

Mission Support Alliance
P.O. Box 650
Richland, Washington 99352



46500-ADR-10-400

December 21, 2010

Mr. M. A. Neely, Manager
Analytical Services
CH2M HILL Plateau Remediation Company
PO Box 1600 MSIN R3-60
Richland, WA 99352

Dear Mike,

REVISED—FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20102314 – SAF NUMBER F11-009

- References:
- (1) Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, 'FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER'
 - (2) HNF-SD-CP-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Program Plan

This report is being provided as a REVISION. An Issue Resolution Form (10-287) was created to have analytes added to the original SDG. The requested analytes are provided in this revised report.

This letter contains the following attachments for sample delivery group WSCF20102314:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2) including a copy of Issue Resolution Form 10-287
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)

Very truly yours,

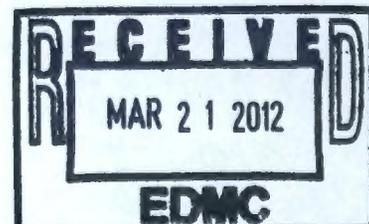
Richard Barker Richard Barker for S. Kon

Andrew D. Rice
WSCF Analytical Lab

ADR/ma

Attachments 4

cc: w/Attachments
 H. K. Meznarich S3-30
 M. Avila S3-30
 S. J. Trent R3-50
 File/LB



46500-ADR-10-400

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20102314
Data Deliverable Date: 07-dec-2010
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F11-009	B295B0	W10GR02372	OTHERSOL

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ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

One (1) S&GRP sample was received at the WSCF Laboratory on November 18, 2010. 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), Modification No. 2 to Agreement 36587, Release 3, "FH 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. Also, a copy of Issue Resolution Form 10-287 regarding the request to analyze for Total Alpha/Beta is provided in 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, D, U and J) 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 wetchem analyses), as appropriate.
- **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.
- **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.

Analytical Methodology for Requested Analyses

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

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 12-13 for QC details. Analytical Note(s):

- Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

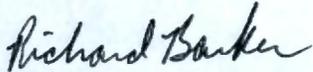
- Gamma Energy Analysis:
 - Batch QC analyzed on sample# W10GR02372 (B295B0 on work order 20102314)

All QC controls are within the established limits.

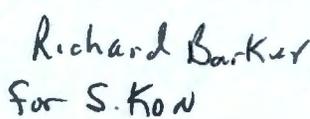
- Strontium-89/90:
 - Batch QC analyzed on sample# W10GR02372 (B295B0 on work order 20102314)
 - The Blank is less than two times the MDC. "B" Flag not required.

All other 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 the following signatures.



Andy Rice
WSCF Analytical Laboratory Manager



Richard Barker
For S. Kon



Marisol Avila
WSCF Client Services

ISSUE RESOLUTION FORM

CHPRC TRACKING NUMBER: 10-287

Date: 12/20/2010

SAF No(s): F11-009

SDG (s): 20102314

TEST: Total Alpha/Beta

DUE DATE: Original reported on 12/7/10

LOGIN No(s): W10GR02372

Sample No(s): B295B0

Submitted By: M. Avila

Submitted To: S. Champoux

Phone No.: 373-1613

Phone No.: 373-5290

Fax No.:

Fax No.:

<u>ISSUE</u>	<u>PROPOSED RESOLUTION</u>
<p>The original COC did not request for Total Alpha/Beta analysis.</p> <p>The project is requesting radscreen data; therefore the sample would need to be logged in for an additional Total Alpha/Beta.</p>	<p>Retrieve the sample from archive and log in for Total Alpha/Beta. The results could be provided to the client with a 24 hr TAT from the time the sample is pulled from archive, as long as it is logged in prior to 3pm that day. Otherwise, the sample results will be provided within 48 hours.</p>

CHPRC/BHI/WMH/PNNL COMMENTS

Accept proposed resolution

Sara Champoux 12/21/2010

Signature and Date

46500-ADR-10-400

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 9 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: Richard Barker Richard Barker for S. Kow 12/21/10
Client Services: Margaret Mansola 12/21/10

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.

Contract#: MOA-FH-CHPRC-2008
Report#: WSCF20102314
Report Date: 21-dec-2010
Report WGPP/ver. 5.2
Groundwater Remediation Program

w13qlog v4.2 21-dec-2010 09:45:53

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20102314

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
41776	1	42275		SAMPLE	W10GR02372	A/B by Liquid Scintillation
41748	1	42245	46963	BLANK		Strontium 89/90
41748	2	42245	46963	LCS		Strontium 89/90
41748	3	42245	46963	DUP	W10GR02372	Strontium 89/90
41748	4	42245	46963	SAMPLE	W10GR02372	Strontium 89/90
41748	5	42245	46963	SURR	W10GR02372	Strontium 89/90
41747	1	42244	46966	BLANK		Gamma Energy Analysis-grd H2O
41747	2	42244	46966	LCS		Gamma Energy Analysis-grd H2O
41747	3	42244	46966	DUP	W10GR02372	Gamma Energy Analysis-grd H2O
41747	4	42244	46966	SAMPLE	W10GR02372	Gamma Energy Analysis-grd H2O

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-508-415	LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS None	No reference to any industry method.
LA-508-421	LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER None	No reference to any industry method.
LA-508-481	LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE None	No reference to any industry method.

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: 21-dec-2010

Report#: WSCF20102314

Report WGPPM/5.2

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REVISION 1

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F11-009
Sample # W10GR02372
Client ID: B295B0

Group #: WSCF20102314
Department: Radiochemistry
Sampled: 11/18/10
Received: 11/18/10

Matrix: OTHERSOL

Test Performed	WSCF		RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
	CAS #	Method									
A/B by Liquid Scintillation											
Gross alpha	12587-46-1	LA-508-421	U	0.100	pCi/g	+ -1.00	pCi/g	1.00	2.2		12/20/10
Gross beta	12587-47-2	LA-508-421		7.70	pCi/g	+ -2.39	pCi/g	1.00	2.9		12/20/10
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481	U	-0.0147	pCi/g	+ -0.0189	pCi/g	1.00	0.031		12/08/10
Europium-152	14683-23-9	LA-508-481	U	-0.0283	pCi/g	+ -0.0638	pCi/g	1.00	0.092		12/08/10
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.630	pCi/g	+ -0.731	pCi/g	1.00	0.33		12/08/10
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		89.1	Percent			1.00	0.0		12/08/10

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: Radiochemistry

SDG Number: WSCF20102314
 Matrix: SOLID
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 11/18/10
 Receive Date: 11/18/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02372											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cesium-137	10045-97-3	U-3.175e-3		RPD			n/a	30.000		12/06/10
DUP	Europium-152	14683-23-9	U-4.561e-2		RPD			n/a	30.000		12/06/10
BATCH QC											
BLANK	Cesium-137	10045-97-3	U8.346e-3	n/a	pCi/g	-10.000	1000.000				12/06/10
BLANK	Europium-152	14683-23-9	U1.147e-2	n/a	pCi/g	-10.000	1000.000				12/06/10
LCS	Cesium-137	10045-97-3	6344	105.033	% Recov	80.000	120.000				12/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20102314
 Matrix: SOLID
 Test: Strontium 89/90

Sample Date: 11/18/10
 Receive Date: 11/18/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02372											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	94.2	94.200	% Recov	30.000	105.000				12/06/10
DUP	Strontium-89/90	SR-RAD	U-7.7e-01		RPD			n/a	30.000		12/06/10
SURR	Sr-85 Tracer by Beta Counting	SR85	89.1	89.100	% Recov	30.000	105.000				12/06/10
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	79.8	79.800	% Recov	30.000	105.000				12/06/10
BLANK	Strontium-89/90	10098-97-2	6.1e-01	0.610	pCi/g	-10.000	300.000				12/06/10
LCS	Sr-85 Tracer by Beta Counting	SR85	88.7	88.700	% Recov	30.000	105.000				12/06/10
LCS	Strontium-89/90	10098-97-2	27.7	98.717	% Recov	80.000	120.000				12/06/10

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F11-009

Group #: WSCF20102314
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W10GR02372/Sr89/90 blank prep is less than 2 times the MDA. GEA blank activity is NORM. The total activity results determined by liquid scintillation counting should not be considered as quantitative data. These results are considered estimates only.

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
 Project Number F11-009 :F11-009

Group #: WSCF20102314
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	AC-228				1.1	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	AC-228 Count Error				26	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	BI-212				1.7	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	BI-212 Count Error				25	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	BI-214				1.3	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	BI-214 Count Error				14	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	K-40				18	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	PB-212				1.1	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	PB-212 Count Error				13	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	PB-214				2.1	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	PB-214 Count Error				25	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	RA-228				1.1	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	RA-228 Count Error				15	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	RA-228				1.0	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	RA-228 Count Error				20	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	SN-126				0.24	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	SN-126 Count Error				30	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	TH-234				1.1	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	TH-234 Count Error				38	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	TL-208				0.34	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	TL-208 Count Error				17	%
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	U-235				0.098	pCi/g
W10GR02372	B295B0	Gamma Energy Analysis-grd H2O	U-235 Count Error				45	%

RQ=Result Qualifier

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Groundwater Remediation Program

WGPPE v 5.2 Report#: WSCF20102314 Report Date: 21-dec-2010

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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

2/7/10
 File CR

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
 Attn: Steve Trent

Customer Code: GPP
 PO#: 401352/ES20
 Group#: 20102314
 Project#: F11-009
 Proj Mgr: Steve Trent
 Phone: 373-5869

The following samples were received from you on 11/18/10. 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
W10GR02372	B295B0	@GEA-GPP @SR89_90	Solid, or handle as if solid	11/18/10

Test Acronym Description

Test Acronym	Description
@GEA-GPP	Gamma Energy Analysis-grd H2O
@SR89_90	Strontium 89/90

COLLECTOR KC Patterson CHPRC	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Pipe Sample 1	PROJECT DESIGNATION 600-285-PL Pipeline - In Process Sampling - Other Solid	SAF NO. F11-009	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-16-4	ACTUAL SAMPLE DEPTH Clay Pipe	COA 302222ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

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 None	None
		HOLDING TIME 6 Months	6 Months
		TYPE OF CONTAINER Square Bottle - Poly	G/P
		NO. OF CONTAINER(S) 1	1
		VOLUME 500mL	120mL
		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Strontium- 89,90 -- Total Sr;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B295B0	OTHER SOLID	NOV 18 2010	1015	X	X

ORIGINAL

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM KC Patterson CHPRC	RECEIVED BY/STORED IN NOV 18 2010 1415
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
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RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN

SPECIAL INSTRUCTIONS

- ** The CACN for all analytical work at WSCF is 401352ES20.
- ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
- * The laboratory shall report only the requested constituents of concern in all final data reports, and EDDs. QC results for non-requested constituents need not be reported, but samples chosen for matrix spike, and all spike compounds shall be identified in the final data report case narrative. No TICs shall be reported.
- ** Copies of all data will be placed into the folder labeled Geographic Closure Data in IDMS following completion of the data login step of the SMR process.
- (1) Gamma Spectroscopy {Cesium-137, Europium-152};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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REVISION 1