

RECEIVED NOVEMBER 21, 2008

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 WSCF Analytical Lab
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 Richland, Washington 99352
 Telephone 373-7495
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FLUOR[®]

M4W41-SLF-08-1251

November 20, 2008

Mr. M. A. Neely, Manager
 Analytical Services
 CH2M HILL Plateau Remediation Contract
 1933 Jadwin MSIN B6-06
 Richland, WA 99352

Dear Mike:

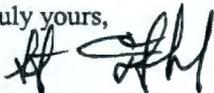
FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082245

- Reference: (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the Performance & Payment of Services, dated October 1, 2008
- (2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following attachments for sample delivery group WSCF20082245:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Issue Resolution Form (Attachment 3)
- Analytical Results (Attachment 4)
- Sample Receipt Information (Attachment 5)

Very truly yours,



S. L. Fitzgerald
 WSCF Analytical Lab

SLF/grf

Attachments 5

cc: w/Attachments

T. F. Dale	S3-30
A. J. Kopriva	S3-30
H. K. Meznarich	S3-30
P. D. Mix	S3-30

J. E. Trechter	S3-30
S. J. Trent	B6-06
File/LB	

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20082245
Data Deliverable Date: 17-nov-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I09-005	B1XH86	W08P004796	WATER
	B1XHC3	W08P004795	WATER
	B1XHF5	W08P004797	WATER
I09-009	B1XLR0	W08P004799	WATER
	B1XLR1	W08P004798	WATER
	B1XLR3	W08P004802	WATER
	B1XLR5	W08P004801	WATER
	B1XLT0	W08P004800	WATER
S09-011	B1XMN3	W08P004804	WATER
	B1XMN4	W08P004803	WATER

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ATTACHMENT 2

NARRATIVE

Consisting of 2 pages
Including cover page

Introduction

Ten groundwater samples were received at the WSCF Laboratory on November 14, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Memorandum of Agreement (MOA-FH-CHPRC-2008, Rev.0)*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A copy of proposed Issue Resolution Form, documenting missed Cr+6 hold time, is included as Attachment 3. A Data Summary Report (Attachment 4) 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 5.

It should be noted that the attached chain of custody was stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 11, for a complete listing of approved analytical methods.

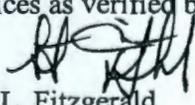
Inorganic Comments

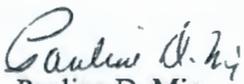
Hexavalent Chromium – The hold time requirement for this analysis was not met. See comment below. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 22 for QC details. Analytical Note(s):

- Missed Hold Time – Refer to Attachment 3 for detail.
- Sample results were D flagged if dilution(s) were required.
- Duplicates and Matrix Spikes were analyzed on samples B1XHR0 (SDG# 20082243) and B1XHC3 of this SDG.

All QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-1251

ATTACHMENT 3

ISSUE RESOLUTION FORM

Consisting of 2 pages
Including cover page

ISSUE RESOLUTION FORM

DRAFT

PNNL TRACKING NUMBER: 08-XXX

Date : 11-19-2008 SAF No. I09-005, I09-009, S09-011

SDG: WSCF20082245 LOGIN No.: TEST: Cr+6

Sample No.(s) B1XH86, B1XHC3, B1XHF5, B1XLR0, B1XLR1, B1XLR3, B1XLR5, B1XLT0, B1XMN3, B1XMN4

(W08P004796, W08P004795, W08P004797, W08P004799, W08P004798, W08P004802, W08P004801, W08P004800, W08P004804, W08P004803)

Submitted By: WW Baird Submitted To: H Hampt
Phone No. 372-7189 Phone No. 376-4319
Fax No. 372-0456 Fax No

ISSUE

Missed regulatory holding time for Hexavalent Chromium analysis.

Samples were collected and delivered to the WSCF Laboratory on Friday, November 11, 2008. Analysis of samples was started on Friday, but was terminated due to an instrument problem.

Samples were successfully analyzed the following Monday, November 17, 2008. All QC controls were within established laboratory limits.

PROPOSED RESOLUTION

Accept results (accept as-is) and document missed holding time for Hexavalent Chromium analysis in the case narrative.

GRP COMMENTS

Signature and Date

M4W41-SLF-08-1251

ATTACHMENT 4

ANALYTICAL RESULTS

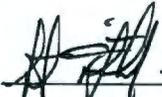
Consisting of 15 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

**GPAP
Richland, WA 99352**

Attention: Steve Trent E6-35

Analytical:  S. Fitzgerald 11/20/08
Client Services:  P.D. Mix

All results are reported on an "as received" basis unless otherwise noted in the comment section.

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.

Report#: WSCF20082245
Report Date: 18-nov-2008
Report WGPP/ver. 5.2
GPAP

Page 1

W13q Worklist/Batch/QC Report for Group# WSCF20082245

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38546	2	38968	43464	BLANK		Hexavalent chromium
38546	12	38968	43464	BLANK		Hexavalent chromium
38546	27	38968	43464	BLANK		Hexavalent chromium
38546	3	38968	43464	LCS		Hexavalent chromium
38546	5	38968	43464	DUP	W08P004776	Hexavalent chromium
38546	6	38968	43464	MS	W08P004776	Hexavalent chromium
38546	7	38968	43464	MSD	W08P004776	Hexavalent chromium
38546	7	38968	43464	SPK-RPD	W08P004776	Hexavalent chromium
38546	14	38968	43464	DUP	W08P004795	Hexavalent chromium
38546	15	38968	43464	MS	W08P004795	Hexavalent chromium
38546	16	38968	43464	MSD	W08P004795	Hexavalent chromium
38546	13	38968	43464	SAMPLE	W08P004795	Hexavalent chromium
38546	16	38968	43464	SPK-RPD	W08P004795	Hexavalent chromium
38546	17	38968	43464	SAMPLE	W08P004796	Hexavalent chromium
38546	18	38968	43464	SAMPLE	W08P004797	Hexavalent chromium
38546	19	38968	43464	SAMPLE	W08P004798	Hexavalent chromium
38546	21	38968	43464	SAMPLE	W08P004799	Hexavalent chromium
38546	22	38968	43464	SAMPLE	W08P004800	Hexavalent chromium
38546	23	38968	43464	SAMPLE	W08P004801	Hexavalent chromium
38546	24	38968	43464	SAMPLE	W08P004802	Hexavalent chromium
38546	25	38968	43464	SAMPLE	W08P004803	Hexavalent chromium
38546	26	38968	43464	SAMPLE	W08P004804	Hexavalent chromium

WSCF

METHOD REFERENCES REPORT

Department: Inorganic

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 or industry 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 the 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	LA-265-403: Hexavalent Chromium analysis by Spectrophotometer
EPA SW-846 7196A	HEXAVALENT CHROMIUM
HEIS 7196_CR6	Hexavalent Chromium

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at <http://www2.rl.gov/phmc/as-dol>.

Report Date: 18-nov-2008
Report#: WSCF20082245
Report WGPPM/5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P004795

Client ID: B1XHC3 PNNL-GPP

WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0748	mg/L			1.00	2.0e-03		11/17/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-005
Sample # W08P004796
Client ID: B1XH86 PNNL-GPP
 WSCF

Matrix: WATER

Group #: WSCF20082245
Department: Inorganic
Sampled: 11/14/08
Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.272	mg/L			1.00	2.0e-03		11/17/08

MDL=Minimum Detection Limit

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P004797

Client ID: B1XHF5 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		2.00e-03	mg/L			1.00	2.0e-03		11/17/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: 109-009

Sample # W08P004798

Client ID: B1XLR1 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0516	mg/L			1.00	2.0e-03		11/17/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004799

Client ID: B1XLRO PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0500	mg/L			1.00	2.0e-03		11/17/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004800

Client ID: B1XLTO PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 2.00e-03	mg/L			1.00	2.0e-03		11/17/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-009
Sample # W08P004801
Client ID: B1XLR5 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245
Department: Inorganic
Sampled: 11/14/08
Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403	D	1.34	mg/L			9.30	0.019		11/17/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004802

Client ID: B1XLR3 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 2.00e-03	mg/L			1.00	2.0e-03		11/17/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S09-011

Sample # W08P004803

Client ID: B1XMN4 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082245

Department: Inorganic

Sampled: 11/14/08

Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 2.00e-03	mg/L			1.00	2.0e-03		11/17/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S09-011
Sample # W08P004804
Client ID: B1XMN3 PNNL-GPP
 WSCF

Matrix: WATER

Group #: WSCF20082245
Department: Inorganic
Sampled: 11/14/08
Received: 11/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0103	mg/L			1.00	2.0e-03		11/17/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082245
 Matrix: WATER
 Test: Hexavalent chromium

Sample Date: 11/14/08
 Receive Date: 11/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004776											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.3706		RPD			0.458	15.000		11/17/08
MS	Hexavalent chromium	18540-29-9	0.0562	105.243	% Recov	85.000	115.000				11/17/08
MSD	Hexavalent chromium	18540-29-9	0.0562	105.243	% Recov	85.000	115.000				11/17/08
SPK-RPD	Hexavalent chromium	18540-29-9	105.243		RPD			0.000	20.000		11/17/08
Lab ID: W08P004795											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.0764		RPD			2.116	15.000		11/17/08
MS	Hexavalent chromium	18540-29-9	0.0611	114.419	% Recov	85.000	115.000				11/17/08
MSD	Hexavalent chromium	18540-29-9	0.0611	114.419	% Recov	85.000	115.000				11/17/08
SPK-RPD	Hexavalent chromium	18540-29-9	114.419		RPD			0.000	20.000		11/17/08
BATCH QC											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/17/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/17/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/17/08
LCS	Hexavalent chromium	18540-29-9	0.0533	106.175	% Recov	80.000	120.000				11/17/08

M4W41-SLF-08-1251

ATTACHMENT 5

SAMPLE RECEIPT INFORMATION

Consisting of 12 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

File

ACKNOWLEDGMENT OF SAMPLES RECEIVED

11/17/08
td

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20082245

The following samples were received from you on 11/14/08. 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	Tests Scheduled	Matrix	Sample Date
W08P004795	B1XHC3	PNNL-GPP CR+6	Water	11/14/08
W08P004796	B1XH86	PNNL-GPP CR+6	Water	11/14/08
W08P004797	B1XHF5	PNNL-GPP CR+6	Water	11/14/08
W08P004798	B1XLR1	PNNL-GPP CR+6	Water	11/14/08
W08P004799	B1XLR0	PNNL-GPP CR+6	Water	11/14/08
W08P004800	B1XLT0	PNNL-GPP CR+6	Water	11/14/08
W08P004801	B1XLR5	PNNL-GPP CR+6	Water	11/14/08
W08P004802	B1XLR3	PNNL-GPP CR+6	Water	11/14/08
W08P004803	B1XMN4	PNNL-GPP CR+6	Water	11/14/08
W08P004804	B1XMN3	PNNL-GPP CR+6	Water	11/14/08

Test Acronym Description

Test Acronym	Description
CR+6	Hexavalent chromium

