

JANUARY 13, 2014

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



January 13, 2014

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF140032

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 WSCF140032

- * 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, 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 # WSCF140032
Data Deliverable Date 01/23/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F13-051	B2RWB6	140032001	WATER	01/08/14	01/08/14

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

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), to Contract 39818, Revision 4, "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, 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.
- **o** – LCS recovery outside established laboratory acceptance limits.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report* for a complete listing of approved analytical methods.

Inorganic Comments

Attachment 2
Narrative
WSCF140032

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.

JANUARY 13, 2014

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 6 pages
Including cover page

JANUARY 13, 2014

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF140032
Report Date January 13, 2014

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Bruce Buchanan

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 # WSCF140032

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
226142	226142	1	BLANK	103690	BLANK		Hexavalent chromium Discrete Analyzer
226142	226142	3	LCS	103692	LCS		Hexavalent chromium Discrete Analyzer
226142	226142	4	DUP	103693	B2RYP7(140035001DUP)	140035001	Hexavalent chromium Discrete Analyzer
226142	226142	5	MS	103694	B2RYP7(140035001MS)	140035001	Hexavalent chromium Discrete Analyzer
226142	226142	11	SAMPLE	140032001	B2RWB6		Hexavalent chromium Discrete Analyzer

Method Reference

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140032

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 # WSCF140032

Sample # 140032001
 SAF# F13-051
 Sample ID B2RWB6

Matrix WATER
 Sampled 01/08/14
 Received 01/08/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										01/08/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.0298		mg/L	1	0.0020	0.0050	01/08/14

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

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

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140032

Analytical Batch 226142 (QC Batch: 226142) **Test** Hexavalent chromium Discrete Analyzer
Associated Samples 140032001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #103690							
Hexavalent chromium LCS	18540-29-9	<0.0020		mg/L					U	01/08/14
			QC Sample #103692							
Hexavalent chromium DUP	18540-29-9	0.0538		mg/L	107.6	90 - 110				01/08/14
			QC Sample #103693							
			Original 140035001							
Hexavalent chromium MS	18540-29-9	<0.0020		mg/L			16.70	20	U	01/08/14
			QC Sample #103694							
			Original 140035001							
Hexavalent chromium	18540-29-9	0.0432		mg/L	108	85 - 115				01/08/14

* - QC result out of range

n/a - Not Applicable

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 3 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. Box 650 S3-30, Richland WA 99352
Phone: (509) 373-7005/FAX: (509) 372-0456

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

ATTN: Scot Fitzgerald

Customer Code: CHPRC
CA CN: 404401
Work Order #: 140032
Customer Work ID: F13-051-207
Due Date: 01/23/2014

The following samples were received from you on 1/8/2014 2:20:00 PM. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact WSCF Client Services. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
140032001	B2RWB6	WATER	1/8/2014 09:30	1/8/2014 14:20
Procedure	Compound List			
Hexavalent chromium Discrete Analyzer	C r6			

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				PAGE 1 OF 1	
COLLECTOR <i>Karen Crow</i>	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days		
SAMPLING LOCATION CB76L, 1011 DUP	PROJECT DESIGNATION Sampling and Analysis of New Weils in 100-BC Area - Water	FIELD LOGBOOK NO. 0101-N-507-23/54	SAF NO. F13 051	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE ORIGINAL		
ICE CHEST NO.	ACTUAL SAMPLE DEPTH 188.6	COA 3022105210	BILL OF LADING/AIR BILL NO. N/A				
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A						
POSSIBLE SAMPLE HAZARDS/ REMARKS **Corkelis 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 438.1** A-Air D-Drum L-Liquid OS-Drum S-Skids L-Liquid C-Can S-Soil SC-Sediment V-Vegetation W-Water WC-Water Contaminant X-Other	PRESERVATION Cool -4C	HOLDING TIME 24 Hours	NO. OF CONTAINER(S) 1	VOLUME 500ml	SPECIAL HANDLING AND/OR STORAGE		
	SAMPLE NO. 140032	SAMPLE DATE 1-8-14	SAMPLE TIME 0930				
	MATRIX WATER						
	<p style="text-align: center;">FILTER</p>						
	<p style="text-align: center;">140032</p>						

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Christina E. Eddle</i>	DATE/TIME 1-8-14 1430	RECEIVED BY/STORER <i>J. A. Frazier</i>	DATE/TIME 1-8-14 1430	** The CACN for WSCF Analytical is 404401. □** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRV -13-105 <p style="text-align: center;">FILTER</p> <p style="text-align: center;">TRV-13-105</p>	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORER	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORER	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORER	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORER	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORER	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME	DATE/TIME	