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FLUOR

Memorandum

M4W41-SLF-08-1100

To: H. Hampt E6-35 Date: September 29, 2008

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

cc: w/Attachments
T. F. Dale S3-30 J. E. Trechter S3-30
A. J. Kopriva S3-30 S. J. Trent E6-35
H. K. Meznarich S3-30 File/LB
P. D. Mix S3-30

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081962 – SAF NUMBER F08-140

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002
(2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF20081962:

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

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Attachments 4

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081962
Data Deliverable Date: 24-oct-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F08-140	B1WXH3	W08GR03680	SOIL

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ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

One S&GRP sample was received at the WSCF Laboratory on September 10, 2008. This sample was analyzed for the analyte 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 10, for a complete listing of approved analytical methods.

Inorganic Comments

Hexavalent Chromium – The holding time requirement for this analysis was met. A Sample 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 12 for QC details. Analytical Result(s):

- Sample Duplicate, Matrix Spike and Matrix Spike Duplicate analyzed on sample B1WXH3 of this SDG.

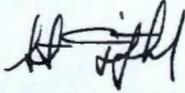
All QC controls are within the established limits.

ICP-MS Metals (Chromium) – The holding time requirement for this analysis was met. A Matrix Spike and Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 13 for QC details. Analytical Result(s):

- Matrix Spike and Matrix Spike Duplicate analyzed on sample B1WL46 (SDG 20081949, SAF F08-147) and B1T2N9 (SDG# 20081955, F08-035).
- QC Sample B1T2N9: The Chromium sample result exceeded the spiking level by a factor of four in the MS/MSD. Spike recoveries are not valid.

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



Andrew J. Kopriva
WSCF Client Services

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 8 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: *[Signature]* S. Fitzgerald 9/29/08
Client Services: *[Signature]* A. Kopsiva 9/28/08

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

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Contract#: FH-EIS-2003--MEM-001
Report#: WSCF20081962
Report Date: 25-sep-2008
Report WGPP/ver. 5.2
Groundwater Remediation Program

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081962

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38126	1	38547	42955	BLANK		ICP-200.8 MS All possible meta
38126	2	38547	42955	LCS		ICP-200.8 MS All possible meta
38126	7	38547	42955	MS	W08GR03658	ICP-200.8 MS All possible meta
38126	8	38547	42955	MSD	W08GR03658	ICP-200.8 MS All possible meta
38126	8	38547	42955	SPK-RPD	W08GR03658	ICP-200.8 MS All possible meta
38126	4	38547	42955	MS	W08GR03660	ICP-200.8 MS All possible meta
38126	5	38547	42955	MSD	W08GR03660	ICP-200.8 MS All possible meta
38126	5	38547	42955	SPK-RPD	W08GR03660	ICP-200.8 MS All possible meta
38126	12	38547	42955	SAMPLE	W08GR03680	ICP-200.8 MS All possible meta
38111	2	38532	42978	BLNK-PREP		Hexavalent chromium
38111	3	38532	42978	LCS		Hexavalent chromium
38111	5	38532	42978	DUP	W08GR03680	Hexavalent chromium
38111	6	38532	42978	MS	W08GR03680	Hexavalent chromium
38111	7	38532	42978	MSD	W08GR03680	Hexavalent chromium
38111	4	38532	42978	SAMPLE	W08GR03680	Hexavalent chromium
38111	8	38532	42978	SPK-POST	W08GR03680	Hexavalent chromium
38111	7	38532	42978	SPK-RPD	W08GR03680	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
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8 DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS HEIS 200.8_METALS_ICPMS Inductively Coupled Plasma - Mass Spectrometry HEIS RADISOTOPES_ICPMS Radioisotopes by ICP/MS

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: 25-sep-2008
Report#: WSCF20081962
Report WGPPM/5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-140
Sample # W08GR03680
Client ID: B1WXH3

TRENT
 WSCF

Matrix: SOIL

Group #: WSCF20081962
Department: Inorganic
Sampled: 09/10/08
Received: 09/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium Prep											09/16/08
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-285-403	U	< 0.100	mg/kg			1.00	0.10		09/17/08
ICP-200.8 MS All possible meta Prep											09/22/08
ICP-200.8 MS All possible meta											
Chromium	7440-47-3	LA-505-412		8.04	mg/kg			0.99	0.496		09/23/08

MDL=Minimum Detection Limit 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
 Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081962
 Matrix: SOLID
 Test: Hexavalent chromium

Sample Date: 09/10/08
 Receive Date: 09/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03680											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	< 0.10		RPD			n/a	15.000	U	09/17/08
MS	Hexavalent chromium	18540-29-9	354	83.491	% Recov	75.000	125.000				09/17/08
MS	Hexavalent chromium	18540-29-9	16.4	87.701	% Recov	75.000	125.000				09/17/08
MSD	Hexavalent chromium	18540-29-9	18.1	92.821	% Recov	75.000	125.000				09/17/08
SPK-POST	Hexavalent chromium	18540-29-9	0.0591	110.674	% Recov	75.000	125.000				09/17/08
SPK-RPD	Hexavalent chromium	18540-29-9	92.821		RPD			5.672	20.000		09/17/08
BATCH QC											
BLNK-PREP	Hexavalent chromium	18540-29-9	< 0.10	n/a	ug/g	0.000	2.000			U	09/17/08
LCS	Hexavalent chromium	18540-29-9	18.2	92.857	% Recov	80.000	120.000				09/17/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081962
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 09/09/08
 Receive Date: 09/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03658											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Chromium	7440-47-3	181.926	90.963	% Recov	70.000	130.000				09/23/08
MSD	Chromium	7440-47-3	184.526	92.263	% Recov	70.000	130.000				09/23/08
SPK-RPD	Chromium	7440-47-3	92.263		RPD			1.419	20.000		09/23/08
Lab ID: W08GR03660											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Chromium	7440-47-3	-5180	-2590.000	% Recov	70.000	130.000		*		09/23/08
MSD	Chromium	7440-47-3	1300	650.000	% Recov	70.000	130.000		*		09/23/08
SPK-RPD	Chromium	7440-47-3	650.000		RPD			-334.021	20.000 *		09/23/08
BATCH QC											
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	09/23/08
LCS	Chromium	7440-47-3	62.82	86.173	% Recov	77.000	125.000				09/23/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F08-140

Group #: WSCF20081962
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Cr +6 Analysis for W08GR03679 & W08GR03710 required turbidity blanks. jpw

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppc/5.2 Report#: WSCF20081962 Report Date: 25-sep-2008

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ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 3 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
10/24/08
tef

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 123445/ES10
Group#: 20081962
Project#: F08-140
Proj Mgr: Steve Trent E6-35
Phone: 373-5869

The following samples were received from you on 09/10/08. 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
W08GR03680	B1WXH3	TRENT @2008 CR+6	Solid, or handle as if solid	09/10/08

Test Acronym Description

Test Acronym	Description
@2008 CR+6	ICP-200.8 MS All possible meta Hexavalent chromium

COLLECTOR KAVIA, BATES	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5870	PROJECT COORDINATOR WDRIG, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C6389 I-002	PROJECT DESIGNATION Chromium Source Investigation - North Plume		SAF NO. F08-140	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH 90' to 92'	COA 123445E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization 20081962	OFFSITE PROPERTY NO. SEE PTR		BILL OF LADING/AIR BILL NO. SEE PTR		

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool-4C								
		TYPE OF CONTAINER	GP								
		NO. OF CONTAINER(S)	1								
		VOLUME	120mL								
	SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS							

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B1WXH3 2008081962	SOIL	09-10-08	1440	✓						

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS (1)ICP/MS - 200.8 (TAL) {Chromium} Chromium Hex - 7196; ICED
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Ed KAVIA / [Signature]	09-10-08 1530	TA [Signature]	09-10-08 1530	
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	
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

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