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

42100-ADR-10-370

October 15, 2010

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

Dear Mike,

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20101882 – SAF NUMBER F10-248

References: (1) Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, 'FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER'

(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 WSCF20101882:

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

Very truly yours,

A.D. Rice, Acting Manager
WSCF Analytical Laboratory

RECEIVED
MAY 26 2011
EDMC

ADR/ham

Attachments 4

cc: w/Attachments

R. L. Barker	S3-30
H. K. Meznarich	S3-30
J. E. Trechter	S3-30
S. J. Trent	R3-50
File/LB	

42100-SLF-10-370

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20101882
Data Deliverable Date: 11-oct-2010
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F10-248	B27MX3	W10GR02222	OTHERSOL

42100-SLF-10-370

ATTACHMENT 2

NARRATIVE

Consisting of 6 pages
Including cover page

Attachment 2
Narrative
WSCF20101882

Introduction

One (1) S&GRP sample was received at the WSCF Laboratory on September 19, 2010. The sample was 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. Also attached is IRF 10-230 regarding the change from discrete Alpha/Beta to Gross Alpha/Beta. 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 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.

Inorganic Comments

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 17 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike *(Matrix Spikes apply only to Neptunium and Matrix Spike Duplicate applies to Neptunium),* Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 21 through 27 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.

- Americium-241:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

    All QC controls are within the established limits.
- Gamma Energy Analysis:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

    All QC controls are within the established limits.
- Gross Alpha / Gross Beta:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)
    - Gross Alpha - Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. The RPD criterion does not apply to results near or below the minimum detectable activity. No flags issued.

    All QC controls are within the established limits.
- Isotopic Plutonium analysis:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

    All QC controls are within the established limits.
- Isotopic Uranium analysis:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)
    - Uranium-233/234 - Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. The RPD criterion does not apply to results near or below the minimum detectable activity. No flags issued.

    All QC controls are within the established limits.

- Strontium-89/90:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

    All QC controls are within the established limits.
- Neptunium:
  - Batch QC analyzed on sample# W10GR02222 (B27MX3 on work order 20101882)

    All 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

Marisol Avila
WSCF Client Services

ISSUE RESOLUTION FORM

CHPRC TRACKING NUMBER: 10-230

Date: 09-20-2010 SAF No. F10-248

SDG: 20101882 LOGIN No.: W10GR02222 TEST: Gross Alpha, Gross Beta

Sample No.(s) B27MX3

Submitted By: H Medley
Phone No.: 372-1488
Fax. No.: 372-0456

Submitted To: S Champoux
Phone No.: 373-5290
Fax No.:

ISSUE	**PROPOSED RESOLUTION**
Change discrete Alpha and discrete beta to Gross alpha/beta analysis per email below.	Report gross alpha/beta.

CHPRC/BHI/WMH/PNNL COMMENTS

Accept proposed resolution

Sara Champoux 9/21/2010
Signature and Date

From: Widrig, Dana L
Sent: Thursday, August 12, 2010 1:42 PM
To: Ottley, David B (Dave)
Cc: Gent, Philip M; Fitzgerald, Scot L; Medley, Heather A; Kover, Karola; Barrett, William F; Narquis, Clifford T
Subject: FW: Alpha and Beta in Resins
Importance: High

Dave and Karola,

Per our conversation, I have instructed the laboratory to analyze for gross alpha/beta in place of discrete alpha beta. This will measurably cut analysis time for these resins.

Heather,

Please issue IRFs for all remaining resins and discontinue discrete alpha/beta analysis, replace with gross alpha/beta analysis.

Doris,

Please update appropriate SAFs.

Thanks again,

Dana

From: Medley, Heather A
Sent: Thursday, August 12, 2010 1:04 PM
To: Widrig, Dana L
Cc: Avila, Marisol; Westberg, Richard A; Fitzgerald, Scot L
Subject: Alpha and Beta in Resins

Dana,

May WSCF perform gross alpha/beta instead of performing discrete alpha and discrete beta?

Heather Medley

Heather_A_Medley@rl.gov
Client Services
MSA Analytical Services
RJ LeeGroup, Inc.
(509) 372-1488 Office
(513) 939-7991 Mobile
MSIN S3-30

42100-SLF-10-370

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 20 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: Susan Kon SUSAN KON 10/15/10

Client Services: Marisol Avila Marisol Avila 10/14/10

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

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Contract#: MOA-FH-CHPRC-2008
Report#: WSCF20101882
Report Date: 14-oct-2010
Report WGPP/ver. 5.2

w13qlog v4.2 14-oct-2010 06:28:58

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20101882

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
41627	1	42121	46805	BLANK		ICP-200.8 MS All possible meta
41627	2	42121	46805	LCS		ICP-200.8 MS All possible meta
41627	4	42121	46805	MS	W10GR02222	ICP-200.8 MS All possible meta
41627	5	42121	46805	MSD	W10GR02222	ICP-200.8 MS All possible meta
41627	3	42121	46805	SAMPLE	W10GR02222	ICP-200.8 MS All possible meta
41627	5	42121	46805	SPK-RPD	W10GR02222	ICP-200.8 MS All possible meta

w13qlog v4.2 14-oct-2010 06:28:58

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20101882

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
41634	1	42129	46837	BLANK		Gamma Energy Analysis-grd H2O
41634	2	42129	46837	LCS		Gamma Energy Analysis-grd H2O
41634	3	42129	46837	DUP	W10GR02222	Gamma Energy Analysis-grd H2O
41634	4	42129	46837	SAMPLE	W10GR02222	Gamma Energy Analysis-grd H2O
41639	1	42134	46845	BLANK		Gross Alpha/Gross Beta (AB32)
41639	2	42134	46845	LCS		Gross Alpha/Gross Beta (AB32)
41639	3	42134	46845	DUP	W10GR02222	Gross Alpha/Gross Beta (AB32)
41639	4	42134	46845	SAMPLE	W10GR02222	Gross Alpha/Gross Beta (AB32)
41676	1	42173	46871	BLANK		Strontium 89/90
41676	2	42173	46871	LCS		Strontium 89/90
41676	3	42173	46871	DUP	W10GR02222	Strontium 89/90
41676	4	42173	46871	SAMPLE	W10GR02222	Strontium 89/90
41676	5	42173	46871	SURR	W10GR02222	Strontium 89/90
41671	1	42168	46875	BLANK		Uranium Isotopics by AEA
41671	2	42168	46875	LCS		Uranium Isotopics by AEA
41671	3	42168	46875	DUP	W10GR02222	Uranium Isotopics by AEA
41671	4	42168	46875	SAMPLE	W10GR02222	Uranium Isotopics by AEA
41671	5	42168	46875	SURR	W10GR02222	Uranium Isotopics by AEA
41677	1	42174	46878	BLANK		Plutonium Isotopics by AEA
41677	2	42174	46878	LCS		Plutonium Isotopics by AEA
41677	3	42174	46878	DUP	W10GR02222	Plutonium Isotopics by AEA
41677	4	42174	46878	SAMPLE	W10GR02222	Plutonium Isotopics by AEA
41677	5	42174	46878	SURR	W10GR02222	Plutonium Isotopics by AEA
41678	1	42175	46879	BLANK		Americium by AEA
41678	2	42175	46879	LCS		Americium by AEA
41678	3	42175	46879	DUP	W10GR02222	Americium by AEA
41678	4	42175	46879	SAMPLE	W10GR02222	Americium by AEA
41678	5	42175	46879	SURR	W10GR02222	Americium by AEA
41679	1	42176	46881	BLANK		Neptunium by AEA
41679	2	42176	46881	LCS		Neptunium by AEA
41679	3	42176	46881	DUP	W10GR02222	Neptunium by AEA
41679	5	42176	46881	MS	W10GR02222	Neptunium by AEA
41679	6	42176	46881	MSD	W10GR02222	Neptunium by AEA
41679	4	42176	46881	SAMPLE	W10GR02222	Neptunium by AEA
41679	6	42176	46881	SPK-RPD	W10GR02222	Neptunium by AEA
41679	8	42176	46881	MS	W10GR02303	Neptunium by AEA

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	
	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.

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-508-471 LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP
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.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-248
Sample # W10GR02222
Client ID: B27MX3 GPP WSCF

Matrix: OTHERSOL

Group #: WSCF20101882
Department: Inorganic
Sampled: 09/19/10
Received: 09/19/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											**09/26/10**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		0.570	mg/kg			0.98	0.0490		09/27/10

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20101882
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	86.8	86.800	% Recov	70.000	130.000				09/27/10
MSD	Uranium	7440-61-1	91.59	91.590	% Recov	70.000	130.000				09/27/10
SPK-RPD	Uranium	7440-61-1	91.590		RPD			5.370	30.000		09/27/10
BATCH QC											
BLANK	Uranium	7440-61-1	0.14	0.140	ug/L						09/27/10
LCS	Uranium	7440-61-1	374.8	93.700	% Recov	84.000	110.000				09/27/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-248

Group #: WSCF20101882
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		The @AB-32 alpha dup is flagged for poor RPD but the sample activity is low level. RPD does not apply. lmh The U-234 dup is flagged for RPD. Sample activity is low so the RPD criterion does not apply.

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
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-248
Sample # W10GR02222
Client ID: B27MX3 GPP WSCF

Matrix: OTHERSOL

Group #: WSCF20101882
Department: Radiochemistry
Sampled: 09/19/10
Received: 09/19/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Americium by AEA											
Americium-241	14596-10-2	LA-508-471	U	9.00e-03	pCi/g	+-0.0317	pCi/g	1.00	0.055		10/12/10
Am-243 tracer by AEA	AM243	LA-508-471		4.00	pCi/g			1.00	0.031		10/12/10
Gamma Energy Analysis-grd H2O											
Cobalt-60	10198-40-0	LA-508-481	U	5.73e-03	pCi/g	+-0.0137	pCi/g	1.00	0.029		09/30/10
Cesium-137	10045-97-3	LA-508-481	U	3.03e-04	pCi/g	+-3.03e-03	pCi/g	1.00	0.035		09/30/10
Europium-152	14683-23-9	LA-508-481	U	-0.0294	pCi/g	+-0.0688	pCi/g	1.00	0.093		09/30/10
Europium-154	15585-10-1	LA-508-481	U	-0.0349	pCi/g	+-0.0470	pCi/g	1.00	0.078		09/30/10
Europium-155	14391-16-3	LA-508-481	U	-5.98e-05	pCi/g	+-5.98e-04	pCi/g	1.00	0.12		09/30/10
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		0.760	pCi/g	+-0.228	pCi/g	1.00	0.15		10/04/10
Gross beta	12587-47-2	LA-508-415		2.40	pCi/g	+-0.384	pCi/g	1.00	0.33		10/04/10
Neptunium by AEA											
Neptunium-237	13994-20-2	LA-508-471	U	3.20e-03	pCi/g	+-3.20e-03	pCi/g	1.00	0.024		10/12/10
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0940	pCi/g	+-0.0940	pCi/g	1.00	0.099		10/12/10
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	6.10e-03	pCi/g	+-9.21e-03	pCi/g	1.00	0.015		10/12/10
Pu-242	13982-10-0	LA-508-471		6.10	pCi/g			1.00	0.024		10/12/10
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.840	pCi/g	+-0.865	pCi/g	1.00	0.34		10/08/10
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		91.2	Percent			1.00	0.0		10/08/10
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.120	pCi/g	+-0.0432	pCi/g	1.00	0.018		10/11/10
Uranium-235	15117-96-1	LA-508-471	U	1.80e-03	pCi/g	+-6.25e-03	pCi/g	1.00	0.013		10/11/10
Uranium-238	U-238	LA-508-471		0.100	pCi/g	+-0.0360	pCi/g	1.00	0.012		10/11/10

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-248
Sample # W10GR02222
Client ID: B27MX3 GPP WSCF

Matrix: OTHERSOL

Group #: WSCF20101882
Department: Radiochemistry
Sampled: 09/19/10
Received: 09/19/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
U-232 tracer by AEA	U232	LA-508-471		3.90	pCi/g			1.00	0.038		10/11/10

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Americium by AEA

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Americium-241	14596-10-2	U3.7e-2		RPD			n/a	30.000		10/12/10
DUP	Am-243 tracer by AEA	AM243	4.025	94.900	% Recov	30.000	105.000				10/12/10
SURR	Am-243 tracer by AEA	AM243	4.04	88.660	% Recov	30.000	105.000				10/12/10
BATCH QC											
BLANK	Americium-241	14596-10-2	U2.1e-2	n/a	pCi/g	-10.000	1000.000				10/12/10
BLANK	Am-243 tracer by AEA	AM243	4.21	82.820	% Recov	30.000	105.000				10/12/10
LCS	Americium-241	14596-10-2	12.47	101.382	% Recov	80.000	120.000				10/12/10
LCS	Am-243 tracer by AEA	AM243	11.68	94.980	% Recov	30.000	105.000				10/12/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cobalt-60	10198-40-0	U-5.726e-3		RPD			n/a	30.000		09/30/10
DUP	Cesium-137	10045-97-3	U-8.03e-3		RPD			n/a	30.000		09/30/10
DUP	Europium-152	14683-23-9	U2.301e-2		RPD			n/a	30.000		09/30/10
DUP	Europium-154	15585-10-1	U-1.796e-2		RPD			n/a	30.000		09/30/10
DUP	Europium-155	14391-16-3	U6.669e-2		RPD			n/a	30.000		09/30/10
BATCH QC											
BLANK	Cobalt-60	10198-40-0	U-4.743e-3	n/a	pCi/g	-10.000	1000.000				09/30/10
BLANK	Cesium-137	10045-97-3	U-4.458e-4	n/a	pCi/g	-10.000	1000.000				09/30/10
BLANK	Europium-152	14683-23-9	U3.799e-3	n/a	pCi/g	-10.000	1000.000				09/30/10
BLANK	Europium-154	15585-10-1	U-9.642e-3	n/a	pCi/g	-10.000	1000.000				09/30/10
BLANK	Europium-155	14391-16-3	U-9.653e-3	n/a	pCi/g	-10.000	1000.000				09/30/10
LCS	Cobalt-60	10198-40-0	10210	102.716	% Recov	80.000	120.000				09/30/10
LCS	Cesium-137	10045-97-3	6258	103.609	% Recov	80.000	120.000				09/30/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha	12587-46-1	1.2		RPD			44.898	30.000 •		10/04/10
DUP	Gross beta	12587-47-2	2.0		RPD			18.182	30.000		10/04/10
BATCH QC											
BLANK	Gross alpha	12587-46-1	U-8.8e-03	n/a	pCi/g	-10.000	10.000				10/04/10
BLANK	Gross beta	12587-47-2	U-7.4e-02	n/a	pCi/g	-10.000	10.000				10/04/10
LCS	Gross alpha	12587-46-1	8.89	109.348	% Recov	80.000	120.000				10/04/10
LCS	Gross beta	12587-47-2	25.9	118.400	% Recov	80.000	120.000				10/04/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Neptunium by AEA

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Neptunium-237	13994-20-2	0.01		RPD			n/a	30.000		10/12/10
MS	Neptunium-237	13994-20-2	105	105.000	% Recov	75.000	125.000				10/12/10
MSD	Neptunium-237	13994-20-2	107	107.000	% Recov	75.000	125.000				10/12/10
SPK-RPD	Neptunium-237	13994-20-2	107.000		% RPD			1.887	20.000		10/12/10
Lab ID: W10GR02303											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Neptunium-237	13994-20-2	93.1	93.100	% Recov	75.000	125.000				10/12/10
BATCH QC											
BLANK	Neptunium-237	13994-20-2	U-3.5e-03	n/a	pCi/G	-10.000	1000.000				10/12/10
LCS	Neptunium-237	13994-20-2	10.86	85.210	% Recov	80.000	120.000				10/12/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Plutonium Isotopics by AEA

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	U1.1e-2		RPD			n/a	30.000		10/12/10
DUP	Pu-239/240 by AEA	PU-239/240	U7.4e-3		RPD			n/a	30.000		10/12/10
DUP	Pu-242	13982-10-0	6.06	84.310	% Recov	30.000	105.000				10/12/10
SURR	Pu-242	13982-10-0	6.083	77.560	% Recov	30.000	105.000				10/12/10
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U-3.1e-2	n/a	pCi/g	-10.000	1000.000				10/12/10
BLANK	Pu-239/240 by AEA	PU-239/240	U1.6e-2	n/a	pCi/g	-10.000	1000.000				10/12/10
BLANK	Pu-242	PU242	6.339	85.490	% Recov	30.000	105.000				10/12/10
LCS	Pu-239/240 by AEA	PU-239/240	12.6	98.437	% Recov	80.000	120.000				10/12/10
LCS	Pu-242	PU242	17.59	93.770	% Recov	30.000	105.000				10/12/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20101882
Matrix: SOLID
Test: Strontium 89/90

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	90.9	90.900	% Recov	30.000	105.000				10/08/10
DUP	Strontium-89/90	SR-RAD	U-1.5		RPD			n/a	30.000		10/08/10
SURR	Sr-85 Tracer by Beta Counting	SR85	91.2	91.200	% Recov	30.000	105.000				10/08/10
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	80.1	80.100	% Recov	30.000	105.000				10/08/10
BLANK	Strontium-89/90	10098-97-2	U0.3	n/a	pCi/g	-10.000	300.000				10/08/10
LCS	Sr-85 Tracer by Beta Counting	SR85	90	90.000	% Recov	30.000	105.000				10/08/10
LCS	Strontium-89/90	10098-97-2	23.5	83.511	% Recov	80.000	120.000				10/08/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20101882
Matrix: SOLID
Test: Uranium Isotopics by AEA

Sample Date: 09/19/10
Receive Date:09/19/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR02222											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	U-232 tracer by AEA	U232	3.865	95.310	% Recov	30.000	105.000				10/11/10
DUP	Uranium-233/234	U-233/234	8.8e-2		RPD			30.769	30.000 •		10/11/10
DUP	Uranium-235	15117-96-1	U7.2e-3		RPD			n/a	30.000		10/11/10
DUP	Uranium-238	U-238	9.7e-2		RPD			3.046	30.000		10/11/10
SURR	U-232 tracer by AEA	U232	3.88	99.370	% Recov	30.000	105.000				10/11/10
BATCH QC											
BLANK	U-232 tracer by AEA	U232	4.043	99.500	% Recov	30.000	105.000				10/11/10
BLANK	Uranium-233/234	13966-29-5	U8.8e-3	n/a	pCi/g	-10.000	1000.000				10/11/10
BLANK	Uranium-235	15117-96-1	U-3.8e-3	n/a	pCi/g	-10.000	1000.000				10/11/10
BLANK	Uranium-238	24678-82-8	U1.8e-3	n/a	pCi/g	-10.000	1000.000				10/11/10
LCS	U-232 tracer by AEA	U232	11.22	65.550	% Recov	30.000	105.000				10/11/10
LCS	Uranium-238	24678-82-8	18.95	100.397	% Recov	80.000	120.000				10/11/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-248

Group #: WSCF20101882
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		The @AB-32 alpha dup is flagged for poor RPD but the sample activity is low level. RPD does not apply. lmh The U-234 dup is flagged for RPD. Sample activity is low so the RPD criterion does not apply.

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 F10-248 :F10-248

Group #: WSCF20101882
Department: Radiochemistry

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	BI-214				0.49	pCi/g
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	BI-214 Count Error				30	%
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	K-40				1.8	pCi/g
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	K-40 Count Error				27	%
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	PB-212				0.24	pCi/g
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	PB-212 Count Error				28	%
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	RA-226				0.37	pCi/g
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	RA-226 Count Error				29	%
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	TL-208				0.093	pCi/g
W10GR02222	B27MX3	GPP	Gamma Energy Analysis-grd H2O	TL-208 Count Error				43	%

RQ=Result Qualifier

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42100-SLF-10-370

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION w/SAMPLE RECORD SHEETS

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
10/11/10

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 401639/ES20
Group#: 20101882
Project#: F10-248
Proj Mgr: Steve Trent
Phone: 373-5869

The following samples were received from you on 09/19/10. 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
W10GR02222	B27MX3	GPP @2008 @AB-32 @AEA-30 @AEA-31 @AEA-32 @AEA-33 @ALPHA @GEA-GPP @SR89_90	Solid, or handle as if solid	09/19/10

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@AEA-32	Uranium Isotopics by AEA
@AEA-33	Neptunium by AEA
@ALPHA	Gross Alpha on Alpha Plateau
@GEA-GPP	Gamma Energy Analysis-grd H2O
@SR89_90	Strontium 89/90

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-248-001 | PAGE 1 OF 1

COLLECTOR Lucas Chamberlain 10/11/10	**COMPANY CONTACT** WIDRIG, DL	**TELEPHONE NO.** 376-2858	**PROJECT COORDINATOR** WIDRIG, DL
SAMPLING LOCATION PW-1 Spent GAC Canisters; Composite	**PROJECT DESIGNATION** 200-PW-1 Spent GAC Canisters and Filters		**SAF NO.** F10-248
ICE CHEST NO. N/A	**FIELD LOGBOOK NO.** HNF-N-585	**ACTUAL SAMPLE DEPTH** N/A	**COA** 300200ES10
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A

PRICE CODE 9D

AIR QUALITY ☐

DATA TURNAROUND 21 Days / 21 Days

METHOD OF SHIPMENT GOVERNMENT VEHICLE

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)

201 01882

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None	None
HOLDING TIME	6 Months	6 Months
TYPE OF CONTAINER	G/P	Square Bottle - Poly
NO. OF CONTAINER(S)	1	1
VOLUME	60mL	500mL
SAMPLE ANALYSIS	ICP/MS - 200.8 (Add-on) (Uranium);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B27MX3	OTHER SOLID	9/19/10	0900		

W10GR02222

ORIGINAL

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Lucas Chamberlain	9-19-10/1035	TA FRAZIER	9-19-10 1035

SPECIAL INSTRUCTIONS

Field samplers will composite GAC from Canisters AE-1072, AE-1101, AE-1217, AE-1084, AE-1073, AE-1213, AE-1210, AE-1212, AE-1105.

** The CACN for all analytical work being performed by WSCF laboratory is 401639ES20.

☐

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gross Alpha; Gross Beta; Isotopic Plutonium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238};

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

A-6003-618(01/06)