WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

RECEIVED JANUARY 06, 2011

0099331

January 6, 2011

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

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF103426

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 WSCF103426

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

Very truly yours,

RECEIVED
SEP 29 2011
EDMC

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

Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF103426
Data Deliverable Date 01/16/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
X11-005	B28JY0	103426001	WATER	12/17/10	12/17/10
X11-005	B28JY1	103426002	WATER	12/17/10	12/17/10
X11-005	B28K44	103426003	WATER	12/17/10	12/17/10
X11-005	B28K45	103426004	WATER	12/17/10	12/17/10

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Attachment 2
Narrative
WSCF103426

Introduction

Four (4) groundwater samples were received at the WSCF Laboratory on December 17, 2010. 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), 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

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):

- Batch QC 172517 analyzed on sample# B28JY0 (103426001)

All applicable QC controls are within the established limits.

1

Attachment 2
Narrative
WSCF103426

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.

2

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 9 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 #	WSCF103426
Report Date	January 6, 2011

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Richard Barker

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 # WSCF103426

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
172517	172517	1	BLANK	44397	BLANK		Hexavalent chromium Discrete Analyzer
172517	172517	3	LCS	44399	LCS		Hexavalent chromium Discrete Analyzer
172517	172517	4	DUP	44400	B28JY0(103426001DUP)	103426001	Hexavalent chromium Discrete Analyzer
172517	172517	5	MS	44401	B28JY0(103426001MS)	103426001	Hexavalent chromium Discrete Analyzer
172517	172517	6	SAMPLE	103426001	B28JY0		Hexavalent chromium Discrete Analyzer
172517	172517	7	SAMPLE	103426002	B28JY1		Hexavalent chromium Discrete Analyzer
172517	172517	8	SAMPLE	103426003	B28K44		Hexavalent chromium Discrete Analyzer
172517	172517	9	SAMPLE	103426004	B28K45		Hexavalent chromium Discrete Analyzer

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF103426

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

WSCF Analytical Results Report

Attention Michael Neely
Department Inorganic

Group # WSCF103426

Sample # 103426001
SAF# X11-005
Sample ID B28JY0

Matrix WATER
Sampled 12/17/10
Received 12/17/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										12/17/10
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	12/17/10

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 # WSCF103426

Sample # 103426002
SAF# X11-005
Sample ID B28JY1

Matrix WATER
Sampled 12/17/10
Received 12/17/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										12/17/10
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	12/17/10

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 # WSCF103426

Sample # 103426003
SAF# X11-005
Sample ID B28K44

Matrix WATER
Sampled 12/17/10
Received 12/17/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										**12/17/10**
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403		0.0120		mg/L	1	0.0020	0.0050	12/17/10

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 # WSCF103426

Sample # 103426004
SAF# X11-005
Sample ID B28K45

Matrix WATER
Sampled 12/17/10
Received 12/17/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										**12/17/10**
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403		0.0121		mg/L	1	0.0020	0.0050	12/17/10

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 # WSCF103426

QC Batch 172517
Associated Samples 103426001, 103426002, 103426003, 103426004

Test Hexavalent chromium Discrete Analyzer

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #44397**							
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	12/17/10
LCS			**QC Sample #44399**							
Hexavalent chromium	18540-29-9		0.0487	mg/L	97.4	90 - 110				12/17/10
DUP			**QC Sample #44400**							
			Original 103426001							
Hexavalent chromium	18540-29-9	<0.0020	<0.0020	mg/L			-120.00	20	U	12/17/10
MS			**QC Sample #44401**							
			Original 103426001							
Hexavalent chromium	18540-29-9	<0.0020	0.0422	mg/L	105.5	85 - 115				12/17/10

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 #: 401922
Work Order #: 103426
Profile #: X11-005-333
Proj. Mgr.:
Phone:

The following samples were received from you on 12/17/2010 3:00:00 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		
103426001	B28JY0	WATER	12/17/2010 10:07	12/17/2010 15:00
		CR6DA-W		
103426002	B28JY1	WATER	12/17/2010 10:07	12/17/2010 15:00
		CR6DA-W		
103426003	B28K44	WATER	12/17/2010 12:20	12/17/2010 15:00
		CR6DA-W		
103426004	B28K45	WATER	12/17/2010 12:20	12/17/2010 15:00
		CR6DA-W		

Test Acronym Description

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

C1PRC

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COC #: X11-005-333

Page 1 of 1

Collector: J.S. Arzoo CHPRC	Contact/Requester: Karen Warner Hazard	Telephone No. 376-3650
SAF No. 211-006	Sampling Origin	Purchase Order/Charge Code 3001HS48
Project Title RFI, FIELDERS, OCTOBER 2010	Logbook No. HNF-N-506 34/95	Ice Chest No. N/A
Shipped To (Lab) Wash Standards & Characterization	Method of Shipment Government Vehicle	Bill of Lading/Air Bill No. N/A
Protocol CERCLA	Priority: 30 Days PRIORITY	RORite Property No. N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

** Contact Requestor Mission at extraneous that are not required for transportation per 49 CFR but are on records per DOE Order 5820.2 (10CFR830)

3426

SPECIAL INSTRUCTIONS: Hold Time

Site Wide Area Excavation Knowledge Information Data applies

Use COC for chemical seals at WSCF to 40 CFR

Remove at TCC

Toxic Activity Screening: Yes ☒ No ☐

Sample ID	Filter	*	Date	Time	Net Type Container	Sample Analysis	Holding Time	Preservative
B23JY0	N	W	12-17-10	1500	1000-mL aG	7196, CRE Hexavalent Chromium (1)	24 Hours	Cool-4C
B23JY1	Y	W	12-17-10	1500	1000-mL aG	7196, CRE Hexavalent Chromium (1)	24 Hours	Cool-4C

Relinquished By	Date/Time	Received By	Date/Time
CHPRC	DEC 17 2010 1500		DEC 17 2010 1500
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix*: A - Air, B - Biological, DW - Drink Water, GW - Groundwater, O - Oil, P - Product, S - Soil, SD - Sediment, SL - Sludge, T - Tissue, W - Water, WI - Wipe, X - Other

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, to laboratory cold storage, etc.) | Disposed By | Date/Time

A-6004-842 (REV 2)

CHPRC

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #: X11-005-360

Page: 1 of 1

Collector: CHPRC	Contact/Requester: [illegible]	Telephone No.: [illegible]
SAF No.: X11-005	Sampling Origin:	Purchase Order/Charge Code: [illegible]
Project Title: [illegible] OCTOBER 2010	Logbook No.: HNF-N-506 [illegible]	Air Chain No.: N/A
Shipped To/Lab: Waste Sampling & Characterization	Method of Shipment: Government Vehicle	Bill of Lading/Air Bill No.: N/A
Protocol: [illegible]	Priority: 30 Days PRIORITY	Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS: [illegible]

SPECIAL INSTRUCTIONS: Hold Time [illegible] Local Activity Exemption: Yes [illegible] No

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B28K44 [illegible]	N	W	12-17-10	1220	1x500-mL aG	7196_CR6: Hexavalent Chromium (1)	24 Hours	Cool-4C
B28K45 [illegible]	[illegible]	W	12-17-10	1220	1x500-mL aG	7196_CR6: Hexavalent Chromium (1)	24 Hours	Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
CHPRC	[illegible]	[illegible]	DEC 17 2010 1500	[illegible]	[illegible]	[illegible]	DEC 17 2010 1500
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *: S = Soil; SD = Sediment; SL = Solid; SW = Swabs; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquid; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other

FINAL SAMPLE DISPOSITION: Disposal method by C. Fabian or designee, on file in records, and is correct. Received By: Date/Time

A-6004-342 (REV 2)