

May 13, 2014

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



May 13, 2014

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF140675

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 WSCF140675

- * 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

May 13, 2014

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF140675
 Data Deliverable Date 05/15/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
I14-022	B2W704	140675001	WATER	04/14/14	04/14/14
I14-022	B2W762	140675002	WATER	04/14/14	04/14/14
I14-022	B2W768	140675003	WATER	04/14/14	04/14/14
I14-022	B2W777	140675004	WATER	04/14/14	04/14/14
I14-022	B2W778	140675005	WATER	04/14/14	04/14/14
I14-022	B2W705	140675006	WATER	04/14/14	04/14/14
I14-022	B2W763	140675007	WATER	04/14/14	04/14/14
I14-022	B2W769	140675008	WATER	04/14/14	04/14/14
I14-022	B2W779	140675009	WATER	04/14/14	04/14/14
I14-022	B2W780	140675010	WATER	04/14/14	04/14/14

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)*, 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
WSCF140675

Anions – 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.

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.

May 13, 2014

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 18 pages
Including cover page

May 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 # WSCF140675
Report Date May 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 # WSCF140675

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
231847	231847	2	BLANK	108871	BLANK		Anions by Ion Chromatography (Water)
231847	231847	3	LCS	108872	LCS		Anions by Ion Chromatography (Water)
231847	231847	4	MS	108873	B2W704(140675001MS)	140675001	Anions by Ion Chromatography (Water)
231847	231847	5	MSD	108874	B2W704(140675001MSD)	140675001	Anions by Ion Chromatography (Water)
231847	231847	7	SAMPLE	140675001	B2W704		Anions by Ion Chromatography (Water)
231847	231847	8	SAMPLE	140675002	B2W762		Anions by Ion Chromatography (Water)
231847	231847	9	SAMPLE	140675003	B2W768		Anions by Ion Chromatography (Water)
231847	231847	10	SAMPLE	140675004	B2W777		Anions by Ion Chromatography (Water)
231847	231847	11	SAMPLE	140675005	B2W778		Anions by Ion Chromatography (Water)
231859	231859	1	BLANK	108898	BLANK		Hexavalent chromium Discrete Analyzer
231859	231859	3	LCS	108900	LCS		Hexavalent chromium Discrete Analyzer
231859	231859	4	DUP	108901	B2W763(140675007DUP)	140675007	Hexavalent chromium Discrete Analyzer
231859	231859	5	MS	108902	B2W763(140675007MS)	140675007	Hexavalent chromium Discrete Analyzer
231859	231859	6	SAMPLE	140675007	B2W763		Hexavalent chromium Discrete Analyzer
231859	231859	15	SAMPLE	140675006	B2W705		Hexavalent chromium Discrete Analyzer
231859	231859	17	LCS	108904	LCS		Hexavalent chromium Discrete Analyzer
231859	231859	18	BLANK	108905	BLANK		Hexavalent chromium Discrete Analyzer
231859	231859	19	DUP	108906	B2W2M6(140678001DUP)	140678001	Hexavalent chromium Discrete Analyzer
231859	231859	20	MS	108907	B2W2M6(140678001MS)	140678001	Hexavalent chromium Discrete Analyzer
231859	231859	22	SAMPLE	140675008	B2W769		Hexavalent chromium Discrete Analyzer
231859	231859	23	SAMPLE	140675009	B2W779		Hexavalent chromium Discrete Analyzer
231859	231859	24	SAMPLE	140675010	B2W780		Hexavalent chromium Discrete Analyzer

Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

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
LA-533-410	Anion Analysis by Ion Chromatography		
	EPA-600/R-94-111	300.0	Determination of Inorganic Anions by Ion Chromatography
	HEIS	300.0_ANIONS_IC	Determination of Inorganic Anions by Ion Chromatography

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 # WSCF140675

Sample # 140675001
 SAF# 114-022
 Sample ID B2W704

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/14/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.050		ug/mL	2	0.050	1.0	04/14/14
Chloride	16887-00-6	LA-533-410	D	1.04		ug/mL	2	0.12	0.80	04/14/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Nitrate-N	NO3-N	LA-533-410	D	0.304		ug/mL	2	0.040	0.20	04/14/14
Sulfate	14808-79-8	LA-533-410	D	10.7		ug/mL	2	0.22	1.1	04/14/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675002
 SAF# 114-022
 Sample ID B2W762

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/14/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.0572		ug/mL	2	0.050	1.0	04/14/14
Chloride	16887-00-6	LA-533-410	D	18.2		ug/mL	2	0.12	0.80	04/14/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Nitrate-N	NO3-N	LA-533-410	D	3.62		ug/mL	2	0.040	0.20	04/14/14
Sulfate	14808-79-8	LA-533-410	D	56.6		ug/mL	2	0.22	1.1	04/14/14

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)
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 Department Inorganic

Group # WSCF140675

Sample # 140675003
 SAF# 114-022
 Sample ID B2W768

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/14/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.0625		ug/mL	2	0.050	1.0	04/14/14
Chloride	16887-00-6	LA-533-410	D	17.2		ug/mL	2	0.12	0.80	04/14/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Nitrate-N	NO3-N	LA-533-410	D	3.46		ug/mL	2	0.040	0.20	04/14/14
Sulfate	14808-79-8	LA-533-410	D	53.0		ug/mL	2	0.22	1.1	04/14/14

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.
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Group # WSCF140675

Sample # 140675004
 SAF# 114-022
 Sample ID B2W777

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/14/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.050		ug/mL	2	0.050	1.0	04/14/14
Chloride	16887-00-6	LA-533-410	UD	<0.12		ug/mL	2	0.12	0.80	04/14/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Nitrate-N	NO3-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Sulfate	14808-79-8	LA-533-410	UD	<0.22		ug/mL	2	0.22	1.1	04/14/14

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.
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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675005
 SAF# 114-022
 Sample ID B2W778

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/14/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.158		ug/mL	2	0.050	1.0	04/14/14
Chloride	16887-00-6	LA-533-410	D	64.6		ug/mL	2	0.12	0.80	04/14/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/14/14
Nitrate-N	NO3-N	LA-533-410	D	13.8		ug/mL	2	0.040	0.20	04/14/14
Sulfate	14808-79-8	LA-533-410	D	20.7		ug/mL	2	0.22	1.1	04/14/14

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)
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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675006
 SAF# 114-022
 Sample ID B2W705

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										04/14/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	04/14/14

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)
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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675007
 SAF# 114-022
 Sample ID B2W763

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										04/14/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.00760		mg/L	1	0.0020	0.0050	04/14/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675008
 SAF# 114-022
 Sample ID B2W769

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										04/14/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403	B	0.00400		mg/L	1	0.0020	0.0050	04/14/14

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)
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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675009
 SAF# 114-022
 Sample ID B2W779

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										04/14/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	04/14/14

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)
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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Sample # 140675010
 SAF# 114-022
 Sample ID B2W780

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										04/14/14
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403	B	0.00400		mg/L	1	0.0020	0.0050	04/14/14

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.

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140675

Analytical Batch 231859 (QC Batch: 231859) Test Hexavalent chromium Discrete Analyzer
 Associated Samples 140675006, 140675007, 140675008, 140675009, 140675010

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #108898							
Hexavalent chromium LCS	18540-29-9		<0.0020	mg/L					U	04/14/14
			QC Sample #108900							
Hexavalent chromium DUP	18540-29-9		0.0519	mg/L	103.8	90 - 110				04/14/14
			QC Sample #108901							
			Original 140675007							
Hexavalent chromium MS	18540-29-9	0.00760	0.00730	mg/L			4.00	20		04/14/14
			QC Sample #108902							
			Original 140675007							
Hexavalent chromium LCS	18540-29-9	0.00760	0.0389	mg/L	97.2	85 - 115				04/14/14
			QC Sample #108904							
Hexavalent chromium BLANK	18540-29-9		0.0522	mg/L	104.4	90 - 110				04/14/14
			QC Sample #108905							
Hexavalent chromium DUP	18540-29-9		<0.0020	mg/L					U	04/14/14
			QC Sample #108906							
			Original 140678001							
Hexavalent chromium	18540-29-9		0.00210	mg/L			9.10	20	B	04/14/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

May 13, 2014

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140675

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
MS			QC Sample #108907							
			Original 140678001							
Hexavalent chromium	18540-29-9		0.0387	mg/L	96.8	85 - 115				04/14/14
* - QC result out of range				n/a - Not Applicable						

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 13 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: 401647
Work Order #: 140675
Customer Work ID: I14-022-022
Due Date: 05/15/2014 **(R031)**

The following samples were received from you on 4/14/2014 2:50:00 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
140675001	B2W704	WATER	4/14/2014 13:53	4/14/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140675002	B2W762	WATER	4/14/2014 12:31	4/14/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140675003	B2W768	WATER	4/14/2014 10:35	4/14/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140675004	B2W777	WATER	4/14/2014 08:30	4/14/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140675005	B2W778	WATER	4/14/2014 09:46	4/14/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140675006	B2W705	WATER	4/14/2014 13:53	4/14/2014 14:50
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
140675007	B2W763	WATER	4/14/2014 12:31	4/14/2014 14:50
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
140675008	B2W769	WATER	4/14/2014 10:35	4/14/2014 14:50
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		Cr6		

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

Sample #	Sample ID	Matrix	Collected	Received
140675009	B2W779	WATER	4/14/2014 08:30	4/14/2014 14:50
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		C r6		
Sample #	Sample ID	Matrix	Collected	Received
140675010	B2W780	WATER	4/14/2014 09:46	4/14/2014 14:50
Procedure		Compound List		
Hexavalent chromium Discrete Analyzer		C r6		

Sample Receipt

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 114-022-022
Page 1 of 1

Collector	JC Fulton CHPRG	Contact/Requester	Karen Walters-Husted	Telephone No.	509-376-4650
SAF No.	114-022	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071FNS20
Project Title	100KR4, APRIL 2014	Logbook No.	HNF-N-506 61/89	Kit Check No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
*** Contact Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.			100 Area Generator Knowledge Information Form applies. The CACN for analytical work at WSCF is 40.047.		

Sample No.	Filter	Date	Nc/Type Container	Sample Analysis	Holding Time	Preservative
B2W704	N	4/14/14	1X500-mL P	300.0_ANIONS_IC:COMMON	48 HOURS	COOL-4C

Relinquished By	JC Fulton CHPRG	Sign	Date/Time	APR 14 2014 1450	Received By	TA Frazier Thom J.	Sign	Date/Time	APR 14 2014 1450
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	

S	=	Soil	DS	=	Deen Solids
SD	=	Sediment	JL	=	Drum Liquids
SL	=	Solid	T	=	Tissue
SL	=	Sludge	WT	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

Chain of Custody

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CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 114-022-057
Page 1 of 1

Collector	JG Fulton CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	114-022	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100KR4, APRIL 2014	Logbook No.	HNF-N-50661/89	Ac Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Precedent	CERCLA	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/49 TA Dangerous Goods Regulations but are not releasable per DOE Order 498.1.			100 Area Generator Knowledge Information Form applies. The CACM for analytical work at WSCF is 40/647.		
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			Held Time		

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2W768	3	N	4/14/14	1035	1X500-ML P	300.2_ANIONS_IC:COMMON	48 Hours	COOL-4C

Chain of Custody

Relinquished By	JG Fulton CHPRC	Sign		Date/Time	APR 14 2014 1450	Received By	TA Mzin D. Mzin	Sign		Date/Time	APR 14 2014 1450	Matrix *	S = Soil SD = Sediment SL = Sludge W = Water O = Oil A = Air DS = Debris Solids DL = Debris Liquids T = Tissue W1 = Wipe L = Liquid V = Vegetation 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 the procedure, used in process)										Disposed By		

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CI2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 114-022-062
Page 1 of 1

Collector	JG Fulton CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAP No.	114-022	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100KR4, APRIL 2014	Logbook No.	HNF-N-506 61/89	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Priority	CERCLA	Priority	31 Days	Offsite Property No.	N/A
<p>POSSIBLE SAMPLE HAZARDS/REMARKS ** ** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/171A Dangerous Goods Regulations but are not releasable per DOE Order 438.1.</p>			<p>SPECIAL INSTRUCTIONS Hold Time 100 Area Generator Knowledge Information Form applies. The CACN for analytical work at WSCF is 401047.</p>		
Sample No.	Filter	Date	Time	No. Type Container	Sample Analysis
BZW77	4	N	W	9/14/14	0830
				1x500-mL P	300.0 ANIONS_IC:COMMUN
					48 HOURS
					Preservative
					C001-4C
					Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Chain of Custody

Relinquished By	JG Fulton	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Matrix *
Relinquished By	CHPRC			APR 14 2014 1450	MA Frimman			APR 14 2014 1450	S = Soil SE = Sediment SD = Solid SL = Sludge W = Water C = Cell A = Air
Relinquished By					Received By				D/S = Drum Solids DL = Drum Liquids T = Tissue W/L = Wipe L = Liquid Y = Yeast X = Other
Relinquished By					Received By				
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		

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CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 114-022-058

Page 1 of 1

Collector	JC Fulton CHPRC 1/4-077	Contact/Requester	Karen Waters-Husted Hamford Site	Telephone No.	509-375-4650
Project Title	100KR4, APRIL 2014	Logbook No.	HNF-N-506 <u>61/89</u>	Purchase Order/Charge Code	300071ESS20
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Ice Chest No.	N/A
Priority	CERCLA	Priority	31 Days	Bill of Lading/Air Bill No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.			100 Area Generator Knowledge information from applic. The CACN for analytical work at WSCF is 401647.		
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis
BZW/69	8	N	W	4/14/14	1035
				1X500-mL AG	798 CR6 COMMON
					24 HOURS
					Preservative
					C201-4C

Chain of Custody

Relinquished By	JC Fulton CHPRC	Sign		Date/Time	APR 14 2014	1450	Received By	T. A. ...	Sign		Date/Time	APR 14 2014	1450
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time			
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time			
Relinquished By		Date/Time		Received By		Date/Time		Date/Time		Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):												

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S	Soil	DS	Drum Solids
SE	Sediment	DL	Drum Liquids
SL	Solid	T	Tissue
SR	Sludge	W/L	Wipe
W	Water	L	Liquid
O	Oil	V	Vegetation
A	Air	X	Other

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

114-022-063

Page 1 of 1

Collector JC Fulton CHPRC 114-022	Contact/Requester Karen Waters-Husted Hanford Site	Telephone No. 509-376-4650
Project No. 114-022	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071ES20
Project Title 100K R4, APRIL, 2014	Logbook No. HNF-N-S106 601/89	Ice Chest No. N/A
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment C/OVERNIGHT SERVICE	Bill of Lading/Air Bill No. N/A
Protocol CERCLA	Priority: 31 Days PRIORITY	Offsite Property No. N/A

*** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.

POSSIBLE SAMPLE HAZARDS/REMARKS
SPECIAL INSTRUCTIONS
100 Area Generator Knowledge Information Form applies. 1lb C/MCN for analytical work at WSCF is 40047.

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative		
E2N/79	9	N	W	4/14/14	0830	1x500-mL 8G	7196_C-36: COMMON	24 Hours	Cool-4C

Chain of Custody

Relinquished By JC Fulton CHPRC	Sign	Date/Time APR 14 2014 1450	Received By T. Enayian J. Enayian	Sign	Date/Time APR 14 2014 1450	Matrix *
Relinquished By		Date/Time	Received By		Date/Time	Soil Sediment Solid Sludge Water Oil Air
Relinquished By		Date/Time	Received By		Date/Time	Dust Solids Drum Liquids Tissue Wire Liquid Vegetation Other
FINAL SAMPLE DISPOSITION	Disposed Method (e.g., Return to customer, per lab procedure, used in process)					Disposed By

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CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
114-022-066
Page 1 of 1

Collector	JC Fulton CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4550
SAT No.	114-022	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100KR4, APRIL 2014	Logbook No.	HNF-N-506 <u>61/89</u>	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 19 CFR/171A Dangerous Goods Regulations but are not releasable per DOE Order 438.1.			100 Area Generator Knowledge Information Form applies. The CACN for analytical work at WSCF is 401647.		
Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis
B2W/80	10	N	W	APR 14 0940	1X500-ML AG
					7196_CRF6: COMMON
					24 HOURS
					Preservative
					C001-4C

Chain of Custody

Relinquished By	JC Fulton CHPRC	Signature	Date/Time	Received By	TA Enzler Tanner Enzler	Signature	Date/Time
Relinquished By			APR 14 2014 1450	Received By			APR 14 2014 1450
Relinquished By				Received By			
Relinquished By				Received By			
Relinquished By				Received By			
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			

S	=	Soil	DS	=	Drum Solids
SD	=	Sediment	JL	=	Drum Liquids
SL	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetative
A	=	Air	X	=	Other

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