

DECEMBER 31, 2013

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



December 31, 2013

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF131588

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 WSCF131588

- * 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 # WSCF131588
Data Deliverable Date 01/10/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F13-051	B2RYN5	131588001	WATER	12/26/13	12/26/13

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
WSCF131588

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 6 pages
Including cover page

DECEMBER 31, 2013

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF131588
Report Date December 31, 2013

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 # WSCF131588

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
225454	225454	1	BLANK	103148	BLANK		Hexavalent chromium Discrete Analyzer
225454	225454	3	LCS	103150	LCS		Hexavalent chromium Discrete Analyzer
225454	225454	4	DUP	103151	B2RYN5(131588001DUP)	131588001	Hexavalent chromium Discrete Analyzer
225454	225454	5	MS	103152	B2RYN5(131588001MS)	131588001	Hexavalent chromium Discrete Analyzer
225454	225454	6	SAMPLE	131588001	B2RYN5		Hexavalent chromium Discrete Analyzer

Method Reference

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF131588

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 # WSCF131588

Sample # 131588001
 SAF# F13-051
 Sample ID B2RYN5

Matrix WATER
 Sampled 12/26/13
 Received 12/26/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										12/26/13
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.00670		mg/L	1	0.0020	0.0050	12/26/13

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 # WSCF131588

Analytical Batch 225454 (QC Batch: 225454) Test Hexavalent chromium Discrete Analyzer
 Associated Samples 131588001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	12/26/13
LCS										
Hexavalent chromium	18540-29-9		0.0511	mg/L	102.2	90 - 110				12/26/13
DUP										
Hexavalent chromium	18540-29-9	0.00670	0.00670	mg/L			0.00	20		12/26/13
MS										
Hexavalent chromium	18540-29-9	0.00670	0.0428	mg/L	107	85 - 115				12/26/13

* - 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 #: 131588
Customer Work ID: F13-051-302
Due Date: 01/10/2014

The following samples were received from you on 12/26/2013 11:00:00 AM. 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
131588001	B2RYN5	WATER	12/26/2013 10:05	12/26/2013 11:00
Procedure	Compound List			
Hexavalent chromium Discrete Analyzer	Cr6			

Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>J. Aguilar</i>	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 1A	DATA TURNAROUND 24 Hours / 15 Days
SAMPLING LOCATION CB76, 1-002	PROJECT DESIGNATION Sampling and Analysis of New Wells in 100-BC Area - Water	FIELD LOGBOOK NO. HMFN-507-29/49	SAF NO. F13 051	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 21A	FIELD LOGBOOK NO. HMFN-507-29/49	ACTUAL SAMPLE DEPTH 11.6'	COA 3032202510	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*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Holdng Time	24 Hours
A-Air	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)
B-Liquid	Liquids			
C-Solids	Solids			
D-Liquid	Liquids			
E-Oil	Oil			
F-Sediment	Sediment			
G-Residue	Residue			
H-Vegetation	Vegetation			
I-Water	Water			
J-Other	Other			
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		7196 CMG. COMMON
SAMPLE NO. 131588		SAMPLE DATE	12-20-13	SAMPLE TIME
BZRYN5	WATER		1005	

FILTER

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>J. Aguilar</i>	DATE/TIME 12-26-13 11:00	RECEIVED BY/STORED IN <i>K. Eversley</i>	DATE/TIME 12-26-13 11:00	** The CACN for WSCF Analytical is 404401. □ ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-109	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	<p>FILTER</p> <p>TRVL-13-109</p>	
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		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 9/24/2013