WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

RECEIVED APRIL 29, 2011

0097507

April 28, 2011

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

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF112015

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 WSCF112015

* 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 # WSCF112015
Data Deliverable Date 04/29/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-098	B2D0L4	112015001	WATER	04/14/11	04/14/11

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Attachment 2
Narrative
WSCF112015

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.

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

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.

Attachment 2
Narrative
WSCF112015

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):

- 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.

Organic Comments

Semi-VOA – 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.

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 19 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 #	WSCF112015
Report Date	April 28, 2011

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Heather Medley

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 # WSCF112015

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181053	181054	1	BLANK	53360	BLANK		ICP-2008 MS All possible metal
181053	181054	2	LCS	53361	LCS		ICP-2008 MS All possible metal
181053	181054	3	MS	53362	B2CFF8(112001006MS)	112001006	ICP-2008 MS All possible metal
181053	181054	4	MSD	53363	B2CFF8(112001006MSD)	112001006	ICP-2008 MS All possible metal
181053	181054	23	SAMPLE	112015001	B2D0L4		ICP-2008 MS All possible metal
181400	181401	1	BLANK	54169	BLANK		ICP-6010 - All possible metals
181400	181401	2	LCS	54170	LCS		ICP-6010 - All possible metals
181400	181401	3	MS	54171	B2D0L4(112015001MS)	112015001	ICP-6010 - All possible metals
181400	181401	4	MSD	54172	B2D0L4(112015001MSD)	112015001	ICP-6010 - All possible metals
181400	181401	5	SAMPLE	112015001	B2D0L4		ICP-6010 - All possible metals

Batch QC List

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112015

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181358	181380	1	BLANK	54040	BLANK		SW-846 8270D Semivolatiles (PAHSIM)
181358	181380	2	LCS	54041	LCS		SW-846 8270D Semivolatiles (PAHSIM)
181358	181380	3	MS	54042	B2D0L4(112015001MS)	112015001	SW-846 8270D Semivolatiles (PAHSIM)
181358	181380	4	MSD	54043	B2D0L4(112015001MSD)	112015001	SW-846 8270D Semivolatiles (PAHSIM)
181358	181380	5	SAMPLE	112015001	B2D0L4		SW-846 8270D Semivolatiles (PAHSIM)

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF112015

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 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

Method Reference

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112015

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-523-456	Semivolatile Sample Analysis by SW-846 Method 8270D		
	EPA SW-846	8000B	Determinative Chromagraphic Separations
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	8270D	Semivolatile Organic Compounds by Gas
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
			Chromatography/Mass Spectrometry (GC/MS)
	HEIS	8270_SVOA_GCMS	Semivolatile Organic Compounds by Gas
			Chromatography/Mass Spectrometry(GC/MS)

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 # WSCF112015

Sample # 112015001
SAF# F11-098
Sample ID B2D0L4

Matrix WATER
Sampled 04/14/11
Received 04/14/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICP Prep										**04/26/11**
ICP-AES										
Lithium	7439-93-2	LA-505-411	U	<4.0		ug/L	1	4.0	20	04/28/11
Boron	7440-42-8	LA-505-411	U	<41		ug/L	1	41	200	04/28/11
ICPMS Prep										**04/14/11**
ICP-MS										
Nickel	7440-02-0	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	04/18/11
Silver	7440-22-4	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	04/18/11
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	04/18/11
Barium	7440-39-3	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	04/18/11
Beryllium	7440-41-7	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	04/18/11
Cadmium	7440-43-9	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	04/18/11
Chromium	7440-47-3	LA-505-412	UD	<1.0		ug/L	2	1.0	10	04/18/11
Cobalt	7440-48-4	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	04/18/11
Copper	7440-50-8	LA-505-412	D	7.81		ug/L	2	0.20	2.0	04/18/11
Vanadium	7440-62-2	LA-505-412	BDC	0.579		ug/L	2	0.40	4.0	04/18/11
Zinc	7440-66-6	LA-505-412	BD	6.14		ug/L	2	1.6	10	04/18/11
Lead	7439-92-1	LA-505-412	D	23.0		ug/L	2	0.20	2.0	04/18/11
Strontium	7440-24-6	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	04/18/11

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 # WSCF112015

Sample # 112015001
SAF# F11-098
Sample ID B2D0L4

Matrix WATER
Sampled 04/14/11
Received 04/14/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	04/18/11
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	04/18/11
Uranium	7440-61-1	LA-505-412	UD	<0.10		ug/L	2	0.10	0.40	04/18/11
Arsenic	7440-38-2	LA-505-412	UD	<0.80		ug/L	2	0.80	8.0	04/18/11
Selenium	7782-49-2	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	04/18/11

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 Organic, Semivolatiles

Group # WSCF112015

Sample # 112015001
SAF# F11-098
Sample ID B2D0L4

Matrix WATER
Sampled 04/14/11
Received 04/14/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
8270 Prep										**04/21/11**
SW-846 8270D										
Naphthalene	91-20-3	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Acenaphthylene	208-96-8	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Acenaphthene	83-32-9	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Fluorene	86-73-7	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Phenanthrene	85-01-8	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Anthracene	120-12-7	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Fluoranthene	206-44-0	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Pyrene	129-00-0	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Benzo(a)anthracene	56-55-3	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Chrysene	218-01-9	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Benzo(b)fluoranthene	205-99-2	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Benzo(k)fluoranthene	207-08-9	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Benzo(a)pyrene	50-32-8	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Indeno(1,2,3-cd)pyrene	193-39-5	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Dibenzo(a,h)anthracene	53-70-3	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11
Benzo(g,h,i)perylene	191-24-2	LA-523-456	U	<0.9		ug/L	1	0.9	4	04/26/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
DF = Dilution Factor
+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
D - Analyte was reported at a secondary diltution factor.
E - The calibration exceeds the calibration range (GC/MS).
J - Analyte < lowest calibration but >= MDL.
N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
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 Organic, Semivolatiles

Group # WSCF112015

QC Batch 181358
Associated Samples 112015001

Test SW-846 8270D Semivolatiles (PAHSIM)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #54040**							
Naphthalene	91-20-3		<1	ug/L					U	04/26/11
Acenaphthylene	208-96-8		<1	ug/L					U	04/26/11
Acenaphthene	83-32-9		<1	ug/L					U	04/26/11
Fluorene	86-73-7		<1	ug/L					U	04/26/11
Phenanthrene	85-01-8		<1	ug/L					U	04/26/11
Anthracene	120-12-7		<1	ug/L					U	04/26/11
Fluoranthene	206-44-0		<1	ug/L					U	04/26/11
Pyrene	129-00-0		<1	ug/L					U	04/26/11
Benzo(a)anthracene	56-55-3		<1	ug/L					U	04/26/11
Chrysene	218-01-9		<1	ug/L					U	04/26/11
Benzo(b)fluoranthene	205-99-2		<1	ug/L					U	04/26/11
Benzo(k)fluoranthene	207-08-9		<1	ug/L					U	04/26/11
Benzo(a)pyrene	50-32-8		<1	ug/L					U	04/26/11
Indeno(1,2,3-cd)pyrene	193-39-5		<1	ug/L					U	04/26/11
Dibenzo(a,h)anthracene	53-70-3		<1	ug/L					U	04/26/11
Benzo(g,h,i)perylene	191-24-2		<1	ug/L					U	04/26/11
LCS			**QC Sample #54041**							

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112015

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Naphthalene	91-20-3		27	ug/L	88.6	59 - 113				04/26/11
Acenaphthene	83-32-9		27	ug/L	88.6	60 - 115				04/26/11
Fluorene	86-73-7		29	ug/L	96.2	61 - 116				04/26/11
Anthracene	120-12-7		27	ug/L	91.5	30 - 140				04/26/11
Pyrene	129-00-0		27	ug/L	90.6	56 - 135				04/26/11
Benzo(a)pyrene	50-32-8		26	ug/L	86.3	44 - 148				04/26/11
MS			**QC Sample #54042**							
			Original 112015001							
Naphthalene	91-20-3	<0.9	26	ug/L	90.2	64 - 112				04/26/11
Acenaphthene	83-32-9	<0.9	25	ug/L	89.3	62 - 116				04/26/11
Fluorene	86-73-7	<0.9	28	ug/L	98.1	65 - 112				04/26/11
Anthracene	120-12-7	<0.9	26	ug/L	93.1	65 - 114				04/26/11
Pyrene	129-00-0	<0.9	25	ug/L	89.7	67 - 123				04/26/11
Benzo(a)pyrene	50-32-8	<0.9	24	ug/L	86.3	52 - 129				04/26/11
MSD			**QC Sample #54043**							
			Original 112015001						**Paired 54042**	
Naphthalene	91-20-3	<0.9	25	ug/L	89.1	64 - 112	1.20	20		04/26/11
Acenaphthene	83-32-9	<0.9	25	ug/L	89.6	62 - 116	0.30	20		04/26/11
Fluorene	86-73-7	<0.9	27	ug/L	96.5	65 - 112	1.60	20		04/26/11
Anthracene	120-12-7	<0.9	26	ug/L	93.5	65 - 114	0.40	20		04/26/11
Pyrene	129-00-0	<0.9	27	ug/L	96.6	67 - 123	7.40	20		04/26/11
Benzo(a)pyrene	50-32-8	<0.9	25	ug/L	88.7	52 - 129	2.70	20		04/26/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112015

QC Batch 181400
Associated Samples 112015001

Test ICP-6010 - All possible metals

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #54169**							
Lithium	7439-93-2		<4.0	ug/L					U	04/28/11
Boron	7440-42-8		<41	ug/L					U	04/28/11
LCS			**QC Sample #54170**							
Lithium	7439-93-2		515	ug/L	103	80 - 120				04/28/11
Boron	7440-42-8		1000	ug/L	100	80 - 120				04/28/11
MS			**QC Sample #54171**							
			Original 112015001							
Lithium	7439-93-2	<4.0	530	ug/L	106	75 - 125				04/28/11
Boron	7440-42-8	<41	1020	ug/L	102	75 - 125				04/28/11
MSD			**QC Sample #54172**							
			Original 112015001					**Paired**	**54171**	
Lithium	7439-93-2	<4.0	512	ug/L	102.4	75 - 125	3.50	20		04/28/11
Boron	7440-42-8	<41	983	ug/L	98.3	75 - 125	3.70	20		04/28/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112015

QC Batch 181053
Associated Samples 112015001

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #53360**						
Nickel	7440-02-0		<0.20	ug/L				U	04/18/11
Silver	7440-22-4		<0.10	ug/L				U	04/18/11
Antimony	7440-36-0		<0.30	ug/L				U	04/18/11
Barium	7440-39-3		<0.20	ug/L				U	04/18/11
Beryllium	7440-41-7		<0.10	ug/L				U	04/18/11
Cadmium	7440-43-9		<0.10	ug/L				U	04/18/11
Chromium	7440-47-3		<0.50	ug/L				U	04/18/11
Cobalt	7440-48-4		<0.050	ug/L				U	04/18/11
Copper	7440-50-8		<0.10	ug/L				U	04/18/11
Vanadium	7440-62-2		0.206	ug/L				B	04/18/11
Zinc	7440-66-6		<0.80	ug/L				U	04/18/11
Lead	7439-92-1		<0.10	ug/L				U	04/18/11
Strontium	7440-24-6		<0.10	ug/L				U	04/18/11
Thallium	7440-28-0		<0.050	ug/L				U	04/18/11
Tin	7440-31-5		<0.050	ug/L				U	04/18/11
Uranium	7440-61-1		<0.050	ug/L				U	04/18/11
Arsenic	7440-38-2		<0.40	ug/L				U	04/18/11
Selenium	7782-49-2		<0.30	ug/L				U	04/18/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112015

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS			**QC Sample #53361**							
Nickel	7440-02-0		37.5	ug/L	93.7	85 - 115				04/18/11
Silver	7440-22-4		39.4	ug/L	98.6	85 - 115				04/18/11
Antimony	7440-36-0		38.2	ug/L	95.5	85 - 115				04/18/11
Barium	7440-39-3		39.5	ug/L	98.8	85 - 115				04/18/11
Beryllium	7440-41-7		38.8	ug/L	97	85 - 115				04/18/11
Cadmium	7440-43-9		37.1	ug/L	92.7	85 - 115				04/18/11
Chromium	7440-47-3		39.1	ug/L	97.6	85 - 115				04/18/11
Cobalt	7440-48-4		37.8	ug/L	94.4	85 - 115				04/18/11
Copper	7440-50-8		37.3	ug/L	93.2	85 - 115				04/18/11
Vanadium	7440-62-2		38.6	ug/L	96.4	85 - 115				04/18/11
Zinc	7440-66-6		34.5	ug/L	86.3	85 - 115				04/18/11
Lead	7439-92-1		40.3	ug/L	100.8	85 - 115				04/18/11
Strontium	7440-24-6		39.0	ug/L	97.6	85 - 115				04/18/11
Thallium	7440-28-0		39.9	ug/L	99.8	85 - 115				04/18/11
Tin	7440-31-5		39.3	ug/L	98.2	85 - 115				04/18/11
Uranium	7440-61-1		40.6	ug/L	101.6	85 - 115				04/18/11
Arsenic	7440-38-2		36.5	ug/L	91.3	85 - 115				04/18/11
Selenium	7782-49-2		35.5	ug/L	88.7	85 - 115				04/18/11
MS			**QC Sample #53362**							
			Original 112001006							
Nickel	7440-02-0		35.5	ug/L	88.8	70 - 130				04/18/11
Silver	7440-22-4		38.2	ug/L	95.4	70 - 130				04/18/11
Antimony	7440-36-0		39.9	ug/L	99.8	70 - 130				04/18/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112015

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Barium	7440-39-3		37.3	ug/L	93.3	70 - 130				04/18/11
Beryllium	7440-41-7		37.0	ug/L	92.4	70 - 130				04/18/11
Cadmium	7440-43-9		37.8	ug/L	94.4	70 - 130				04/18/11
Chromium	7440-47-3		39.0	ug/L	97.6	70 - 130				04/18/11
Cobalt	7440-48-4		36.4	ug/L	91.1	70 - 130				04/18/11
Copper	7440-50-8		35.1	ug/L	87.8	70 - 130				04/18/11
Vanadium	7440-62-2		39.0	ug/L	97.6	70 - 130				04/18/11
Zinc	7440-66-6		35.0	ug/L	87.5	70 - 130				04/18/11
Lead	7439-92-1		40.8	ug/L	102.1	70 - 130				04/18/11
Strontium	7440-24-6		34.3	ug/L	85.8	70 - 130			X	04/18/11
Thallium	7440-28-0		41.3	ug/L	103.3	70 - 130				04/18/11
Tin	7440-31-5		40.2	ug/L	100.6	70 - 130				04/18/11
Uranium	7440-61-1		42.4	ug/L	106	70 - 130				04/18/11
Arsenic	7440-38-2		39.3	ug/L	98.3	70 - 130				04/18/11
Selenium	7782-49-2		35.7	ug/L	89.2	70 - 130				04/18/11
MSD			**QC Sample #53363**							
			Original 112001006					**Paired**	**53362**	
Nickel	7440-02-0		34.5	ug/L	86.2	70 - 130	3.00	20		04/18/11
Silver	7440-22-4		37.4	ug/L	93.4	70 - 130	2.10	20		04/18/11
Antimony	7440-36-0		39.1	ug/L	97.7	70 - 130	2.10	20		04/18/11
Barium	7440-39-3		34.8	ug/L	87	70 - 130	7.00	20		04/18/11
Beryllium	7440-41-7		36.5	ug/L	91.3	70 - 130	1.20	20		04/18/11
Cadmium	7440-43-9		36.7	ug/L	91.8	70 - 130	2.80	20		04/18/11
Chromium	7440-47-3		38.5	ug/L	96.2	70 - 130	1.40	20		04/18/11
Cobalt	7440-48-4		35.9	ug/L	89.8	70 - 130	1.40	20		04/18/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112015

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
Copper	7440-50-8		34.5	ug/L	86.2	70 - 130	1.80	20			04/18/11
Vanadium	7440-62-2		38.5	ug/L	96.3	70 - 130	1.30	20			04/18/11
Zinc	7440-66-6		35.0	ug/L	87.5	70 - 130	0.00	20			04/18/11
Lead	7439-92-1		40.2	ug/L	100.4	70 - 130	1.70	20			04/18/11
Strontium	7440-24-6		25.3	ug/L	63.2	70 - 130	30.30	20	*	X	04/18/11
Thallium	7440-28-0		40.3	ug/L	100.6	70 - 130	2.60	20			04/18/11
Tin	7440-31-5		39.6	ug/L	99	70 - 130	1.60	20			04/18/11
Uranium	7440-61-1		42.2	ug/L	105.5	70 - 130	0.50	20			04/18/11
Arsenic	7440-38-2		38.6	ug/L	96.6	70 - 130	1.70	20			04/18/11
Selenium	7782-49-2		35.2	ug/L	88.1	70 - 130	1.20	20			04/18/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112015

QC Batch 181358
Associated Samples 112015001

Test SW-846 8270D Semivolatiles (PAHSIM)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #112015001**							
Nitrobenzene-d5	4165-60-0				77.1	25 - 144				04/26/11
2-Fluorobiphenyl	321-60-8				81.6	52 - 113				04/26/11
Terphenyl-d14	98904-43-9				85.2	63 - 132				04/26/11
BLANK			**QC Sample #54040**							
Nitrobenzene-d5	4165-60-0				79.7	25 - 144				04/26/11
2-Fluorobiphenyl	321-60-8				84.3	52 - 113				04/26/11
Terphenyl-d14	98904-43-9				84.4	63 - 132				04/26/11
LCS			**QC Sample #54041**							
Nitrobenzene-d5	4165-60-0				88.7	25 - 144				04/26/11
2-Fluorobiphenyl	321-60-8				89.9	52 - 113				04/26/11
Terphenyl-d14	98904-43-9				91.6	63 - 132				04/26/11
MS			**QC Sample #54042**							
			Original 112015001							
Nitrobenzene-d5	4165-60-0				86.6	25 - 144				04/26/11
2-Fluorobiphenyl	321-60-8				87.8	52 - 113				04/26/11
Terphenyl-d14	98904-43-9				87.6	63 - 132				04/26/11
MSD			**QC Sample #54043**							
			Original 112015001					**Paired 54042**		

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112015

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Nitrobenzene-d5	4165-60-0				86.4	25 - 144	0.20			04/26/11
2-Fluorobiphenyl	321-60-8				88.5	52 - 113	0.80			04/26/11
Terphenyl-d14	98904-43-9				93.9	63 - 132	6.90			04/26/11

Analytical Comment Report

Attention: Michael Neely

Group # WSCF112015

Quality Control Comments

Department Inorganic

53362 B2CFF8(112001006MS)

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.

53363 B2CFF8(112001006MSD)

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.

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 #:	402752/ES20
Work Order #:	112015
Profile #:	F11-098-002
Proj. Mgr.:	
Phone:	

The following samples were received from you on 4/14/2011 9:05:00 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		
112015001	B2D0L4	WATER	4/14/2011 07:20	4/14/2011 09:05
		2008-W; 6010-W; 8270SV-W		

Test Acronym Description

Test Acronym	Description
2008-W	ICP-MS (W)
6010-W	ICP-AES (W)
8270SV-W	Semivolatiles by 8270D (W)

Sample Receipt

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F11-098-002

PAGE 1 OF 2

COLLECTOR: Scales	COMPANY CONTACT: LUKE, SN	TELEPHONE NO.: 372-1667	PROJECT COORDINATOR: BAUER, RG
PRICE CODE: 7C	DATA TURNAROUND: 15 Days / 15 Days	SAMPLING LOCATION: 600-218 Ver CB - 1	PROJECT DESIGNATION: 600-218 Verification Sampling and Analysis - QC Sampling
SAF NO.: F11-098	AIR QUALITY	ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-807-14
ACTUAL SAMPLE DEPTH: N/A	COA: 302701ES10	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, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=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)

112D15

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool<4C	HNO3 to pH <2
HOLDING TIME	7/40 Days	6 Months
TYPE OF CONTAINER	aG	G/P
NO. OF CONTAINER(S)	4	1
VOLUME	1L	500mL
SAMPLE ANALYSIS	8270_SVOA_GC MS SIM	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B2DJL4	WATER	4-14-11	0720	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: J Scales	DATE/TIME: 4-14-11 0905	RECEIVED BY/STORED IN: [illegible]	DATE/TIME: 4-14-11 0905
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 4/11/2011

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F11-098-002

PAGE 2 OF 2

ILLECTOR Scales	COMPANY CONTACT LUKE, SN	TELEPHONE NO. 372-1667	PROJECT COORDINATOR BAUER, RG	PRICE CODE /C	DATA TURNAROUND 15 Days / 15 Days
MPLING LOCATION X-218 Ver EB - 1	PROJECT DESIGNATION 600-218 Verification Sampling and Analysis (X. Sampling		SAF NO. F11-098	AIR QUALITY ☐	
E CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-11	ACTUAL SAMPLE DEPTH N/A	COA 302701ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
IPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

ECIAL INSTRUCTIONS

ote - If sampling is completed in one day, collect only the equipment blank. If a second day is required, the field transfer blank will also be collected.

The CACN for all analytical work at WSCF laboratory is 402752ES20.
The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis CKI applies to this SAF.
The laboratory shall report only the requested constituents of concern in all final data reports, and EDDs. QC results for non requested constituents need not be reported, but mples chosen for matrix spike, and all spike compounds shall be identified in the final data report case narrative. No TICs shall be reported.
) ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, lenium, Strontium, Thallium, Tin, Uranium}; ICP Metals - 6010 (Add-On) {Boron, Lithium};

NED ON 4/11/2011

A 6003 (10 (REV 2)