WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

RECEIVED AUGUST 17, 2011

1213197

August 17, 2011

Michael Neely
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF112696

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

This letter contains the following information for sample delivery group WSCF112696

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

Very truly yours,

Electronically signed by Joseph Hale
For Lab Manager
WSCF Analytical Lab
(509) 373-7495

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Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF112696
Data Deliverable Date 07/26/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-121	B2FHV5	112696001	WATER	07/14/11	07/14/11

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Attachment 2
Narrative
WSCF112696

Introduction

A sample was received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. Also attached is SDR 11-367, regarding a slightly high LCS for various 200.8 metals.

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, D, U and J) 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.
- **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.
- **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

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.

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Attachment 2
Narrative
WSCF112696

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

- All applicable QC controls are within the established limits.

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

- Sample Issue Resolution Form SDR11-367 regarding Uranium failure in the LCS is attached to this report.
- Chromium, Copper and Vanadium – Detected in the Blank and evaluated. Affected sample results in this batch were "C" Flagged.
- Strontium – 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.

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 2
Narrative
WSCF112696

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR11-367
REV NUM	1
DATE INITIATED	8/2/2011

SAMPLE EVENT INFORMATION

SAF NUM(S)	F11-063, S11-007, F11-004, F11-121
OPERABLE UNIT(S)	200-MG-1, 200-ZP-1, 100-NR-2, NONE
PROJECT(S)	200-MG-1, 200 AREA SGRP, SURV11, 100 Area RI/FS
SAMPLE EVENT TITLE(S)	SURV11, 200-ZP-1 Remedial Action Wells, 200-MG-1 OU Waste Sites, 100 Area RI/FS
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	5
SAMPLE NUMBERS	B2BNB0, B2C4T4, B2C4T8, B2F5J4, B2FHV5
SAMPLE MATRIX	WATER
COLLECTION DATE	7/12/2011 - 7/14/2011
SDG NUM	WSCF112701, WSCF112696, WSCF112693, WSCF112653, WSCF112667

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Quality Control Failure
DESCRIPTION	The U, Mo, Th LCSs were slightly high at 119.8%, 116.7%, and 118.8%, respectively with control limits of 85-115%. The MS and MSD recoveries were within control limits of 70-130%. The blank was non-detect.

DISPOSITION

DESCRIPTION	REPORT THE DATA AND NOTE IN THE NARRATIVE.
JUSTIFICATION	Submitted by: WSCF Date: 7/28/2011 Accepted by: Nathan Bowles Date: 8/1/2011

A-6003-640 (03/30)

PAGE 1 of 1

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 13 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Michael Neely

Contract #	MOA-FH-CHPRC-2008
Group #	WSCF112696
Report Date	August 17, 2011

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) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Michael Neely
Department Inorganic

Group # WSCF112696

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
185923	185923	1	BLANK	60586	BLANK		Hexavalent chromium Discrete Analyzer
185923	185923	3	LCS	60588	LCS		Hexavalent chromium Discrete Analyzer
185923	185923	4	DUP	60589	B2FHV5(112696001DUP)	112696001	Hexavalent chromium Discrete Analyzer
185923	185923	5	MS	60590	B2FHV5(112696001MS)	112696001	Hexavalent chromium Discrete Analyzer
185923	185923	6	SAMPLE	112696001	B2FHV5		Hexavalent chromium Discrete Analyzer
185957	185958	4	BLANK	60683	BLANK		ICP-2008 MS All possible metal
185957	185958	5	LCS	60684	LCS		ICP-2008 MS All possible metal
185957	185958	6	MS	60685	B2F7K3(112647009MS)	112647009	ICP-2008 MS All possible metal
185957	185958	7	MSD	60686	B2F7K3(112647009MSD)	112647009	ICP-2008 MS All possible metal
185957	185958	30	SAMPLE	112696001	B2FHV5		ICP-2008 MS All possible metal
185957	187262	5	SAMPLE	112696001	B2FHV5		ICP-2008 MS All possible metal
185957	187262	8	BLANK	60683	BLANK		ICP-2008 MS All possible metal
185957	187262	9	LCS	60684	LCS		ICP-2008 MS All possible metal
185957	187262	10	MS	60685	B2F7K3(112647009MS)	112647009	ICP-2008 MS All possible metal
185957	187262	11	MSD	60686	B2F7K3(112647009MSD)	112647009	ICP-2008 MS All possible metal
186743	186744	5	BLANK	61069	BLANK		ICP-6010 - All possible metals
186743	186744	6	LCS	61070	LCS		ICP-6010 - All possible metals
186743	186744	7	MS	61071	B2FHV5(112696001MS)	112696001	ICP-6010 - All possible metals
186743	186744	8	MSD	61072	B2FHV5(112696001MSD)	112696001	ICP-6010 - All possible metals
186743	186744	9	SAMPLE	112696001	B2FHV5		ICP-6010 - All possible metals

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF112696

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 Emmision Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP-Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.

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 Michael Neely
Department Inorganic

Group # WSCF112696

Sample # 112696001
SAF# F11-121
Sample ID B2FHV5

Matrix WATER
Sampled 07/14/11
Received 07/14/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										**07/14/11**
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	07/14/11
ICP Prep										**07/21/11**
ICP-AES										
Lithium	7439-93-2	LA-505-411	U	<5.1		ug/L	1	5.1	25	07/25/11
ICPMS Prep										**07/18/11**
ICP-MS										
Manganese	7439-96-5	LA-505-412	BD	0.359		ug/L	2	0.20	2.0	07/25/11
Nickel	7440-02-0	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	07/25/11
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	2.0	07/25/11
Antimony	7440-36-0	LA-505-412	UD	<0.10		ug/L	2	0.10	6.0	07/25/11
Barium	7440-39-3	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	07/25/11
Beryllium	7440-41-7	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	07/25/11
Boron	7440-42-8	LA-505-412	BD	6.92		ug/L	2	1.0	10	07/25/11
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	2.0	07/25/11
Chromium	7440-47-3	LA-505-412	BDC	1.03		ug/L	2	0.20	10	07/25/11
Cobalt	7440-48-4	LA-505-412	UD	<0.20		ug/L	2	0.20	0.50	07/25/11
Copper	7440-50-8	LA-505-412	DC	3.62		ug/L	2	0.20	2.0	07/25/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
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 Michael Neely
Department Inorganic

Group # WSCF112696

Sample # 112696001
SAF# F11-121
Sample ID B2FHV5

Matrix WATER
Sampled 07/14/11
Received 07/14/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Vanadium	7440-62-2	LA-505-412	BDC	2.15		ug/L	2	0.40	4.0	07/25/11
Zinc	7440-66-6	LA-505-412	BD	3.71		ug/L	2	1.6	10	07/25/11
Lead	7439-92-1	LA-505-412	D	14.8		ug/L	2	0.20	2.0	07/25/11
Mercury	7439-97-6	LA-505-412	UD	<0.060		ug/L	2	0.060	0.40	07/25/11
Strontium	7440-24-6	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	07/25/11
Thallium	7440-28-0	LA-505-412	UD	<0.060		ug/L	2	0.060	1.0	07/25/11
Tin	7440-31-5	LA-505-412	UD	<0.20		ug/L	2	0.20	1.0	07/25/11
Uranium	7440-61-1	LA-505-412	UDX	<0.20		ug/L	2	0.20	0.40	07/25/11
Arsenic	7440-38-2	LA-505-412	UD	<0.80		ug/L	2	0.80	8.0	07/25/11
Selenium	7782-49-2	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	07/25/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
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)

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

QC Batch 185923
Associated Samples 112696001

Test Hexavalent chromium Discrete Analyzer

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #60586**							
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	07/14/11
LCS			**QC Sample #60588**							
Hexavalent chromium	18540-29-9		0.0515	mg/L	103	90 - 110				07/14/11
DUP			**QC Sample #60589**							
			Original 112696001							
Hexavalent chromium	18540-29-9	<0.0020	<0.0020	mg/L			0.00	20	U	07/14/11
MS			**QC Sample #60590**							
			Original 112696001							
Hexavalent chromium	18540-29-9	<0.0020	0.0413	mg/L	103.2	85 - 115				07/14/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

QC Batch 186743
Associated Samples 112696001

Test ICP-6010 - All possible metals

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #61069**							
Lithium	7439-93-2		<5.1	ug/L					U	07/25/11
LCS			**QC Sample #61070**							
Lithium	7439-93-2		520	ug/L	104	80 - 120				07/25/11
MS			**QC Sample #61071**							
			Original 112696001							
Lithium	7439-93-2	<5.1	528	ug/L	105.6	75 - 125				07/25/11
MSD			**QC Sample #61072**							
			Original 112696001					**Paired**	**61071**	
Lithium	7439-93-2	<5.1	536	ug/L	107.2	75 - 125	1.50	20		07/25/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

QC Batch 185957
Associated Samples 112696001

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #60683**							
Manganese	7439-96-5		<0.10	ug/L					U	07/25/11
Nickel	7440-02-0		<0.20	ug/L					U	07/25/11
Silver	7440-22-4		<0.050	ug/L					U	07/25/11
Antimony	7440-36-0		<0.050	ug/L					U	07/25/11
Barium	7440-39-3		<0.20	ug/L					U	07/25/11
Beryllium	7440-41-7		<0.050	ug/L					U	07/25/11
Cadmium	7440-43-9		<0.050	ug/L					U	07/25/11
Chromium	7440-47-3		0.310	ug/L					B	07/25/11
Cobalt	7440-48-4		<0.10	ug/L					U	07/25/11
Copper	7440-50-8		0.716	ug/L					B	07/25/11
Vanadium	7440-62-2		1.11	ug/L					B	07/25/11
Zinc	7440-66-6		<0.80	ug/L					U	07/25/11
Lead	7439-92-1		<0.10	ug/L					U	07/25/11
Mercury	7439-97-6		<0.030	ug/L					U	07/25/11
Strontium	7440-24-6		<0.10	ug/L					U	07/25/11
Thallium	7440-28-0		<0.030	ug/L					U	07/25/11
Tin	7440-31-5		<0.10	ug/L					U	07/25/11
Uranium	7440-61-1		<0.10	ug/L					UX	07/25/11
Arsenic	7440-38-2		<0.40	ug/L					U	07/25/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Selenium	7782-49-2		<0.30	ug/L					U	07/25/11
LCS			**QC Sample #60684**							
Manganese	7439-96-5		43.4	ug/L	108.4	85 - 115				07/25/11
Nickel	7440-02-0		43.8	ug/L	109.6	85 - 115				07/25/11
Silver	7440-22-4		44.2	ug/L	110.5	85 - 115				07/25/11
Antimony	7440-36-0		45.9	ug/L	114.8	85 - 115				07/25/11
Barium	7440-39-3		43.3	ug/L	108.2	85 - 115				07/25/11
Beryllium	7440-41-7		45.8	ug/L	114.4	85 - 115				07/25/11
Cadmium	7440-43-9		43.0	ug/L	107.6	85 - 115				07/25/11
Chromium	7440-47-3		44.6	ug/L	111.4	85 - 115				07/25/11
Cobalt	7440-48-4		43.9	ug/L	109.8	85 - 115				07/25/11
Copper	7440-50-8		45.2	ug/L	113.1	85 - 115				07/25/11
Vanadium	7440-62-2		44.5	ug/L	111.2	85 - 115				07/25/11
Zinc	7440-66-6		41.8	ug/L	104.6	85 - 115				07/25/11
Lead	7439-92-1		43.6	ug/L	108.9	85 - 115				07/25/11
Mercury	7439-97-6		2.20	ug/L	109.8	85 - 115				07/25/11
Strontium	7440-24-6		42.9	ug/L	107.2	85 - 115				07/25/11
Thallium	7440-28-0		42.7	ug/L	106.8	85 - 115				07/25/11
Tin	7440-31-5		45.1	ug/L	112.6	85 - 115				07/25/11
Uranium	7440-61-1		47.9	ug/L	119.8	85 - 115			X	07/25/11
Arsenic	7440-38-2		41.7	ug/L	104.2	85 - 115				07/25/11
Selenium	7782-49-2		40.6	ug/L	101.6	85 - 115				07/25/11
MS			**QC Sample #60685**							
			Original 112647009							

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Manganese	7439-96-5		40.3	ug/L	100.8	70 - 130				07/25/11
Nickel	7440-02-0		40.6	ug/L	101.6	70 - 130				07/25/11
Silver	7440-22-4		41.6	ug/L	103.9	70 - 130				07/25/11
Antimony	7440-36-0		44.2	ug/L	110.6	70 - 130				07/25/11
Barium	7440-39-3		42.2	ug/L	105.4	70 - 130				07/25/11
Beryllium	7440-41-7		43.9	ug/L	109.8	70 - 130				07/25/11
Cadmium	7440-43-9		41.7	ug/L	104.2	70 - 130				07/25/11
Chromium	7440-47-3		41.9	ug/L	104.7	70 - 130				07/25/11
Cobalt	7440-48-4		41.1	ug/L	102.8	70 - 130				07/25/11
Copper	7440-50-8		40.9	ug/L	102.3	70 - 130				07/25/11
Vanadium	7440-62-2		40.9	ug/L	102.3	70 - 130				07/25/11
Zinc	7440-66-6		40.4	ug/L	101.1	70 - 130				07/25/11
Lead	7439-92-1		42.6	ug/L	106.4	70 - 130				07/25/11
Mercury	7439-97-6		2.14	ug/L	106.8	70 - 130				07/25/11
Strontium	7440-24-6		36.6	ug/L	91.5	70 - 130			X	07/25/11
Thallium	7440-28-0		41.7	ug/L	104.3	70 - 130				07/25/11
Tin	7440-31-5		43.8	ug/L	109.5	70 - 130				07/25/11
Uranium	7440-61-1		47.8	ug/L	119.4	70 - 130			X	07/25/11
Arsenic	7440-38-2		40.4	ug/L	101	70 - 130				07/25/11
Selenium	7782-49-2		39.7	ug/L	99.2	70 - 130				07/25/11
MSD			**QC Sample #60686**							
			Original 112647009					**Paired**	**60685**	
Manganese	7439-96-5		39.8	ug/L	99.5	70 - 130	1.30	20		07/25/11
Nickel	7440-02-0		40.0	ug/L	100	70 - 130	1.60	20		07/25/11
Silver	7440-22-4		40.1	ug/L	100.2	70 - 130	3.60	20		07/25/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112696

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
Antimony	7440-36-0		42.7	ug/L	106.8	70 - 130	3.50	20			07/25/11
Barium	7440-39-3		39.8	ug/L	99.5	70 - 130	5.80	20			07/25/11
Beryllium	7440-41-7		40.8	ug/L	101.9	70 - 130	7.50	20			07/25/11
Cadmium	7440-43-9		40.4	ug/L	101	70 - 130	3.10	20			07/25/11
Chromium	7440-47-3		41.5	ug/L	103.7	70 - 130	1.00	20			07/25/11
Cobalt	7440-48-4		40.3	ug/L	100.8	70 - 130	2.00	20			07/25/11
Copper	7440-50-8		39.6	ug/L	99	70 - 130	3.30	20			07/25/11
Vanadium	7440-62-2		38.1	ug/L	95.3	70 - 130	7.10	20			07/25/11
Zinc	7440-66-6		39.0	ug/L	97.5	70 - 130	3.60	20			07/25/11
Lead	7439-92-1		41.6	ug/L	103.9	70 - 130	2.40	20			07/25/11
Mercury	7439-97-6		2.05	ug/L	102.5	70 - 130	4.10	20			07/25/11
Strontium	7440-24-6		27.0	ug/L	67.5	70 - 130	30.20	20	*	X	07/25/11
Thallium	7440-28-0		40.7	ug/L	101.6	70 - 130	2.60	20			07/25/11
Tin	7440-31-5		42.4	ug/L	105.9	70 - 130	3.30	20			07/25/11
Uranium	7440-61-1		46.2	ug/L	115.5	70 - 130	3.30	20		X	07/25/11
Arsenic	7440-38-2		38.5	ug/L	96.3	70 - 130	4.80	20			07/25/11
Selenium	7782-49-2		38.0	ug/L	95.1	70 - 130	4.20	20			07/25/11

Analytical Comment Report

Attention: Michael Neely **Group #** WSCF112696

112696001 **B2FHV5**

Department Inorganic

Analyte Uranium - ICP-2008 MS All possible metal
[1] LCS recovery outside established laboratory limits.

Quality Control Comments

Department Inorganic

60683 BLANK for HBN 185957 [INOG/386

Analyte Uranium - ICP-2008 MS All possible metal
[1] LCS recovery outside established laboratory limits.

60684 LCS for HBN 185957 [INOG/3865]

Analyte Uranium - ICP-2008 MS All possible metal
[1] LCS recovery outside established laboratory limits.

60685 B2F7K3(112647009MS)

Analyte Strontium - ICP-2008 MS All possible metal
[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Analyte Uranium - ICP-2008 MS All possible metal
[1] LCS recovery outside established laboratory limits.

60686 B2F7K3(112647009MSD)

Analyte Strontium - ICP-2008 MS All possible metal
[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Analyte Uranium - ICP-2008 MS All possible metal
[1] LCS recovery outside established laboratory limits.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 4 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: Michael Neely

Customer Code: CHPRC
PO #: 401586
Work Order #: 112696
Profile #: F11-121-002
Proj. Mgr.:
Phone:

The following samples were received from you on 7/14/2011 10:15:00 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		
112696001	B2FHV5	WATER	7/14/2011 07:35	7/14/2011 10:15
		2008-W; 6010-W; CR6DA-W		

Test Acronym Description

Test Acronym	Description
2008-W	ICP-MS (W)
6010-W	ICP-AES (W)
CR6DA-W	Cr6 (W-Discrete analyzer)

Sample Receipt

Thursday, July 14, 2011 2:45:42 PM
Page 2 of 3

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F11-121-002 PAGE 1 OF 2

COLLECTOR: Craig Chamberlain

COMPANY CONTACT: BAUER, RG

TELEPHONE NO.: 373-3931

PROJECT COORDINATOR: BAUER, RG

PRICE CODE: 7C

DATA TURNAROUND: 15 Days / 15 Days

SAMPLING LOCATION: 600 281 Yer Round 2 EB 1

PROJECT DESIGNATION: ARRA Verification Sampling of the 600-281 Scattered Debris Area QC Sam

SAF NO.: F11-121

AIR QUALITY: ☐

ICE CHEST NO.:

FIELD LOGBOOK NO.: HNF-N-607-19.32

ACTUAL SAMPLE DEPTH: N/A

COA: 302222ES10

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

ORIGINAL

SHIPPED TO: Waste Sampling & Characterization

OFFSITE PROPERTY NO.: N/A

BILL OF LADING/AIR BILL NO.: N/A

MATRIX*: A=Air, D=Drum, Liquids, DS=Drum solids, L=Liquid, O=Oil, S=Soil, SL=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 112696

PRESERVATION	HNO3 to pH <2	Cool to 4C
HOLDING TIME	6 Months	24 Hours
TYPE OF CONTAINER	G/P	VG
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196,

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	[redacted]	
B2FHV8 1	WATER	7.14.11	0735	✓	✓

** The Laboratory has agreed to attempt to report the ICP/MS Metals within 48 hours and a final data package within 7 days.

** The Laboratory has agreed to attempt to report the Hex Chrome final data package within 12 days.

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
C. Chamberlain	7/14/11 1015	M Nelson	7/14/11 1015
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION: RECEIVED BY | TITLE | DATE/TIME

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD | DISPOSED BY | DATE/TIME

PRINTED ON 6/29/2011

A 6003-518 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F11-121-002	PAGE 2 OF 2
COLLECTOR: C Chamberlain	COMPANY CONTACT: BAUER, RG	TELEPHONE NO.: 373-3931	PROJECT COORDINATOR: BAUER, RG	PRICE CODE: 7C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: 600-281 Ver Round 2 FB - 1	PROJECT DESIGNATION: ARRA Verification Sampling of the 600-281 Scattered Debris Area - QC Sam		SAF NO.: F11-121	AIR QUALITY:	
ICE CHEST NO.:	FIELD LOGBOOK NO.: HNF-N-507 19 pg 32	ACTUAL SAMPLE DEPTH: N/A	COA: 302222ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

SPECIAL INSTRUCTIONS

** The CACN for all analytical work at WSCF laboratory is 401352ES20.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
** Only those constituents of concern requested shall be reported in any preliminary or final hardcopy data reports, or EDDs. If a sample is chosen for matrix spike, it shall be identified in the narrative, and the spike compounds shall be identified in the narative or removed from all Data Reports. No TICs shall be reported.
(1) ICP Metals - 6010 (Add-On) (Lithium); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Beryllium, Boron, Lead, Selenium, Strontium, Thallium, Tin, Uranium); 200.8_HG - ICPMS (Mercury);

** The Laboratory has agreed to attempt to report the ICP/MS Metals within 48 hours and a final data package within 7 days.

** The Laboratory has agreed to attempt to report the Hex Chrome final data package within 12 days.

PRINTED ON 6/29/2011

A 6020 618 (REV 2)