

RECEIVED AUGUST 15, 2008

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FLUOR

Memorandum

M4W41-SLF-08-827

To: H. Hampt E6-35 Date: August 14, 2008

From: S. L. Fitzgerald, Manager WSCF Analytical Lab *Markus Hampt for SLF*

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 WSCF20081618 – SAF NUMBER F08-139

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 attachments for sample delivery group WSCF20081618:

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

SLF/grf

Attachments 4

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081618
Data Deliverable Date: 16-sep-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F08-139	B1WMD8	W08GR03150	SOIL

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ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

One (1) S&GRP sample was received at the WSCF Laboratory on August 3, 2008. This sample was 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*, pages 11 through 12, for a complete listing of approved analytical methods.

Inorganic Comments

ICP-MS Metals – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 14 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate was analyzed on sample# B1W188 (SDG#20081522, SAF# F08-132), and B1VDX9 (SDG#20081540, SAF# F08-101)

All QC controls are within the established limits.

Rad Chem – There are no hold times associated with WSCF’s radiochemical methods. A Duplicate, Matrix Spike (*Matrix Spikes apply only to Neptunium, Technetium & Tritium and Matrix Spike Duplicate applies to Neptunium*), Blank and Laboratory Control Sample were analyzed with this delivery group. See page 17 for QC details. Analytical Note(s):

- Rad Chem analysis requested to be performed on this sample was the Gamma Energy Analysis.

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 Kopriva
WSCF Client Services

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 11 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for
Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: Markus Stauffer 8/14/08

Client Services: A. Kopriva 8/14/08

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#: WSCF20081618
Report Date: 14-aug-2008
Report WGPP/ver. 5.2
Groundwater Remediation Program

W13q Worklist/Batch/QC Report for Group# WSCF20081618

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37573	1	38012	42357	BLANK		ICP-200.8 MS All possible meta
37573	2	38012	42357	LCS		ICP-200.8 MS All possible meta
37573	4	38012	42357	MS	W08GR02831	ICP-200.8 MS All possible meta
37573	5	38012	42357	MSD	W08GR02831	ICP-200.8 MS All possible meta
37573	5	38012	42357	SPK-RPD	W08GR02831	ICP-200.8 MS All possible meta
37573	7	38012	42357	MS	W08GR02880	ICP-200.8 MS All possible meta
37573	8	38012	42357	MSD	W08GR02880	ICP-200.8 MS All possible meta
37573	8	38012	42357	SPK-RPD	W08GR02880	ICP-200.8 MS All possible meta
37573	15	38012	42357	SAMPLE	W08GR03150	ICP-200.8 MS All possible meta

W13q Worklist/Batch/QC Report for Group# WSCF20081618

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37428	1	37859	42314	BLANK		Gamma Energy Analysis-grd H2O
37428	3	37859	42314	DUP	W08GR03150	Gamma Energy Analysis-grd H2O
37428	4	37859	42314	SAMPLE	W08GR03150	Gamma Energy Analysis-grd H2O

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-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>.

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WSCF

METHOD REFERENCES REPORT

Department: Radiochemistry

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-508-481	LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE
HEIS GAMMA_GS	Gamma Emmission Spectrometry

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: 14-aug-2008
Report#: WSCF20081618
Report WGPPM/5.2

Page 1

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-139
Sample # W08GR03150
Client ID: B1WMD8

Group #: WSCF20081618
Department: Inorganic
Sampled: 08/03/08
Received: 08/03/08

TRENT
WSCF

Matrix: SOIL

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Cadmium	7440-43-9	LA-505-412	U	< 0.0945	mg/kg			0.95	0.0945		08/13/08
Chromium	7440-47-3	LA-505-412		13.4	mg/kg			0.95	0.473		08/13/08
Copper	7440-50-8	LA-505-412		9.82	mg/kg			0.95	0.0945		08/13/08

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081618
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 07/21/08
 Receive Date: 07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR02831											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cadmium	7440-43-9	91.9	91.900	% Recov	70.000	130.000				08/13/08
MS	Chromium	7440-47-3	88.6	88.600	% Recov	70.000	130.000				08/13/08
MSD	Cadmium	7440-43-9	92.27	92.270	% Recov	70.000	130.000				08/13/08
MSD	Chromium	7440-47-3	88.65	88.650	% Recov	70.000	130.000				08/13/08
SPK-RPD	Cadmium	7440-43-9	92.270		RPD			0.402	20.000		08/13/08
SPK-RPD	Chromium	7440-47-3	88.650		RPD			0.056	20.000		08/13/08
Lab ID: W08GR02880											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cadmium	7440-43-9	87.2	87.200	% Recov	70.000	130.000				08/13/08
MS	Chromium	7440-47-3	84.63	84.630	% Recov	70.000	130.000				08/13/08
MS	Copper	7440-50-8	82.96	82.960	% Recov	70.000	130.000				08/13/08
MSD	Cadmium	7440-43-9	89.97	89.970	% Recov	70.000	130.000				08/13/08
MSD	Chromium	7440-47-3	91	91.000	% Recov	70.000	130.000				08/13/08
MSD	Copper	7440-50-8	87.72	87.720	% Recov	70.000	130.000				08/13/08
SPK-RPD	Cadmium	7440-43-9	89.970		RPD			3.127	20.000		08/13/08
SPK-RPD	Chromium	7440-47-3	91.000		RPD			7.254	20.000		08/13/08
SPK-RPD	Copper	7440-50-8	87.720		RPD			5.578	20.000		08/13/08
BATCH QC											
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	08/13/08
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	08/13/08
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	08/13/08
LCS	Cadmium	7440-43-9	76.9	115.639	% Recov	95.000	124.000				08/13/08
LCS	Chromium	7440-47-3	70.44	96.626	% Recov	77.000	125.000				08/13/08
LCS	Copper	7440-50-8	65.27	95.285	% Recov	84.000	122.000				08/13/08

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-139
Sample # W08GR03150
Client ID: B1WMD8

TRENT
 WSCF

Matrix: SOIL

Group #: WSCF20081618
Department: Radiochemistry
Sampled: 08/03/08
Received: 08/03/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Europium-154	15585-10-1	LA-508-481	U	-0.0140	pCi/g	+ -0.0378	pCi/g	1.00	0.063		08/05/08
Europium-155	14391-16-3	LA-508-481	U	6.15e-03	pCi/g	+ -0.0315	pCi/g	1.00	0.052		08/05/08

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

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number: F08-139 :F08-139

Group #: WSCF20081618
Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.41	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			30	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.28	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			47	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.38	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			25	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.034	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			46	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	K-40			14	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			14	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.53	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			11	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.65	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			31	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.28	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			23	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.52	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			22	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.088	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			41	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	TH-234			0.60	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			40	%
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.13	pCi/g
W08GR03150	B1WMD8	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			22	%

RQ=Result Qualifier

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Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081618
 Matrix: SOLID
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 08/03/08
 Receive Date: 08/03/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03150											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Europium-154	15585-10-1	U-6.711e-3		RPD			n/a	20.000		08/07/08
DUP	Europium-155	14391-16-3	U2.734e-2		RPD			n/a	20.000		08/07/08
BATCH QC											
BLANK	Europium-154	15585-10-1	U-3.992e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Europium-155	14391-16-3	U1.608e-3	n/a	pCi/g	-10.000	1000.000				08/05/08

M4W41-SLF-08-827

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

9/16/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

File KB

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122727/ES10
Group#: 20081618
Project#: F08-139
Proj Mgr: Steve Trent E6-35
Phone: 373-5869

The following samples were received from you on 08/03/08. 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
W08GR03150	B1WMD8	TRENT @2008 @GEA-GPP	Solid, or handle as if solid	08/03/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@GEA-GPP	Gamma Energy Analysis-grd H2O

