

NOVEMBER 13, 2012

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



November 13, 2012

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF121389

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 WSCF121389

- * 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 # WSCF121389
Data Deliverable Date 12/03/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
I13-002	B2MT28	121389001	WATER	10/31/12	10/31/12
I13-002	B2MRW8	121389002	WATER	10/31/12	10/31/12
I13-003	B2MPF9	121389003	WATER	10/31/12	10/31/12

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.

Attachment 2
Narrative
WSCF121389

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.

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 8 pages
Including cover page

NOVEMBER 13, 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 # WSCF121389
Report Date November 13, 2012

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) 373-7005. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
209865	209865	17	LCS	84587	LCS		Hexavalent chromium Discrete Analyzer
209865	209865	18	BLANK	84588	BLANK		Hexavalent chromium Discrete Analyzer
209865	209865	19	DUP	84589	B2MKY1(121386013DUP	121386013	Hexavalent chromium Discrete Analyzer
209865	209865	20	MS	84590	B2MKY1(121386013MS)	121386013	Hexavalent chromium Discrete Analyzer
209865	209865	25	SAMPLE	121389001	B2MT28		Hexavalent chromium Discrete Analyzer
209865	209865	26	SAMPLE	121389002	B2MRW8		Hexavalent chromium Discrete Analyzer
209865	209865	27	SAMPLE	121389003	B2MPF9		Hexavalent chromium Discrete Analyzer

Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

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

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

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

Sample # 121389001
 SAF# 113-002
 Sample ID B2MT28

Matrix WATER
 Sampled 10/31/12
 Received 10/31/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										10/31/12
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.0505		mg/L	1	0.0020	0.0050	10/31/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

Sample # 121389002
 SAF# 113-002
 Sample ID B2MRW8

Matrix WATER
 Sampled 10/31/12
 Received 10/31/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										10/31/12
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.0120		mg/L	1	0.0020	0.0050	10/31/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

Sample # 121389003
 SAF# 113-003
 Sample ID B2MPF9

Matrix WATER
 Sampled 10/31/12
 Received 10/31/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										10/31/12
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.0321		mg/L	1	0.0020	0.0050	10/31/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121389

Analytical Batch 209865 (QC Batch: 209865) Test Hexavalent chromium Discrete Analyzer
 Associated Samples 121389001, 121389002, 121389003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS		QC Sample #84587								
Hexavalent chromium	18540-29-9		0.0537	mg/L	107.4	90 - 110				10/31/12
BLANK		QC Sample #84588								
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	10/31/12
DUP		QC Sample #84589								
		Original 121386013								
Hexavalent chromium	18540-29-9		0.00700	mg/L			7.40	20		10/31/12
MS		QC Sample #84590								
		Original 121386013								
Hexavalent chromium	18540-29-9		0.0404	mg/L	101	85 - 115				10/31/12

* - QC result out of range

n/a - Not Applicable

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 5 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 #: 121389

Profile #: 113-002-357

Proj. Mgr.:

Phone:

The following samples were received from you on 10/31/2012 3:25:00 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				
121389001	B2MT28	WATER	10/31/2012 13:21	10/31/2012 15:25
		CR6DA-W		
121389002	B2MRW8	WATER	10/31/2012 11:39	10/31/2012 15:25
		CR6DA-W		
121389003	B2MPF9	WATER	10/31/2012 09:49	10/31/2012 15:25
		CR6DA-W		

Test Acronym Description

Test Acronym	Description
CR6DA-W	Cr6 (W Discrete analyzer)

CH2M Hill Plateau Remediation Company

C.O.C. # 113-002-357
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: **D.J. Woehle** / **CHPRC** / 113-002
 Telephone No. 376-4650

Project Title: **100KR4(1) NOVEMBER 2012**
 Purchase Order/Charge Code: 30007IES20

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

Protocol: **CERCLA**
 Method of Shipment: **GOVERNMENT VEHICLE**
 Priority: **31 Days**
 Offsite Property No. N/A

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

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

Hold Time
 Total Activity Exemption: Yes No

Sample No. **B2MT28** / Filter **N** / Date **10-31-12** / Time **1321** / No./Type Container **1x500-mL aG** / Sample Analysis **7196_CR6 Hexavalent Chromium (1)** / Holding Time **24 Hours** / Preservative **Cool-4C**

Relinquished By D.J. Woehle CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time OCT 31 2012 1535	Received By TAFARAZI, J.	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time OCT 31 2012 1535	Matrix *
Relinquished By			Date/Time	Received By			Date/Time	S = Soil
Relinquished By			Date/Time	Received By			Date/Time	SE = Sediment
Relinquished By			Date/Time	Received By			Date/Time	SO = Solid
								T = Tissue
								SL = Sludge
								W = Water
								L = Liquid
								O = Oil
								V = Vegetation
								A = Air
								X = Other

FINAL SAMPLE DISPOSITION
 Disposal Method (e.g., Return to customer, per lab procedure, used in process)

PRINTED ON 10/10/2012 **A-5004-842 (REV 2)**

Chain of Custody

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **113-002-333** Page 1 of 1

Collector: **D.J. Wooshie** CHPRC
 Telephone No. **376-4650**

SAF No. **113-002**
 Purchase Order/Charge Code **300071ES20**

Project Title: **100KR4(1) NOVEMBER 2012**
 Ice Chest No. **N/A**

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

Protocol: **CERCLA**
 Priority: **31 Days**
 Offsite Property No. **N/A**

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per 1910.1047. Other: 3400.5 (1/9/01/1995)

SPECIAL INSTRUCTIONS Hold Time: **Total Activity Exemption: Yes No**
 (00 Area Generator Knowledge Information Form applies The CACN for all analytical work at WSCP is 401647. FY12 and FY13 samples cannot be in the same SDG.)

Sample No.	Filter	Qty	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2MRW8	2 N	W	10-31-12	1139	1x500-mL aG	7196_CR6: Hexavalent Chromium (1)	24 Hours	Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
D.J. Wooshie CHPRC			OCT 31 2012 1535	TA F. 10/31/12			OCT 31 2012 1535	S - Soil SE - Sediment SC - Solid SL - Sludge W - Water O - Oil V - Vegetation A - Air
Relinquished By			Date/Time	Received By			Date/Time	DS - Drum Solids DL - Drum Liquids T - Tissue Wp - Wipe L - Liquid X - Other
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: _____ Date/Time: _____

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

Chain of Custody

C.O.C.# **113-003-099**
Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2MHill Plateau Remediation Company

Collector: **D.J. Woehle**
 SAF No.: **113-003**
 Project Title: **100KR4(2), NOVEMBER 2012**
 Shipped To (Lab): **Waste Sampling & Characterization**
 Protocol: **CERCLA**

Contact/Requester: **Karen Waters-Husted**
 Telephone No.: **376-4650**
 Sampling Origin: **Hanford Site**
 Logbook No.: **HNF-N-506 48 / 85**
 Method of Shipment: **GOVERNMENT VEHICLE**
 Priority: **31 Days**
 Purchase Order/Charge Code: **300071ES20**
 Ice Chest No.: **N/A**
 Bill of Lading/Air Bill No.: **N/A**
 Offsite Property No.: **N/A**

PRIORITY
 SPECIAL INSTRUCTIONS Hold Time: **24 Hours**
 100 Area Generator Knowledge Information Form applies
 The CACN for all analytical work at WSCF is 401647.
 FY12 and FY13 samples cannot be in the same SDG.

Total Activity Exemption: Yes No

Sample No.	Filter	No./Type Container	Time	Date	Sign	Sample Analysis	Holding Time	Preservative
B2MPF9	3	N	W	10-31-12	0949	1x500-mL aG 7196_CR6: Hexavalent Chromium (I)	24 Hours	Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
D.J. Woehle	<i>[Signature]</i>	<i>[Signature]</i>	OCT 31 2012 1525	TA Morrison	<i>[Signature]</i>	<i>[Signature]</i>	OCT 31 2012 1535	S = Soil DS = Drum Solids SE = Sediment DL = Drums Liquids SO = Solid T = Tissue SL = Sludge WI = Wipes 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)
 Disposed By: _____ Date/Time: _____

PRINTED ON 10/10/2012 A-6004-942 (REV 2)