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FLUOR

Memorandum

M4W41-SLF-08-579

To: H. Hampt E6-35 Date: June 2, 2008

From: S. L. Fitzgerald, Manager
WSCF Analytical Lab 

cc: w/Attachments

T. F. Dale	S3-30	P. D. Mix	S3-30
D. Felmy (PNNL)	K6-75	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	E6-35
H. K. Meznarich	S3-30	File/LB	

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081033

Reference: 1) Letter of Instruction for Analytical Services for the Groundwater Performance Assessment Project and Analytical Laboratory Transition Plan, FH-0602422, September 19, 2006

2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This transmittal contains the following information for sample delivery group WSCF20081033:

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

SLF/grf

Attachments 4

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M4W41-SLF-08-579

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081033
Data Deliverable Date: 03-jun-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I08-035	B1V5D0	W08P002509	WATER
	B1V5D8	W08P002507	WATER
	B1V5F2	W08P002504	WATER
	B1V644	W08P002508	WATER
I08-039	B1V701	W08P002505	WATER
	B1V706	W08P002512	WATER
	B1V712	W08P002506	WATER
	B1V730	W08P002513	WATER

M4W41-SLF-08-579

ATTACHMENT 2

NARRATIVE

Consisting of 2 pages
Including cover page

Introduction

Eight groundwater samples were received at the WSCF Laboratory on May 20, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, 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 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 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 9, for a complete listing of approved analytical methods.

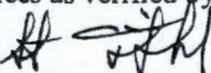
Inorganic Comments

Hexavalent Chromium – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 18 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.

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-08-579

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 13 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

**GPAP
Richland, WA 99352**

Attention: Steve Trent E6-35

Analytical:

S. Fitzgerald 6/2/08

Client Services:

P.D. Mix 5/31/2008

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

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Report#: WSCF20081033
Report Date: 29-may-2008
Report WGPP/ver. 5.2
GPAP

Page 1

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081033

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36392	2	36807	41145	BLANK		Hexavalent chromium
36392	10	36807	41145	BLANK		Hexavalent chromium
36392	3	36807	41145	LCS		Hexavalent chromium
36392	5	36807	41145	DUP	W08P002504	Hexavalent chromium
36392	6	36807	41145	MS	W08P002504	Hexavalent chromium
36392	7	36807	41145	MSD	W08P002504	Hexavalent chromium
36392	4	36807	41145	SAMPLE	W08P002504	Hexavalent chromium
36392	7	36807	41145	SPK-RPD	W08P002504	Hexavalent chromium
36392	8	36807	41145	SAMPLE	W08P002505	Hexavalent chromium
36392	9	36807	41145	SAMPLE	W08P002506	Hexavalent chromium
36394	2	36809	41167	BLANK		Hexavalent chromium
36394	12	36809	41167	BLANK		Hexavalent chromium
36394	3	36809	41167	LCS		Hexavalent chromium
36394	5	36809	41167	DUP	W08P002507	Hexavalent chromium
36394	6	36809	41167	MS	W08P002507	Hexavalent chromium
36394	7	36809	41167	MSD	W08P002507	Hexavalent chromium
36394	4	36809	41167	SAMPLE	W08P002507	Hexavalent chromium
36394	7	36809	41167	SPK-RPD	W08P002507	Hexavalent chromium
36394	8	36809	41167	SAMPLE	W08P002508	Hexavalent chromium
36394	9	36809	41167	SAMPLE	W08P002509	Hexavalent chromium
36394	10	36809	41167	SAMPLE	W08P002512	Hexavalent chromium
36394	11	36809	41167	SAMPLE	W08P002513	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: 29-may-2008
Report#: WSCF20081033
Report WGPPM/5.2

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-035
Sample # W08P002504
Client ID: B1V5F2

Group #: WSCF20081033
Department: Inorganic
Sampled: 05/20/08
Received: 05/20/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

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		0.258	mg/L			1.00	2.0e-03		05/20/08

MDL = Minimum Detection Limit D - Analyte was identified at a secondary dilution factor (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

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-039

Sample # W08P002505

Client ID: B1V701 GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

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		0.0406	mg/L			1.00	2.0e-03		05/20/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-039

Sample # W08P002506

Client ID: B1V712 GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

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		0.141	mg/L			1.00	2.0e-03		05/20/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

12 of 28

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-035

Sample # W08P002507

Client ID: B1V5D8

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

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	1.32	mg/L			18.60	0.037		05/21/08

MDL = Minimum Detection Limit D - Analyte was identified at a secondary dilution factor (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

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-035
Sample # W08P002508
Client ID: B1V644

GPP-PNNL TRENT
 WSCF

Matrix: WATER

Group #: WSCF20081033
Department: Inorganic
Sampled: 05/20/08
Received: 05/20/08

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		0.0563	mg/L			1.00	2.0e-03		05/21/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-035

Sample # W08P002509

Client ID: B1V5D0 GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium	18540-29-9	LA-265-403	D	0.475	mg/L			18.80	0.037		05/21/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-039

Sample # W08P002512

Client ID: B1V706

GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

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	1.31	mg/L			9.30	0.019		05/21/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-039

Sample # W08P002513

Client ID: B1V730 GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081033

Department: Inorganic

Sampled: 05/20/08

Received: 05/20/08

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	0.724	mg/L			18.60	0.037		05/21/08

MDL=Minimum Detection Limit D - Analyte was identified at a secondary dilution factor(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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081033
 Matrix: WATER
 Test: Hexavalent chromium

Sample Date: 05/20/08
 Receive Date: 05/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002504											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.2579		RPD			0.000	15.000		05/20/08
MS	Hexavalent chromium	18540-29-9	0.0517	96.455	% Recov	85.000	115.000				05/20/08
MSD	Hexavalent chromium	18540-29-9	0.0517	96.455	% Recov	85.000	115.000				05/20/08
SPK-RPD	Hexavalent chromium	18540-29-9	96.455		RPD			0.000	20.000		05/20/08
BATCH QC											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	05/20/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	05/20/08
LCS	Hexavalent chromium	18540-29-9	0.0499	99.008	% Recov	80.000	120.000				05/20/08
Lab ID: W08P002507											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	1.32		RPD			0.000	15.000		05/21/08
MS	Hexavalent chromium	18540-29-9	0.0548	102.239	% Recov	85.000	115.000				05/21/08
MSD	Hexavalent chromium	18540-29-9	0.0548	102.239	% Recov	85.000	115.000				05/21/08
SPK-RPD	Hexavalent chromium	18540-29-9	102.239		RPD			0.000	20.000		05/21/08
BATCH QC											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	05/21/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	05/21/08
LCS	Hexavalent chromium	18540-29-9	0.0509	100.992	% Recov	80.000	120.000				05/21/08

M4W41-SLF-08-579

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 10 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

5/21/08
A/E/KB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081033

The following samples were received from you on 05/20/08. 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
W08P002504	B1V5F2	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002505	B1V701	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002506	B1V712	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002507	B1V5D8	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002508	B1V644	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002509	B1V5D0	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002512	B1V706	GPP-PNNL CR+6	TRENT Water	05/20/08
W08P002513	B1V730	GPP-PNNL CR+6	TRENT Water	05/20/08

Test Acronym Description

Test Acronym	Description
CR+6	Hexavalent chromium

