25 - 105				07/20/12
DUP										
			QC Sample #77393							
			Original 120781001							
Strontium Nitrate	10042-76-9			mg/sample	43.8	25 - 105	n/a			07/20/12

* - QC result out of range

n/a - Not Applicable

Analytical Comment Report

Attention: Scot Fitzgerald

Group #

WSCF120786

Quality Control Comments

Department Inorganic

76895 B2KRJ0(120780001DUP)

Analyte Fluoride - Anions by Ion Chromatography (Water)

[1] Duplicate is flagged for RPD out-of-limits. RPD does not apply to samples concentrations below the calibration range. RPD is calculated on measured values and not applicable for a result below the RDL.

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

[1] Duplicate is flagged for RPD out-of-limits. RPD does not apply to samples concentrations below the calibration range. RPD is calculated on measured values and not applicable for a result below the RDL.

77006 B2LOC8(120778012MS)

Analyte Calcium - ICP-6010 - All possible metals

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

Analyte Sodium - ICP-6010 - All possible metals

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

77007 B2LOC8(120778012MSD)

Analyte Calcium - ICP-6010 - All possible metals

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

Analyte Sodium - ICP-6010 - All possible metals

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

Analytical Comment Report

Attention: Scot Fitzgerald

Group #

WSCF120786

Quality Control Comments

Department Radiochemistry

77393

B2KRH8(120781001DUP)

Analyte Strontium-89_90 - Strontium 89/90 (GPC/GEA)

[1] Duplicate RPD out-of-limits. RPD limit does not apply to results near the Minimum Detectable Concentration.

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 #: 120786

Profile #: S12-007-175

Proj. Mgr.:

Phone:

The following samples were received from you on 6/15/2012 1:40:00 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				
120786001	B2LDN4	WATER	6/15/2012 09:44	6/15/2012 13:40
		IC-W		
120786002	B2LDD6	WATER	6/15/2012 08:47	6/15/2012 13:40
		IC-W		
120786003	B2J9R3	WATER	6/15/2012 10:53	6/15/2012 13:40
		IC-W		
120786004	B2J9R6	WATER	6/15/2012 10:53	6/15/2012 13:40
		H3-COL-W; SR89/90-W		
120786005	B2J9R7	WATER	6/15/2012 10:53	6/15/2012 13:40
		6010-W		
120786006	B2J9R4	WATER	6/15/2012 10:53	6/15/2012 13:40
		6010-W		

Test Acronym Description

Test Acronym	Description
6010-W	ICP-AES (W)
H3-COL-W	Tritium by EICHROM Column (W)
IC-W	Anions by IC (W)
SR89/90-W	Strontium 89/90 (GPC) (W)

Sample Receipt

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **S12-007-175** Page 1 of 1

Collector: **Kevin Hamilton** Telephone No. **376-4650**

SAF No. **S12-007** Purchase Order/Charge Code **300071ES20**

Project Title **SURV, JULY 2012** Ice Chest No. **N/A**

Shipped To (Lab) **Waste Sampling & Characterization** Method of Lading/Air Bill No. **N/A**

Protocol **CERCLA** Priority: **45 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 Hold Time **Total Activity Exemption: Yes No**
 Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.

126784

Sample No. **126784** Filter **N** Date **JUN 15 2012** Time **05:44** No./Type Container **1X500-ML P** Sample Analysis **300.0_ANIONS_IC: List-1 + Brom_Prosop (7)** Holding Time **48 Hours** Preservative **Cool-4C**

Contact/Requester **Karen Waters-Husted** Sampling Origin **Hanford Site** Logbook No. **HNF-N-50650 / 23** Method of Shipment **GOVERNMENT VEHICLE**

Relinquished By **Kevin Hamilton** Print **Sign** Received By **CPH** Print **Sign** Date/Time **JUN 15 2012 1340** Date/Time **JUN 15 2012 1340** Matrix *

Relinquished By **Kevin Hamilton** Date/Time **JUN 15 2012 0544** Received By **CPH** Date/Time **JUN 15 2012 1340**

Relinquished By **Kevin Hamilton** Date/Time **JUN 15 2012 0544** Received By **CPH** Date/Time **JUN 15 2012 1340**

Relinquished By **Kevin Hamilton** Date/Time **JUN 15 2012 0544** Received By **CPH** Date/Time **JUN 15 2012 1340**

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

PRINTED ON 5/31/2012 A-6004-842 (REV 2)

Sample Receipt

Chain of Custody

CH2M Hill Plateau Remediation Company		C.O.C. # S12-007-133 Page 1 of 1	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector Kevin Hamilton	Contact/Requester Karen Walters-Husted	Telephone No. 376-4650	
SAF No. S12-007	Sampling Origin Hanford Site	Purchase Order/Charge Code 30007IES20	
Project Title SURV, JULY 2012	Logbook No. HNF-N-506 20 / 23	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 45 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 5600.3 (1990.1993)		SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.	
Sample No. B2LDD6 2	Filter N	Date W JUN 15 2012 0847	Time 0847
No/Type Container 1x500-ml P	Sample Analysis 300.0_ANIONS_IC: List-1 (5)	Holding Time 48 Hours	Preservative Cool-4C

Relinquished By Kevin Hamilton	Print [Signature]	Received By C. Johnson	Print [Signature]	Date/Time JUN 15 2012 1346	Date/Time JUN 15 2012 1346	Matrix *
Relinquished By		Received By		Date/Time	Date/Time	S = Soil DS = Drum Solids SB = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By		Received By		Date/Time	Date/Time	
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Date/Time

PRINTED ON 5/31/2012 A-6004-842 (REV 2)

Sample Receipt

Chain of Custody

C.O.C.# S12-011-213
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2MHill Plateau Remediation Company

Collector: *Karin Hamilton* Contact/Requester: Karen Waters-Husted Telephone No. 376-4650

SAP No. S12-011 Sampling Origin: Hanford Site Purchase Order/Charge Code: 300071FS20

Project Title: SURV, NOVEMBER 2011 Logbook No. HNF-N-506 *20 82* 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 (1990/995).
 SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption. Yes No
 FY11 and FY12 samples cannot be in the same SDG. 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
B219R3	N	JUN 15 2012	1053	1x500-mL P	3000_ANIONS_IC_List-1 (5)	48 Hours	Cool-4C

Relinquished By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Matrix *
<i>Karin Hamilton</i>	<i>Karin Hamilton</i>	<i>Karin Hamilton</i>	JUN 15 2012 1340	<i>C Johnson</i>	<i>C Johnson</i>	<i>C Johnson</i>	JUN 15 2012 1340	S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WJ = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
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)								Date/Time
Disposed By								Date/Time

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Sample Receipt

Chain of Custody

C.O.C.# **S12-011-212**
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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2M Hill Plateau Remediation Company

Collector: **Kevin Hamilton** Contact/Requester: **Karen Waters-Husted** Telephone No.: **376-4650**

SAF No.: **S12-011** Sampling Origin: **Hanford Site** Purchase Order/Charge Code: **300071ES20**

Project Title: **SURV, NOVEMBER 2011** Logbook No.: **HNF-N-506 50 / 20** 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: **PRIORITY**

*** 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: **Hold Time** Total Activity Exemption: Yes No
 FY11 and FY12 samples cannot be in the same SDG. Site-Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401617.

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Folding Time	Preservative
B2J9R6	N	JUN 15 2012	1053	1x1-L G/P	Strontium-89,90 - Total Sr	6 Months	HNO3 to pH <2
B2J9R6	N			1x250-mL G	TRITIUM_EIE_LSC; Tritium (1)	6 Months	None
B2J9R7	Y			1x500-mL G/P	6010_METALS_ICP; Lish-3 (18)	6 Months	HNO3 to pH <2
B2J9R4	N			1x500-mL G/P	6010_METALS_ICP; Lish-3 (18)	6 Months	HNO3 to pH <2

Relinquished By: Kevin Hamilton	Date/Time: JUN 15 2012 1340	Received By: C. Johnson	Date/Time: JUN 15 2012 1340	Sign: <i>[Signature]</i>	Matrix: <input type="checkbox"/> Soil, <input type="checkbox"/> DS, <input type="checkbox"/> Seaf, <input type="checkbox"/> Sediment, <input type="checkbox"/> Solid, <input type="checkbox"/> Sludge, <input type="checkbox"/> Water, <input type="checkbox"/> Oil, <input type="checkbox"/> Air, <input type="checkbox"/> Drum Solids, <input type="checkbox"/> Drum Liquids, <input type="checkbox"/> Tissue, <input type="checkbox"/> Wipe, <input type="checkbox"/> Liquid, <input type="checkbox"/> Vacuation, <input type="checkbox"/> Filter
Relinquished By:	Date/Time:	Received By:	Date/Time:	Sign:	Matrix:
Relinquished By:	Date/Time:	Received By:	Date/Time:	Sign:	Matrix:
Relinquished By:	Date/Time:	Received By:	Date/Time:	Sign:	Matrix:
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Date/Time	

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