

0093318

WSCF Laboratory

RECEIVED OCTOBER 07, 2010



PO Box 650 S3-30
Richland, WA 99352

October 6, 2010

Michael Neely
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF102588

Reference: (1) SOW, Mod 2, #36587, Release 3
(2) HNF-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF102588

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

Very truly yours,

Electronically signed by Joseph Hale

For Lab Manager

WSCF Analytical Lab

(509) 373-7495

Attachments 4

CC: w/Attachments

File/LB



ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF102588
Data Deliverable Date 10/06/10

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F10-273	B28133	102588001	SOIL	09/16/10	09/16/10
F10-273	B28134	102588002	SOIL	09/16/10	09/16/10
F10-273	B28135	102588003	SOIL	09/16/10	09/16/10
F10-273	B28136	102588004	SOIL	09/16/10	09/16/10

ATTACHMENT 2

NARRATIVE

Consisting of 5 pages
Including cover page

Introduction

Four (4) S&GRP samples were received at the WSCF Laboratory on September 16, 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.

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 wet chemical 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* 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. Analytical Note(s):

- Batch QC 166633 analyzed on sample# B28748 (102571001)

- Antimony - Matrix Spike and Matrix Spike Duplicate recoveries were not within the established laboratory limits. Affected sample results in this batch were N flagged.

All other QC controls are within the established limits.

Hexavalent Chromium – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Batch QC 167569 analyzed on sample# B28748 (102571001)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near or below the minimum detectable level. No flags issued.
 - Matrix Spike recovery exceeded established laboratory limits. Affected sample results in this batch were N flagged.

All other QC controls are within the established limits.

Organic Comments

PCB – 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. Analytical Note(s):

- Batch QC 164233 analyzed on sample# B28133 (102588001)

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 (Applies only to Technetium), Blank and Laboratory Control Sample were analyzed with this delivery group. 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.
- Technetium-99:
 - Batch QC 164280 analyzed on sample# B28133 (102588001)

All QC controls are within the established limits.

- Gamma Energy Analysis:

- Batch QC 163944 analyzed on sample# B26HR6 (102197002)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

All other QC controls are within the established limits.

- Strontium-89/90:

- Batch QC 165538 analyzed on sample# B28133 (102588001)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

All other QC controls are within the established limits.

- Americium-241:

- Batch QC 164261 analyzed on sample# B28133 (102588001)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

All other QC controls are within the established limits.

- Isotopic Plutonium analysis:

- Batch QC 164261 analyzed on sample# B28133 (102588001)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

All other QC controls are within the established limits.

- Isotopic Uranium analysis:

- Batch QC 164261 analyzed on sample# B28133 (102588001)
 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

All other QC controls are within the established limits.

Attachment 2
Narrative
WSCF102588

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 electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 47 pages
including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Michael Neely

Contract # MOA-FH-CHPRC-2008
Group # WSCF102588
Report Date October 6, 2010

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Marisol Avila

Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.

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.

Batch QC List

Attention Michael Neely
Department Inorganic

Group # WSCF102588

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
166633	166639	4	BLANK	39365	BLANK		ICP-2008 MS All possible metal
166633	166639	5	LCS	39366	LCS		ICP-2008 MS All possible metal
166633	166639	7	MS	39367	B28748(102571001MS)	102571001	ICP-2008 MS All possible metal
166633	166639	8	MSD	39368	B28748(102571001MSD)	102571001	ICP-2008 MS All possible metal
166633	166639	21	SAMPLE	102588001	B28133		ICP-2008 MS All possible metal
166633	166639	22	SAMPLE	102588002	B28134		ICP-2008 MS All possible metal
166633	166639	23	SAMPLE	102588003	B28135		ICP-2008 MS All possible metal
166633	166639	24	SAMPLE	102588004	B28136		ICP-2008 MS All possible metal
167569	167570	1	BLANK	39978	BLANK		Hexavalent chromium
167569	167570	6	LCS	39979	LCS		Hexavalent chromium
167569	167570	7	DUP	39980	B28748(102571001DUP)	102571001	Hexavalent chromium
167569	167570	8	MS	39981	B28748(102571001MS)	102571001	Hexavalent chromium
167569	167570	9	PSTSPK	39982	PSTSPK		Hexavalent chromium
167569	167570	10	IMS	39983	B28748(102571001IMS)	102571001	Hexavalent chromium
167569	167570	22	SAMPLE	102588001	B28133		Hexavalent chromium
167569	167570	23	SAMPLE	102588002	B28134		Hexavalent chromium
167569	167570	24	SAMPLE	102588003	B28135		Hexavalent chromium
167569	167570	25	SAMPLE	102588004	B28136		Hexavalent chromium

Batch QC List**Group #**

WSCF102588

Attention Michael Neely
Department Organic, Semivolatiles

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
164233	167443	1	BLANK	38943	BLANK		PCBs by EPA SW-846 Method 8082
164233	167443	2	LCS	38944	LCS		PCBs by EPA SW-846 Method 8082
164233	167443	3	MS	38945	B28133(102588001MS)	102588001	PCBs by EPA SW-846 Method 8082
164233	167443	4	MSD	38946	B28133(102588001MSD)	102588001	PCBs by EPA SW-846 Method 8082
164233	167443	5	SAMPLE	102588001	B28133		PCBs by EPA SW-846 Method 8082
164233	167443	6	SAMPLE	102588002	B28134		PCBs by EPA SW-846 Method 8082
164233	167443	7	SAMPLE	102588003	B28135		PCBs by EPA SW-846 Method 8082
164233	167443	8	SAMPLE	102588004	B28136		PCBs by EPA SW-846 Method 8082

Batch QC List

Group # WSCF102588

Attention Michael Neely
Department Radiochemistry

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
163944	164046	1	IBLANK	38837	IBLANK		Gamma Energy Analysis-general
163944	164046	2	LCS	38838	LCS		Gamma Energy Analysis-general
163944	164046	3	DUP	38839	B26HR6(102197002DUP)	102197002	Gamma Energy Analysis-general
163944	164046	6	SAMPLE	102588001	B28133		Gamma Energy Analysis-general
163944	164046	7	SAMPLE	102588002	B28134		Gamma Energy Analysis-general
163944	164046	8	SAMPLE	102588003	B28135		Gamma Energy Analysis-general
163944	164046	9	SAMPLE	102588004	B28136		Gamma Energy Analysis-general
164261	167476	1	BLANK	38992	BLANK		Uranium (AEA)
164261	167476	2	LCS	38993	LCS		Uranium (AEA)
164261	167476	3	DUP	38994	B28133(102588001DUP)	102588001	Uranium (AEA)
164261	167476	4	SAMPLE	102588001	B28133		Uranium (AEA)
164261	167476	5	SAMPLE	102588002	B28134		Uranium (AEA)
164261	167476	6	SAMPLE	102588003	B28135		Uranium (AEA)
164261	167476	7	SAMPLE	102588004	B28136		Uranium (AEA)
164261	167660	1	BLANK	38992	BLANK		Americium/Curium (AEA)
164261	167660	2	LCS	38993	LCS		Americium/Curium (AEA)
164261	167660	3	DUP	38994	B28133(102588001DUP)	102588001	Americium/Curium (AEA)
164261	167660	4	SAMPLE	102588001	B28133		Americium/Curium (AEA)
164261	167660	5	SAMPLE	102588002	B28134		Americium/Curium (AEA)
164261	167660	6	SAMPLE	102588003	B28135		Americium/Curium (AEA)
164261	167660	7	SAMPLE	102588004	B28136		Americium/Curium (AEA)
164261	167661	1	BLANK	38992	BLANK		Plutonium (AEA)
164261	167661	2	LCS	38993	LCS		Plutonium (AEA)

Batch QC List

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
164261	167661	3	DUP	38994	B28133(102588001DUP)	102588001	Plutonium (AEA)
164261	167661	4	SAMPLE	102588001	B28133		Plutonium (AEA)
164261	167661	5	SAMPLE	102588002	B28134		Plutonium (AEA)
164261	167661	6	SAMPLE	102588003	B28135		Plutonium (AEA)
164261	167661	7	SAMPLE	102588004	B28136		Plutonium (AEA)
164280	165634	1	BLANK	39027	BLANK		TC99 by Liquid Scintillation
164280	165634	2	LCS	39028	LCS		TC99 by Liquid Scintillation
164280	165634	3	SAMPLE	102588001	B28133		TC99 by Liquid Scintillation
164280	165634	4	DUP	39029	B28133(102588001DUP)	102588001	TC99 by Liquid Scintillation
164280	165634	5	MS	39030	B28133(102588001MS)	102588001	TC99 by Liquid Scintillation
164280	165634	6	SAMPLE	102588002	B28134		TC99 by Liquid Scintillation
164280	165634	7	SAMPLE	102588003	B28135		TC99 by Liquid Scintillation
164280	165634	8	SAMPLE	102588004	B28136		TC99 by Liquid Scintillation
165538	167352	1	BLANK	39294	BLANK		Strontium 89/90 (GPC/GEA)
165538	167352	2	LCS	39295	LCS		Strontium 89/90 (GPC/GEA)
165538	167352	3	DUP	39296	B28133(102588001DUP)	102588001	Strontium 89/90 (GPC/GEA)
165538	167352	4	SAMPLE	102588001	B28133		Strontium 89/90 (GPC/GEA)
165538	167352	5	SAMPLE	102588002	B28134		Strontium 89/90 (GPC/GEA)
165538	167352	6	SAMPLE	102588003	B28135		Strontium 89/90 (GPC/GEA)
165538	167352	7	SAMPLE	102588004	B28136		Strontium 89/90 (GPC/GEA)

Batch QC List**Group #** WSCF102588**Attention** Michael Neely
Department Wet Chemistry

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
164550	164550	12	SAMPLE	102588001	B28133		Dry Weight/Percent Moisture
164550	164550	13	SAMPLE	102588002	B28134		Dry Weight/Percent Moisture
164550	164550	14	SAMPLE	102588003	B28135		Dry Weight/Percent Moisture
164550	164550	15	SAMPLE	102588004	B28136		Dry Weight/Percent Moisture

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF102588

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, industry methods or HEIS 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 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	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP-Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102588

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, industry methods or HEIS 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 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-523-427	Polychlorinated Biphenyls (PCB'S) by Gas Chromatography		
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
	EPA SW-846	3665A	Sulfuric Acid/Permanganate Cleanup
	EPA SW-846	8000B	Determinative Chromatographic Separations
	EPA SW-846	8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography
	HEIS	8082_PCB_GC	Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

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, industry methods or HEIS 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 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-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation	
	HEIS	SRTOT_SEP_PRECIP_GPC Strontium 89/90, by Sr-Spec Sep.
LA-508-471	Thorium, Neptunium, Plutonium, Americium, and Uranium In Soil and Water Using Eichrom Column Separation (Prep)	
	HEIS	PUISO_IE_PRECIP_AEA Isotopic Plutonium, Alpha Spec
LA-508-471	Determination Of Uranium, Plutonium, And Americium	
	HEIS	AMCMISO_IE_PREC_AEA Americium/Curium Iso, Alpha Spec
LA-508-481	Gamma Energy Analysis using the Canberra Genie Ssystem	
	HEIS	GAMMA_GS Gamma Energy Analysis
LA-508-471	Determination Of Uranium, Plutonium, And Americium	
	HEIS	UIISO_IE_PRECIP_AEA Uranium Iso, Alpha Spec
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer	
	HEIS	ALPHA_LSC A/B Liquid Scintillation
	HEIS	BETA_LSC A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC Tritium, by Eichrome ion exchange, LSC

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Michael Neely
Department Wet Chemistry

Group # WSCF102588

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, industry methods or HEIS 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 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-519-412	Total Residual Percent Solids Dried at 103 - 105 Degrees C		
	EPA-600/4-79-020	160.3	Total Residue
	Standard Methods	2540B	Total Solids Dried at 103-105 C
	HEIS	%SOLIDS	Dry Weight, Percent Solids

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Inorganic

Sample # 102588001
 SAF# F10-273
 Sample ID B28133

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI) Prep										
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	UN	<0.10		ug/g	1	0.10	0.51	09/29/10
ICPMS Prep										
ICP-MS										
Manganese	7439-96-5	LA-505-412		244		mg/kg	1	0.10	1.0	09/23/10
Antimony	7440-36-0	LA-505-412	UN	<0.31		mg/kg	1	0.31	3.1	09/23/10
Barium	7440-39-3	LA-505-412		44.5		mg/kg	1	0.21	2.1	09/23/10
Cadmium	7440-43-9	LA-505-412	U	<0.10		mg/kg	1	0.10	1.0	09/23/10
Chromium	7440-47-3	LA-505-412	B	4.71		mg/kg	1	0.52	5.2	09/23/10
Zinc	7440-66-6	LA-505-412		31.7		mg/kg	1	0.83	5.2	09/23/10
Lead	7439-92-1	LA-505-412		3.22		mg/kg	1	0.10	1.0	09/23/10
Mercury	7439-97-6	LA-505-412	U	<0.052		mg/kg	1	0.052	0.21	09/23/10
Arsenic	7440-38-2	LA-505-412	B	1.91		mg/kg	1	0.42	4.2	09/23/10
Thorium	7440-29-1	LA-505-412		2.08		mg/kg	1	0.10	0.52	09/23/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL. (Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X, Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

Sample # 102588002
 SAF# F10-273
 Sample ID B28134

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI) Prep										
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	UN	<0.10		ug/g	1	0.10	0.52	09/29/10
ICPMS Prep										
ICP-MS										
Manganese	7439-96-5	LA-505-412		307		mg/kg	1	0.10	1.0	09/23/10
Antimony	7440-36-0	LA-505-412	UN	<0.31		mg/kg	1	0.31	3.1	09/23/10
Barium	7440-39-3	LA-505-412		53.3		mg/kg	1	0.21	2.1	09/23/10
Cadmium	7440-43-9	LA-505-412	U	<0.10		mg/kg	1	0.10	1.0	09/23/10
Chromium	7440-47-3	LA-505-412		5.13		mg/kg	1	0.51	5.1	09/23/10
Zinc	7440-66-6	LA-505-412		30.5		mg/kg	1	0.82	5.1	09/23/10
Lead	7439-92-1	LA-505-412		3.73		mg/kg	1	0.10	1.0	09/23/10
Mercury	7439-97-6	LA-505-412	U	<0.051		mg/kg	1	0.051	0.21	09/23/10
Arsenic	7440-38-2	LA-505-412	B	2.84		mg/kg	1	0.41	4.1	09/23/10
Thorium	7440-29-1	LA-505-412		2.21		mg/kg	1	0.10	0.51	09/23/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL. (Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X, Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

Sample # 102588003
 SAF# F10-273
 Sample ID B28135

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI) Prep										
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	UN	<0.10		ug/g	1	0.10	0.52	09/29/10
ICPMS Prep										
ICP-MS										
Manganese	7439-96-5	LA-505-412		289		mg/kg	1	0.10	1.0	09/23/10
Antimony	7440-36-0	LA-505-412	UN	<0.30		mg/kg	1	0.30	3.0	09/23/10
Barium	7440-39-3	LA-505-412		58.6		mg/kg	1	0.20	2.0	09/23/10
Cadmium	7440-43-9	LA-505-412	U	<0.10		mg/kg	1	0.10	1.0	09/23/10
Chromium	7440-47-3	LA-505-412		5.73		mg/kg	1	0.50	5.0	09/23/10
Zinc	7440-66-6	LA-505-412		33.1		mg/kg	1	0.80	5.0	09/23/10
Lead	7439-92-1	LA-505-412		4.21		mg/kg	1	0.10	1.0	09/23/10
Mercury	7439-97-6	LA-505-412	U	<0.050		mg/kg	1	0.050	0.20	09/23/10
Arsenic	7440-38-2	LA-505-412	B	2.67		mg/kg	1	0.40	4.0	09/23/10
Thorium	7440-29-1	LA-505-412		2.50		mg/kg	1	0.10	0.50	09/23/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL. (Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X, Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

Sample # 102588004
 SAF# F10-273
 Sample ID B28136

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI) Prep										09/29/10
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	UN	<0.10		ug/g	1	0.10	0.50	09/29/10
ICPMS Prep										09/22/10
ICP-MS										
Manganese	7439-96-5	LA-505-412		320		mg/kg	1	0.11	1.1	09/23/10
Antimony	7440-36-0	LA-505-412	UN	<0.32		mg/kg	1	0.32	3.2	09/23/10
Barium	7440-39-3	LA-505-412		51.1		mg/kg	1	0.21	2.1	09/23/10
Cadmium	7440-43-9	LA-505-412	U	<0.11		mg/kg	1	0.11	1.1	09/23/10
Chromium	7440-47-3	LA-505-412	B	5.29		mg/kg	1	0.53	5.3	09/23/10
Zinc	7440-66-6	LA-505-412		36.3		mg/kg	1	0.85	5.3	09/23/10
Lead	7439-92-1	LA-505-412		4.23		mg/kg	1	0.11	1.1	09/23/10
Mercury	7439-97-6	LA-505-412	U	<0.053		mg/kg	1	0.053	0.21	09/23/10
Arsenic	7440-38-2	LA-505-412	B	2.48		mg/kg	1	0.42	4.2	09/23/10
Thorium	7440-29-1	LA-505-412		2.53		mg/kg	1	0.11	0.53	09/23/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL. (Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X, Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Organic, Semivolatiles

Group # WSCF102588

Sample # 102588001
 SAF# F10-273
 Sample ID B28133

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
PCB Prep Solids										
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1221	11104-28-2	LA-523-427	U	<8		ug/kg	1	8	8	09/30/10
Aroclor-1232	11141-16-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1242	53469-21-9	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1248	12672-29-6	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1254	11097-69-1	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1260	11096-82-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1262	37324-23-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1268	11100-14-4	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - The calibration exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Organic, Semivolatiles

Group # WSCF102588

Sample # 102588002
 SAF# F10-273
 Sample ID B28134

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
PCB Prep Solids										09/29/10
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1221	11104-28-2	LA-523-427	U	<8		ug/kg	1	8	8	09/30/10
Aroclor-1232	11141-16-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1242	53469-21-9	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1248	12672-29-6	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1254	11097-69-1	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1260	11096-82-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - The calibration exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Organic, Semivolatiles

Sample # 102588003
 SAF# F10-273
 Sample ID B28135

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
PCB Prep Solids										09/29/10
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1221	11104-28-2	LA-523-427	U	<9		ug/kg	1	9	9	09/30/10
Aroclor-1232	11141-16-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1242	53469-21-9	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1248	12672-29-6	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1254	11097-69-1	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1260	11096-82-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - The calibration exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
Department Organic, Semivolatiles

Sample # 102588004
SAF# F10-273
Sample ID B28136

Matrix SOIL
Sampled 09/16/10
Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
PCB Prep Solids										
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1221	11104-28-2	LA-523-427	U	<8		ug/kg	1	8	8	09/30/10
Aroclor-1232	11141-16-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1242	53469-21-9	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1248	12672-29-6	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1254	11097-69-1	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10
Aroclor-1260	11096-82-5	LA-523-427	U	<4		ug/kg	1	4	4	09/30/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 D - Analyte was reported at a secondary dilution factor.
 E - The calibration exceeds the calibration range (GC/MS).
 J - Analyte < lowest calibration but >= MDL.
 N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
 U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Radiochemistry

Sample # 102588001
 SAF# F10-273
 Sample ID B28133

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										
GEA										
Cesium-137	10045-97-3	LA-508-481		0.063	.027	pCi/g	1	0.032		09/20/10
Cobalt-60	10198-40-0	LA-508-481	U	-5.7E-3	.017	pCi/g	1	0.030		09/20/10
Europium-152	14683-23-9	LA-508-481	U	-0.044	.077	pCi/g	1	0.096		09/20/10
Europium-154	15585-10-1	LA-508-481	U	0.045	.052	pCi/g	1	0.10		09/20/10
Europium-155	14391-16-3	LA-508-481	U	-0.012	.084	pCi/g	1	0.15		09/20/10
SR-89/90										
SR-89/90										
Strontium-89/90	SR-RAD	LA-220-406	U	0.022	.73	pCi/g	1	0.43		09/28/10
Tc-99										
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-0.21	.18	pCi/g	1	0.31		09/22/10
Th/Pu/Am/U Teva										
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471		0.030	.019	pCi/g	1	0.014		10/01/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	0.025	.026	pCi/g	1	0.044		10/01/10
Plutonium-239/240	PU-239/240	LA-508-471	U	-5.7E-3	.012	pCi/g	1	0.028		10/01/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

Sample # 102588001
SAF# F10-273
Sample ID B28133

Matrix SOIL
Sampled 09/16/10
Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium Iso										
Uranium-234	U-233/234	LA-508-471		0.15	.05	pCi/g	1	0.017		09/29/10
Uranium-235	15117-96-1	LA-508-471	U	0.016	.014	pCi/g	1	0.019		09/29/10
Uranium-238	U-238	LA-508-471		0.14	.046	pCi/g	1	0.017		09/29/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF102588

Sample # 102588002
 SAF# F10-273
 Sample ID B28134

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										
GEA										
Cesium-137	10045-97-3	LA-508-481	U	2.3E-3	.0096	pCi/g	1	0.018		09/20/10
Cobalt-60	10198-40-0	LA-508-481	U	9.8E-3	.0096	pCi/g	1	0.017		09/20/10
Europium-152	14683-23-9	LA-508-481	U	-0.012	.031	pCi/g	1	0.048		09/20/10
Europium-154	15585-10-1	LA-508-481	U	5.6E-3	.035	pCi/g	1	0.057		09/20/10
Europium-155	14391-16-3	LA-508-481	U	0.038	.04	pCi/g	1	0.073		09/20/10
SR-89/90										
SR-89/90										
Strontium-89/90	SR-RAD	LA-220-406	U	0.16	.74	pCi/g	1	0.48		09/28/10
Tc-99										
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-0.32	.18	pCi/g	1	0.32		09/22/10
Th/Pu/Am/U Teva										
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471		0.028	.019	pCi/g	1	0.016		10/01/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	0.012	.012	pCi/g	1	0.019		10/01/10
Plutonium-239/240	PU-239/240	LA-508-471	U	0.0020	.0038	pCi/g	1	5.4E-3		10/01/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

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 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

Sample # 102588002
SAF# F10-273
Sample ID B28134

Matrix SOIL
Sampled 09/16/10
Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium Iso										
Uranium-234	U-233/234	LA-508-471		0.15	.049	pCi/g	1	0.014		09/29/10
Uranium-235	15117-96-1	LA-508-471		0.022	.014	pCi/g	1	0.015		09/29/10
Uranium-238	U-238	LA-508-471		0.19	.057	pCi/g	1	0.014		09/29/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Radiochemistry

Sample # 102588003
 SAF# F10-273
 Sample ID B28135

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										
GEA										
Cesium-137	10045-97-3	LA-508-481	U	0.016	.028	pCi/g	1	0.056		09/20/10
Cobalt-60	10198-40-0	LA-508-481	U	0.016	.027	pCi/g	1	0.056		09/20/10
Europium-152	14683-23-9	LA-508-481	U	0.092	.12	pCi/g	1	0.15		09/20/10
Europium-154	15585-10-1	LA-508-481	U	-0.026	.091	pCi/g	1	0.18		09/20/10
Europium-155	14391-16-3	LA-508-481	U	0.044	.096	pCi/g	1	0.19		09/20/10
SR-89/90										
SR-89/90										
Strontium-89/90	SR-RAD	LA-220-406	U	-0.75	.73	pCi/g	1	0.47		09/28/10
Tc-99										
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-0.33	.18	pCi/g	1	0.33		09/22/10
Th/Pu/Am/U Teva										
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471		0.049	.024	pCi/g	1	0.019		10/01/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	-7.6E-3	.018	pCi/g	1	0.039		10/01/10
Plutonium-239/240	PU-239/240	LA-508-471	U	9.5E-3	.0093	pCi/g	1	0.014		10/01/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF102588

Sample # 102588003
 SAF# F10-273
 Sample ID B28135

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium Iso										
Uranium-234	U-233/234	LA-508-471		0.18	.055	pCi/g	1	0.015		09/29/10
Uranium-235	15117-96-1	LA-508-471		0.017	.013	pCi/g	1	0.016		09/29/10
Uranium-238	U-238	LA-508-471		0.15	.047	pCi/g	1	0.015		09/29/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Radiochemistry

Sample # 102588004
 SAF# F10-273
 Sample ID B28136

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										
GEA										
Cesium-137	10045-97-3	LA-508-481	U	-0.011	.024	pCi/g	1	0.037		09/20/10
Cobalt-60	10198-40-0	LA-508-481	U	-3.7E-4	.019	pCi/g	1	0.037		09/20/10
Europium-152	14683-23-9	LA-508-481	U	-0.015	.062	pCi/g	1	0.089		09/20/10
Europium-154	15585-10-1	LA-508-481	U	2.1E-4	.058	pCi/g	1	0.11		09/20/10
Europium-155	14391-16-3	LA-508-481	U	0.039	.072	pCi/g	1	0.14		09/20/10
SR-89/90										
SR-89/90										
Strontium-89/90	SR-RAD	LA-220-406	U	-1.5	.64	pCi/g	1	0.42		09/28/10
Tc-99										
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-0.21	.17	pCi/g	1	0.32		09/22/10
Th/Pu/Am/U Teva										
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471		0.021	.015	pCi/g	1	0.012		10/01/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	1.9E-3	.012	pCi/g	1	0.025		10/01/10
Plutonium-239/240	PU-239/240	LA-508-471	U	0.014	.012	pCi/g	1	0.018		10/01/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF102588

Sample # 102588004
 SAF# F10-273
 Sample ID B28136

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium Iso										
Uranium-234	U-233/234	LA-508-471		0.15	.05	pCi/g	1	0.020		09/29/10
Uranium-235	15117-96-1	LA-508-471	U	0.016	.012	pCi/g	1	0.017		09/29/10
Uranium-238	U-238	LA-508-471		0.17	.055	pCi/g	1	5.8E-3		09/29/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Wet Chemistry

Group # WSCF102588

Sample # 102588001
 SAF# F10-273
 Sample ID B28133

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Total Residue										09/19/10
Total Residue										
Percent Solids	%SOLIDS	LA-519-412		95		percent	1			09/19/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Wet Chemistry

Group # WSCF102588

Sample # 102588002
 SAF# F10-273
 Sample ID B28134

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Total Residue										09/19/10
Total Residue										
Percent Solids	%SOLIDS	LA-519-412		94		percent	1			09/19/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
 Department Wet Chemistry

Sample # 102588003
 SAF# F10-273
 Sample ID B28135

Matrix SOIL
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Total Residue										09/19/10
Total Residue										
Percent Solids	%SOLIDS	LA-519-412		91		percent	1			09/19/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Group # WSCF102588

Attention Michael Neely
Department Wet Chemistry

Sample # 102588004
SAF# F10-273
Sample ID B28136

Matrix SOIL
Sampled 09/16/10
Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Total Residue										09/19/10
Total Residue										
Percent Solids	%SOLIDS	LA-519-412		94		percent	1			09/19/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

Quality Control Report

Attention Michael Neely
 Department Organic, Semivolatiles

Group # WSCF102588

QC Batch 164233 Test PCBs by EPA SW-846 Method 8082
 Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #38943								
Aroclor-1016	12674-11-2	<4		ug/kg					U	09/30/10
Aroclor-1221	11104-28-2	<8		ug/kg					U	09/30/10
Aroclor-1232	11141-16-5	<4		ug/kg					U	09/30/10
Aroclor-1242	53469-21-9	<4		ug/kg					U	09/30/10
Aroclor-1248	12672-29-6	<4		ug/kg					U	09/30/10
Aroclor-1254	11097-69-1	<4		ug/kg					U	09/30/10
Aroclor-1260	11096-82-5	<4		ug/kg					U	09/30/10
Aroclor-1262	37324-23-5	<4		ug/kg					U	09/30/10
Aroclor-1268	11100-14-4	<4		ug/kg					U	09/30/10
LCS		QC Sample #38944								
Aroclor-1260	11096-82-5	75		ug/kg	93.7	71 - 132				09/30/10
MS		QC Sample #38945								
		Original 102588001								
Aroclor-1260	11096-82-5	<4	100	ug/kg	127.1	65 - 137				09/30/10
MSD		QC Sample #38946								
		Original 102588001								
Aroclor-1260	11096-82-5	<4	94	ug/kg	118.4	65 - 137	7.10	30	Paired 38945	09/30/10

Quality Control Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

QC Batch 166633 Test ICP-2008 MS All possible metal
 Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #39365								
Manganese	7439-96-5	<0.10		ug/L					U	09/23/10
Antimony	7440-36-0	<0.30		ug/L					U	09/23/10
Barium	7440-39-3	<0.20		ug/L					U	09/23/10
Cadmium	7440-43-9	<0.10		ug/L					U	09/23/10
Chromium	7440-47-3	<0.50		ug/L					U	09/23/10
Zinc	7440-66-6	<0.80		ug/L					U	09/23/10
Lead	7439-92-1	<0.10		ug/L					U	09/23/10
Mercury	7439-97-6	<0.050		ug/L					U	09/23/10
Arsenic	7440-38-2	<0.40		ug/L					U	09/23/10
Thorium	7440-29-1	<0.10		ug/L					U	09/23/10
LCS		QC Sample #39366								
Manganese	7439-96-5	437		mg/kg	97.8	75 - 121				09/23/10
Antimony	7440-36-0	123		mg/kg	138.4	62 - 205				09/23/10
Barium	7440-39-3	305		mg/kg	96.9	78 - 118				09/23/10
Cadmium	7440-43-9	69.3		mg/kg	105.7	76 - 129				09/23/10
Chromium	7440-47-3	61.5		mg/kg	85.6	68 - 119				09/23/10
Zinc	7440-66-6	163		mg/kg	93.1	73 - 131				09/23/10
Lead	7439-92-1	130		mg/kg	101.7	79 - 124				09/23/10

Quality Control Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Mercury	7439-97-6		7.61	mg/kg	93	69 - 124				09/23/10
Arsenic	7440-38-2		127	mg/kg	97.3	79 - 125				09/23/10
Thorium	7440-29-1		367	mg/kg	93.1	79 - 109				09/23/10
MS		QC Sample #39367								
		Original 102571001								
Manganese	7439-96-5		79.9	mg/kg	80.1	70 - 130				09/23/10
Antimony	7440-36-0		52.0	mg/kg	52.2	70 - 130			N	09/23/10
Barium	7440-39-3		90.3	mg/kg	90.5	70 - 130				09/23/10
Cadmium	7440-43-9		93.2	mg/kg	93.4	70 - 130				09/23/10
Chromium	7440-47-3		87.4	mg/kg	87.7	70 - 130				09/23/10
Zinc	7440-66-6		84.2	mg/kg	84.4	70 - 130				09/23/10
Lead	7439-92-1		94.4	mg/kg	94.7	70 - 130				09/23/10
Mercury	7439-97-6		1.98	mg/kg	99.5	70 - 130				09/23/10
Arsenic	7440-38-2		93.2	mg/kg	93.5	70 - 130				09/23/10
Thorium	7440-29-1		93.6	mg/kg	93.8	70 - 130				09/23/10
MSD		QC Sample #39368								
		Original 102571001								
		Paired 39367								
Manganese	7439-96-5		105	mg/kg	105.7	70 - 130	27.60	30		09/23/10
Antimony	7440-36-0		57.8	mg/kg	58	70 - 130	10.50	30	N	09/23/10
Barium	7440-39-3		99.4	mg/kg	99.7	70 - 130	9.70	30		09/23/10
Cadmium	7440-43-9		97.4	mg/kg	97.7	70 - 130	4.50	30		09/23/10
Chromium	7440-47-3		92.8	mg/kg	93.1	70 - 130	6.00	30		09/23/10
Zinc	7440-66-6		91.4	mg/kg	91.7	70 - 130	8.30	30		09/23/10
Lead	7439-92-1		101	mg/kg	101.1	70 - 130	6.50	30		09/23/10
Mercury	7439-97-6		2.14	mg/kg	107.5	70 - 130	7.70	30		09/23/10

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF102588

Analyte	CAS #	Original Found	QC Found	Units	% RecovLimits	RPD	RPD Limit	RQ	Analyzed
Arsenic	7440-38-2		97.4	mg/kg	97.8 70 - 130	4.50	30		09/23/10
Thorium	7440-29-1		99.9	mg/kg	100.2 70 - 130	6.60	30		09/23/10

Quality Control Report

Attention Michael Neely
 Department Inorganic

Group # WSCF102588

QC Batch 167569 Test Hexavalent chromium
 Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #39978							
Hexavalent chromium	18540-29-9	<0.096		ug/g					U	09/29/10
LCS			QC Sample #39979							
Hexavalent chromium	18540-29-9	3.46		ug/g	86.7	80 - 120				09/29/10
DUP			QC Sample #39980							
			Original 102571001							
Hexavalent chromium	18540-29-9	0.0306		ug/g			55.00	20	* BX	09/29/10
MS			QC Sample #39981							
			Original 102571001							
Hexavalent chromium	18540-29-9	2.71		ug/g	68	75 - 125			N	09/29/10
PSTSPK			QC Sample #39982							
Hexavalent chromium	18540-29-9	0.0477		ug/g	89.7	85 - 115			B	09/29/10
IMS			QC Sample #39983							
			Original 102571001							
Hexavalent chromium	18540-29-9	270		ug/g	77.1	75 - 125			D	09/29/10

Quality Control Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF102588

QC Batch 163944 Test Gamma Energy Analysis-general
 Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
IBLANK		QC Sample #38837								
Cesium-137	10045-97-3		-1.6E-4	pCi/g					U	09/20/10
Cobalt-60	10198-40-0		-0.010	pCi/g					U	09/20/10
Europium-152	14683-23-9		-0.014	pCi/g					U	09/20/10
Europium-154	15585-10-1		-8.6E-3	pCi/g					U	09/20/10
Europium-155	14391-16-3		0.052	pCi/g					U	09/20/10
LCS		QC Sample #38838								
Cesium-137	10045-97-3		6600	pCi/sample	108.8	80 - 120				09/20/10
Cobalt-60	10198-40-0		11000	pCi/sample	106	80 - 120				09/20/10
DUP		QC Sample #38839								
		Original 102197002								
Cesium-137	10045-97-3		-3.5E-3	pCi/g			-2800.00	-30 - 30	* U	09/20/10
Cobalt-60	10198-40-0		0.016	pCi/g			64.00	-30 - 30	* U	09/20/10
Europium-152	14683-23-9		0.093	pCi/g			-1704.80	-30 - 30	* U	09/20/10
Europium-154	15585-10-1		0.0060	pCi/g			-231.00	-30 - 30	* U	09/20/10
Europium-155	14391-16-3		0.039	pCi/g			-894.70	-30 - 30	* U	09/20/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

QC Batch 164261 **Test** Plutonium (AEA)
Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #38992								
Plutonium-238	13981-16-3		9.9E-3	pCi/g					U	10/01/10
Americium-241	14596-10-2		0.015	pCi/g					U	10/01/10
Plutonium-239/240	PU-239/240		-0.072	pCi/g					U	10/01/10
Uranium-234	U-233/234		0.015	pCi/g					U	09/29/10
Uranium-235	15117-96-1		0.0060	pCi/g					U	09/29/10
Uranium-238	U-238		1.8E-3	pCi/g					U	09/29/10
LCS		QC Sample #38993								
Americium-241	14596-10-2		6.4	pCi/sample	114.6	80 - 120				10/01/10
Plutonium-239/240	PU-239/240		6.1	pCi/sample	105.8	80 - 120				10/01/10
Uranium-234	U-233/234		8.8	pCi/sample	107.6	80 - 120				09/29/10
DUP		QC Sample #38994								
		Original 102588001								
Americium-241	14596-10-2	0.030	0.018	pCi/g			46.80	-30 - 30	* X	10/01/10
Plutonium-238	13981-16-3	0.025	-0.012	pCi/g			600.00	-30 - 30	* U	10/01/10
Plutonium-239/240	PU-239/240	-5.7E-3	0.015	pCi/g			425.00	-30 - 30	* U	10/01/10
Uranium-234	U-233/234	0.15	0.12	pCi/g			22.20	-30 - 30		09/29/10
Uranium-235	15117-96-1	0.016	0.010	pCi/g			40.00	-30 - 30	* U	09/29/10
Uranium-238	U-238	0.14	0.17	pCi/g			26.70	-30 - 30		09/29/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

QC Batch 165538 **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #39294							
Strontium-89/90	SR-RAD		-0.66	pCi/g					U	09/28/10
LCS										
			QC Sample #39295							
Strontium-89/90	SR-RAD		26	pCi/g	92.3	80 - 120				09/28/10
DUP										
			QC Sample #39296							
			Original 102588001							
Strontium-89/90	SR-RAD	0.022	-0.46	pCi/g			-220.00	-30 - 30	* U	09/28/10

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102588

QC Batch 164233 **Test** PCBs by EPA SW-846 Method 8082
Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			Sample #102588001							
Tetrachloro-m-xylene	877-09-8				94.4	60 - 140				09/30/10
Decachlorobiphenyl	2051-24-3				91.2	60 - 140				09/30/10
SAMPLE			Sample #102588002							
Tetrachloro-m-xylene	877-09-8				100.5	60 - 140				09/30/10
Decachlorobiphenyl	2051-24-3				96.9	60 - 140				09/30/10
SAMPLE			Sample #102588003							
Tetrachloro-m-xylene	877-09-8				110.3	60 - 140				09/30/10
Decachlorobiphenyl	2051-24-3				106.1	60 - 140				09/30/10
SAMPLE			Sample #102588004							
Tetrachloro-m-xylene	877-09-8				99.6	60 - 140				09/30/10
Decachlorobiphenyl	2051-24-3				98.5	60 - 140				09/30/10
BLANK			QC Sample #38943							
Tetrachloro-m-xylene	877-09-8				82.2	60 - 140				09/30/10
Decachlorobiphenyl	2051-24-3				78.3	60 - 140				09/30/10
LCS			QC Sample #38944							

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102588

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Tetrachloro-m-xylene	877-09-8				82	60 - 124				09/30/10
Decachlorobiphenyl	2051-24-3				80.2	72 - 125				09/30/10
MS		QC Sample #38945								
		Original 102588001								
Tetrachloro-m-xylene	877-09-8				112.7	51 - 120				09/30/10
Decachlorobiphenyl	2051-24-3				109	66 - 126				09/30/10
MSD		QC Sample #38946								
		Original 102588001								
		Paired 38945								
Tetrachloro-m-xylene	877-09-8				105.3	51 - 120	6.80			09/30/10
Decachlorobiphenyl	2051-24-3				105	66 - 126	3.70			09/30/10

Quality Control Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF102588

QC Batch 164261 Test Americium/Curium (AEA)
 Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			Sample #102588001							
Americium-243 Tracer	14993-75-0				101.1	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				94.9	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				93.6	25 - 105				10/01/10
SAMPLE			Sample #102588002							
Americium-243 Tracer	14993-75-0				88.2	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				100.9	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				74	25 - 105				10/01/10
SAMPLE			Sample #102588003							
Americium-243 Tracer	14993-75-0				80.8	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				91.6	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				82.3	25 - 105				10/01/10
SAMPLE			Sample #102588004							
Americium-243 Tracer	14993-75-0				93.5	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				83.9	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				74.7	25 - 105				10/01/10
BLANK			QC Sample #38992							

Quality Control Report

Group # WSCF102588

Attention Michael Neely
Department Radiochemistry

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Americium-243 Tracer	14993-75-0				87.3	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				88.8	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				50.6	25 - 105				10/01/10
LCS		QC Sample #38993								
Americium-243 Tracer	14993-75-0				84	25 - 105				10/01/10
Uranium-232 Tracer	14158-29-3				62.5	25 - 105				09/29/10
Plutonium-242 Tracer	13982-10-0				90.6	25 - 105				10/01/10
DUP		QC Sample #38994								
		Original 102588001								
Americium-243 Tracer	14993-75-0				81.2	25 - 105	2.40			10/01/10
Uranium-232 Tracer	14158-29-3				89.2	25 - 105	2.50			09/29/10
Plutonium-242 Tracer	13982-10-0				78.1	25 - 105	1.60			10/01/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102588

QC Batch 165538 **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 102588001, 102588002, 102588003, 102588004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE				Sample #102588001						
Strontium-85	13967-73-2				80.4	25 - 105				09/28/10
SAMPLE				Sample #102588002						
Strontium-85	13967-73-2				74.4	25 - 105				09/28/10
SAMPLE				Sample #102588003						
Strontium-85	13967-73-2				77.1	25 - 105				09/28/10
SAMPLE				Sample #102588004						
Strontium-85	13967-73-2				85.8	25 - 105				09/28/10
BLANK				QC Sample #39294						
Strontium-85	13967-73-2				83.1	25 - 105				09/28/10
LCS				QC Sample #39295						
Strontium-85	13967-73-2				87.3	25 - 105				09/28/10
DUP				QC Sample #39296						
Strontium-85	13967-73-2			Original 102588001	90	25 - 105	11.80			09/28/10

Analytical Comment Report

Attention: Michael Neely

Group # WSCF102588

Quality Control Comments

Department Inorganic

39980

B28748(102571001DUP)

Analyte

Hexavalent chromium - Hexavalent chromium

- [1] Duplicate is flagged for RPD out-of-limits. RPD does not apply to samples concentrations below the calibration range. RPD is calculated on measured values and not applicable for a result below the RDL.

Analytical Comment Report

Attention: Michael Neely

Group # WSCF102588

Quality Control Comments

Department Radiochemistry

38994

B28133(102588001DUP)

Analyte Americium-241 - Americium/Curium (AEA)

[1] Duplicate RPD out-of-limits. RPD limit does not apply to results near the Minimum Detectable Concentration.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 11 pages
Including cover page

Sample Receipt

Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC

PO #: 401352/ES20

Work Order #: 102588

Profile #: F10-273-059

Proj. Mgr.:

Phone:

The following samples were received from you on 9/16/2010 3:25:00 PM. 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	Matrix	Collected	Received
		Tests scheduled		
102588001	B28133	SOIL	9/16/2010 14:35	9/16/2010 15:25
		2008-S; AEA-AM-S; AEA-PU-S; AEA-U-S; CR6-S; DRY-WEIGHT; GEA-S; PCB-SA; SR89/90-S; TC99-S		
102588002	B28134	SOIL	9/16/2010 14:10	9/16/2010 15:25
		2008-S; AEA-AM-S; AEA-PU-S; AEA-U-S; CR6-S; DRY-WEIGHT; GEA-S; PCB-SA; SR89/90-S; TC99-S		
102588003	B28135	SOIL	9/16/2010 14:20	9/16/2010 15:25
		2008-S; AEA-AM-S; AEA-PU-S; AEA-U-S; CR6-S; DRY-WEIGHT; GEA-S; PCB-SA; SR89/90-S; TC99-S		
102588004	B28136	SOIL	9/16/2010 14:15	9/16/2010 15:25
		2008-S; AEA-AM-S; AEA-PU-S; AEA-U-S; CR6-S; DRY-WEIGHT; GEA-S; PCB-SA; SR89/90-S; TC99-S		

Test Acronym Description

Test Acronym	Description
2008-S	ICP-MS (S)
AEA-AM-S	Americium (AEA) (S)
AEA-PU-S	Plutonium (AEA) (S)
AEA-U-S	Uranium Isotopic (AEA) (S)
CR6-S	Cr6 (S)
DRY-WEIGHT	Dry Weight as Pct Moisture
GEA-S	Gamma Energy Analysis (S)
PCB-SA	PCB (8082) (S) ASE
SR89/90-S	Strontium 89/90 (GPC) (S)

Sample Receipt

**Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134**

TC99-S

Technetium-99 (S)

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F16-273-080	PAGE 1 OF 2
COLLECTOR <i>Chamberlain</i>	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE BC	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 216-N-4-Y-1a	PROJECT DESIGNATION ARRA 216-N-6 Verification Sampling and Analysis - Soil	FIELD LOGBOOK NO. HW-14807-14-74	ACTUAL SAMPLE DEPTH 15'		SAF NO. F10-273	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.			COA 302222LS10		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 CL=Drum Liquids CS=Drum Solids L=Liquid C=Soil S=Soil SE=Sediment T=Flume V=Vegetation W=Water WF=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	Cryst/HC	Cryst/HC	Cryst/HC	None
		HOLDING TIME	28 Days	30 Days	1 yr/1 yr	6 Months 6 Months
		TYPE OF CONTAINER	GP	GP	AG	Sample Bottle - Poly GP
		NO. OF CONTAINER(S)	1	1	1	1
		VOLUME	100ml	60ml	250ml	200ml 220ml
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 2.008	Crystalline see 7104	PCls - 0002	SEE ITEM (2) IN SPECIAL INSTRUCTIONS GFA SEE ITEM (3) IN SPECIAL INSTRUCTIONS Am Sr U
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B26133	1 SOIL	9-16-10	1435	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>DL Widrig</i>	DATE/TIME 9-16-10/1525	RECEIVED BY/STORED IN <i>DL Widrig</i>	DATE/TIME 9/16/10 1525	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
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		

A-6007-4.0(01/06)



CR2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F30-273-058	PAGE 2 OF 2
COLLECTOR <i>Chamberlain</i>	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8C	DATA TURNAROUND 15 Days / 13 Days	
SAMPLING LOCATION 216 N 6 V 1a	PROJECT DESIGNATION ARRA 216 N 6 Verification Sampling and Analysis - Soil	SAF NO. F30-273	ASR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
ICE CHEST NO.	FIELD NUMBER 100-14-24	ACTUAL SAMPLE DEPTH 15'	COA 302222ES10	BILL OF LADING/AIR BILL NO. N/A		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A					

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 re

(1) 200.B_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Thorium-232);

(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155);

(3) Americium-241; Isotopic Plutonium; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Strontium-89,90 -- Total Sr; Technetium-99 (Technetium-99);

ORIGINAL

A-5083-618W01-00



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CH2M HILL Malheur Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-273-040	PAGE 1 OF 2
COLLECTOR <i>Chamberlain</i>	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE BC	DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION 216-N-6-V-5a	PROJECT DESIGNATION ARMA 216-N-6 Verification Sampling and Analyte - Sol	FIELD LOGBOOK NO. HMF-N-607-14-74	ACTUAL SAMPLE DEPTH 15'	SAF NO. F10-273	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A				
SHIPPED TO Waste Sampling & Characterization	PRESERVATION		Cool-IC	Cool-IC	Cool-IC	None
MATRIX* A=Air D=Drum L=Leak G=Gas S=Soil SE=Soilment T=Tap V=Vegetation W=Water M=Metal O=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)	HOLDING TIME	28 Days	30 Days	1 yr/1 yr	6 Months
		TYPE OF CONTAINER	GP	GP	GL	Square Polyc Poly GP
		NO. OF CONTAINER(S)	1	1	1	1
		VOLUME	120ml	60ml	200ml	200ml
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7506	PCB - 8082	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE						
SAMPLE NO. RDR134	MATRIX* Soil	SAMPLE DATE 9-16-00	SAMPLE TIME 1410			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Chris Chamberlain</i>	DATE/TIME 9-16-00/1525	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 9-16-00/1525	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
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		

A-603-61(0 1/00)

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ChemWare

CH2MHRI Plattsburg Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F10-173-000	PAGE 2 OF 2
COLLECTOR <i>Chamberlain</i>	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 216-N-6-V-5a	PROJECT DESIGNATION ARRA 216-N-6 Verification Sampling and Analysis - Sol	SAF NO. F10-273	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
ICE CHEST NO.	FIELD LOGBOOK NO. <i>HMF-N-200-14-74</i>	ACTUAL SAMPLE DEPTH <i>15'</i>	COA 3022226510	BILL OF LADING/AIR BILL NO. N/A	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A				
SPECIAL INSTRUCTIONS					
<p>** The CACN for all analytical work at WSCF is 401352ES20. <input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. <input type="checkbox"/> * The laboratory shall report only the requested constituents of concern in all final data re</p> <p>(1) 200.8_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Thorium-232);</p> <p>(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155);</p> <p>(3) Americium-241; Isotopic Plutonium; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Strontium-89,90 -- Total Sr; Technetium-99 (Technetium-99);</p>					

A-003-S10(01/06)

Chamberlain

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-273-061	PAGE 1 OF 2
COLLECTOR DJ Sparks CHPRC	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2958	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE 0C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 216-N-6-V-11a	PROJECT DESIGNATION ARRA 216-N-6 Verification Sampling and Analysis - Sol	SAF NO. F10-273	METHODOLOGY F10-273		AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. F10-273-14-73	ACTUAL SAMPLE DEPTH 15'	COA 302222CS10		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 L=Liquid DS=Drum S=Soil S=Soil S=Soil T=Trash V=Vegetation W=Water WF=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 (1980/1993)	PRESERVATION Cool-4C Cool-8C Cool-20C None None	HOLDING TIME 30 Days 30 Days 1 Yr / 1 Yr 6 Months 6 Months	TYPE OF CONTAINER GP GP GC Square Bottle - Poly GP	NO. OF CONTAINER(S) 1 1 1 1 1	
SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	VOLUME 1.70L 800L 2500L 5000L 1.200L	DATE/TIME (S) IN SPECIAL INSTRUCTIONS		DATE/TIME (S) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B20136	3 SOIL	SEP 16 2010	1420	X	X	X

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM DJ Sparks CHPRC	DATE/TIME SEP 16 2010	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME SEP 16 2010	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
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		

A-6003-56(01/06)

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CH2PHILL Platteau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-273-061	PAGE 1 OF 2
COLLECTOR DJ Sparks CHPRC	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE BC	DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION 216-N-6-V-11a	PROJECT DESIGNATION ABRA 216-N-6 Verification Sampling and Analysis - Soil	SAP NO. F10-273	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
ICE CHEST NO.	FIELD LOGBOOK NO. <i>W</i> WSP-N-307-19-73	ACTUAL SAMPLE DEPTH <i>15'</i>	BOA 302226510	BILL OF LADING/AIR BILL NO. N/A		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A					
SPECIAL INSTRUCTIONS						
<p>** 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 re</p> <p>(1) 200.8_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add on) (Arsenic, Lead, Thorium-232);</p> <p>(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155);</p> <p>(3) Americium-241; Isotopic Plutonium; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Strontium-89,90 - Total Sr; Technetium-99 (Technetium-99);</p>						

A-600-41820/00

Quantum

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3004.1.1084.3
Report ID: 102588
Group # WSCF102588

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F30-273-062	PAGE 1 OF 2
COLLECTOR Fulton	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE 6C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 216-N-4-V-17a	PROJECT DESIGNATION ANRA 216-N-6 Verification Sampling and Analysis - Soil	FIELD LOGBOOK NO. MP-N-007-14-03	ACTUAL SAMPLE DEPTH 15'	SAP NO. F10-273	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A				
SHIPPED TO Waste Sampling & Characterization						
MATRIX ^a	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	COOLING	COOLING	COOLING	None
DL=Drum Liquide OS=Drum Solid L=Liquid G=Gas S=Soil SE=Settlement T=Threat V=Vegetation W=Water WT=Wipe X=Other		HOLDING TIME	18 Days	30 Days	1 yr/1 yr	6 Months 6 Months
		TYPE OF CONTAINER	GP	GP	SG	Square Bottle - Poly GP
		NO. OF CONTAINER(S)	1	1	1	1
		VOLUME	120ml	60ml	250ml	50ml 120ml
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SPE. INSTR. (S) IN SPECIAL INSTRUCTIONS	CHROMIUM Hex - 7502	PCB - 9002	SPE. INSTR. (S) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX ^a	SAMPLE DATE	SAMPLE TIME			
828136	4 SOIL	9-14-02	1415	✓	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>C. Fulton</i>	DATE/TIME 9-14-02 1505	RECEIVED BY/STORED IN <i>DL Widrig</i>	DATE/TIME 9/16/02 1505	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
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		

ORIGINAL

4-800 61601(46)



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Report ID: 102588
Group # WSCF102588

CH2MHILL Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			P10-273-062	PAGE 2 OF 2
COLLECTOR <i>Pulton</i>	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE BC	DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION 216-N-6-V-17a	PROJECT DESIGNATION ARRA 216-N-6 Verification Sampling and Analysis - Soil	FIELD LOGBOOK NO. <i>HW-11-807-14-73</i>	ACTUAL SAMPLE DEPTH <i>15'</i>	SAF NO. P10-273	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. —	OFFSITE PROPERTY NO. N/A			COA 302222ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization				BILL OF LADING/AIR BILL NO. N/A		
SPECIAL INSTRUCTIONS ** The CACN for all analytical work at WSCF is 401352ES20.L1** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. <input type="checkbox"/> * The laboratory shall report only the requested constituents of concern in all final data re (1) 200.B_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Thorium-232); (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); (3) Americium-241; Isotopic Plutonium; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Strontium-89,90 - Total Sr; Technetium-99 (Technetium-99);						

[Handwritten signature]

A-003-118(01/06)

ChemStar

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