

SEPTEMBER 19, 2013

REVISION 1

**WSCF Laboratory**

PO Box 650 S3-30  
Richland, WA 99352



September 19, 2013

Scot Fitzgerald  
CH2M-HILL PRC  
PO Box 1600  
Richland, WA 99352

Dear Scot Fitzgerald,

REVISED [Report ID: 130834]

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

This letter contains the following information for sample delivery group WSCF130834

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

Very truly yours,

A handwritten signature in black ink, appearing to read "Joseph Hale", is written over a horizontal line.

Electronically signed by Joseph Hale

For Lab Manager, Dan T. Smith

WSCF Analytical Lab

(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

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ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

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**WSCF SAF Number Cross Reference**

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Group # WSCF130834  
 Data Deliverable Date 08/22/13

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-031	B2R1H3	130834001	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1H9	130834002	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1F1	130834003	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1F7	130834004	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1J2	130834005	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1H6	130834006	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1F4	130834007	OTHERSOLID	08/07/13	08/07/13
F11-031	B2R1H0	130834008	OTHERSOLID	08/07/13	08/07/13

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ATTACHMENT 2

**NARRATIVE**

Consisting of 7 pages  
Including cover page

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Attachment 2  
Narrative Rev1  
WSCF130834

**Revision 1: This case narrative replaces the prior in its entirety. Per RDR 130828WSCF-R8004 the GEA analyses were recounted to achieve a lower MDC for Protactinium-231.**

### **Introduction**

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. 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), Master Contract 39818, Revision 3, "Laboratory Analytical Services to CHPRC Soil and Groundwater Remediation Project."*

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, C, D, J and U) 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.
- **C** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were C flagged (applies to inorganic and wet chemical analyses).
- **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.
- **B (organic analyses)** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were B flagged.
- **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.
- **o** – LCS recovery outside established laboratory acceptance limits.

### **Analytical Methodology for Requested Analyses**

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

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Attachment 2  
Narrative Rev1  
WSCF130834

### 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):

- All applicable QC controls are within the established limits.

### Organic Comments

**Semi-VOA** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank, Laboratory Control Sample and Laboratory Control Sample Duplicate were analyzed with this delivery group. Analytical Note(s):

- Due to the nature of the charcoal sample matrix, it was expected that the routine manner of spiking the samples would produce MS and MSD recovery failures and low surrogate recoveries. Therefore, the samples were prepped as routine and then they were re-prepped using post extraction addition of surrogate and matrix spike. The samples, MS and MSD that were processed using the post extraction addition of surrogate and matrix spike have no QC problems. A table with this information is provided below:

Analyte	CAS#	Original Found	QC Found	Units	% Recovery	Recovery Limits	RPD	RPD Limit	RQ	Analyzed
<b>MS</b>		<b>Original #130834005</b>								
1,4-Dichlorobenzene	106-46-7	ND	22.9	ug/mL	114.4	52-116				8/22/2013
2-Methylphenol	95-48-7	ND	34.1	ug/mL	113.8	34-121				8/22/2013
Hexachloroethane	67-72-1	46.4	75.1	ug/mL	95.4	51-116				8/22/2013
<b>MSD</b>		<b>Original #130834005</b>								
1,4-Dichlorobenzene	106-46-7	ND	21.0	ug/mL	104.9	52-116	8.7	30		8/22/2013
2-Methylphenol	95-48-7	ND	32.1	ug/mL	107.0	34-121	6.1	30		8/22/2013
Hexachloroethane	67-72-1	46.4	77.4	ug/mL	103.0	51-116	3.0	30		8/22/2013
Analyte	CAS#	Original Found	QC Found	Units	% Recovery	Recovery Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>		<b>Sample #130834005</b>								
2-Fluorophenol	367-12-4		22.2	ug/mL	110.9	30-120				8/22/2013
Phenol-d5	4165-62-2		22.2	ug/mL	110.9	59-116				8/22/2013
Nitrobenzene-d5	4165-60-0		21.0	ug/mL	105.2	30-118				8/22/2013
2-Methylnaphthalene-d10	7297-45-2		21.3	ug/mL	106.7	60-120				8/22/2013
2-Fluorobiphenyl	321-60-8		21.4	ug/mL	106.8	42-105				8/22/2013
2,4,6-Tribromophenol	118-79-6		17.1	ug/mL	85.7	60-120				8/22/2013
Fluoranthene-d10	93951-69-0		21.0	ug/mL	105.1	60-120				8/22/2013
Terphenyl-d14	98904-43-9		22.3	ug/mL	111.6	60-120				8/22/2013
<b>SAMPLE</b>		<b>Sample #130834006</b>								
2-Fluorophenol	367-12-4		20.9	ug/mL	104.4	30-120				8/22/2013
Phenol-d5	4165-62-2		20.6	ug/mL	103.0	59-116				8/22/2013
Nitrobenzene-d5	4165-60-0		19.7	ug/mL	98.6	30-118				8/22/2013

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WSCF130834

2-Methylnaphthalene-d10	7297-45-2	19.9	ug/ mL	99.5	60-120	8/22/2013
2-Fluorobiphenyl	321-60-8	20.1	ug/ mL	100.3	42-105	8/22/2013
2,4,6-Tribromophenol	118-79-6	16.2	ug/ mL	80.9	60-120	8/22/2013
Fluoranthene-d10	93951-69-0	19.8	ug/ mL	98.8	60-120	8/22/2013
Terphenyl-d14	98904-43-9	20.0	ug/ mL	100.2	60-120	8/22/2013
<b>SAMPLE</b>	<b>Sample #130834007</b>					
2-Fluorophenol	367-12-4	23.0	ug/ mL	115.0	30-120	8/22/2013
Phenol-d5	4165-62-2	22.4	ug/ mL	111.9	59-116	8/22/2013
Nitrobenzene-d5	4165-60-0	0.0	ug/ mL	0.0	30-118	8/22/2013
2-Methylnaphthalene-d10	7297-45-2	24.3	ug/ mL	121.3	60-120	8/22/2013
2-Fluorobiphenyl	321-60-8	20.6	ug/ mL	102.9	42-105	8/22/2013
2,4,6-Tribromophenol	118-79-6	17.8	ug/ mL	89.2	60-120	8/22/2013
Fluoranthene-d10	93951-69-0	22.2	ug/ mL	110.9	60-120	8/22/2013
Terphenyl-d14	98904-43-9	21.1	ug/ mL	105.5	60-120	8/22/2013
<b>SAMPLE</b>	<b>Sample #130834008</b>					
2-Fluorophenol	367-12-4	21.8	ug/ mL	108.9	30-120	8/22/2013
Phenol-d5	4165-62-2	22.0	ug/ mL	110.0	59-116	8/22/2013
Nitrobenzene-d5	4165-60-0	20.7	ug/ mL	103.6	30-118	8/22/2013
2-Methylnaphthalene-d10	7297-45-2	20.9	ug/ mL	104.3	60-120	8/22/2013
2-Fluorobiphenyl	321-60-8	20.9	ug/ mL	104.3	42-105	8/22/2013
2,4,6-Tribromophenol	118-79-6	16.1	ug/ mL	80.7	60-120	8/22/2013
Fluoranthene-d10	93951-69-0	20.5	ug/ mL	102.4	60-120	8/22/2013
Terphenyl-d14	98904-43-9	21.0	ug/ mL	105.2	60-120	8/22/2013
<b>MS</b>	<b>Original #130834005</b>					
2-Fluorophenol	367-12-4	23.9	ug/ mL	119.4	42-105	8/22/2013
Phenol-d5	4165-62-2	23.8	ug/ mL	119.1	54-120	8/22/2013
Nitrobenzene-d5	4165-60-0	24.0	ug/ mL	120.2	64-111	8/22/2013
2-Methylnaphthalene-d10	7297-45-2	23.5	ug/ mL	117.6	60-120	8/22/2013
2-Fluorobiphenyl	321-60-8	23.1	ug/ mL	115.4	56-122	8/22/2013
2,4,6-Tribromophenol	118-79-6	21.2	ug/ mL	106.2	24-122	8/22/2013
Fluoranthene-d10	93951-69-0	22.6	ug/ mL	113.0	60-120	8/22/2013
Terphenyl-d14	98904-43-9	23.1	ug/ mL	115.3	35-150	8/22/2013
<b>MSD</b>	<b>Original #130834005</b>					
2-Fluorophenol	367-12-4	22.0	ug/ mL	110.0	42-105	8/22/2013
Phenol-d5	4165-62-2	22.0	ug/ mL	110.1	54-120	8/22/2013
Nitrobenzene-d5	4165-60-0	22.2	ug/ mL	111.2	64-111	8/22/2013
2-Methylnaphthalene-d10	7297-45-2	21.8	ug/ mL	108.9	60-120	8/22/2013
2-Fluorobiphenyl	321-60-8	21.3	ug/ mL	106.4	56-122	8/22/2013
2,4,6-Tribromophenol	118-79-6	19.8	ug/ mL	99.1	24-122	8/22/2013
Fluoranthene-d10	93951-69-0	20.9	ug/ mL	104.4	60-120	8/22/2013
Terphenyl-d14	98904-43-9	21.3	ug/ mL	106.6	35-150	8/22/2013

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- All other applicable 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), 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.

- Gamma Energy Analysis:
  - All applicable QC controls are within the established limits.
- Americium-241:
  - All applicable QC controls are within the established limits.
- Gross Alpha / Gross Beta:
  - Gross Alpha – The LCS recovery was outside laboratory acceptance limits, but within the 70 – 130% range allowed in the SOW.
  - Gross Beta – 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 applicable QC controls are within the established limits.
- Neptunium-237:
  - 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 applicable QC controls are within the established limits.
- Isotopic Plutonium analysis:
  - Plutonium-239/240 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near the minimum detectable activity. No flags issued.
  - Plutonium-239/240 – The Blank is less than two times the RDL. “B” Flag not required.
    - All other applicable QC controls are within the established limits.

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- Isotopic Uranium analysis:
  - Uranium-234 – The Blank is less than five times the MDC. “B” Flag not required.
  - Uranium-238 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results with greater than 20% counting uncertainty. No flags issued.
    - All other applicable QC controls are within the established limits.
- Strontium-89/90:
  - All applicable 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 electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

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Attachment 2  
 Narrative Rev1  
 WSCF130834

RECHECK, RECOUNT, OR REANALYSIS ORDER

08/28/2013

**Order Number: 130828WSCF-R8004**

Waste Sampling & Characterization  
 600 AREA Hanford, MSIN S3-28  
 Richland, WA 99352

Sample Delivery Group:WSCF130834

Sample(s):

Method Name:GAMMA\_GS

Lab Sample ID	RDR Action Start Date	Constituent	Action	TAT (Hardcopy/EDD)
Sample#: B2R1F1                      Sample Date:8/7/2013 9:30:00 AM                      SAF #:F11-031				
130834003	8/28/2013 3:49:13 PM	Protactinium-231	RECOUNT	3 Days / 15 Days
Special Instructions:                      MDC needs to be below 1 pCi/g. Please recount accordingly. SLF 08/28/2013				
Sample#: B2R1F7                      Sample Date:8/7/2013 10:15:00 AM                      SAF #:F11-031				
130834004	8/28/2013 3:49:13 PM	Protactinium-231	RECOUNT	3 Days / 15 Days
Special Instructions:                      MDC needs to be below 1 pCi/g. Please recount accordingly. SLF 08/28/2013				
Sample#: B2R1H3                      Sample Date:8/7/2013 10:21:00 AM                      SAF #:F11-031				
130834001	8/28/2013 3:49:13 PM	Protactinium-231	RECOUNT	3 Days / 15 Days
Special Instructions:                      MDC needs to be below 1 pCi/g. Please recount accordingly. SLF 08/28/2013				
Sample#: B2R1H9                      Sample Date:8/7/2013 7:45:00 AM                      SAF #:F11-031				
130834002	8/28/2013 3:49:13 PM	Protactinium-231	RECOUNT	3 Days / 15 Days
Special Instructions:                      MDC needs to be below 1 pCi/g. Please recount accordingly. SLF 08/28/2013				

Deliver Report Results to:CHPRC

P.O. Box 1600  
 Richland, WA 99352  
 C/O Mr.Scot Fitzgerald

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 61 pages  
Including cover page

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**WSCF ANALYTICAL RESULTS REPORT**

For

CH2M Hill Plateau Remediation

PO Box 1600  
Richland, WA 99352

Attention: Scot Fitzgerald

**Contract #** MOA-FH-CHPRC-2008  
**Group #** WSCF130834  
**Report Date** September 19, 2013

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.*

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Batch QC List

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219770	219874	4	BLANK	96389	BLANK		ICP-2008 MS All possible metal
219770	219874	5	LCS	96390	LCS		ICP-2008 MS All possible metal
219770	219874	6	SAMPLE	130834001	B2R1H3		ICP-2008 MS All possible metal
219770	219874	7	MS	96391	B2R1H3(130834001MS)	130834001	ICP-2008 MS All possible metal
219770	219874	8	MSD	96392	B2R1H3(130834001MSD)	130834001	ICP-2008 MS All possible metal
219770	219874	10	SAMPLE	130834002	B2R1H9		ICP-2008 MS All possible metal
219770	219874	11	SAMPLE	130834003	B2R1F1		ICP-2008 MS All possible metal
219770	219874	12	SAMPLE	130834004	B2R1F7		ICP-2008 MS All possible metal

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Batch QC List

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219875	220279	1	BLANK	96453	BLANK		SW-846 8270D Semivolatiles
219875	220279	2	LCS	96454	LCS		SW-846 8270D Semivolatiles
219875	220279	3	MS	96455	B2R1J2(130834005MS)	130834005	SW-846 8270D Semivolatiles
219875	220279	4	MSD	96456	B2R1J2(130834005MSD)	130834005	SW-846 8270D Semivolatiles
219875	220279	5	SAMPLE	130834005	B2R1J2		SW-846 8270D Semivolatiles
219875	220279	6	SAMPLE	130834006	B2R1H6		SW-846 8270D Semivolatiles
219875	220279	7	SAMPLE	130834007	B2R1F4		SW-846 8270D Semivolatiles
219875	220279	8	SAMPLE	130834008	B2R1H0		SW-846 8270D Semivolatiles
219875	220279	9	SAMPLE	130834006	B2R1H6		SW-846 8270D Semivolatiles
219875	220279	10	SAMPLE	130834007	B2R1F4		SW-846 8270D Semivolatiles

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Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219569	220275	1	BLANK	96232	BLANK		Americium/Curium (AEA)
219569	220275	2	LCS	96233	LCS		Americium/Curium (AEA)
219569	220275	3	SAMPLE	130834001	B2R1H3		Americium/Curium (AEA)
219569	220275	4	DUP	96234	B2R1H3(130834001DUP)	130834001	Americium/Curium (AEA)
219569	220275	5	SAMPLE	130834002	B2R1H9		Americium/Curium (AEA)
219569	220275	6	SAMPLE	130834003	B2R1F1		Americium/Curium (AEA)
219569	220275	7	SAMPLE	130834004	B2R1F7		Americium/Curium (AEA)
219569	220283	1	DUP	96234	B2R1H3(130834001DUP)	130834001	Plutonium (AEA)
219569	220283	2	SAMPLE	130834001	B2R1H3		Plutonium (AEA)
219569	220283	3	SAMPLE	130834002	B2R1H9		Plutonium (AEA)
219569	220283	4	SAMPLE	130834003	B2R1F1		Plutonium (AEA)
219569	220283	5	SAMPLE	130834004	B2R1F7		Plutonium (AEA)
219569	220283	6	BLANK	96232	BLANK		Plutonium (AEA)
219569	220283	7	LCS	96233	LCS		Plutonium (AEA)
219569	220284	1	DUP	96234	B2R1H3(130834001DUP)	130834001	Uranium (AEA)
219569	220284	2	SAMPLE	130834001	B2R1H3		Uranium (AEA)
219569	220284	3	SAMPLE	130834002	B2R1H9		Uranium (AEA)
219569	220284	4	SAMPLE	130834003	B2R1F1		Uranium (AEA)
219569	220284	5	SAMPLE	130834004	B2R1F7		Uranium (AEA)
219569	220284	6	BLANK	96232	BLANK		Uranium (AEA)
219569	220284	7	LCS	96233	LCS		Uranium (AEA)
219570	220274	1	BLANK	96235	BLANK		Neptunium (AEA)
219570	220274	2	LCS	96236	LCS		Neptunium (AEA)

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Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219570	220274	3	SAMPLE	130834001	B2R1H3		Neptunium (AEA)
219570	220274	4	NpSPK	96237	B2R1H3(130834001NpS		Neptunium (AEA)
219570	220274	5	NpDUP	96238	B2R1H3(130834001NpD	130834001	Neptunium (AEA)
219570	220274	6	NDUPSK	96239	B2R1H3(130834001NDU		Neptunium (AEA)
219570	220274	7	SAMPLE	130834002	B2R1H9		Neptunium (AEA)
219570	220274	8	NpSPK	96240	B2R1H9(130834002NpS		Neptunium (AEA)
219570	220274	9	SAMPLE	130834003	B2R1F1		Neptunium (AEA)
219570	220274	10	NpSPK	96241	B2R1F1(130834003NpSP		Neptunium (AEA)
219570	220274	11	SAMPLE	130834004	B2R1F7		Neptunium (AEA)
219570	220274	12	NpSPK	96242	B2R1F7(130834004NpSP		Neptunium (AEA)
219574	219977	1	BLANK	96257	BLANK		GAB Discrete analysis Alpha only
219574	219977	2	LCS	96258	LCS		GAB Discrete analysis Alpha only
219574	219977	3	DUP	96259	B2R1H3(130834001DUP)	130834001	GAB Discrete analysis Alpha only
219574	219977	4	SAMPLE	130834001	B2R1H3		GAB Discrete analysis Alpha only
219574	219977	5	SAMPLE	130834002	B2R1H9		GAB Discrete analysis Alpha only
219574	219977	6	SAMPLE	130834003	B2R1F1		GAB Discrete analysis Alpha only
219574	219977	7	SAMPLE	130834004	B2R1F7		GAB Discrete analysis Alpha only
219574	219978	1	BLANK	96257	BLANK		GAB Discrete analysis Beta only
219574	219978	2	LCS	96258	LCS		GAB Discrete analysis Beta only
219574	219978	3	DUP	96259	B2R1H3(130834001DUP)	130834001	GAB Discrete analysis Beta only
219574	219978	4	SAMPLE	130834001	B2R1H3		GAB Discrete analysis Beta only
219574	219978	5	SAMPLE	130834002	B2R1H9		GAB Discrete analysis Beta only
219574	219978	6	SAMPLE	130834003	B2R1F1		GAB Discrete analysis Beta only

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Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219574	219978	7	SAMPLE	130834004	B2R1F7		GAB Discrete analysis Beta only
219667	219971	1	BLANK	96376	BLANK		Strontium 89/90 (GPC/GEA)
219667	219971	2	LCS	96377	LCS		Strontium 89/90 (GPC/GEA)
219667	219971	3	DUP	96378	B2R1H3(130834001DUP)	130834001	Strontium 89/90 (GPC/GEA)
219667	219971	4	SAMPLE	130834001	B2R1H3		Strontium 89/90 (GPC/GEA)
219667	219971	5	SAMPLE	130834002	B2R1H9		Strontium 89/90 (GPC/GEA)
219667	219971	6	SAMPLE	130834003	B2R1F1		Strontium 89/90 (GPC/GEA)
219667	219971	7	SAMPLE	130834004	B2R1F7		Strontium 89/90 (GPC/GEA)
219768	219775	1	SAMPLE	130834001	B2R1H3		Gamma Energy Analysis-general
219768	219775	2	SAMPLE	130834002	B2R1H9		Gamma Energy Analysis-general
219768	219775	3	SAMPLE	130834003	B2R1F1		Gamma Energy Analysis-general
219768	219775	4	SAMPLE	130834004	B2R1F7		Gamma Energy Analysis-general
219768	219775	5	IBLANK	97642	IBLANK		Gamma Energy Analysis-general
219768	219775	6	LCS	97643	LCS		Gamma Energy Analysis-general
219768	219775	7	DUP	97644	B2R1H3(130834001DUP)	130834001	Gamma Energy Analysis-general

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Batch QC List

Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
219914	219914	1	LCS	96573	LCS		Dry Weight/Percent Moisture
219914	219914	2	SAMPLE	130834001	B2R1H3		Dry Weight/Percent Moisture
219914	219914	3	DUP	96574	B2R1H3(130834001DUP)	130834001	Dry Weight/Percent Moisture
219914	219914	4	SAMPLE	130834002	B2R1H9		Dry Weight/Percent Moisture
219914	219914	5	SAMPLE	130834003	B2R1F1		Dry Weight/Percent Moisture
219914	219914	6	SAMPLE	130834004	B2R1F7		Dry Weight/Percent Moisture
219914	219914	7	SAMPLE	130834005	B2R1J2		Dry Weight/Percent Moisture
219914	219914	8	SAMPLE	130834006	B2R1H6		Dry Weight/Percent Moisture
219914	219914	9	SAMPLE	130834007	B2R1F4		Dry Weight/Percent Moisture
219914	219914	10	SAMPLE	130834008	B2R1H0		Dry Weight/Percent Moisture

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Method Reference

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

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.

<b>LA-505-412</b>	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>

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Method Reference

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

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-523-456	Semivolatile Sample Analysis by SW-846 Method 8270D		
EPA SW-846	8000B		Determinative Chromagraphic Separations
EPA SW-846	3510C		Separatory Funnel Liquid-Liquid Extraction
EPA SW-846	8270D		Semivolatile Organic Compounds by Gas
EPA SW-846	3545		Pressurized Fluid Extraction (PFE)
			Chromatography/Mass Spectrometry (GC/MS)
HEIS	8270_SVOA_GCMS		Semivolatile Organic Compounds by Gas
			Chromatography/Mass Spectrometry(GC/MS)

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>

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Method Reference

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

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.

<b>LA-220-406</b>	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation HEIS	SRTOT_SEP_PRECIP_GPC	Strontium 89/90, by Sr-Spec Sep.
<b>LA-508-471</b>	Thorium, Neptunium, Plutonium, Americium, and Uranium In Soil and Water Using Eichrom Column Separation (Prep) HEIS	PUISO_IE_PRECIP_AEA	Isotopic Plutonium, Alpha Spec
<b>LA-508-471</b>	Determination Of Uranium, Plutonium, And Americium HEIS	AMCMISO_IE_PREC_AEA	Americium/Curium Iso, Alpha Spec
<b>LA-508-481</b>	Gamma Energy Analysis using the Canberra Genie Ssystem HEIS	GAMMA_GS	Gamma Energy Analysis
<b>LA-508-471</b>	Determination Of Uranium, Plutonium, And Americium HEIS	UIISO_IE_PRECIP_AEA	Uranium Iso, Alpha Spec
<b>LA-904-400</b>	Thorium, Neptunium, Plutonium, Americium, and Uranium In Soil and Water Using Eichrom Column Separation HEIS	NP237_IE_PRECIP_AEA	Neptunium-237, Iso, Alpha Spec.
<b>LA-548-401</b>	Alpha and Beta in Liquid and Solid Samples - WSCF N/A	PREP METHOD	
<b>LA-548-421(LSC)</b>	Preparation of Sample Mounts For Gamma Energy Analysis N/A	PREP METHOD	
<b>LA-904-400</b>	Nitric Acid-Hydrochloric Acid Leach of Soil and Vegetation at WSCF N/A	PREP METHOD	
<b>LA-508-415</b>	Operation Of The Protean 2-Inch Alpha/Beta Counting System For Gross Alpha/ Beta Samples HEIS	ALPHA_GPC	Gross Alpha by GPC
	HEIS	BETA_GPC	Gross Beta by GPC
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium beta isotopic, GPC

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>

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Method Reference

Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

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.

<b>LA-519-412</b>	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>

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Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

Sample # 130834001  
 SAF# F11-031  
 Sample ID B2R1H3

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (S)</b>										<b>08/12/13</b>
<b>ICP-2008 MS All possible metal</b>										
Uranium	7440-61-1	LA-505-412		0.514		mg/kg	1	0.058		08/13/13

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

B - Analyte < the PQL(or EQL)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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 o - LCS recovery outside established laboratory acceptance limits.

REVISED

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

Sample # 130834002  
 SAF# F11-031  
 Sample ID B2R1H9

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (S)</b>										<b>08/12/13</b>
<b>ICP-2008 MS All possible metal</b>										
Uranium	7440-61-1	LA-505-412		0.726		mg/kg	1	0.056		08/13/13

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

B - Analyte < the PQL(or EQL)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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

Sample # 130834003  
 SAF# F11-031  
 Sample ID B2R1F1

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (S)</b>										<b>08/12/13</b>
<b>ICP-2008 MS All possible metal</b>										
Uranium	7440-61-1	LA-505-412		0.646		mg/kg	1	0.060		08/13/13

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

B - Analyte < the PQL(or EQL)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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

Sample # 130834004  
 SAF# F11-031  
 Sample ID B2R1F7

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPMS Prep (S)</b>										<b>08/12/13</b>
<b>ICP-2008 MS All possible metal</b>										
Uranium	7440-61-1	LA-505-412		0.946		mg/kg	1	0.061		08/13/13

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

B - Analyte < the PQL(or EQL)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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Sample # 130834005  
 SAF# F11-031  
 Sample ID B2R1J2

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Preparation for 8270 (S) ASE</b>										<b>08/12/13</b>
<b>SW-846 8270D Semivolatiles</b>										
1,4-Dichlorobenzene	106-46-7	LA-523-456	UT	<500		ug/kg	1	500	800	08/21/13
Bis-(2-Chloroethyl) ether	111-44-4	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
Hexachlorobutadiene	87-68-3	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
2-Methylphenol	95-48-7	LA-523-456	UT	<500		ug/kg	1	500	800	08/21/13
1,2-Dichlorobenzene	95-50-1	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
3 & 4 Methylphenol, Total	65794-96-9	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
Hexachloroethane	67-72-1	LA-523-456		2.3E4		ug/kg	1	500	800	08/21/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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 - 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Sample # 130834006  
 SAF# F11-031  
 Sample ID B2R1H6

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Preparation for 8270 (S) ASE</b>										
<b>SW-846 8270D Semivolatiles</b>										
1,4-Dichlorobenzene	106-46-7	LA-523-456	UT	<600		ug/kg	1	600	1.E3	08/21/13
Bis-(2-Chloroethyl) ether	111-44-4	LA-523-456	U	<600		ug/kg	1	600	1.E3	08/21/13
Hexachlorobutadiene	87-68-3	LA-523-456	U	<600		ug/kg	1	600	1.E3	08/21/13
2-Methylphenol	95-48-7	LA-523-456	UT	<600		ug/kg	1	600	1.E3	08/21/13
1,2-Dichlorobenzene	95-50-1	LA-523-456	U	<600		ug/kg	1	600	1.E3	08/21/13
3 & 4 Methylphenol, Total	65794-96-9	LA-523-456	U	<600		ug/kg	1	600	1.E3	08/21/13
Hexachloroethane	67-72-1	LA-523-456	D	1.7E5		ug/kg	20	1.E4	2.E4	08/21/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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 - 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Sample # 130834007  
 SAF# F11-031  
 Sample ID B2R1F4

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Preparation for 8270 (S) ASE</b>										<b>08/12/13</b>
<b>SW-846 8270D Semivolatiles</b>										
1,4-Dichlorobenzene	106-46-7	LA-523-456	UT	<500		ug/kg	1	500	800	08/21/13
Bis-(2-Chloroethyl) ether	111-44-4	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
Hexachlorobutadiene	87-68-3	LA-523-456		1.1E4		ug/kg	1	500	800	08/21/13
2-Methylphenol	95-48-7	LA-523-456	UT	<500		ug/kg	1	500	800	08/21/13
1,2-Dichlorobenzene	95-50-1	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
3 & 4 Methylphenol, Total	65794-96-9	LA-523-456	U	<500		ug/kg	1	500	800	08/21/13
Hexachloroethane	67-72-1	LA-523-456	DE	5.2E6		ug/kg	20	1.E4	2.E4	08/21/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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 - 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Sample # 130834008  
 SAF# F11-031  
 Sample ID B2R1H0

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Preparation for 8270 (S) ASE</b>										<b>08/12/13</b>
<b>SW-846 8270D Semivolatiles</b>										
1,4-Dichlorobenzene	106-46-7	LA-523-456	UT	<600		ug/kg	1	600	900	08/22/13
Bis-(2-Chloroethyl) ether	111-44-4	LA-523-456	U	<600		ug/kg	1	600	900	08/22/13
Hexachlorobutadiene	87-68-3	LA-523-456	U	<600		ug/kg	1	600	900	08/22/13
2-Methylphenol	95-48-7	LA-523-456	UT	<600		ug/kg	1	600	900	08/22/13
1,2-Dichlorobenzene	95-50-1	LA-523-456	U	<600		ug/kg	1	600	900	08/22/13
3 & 4 Methylphenol, Total	65794-96-9	LA-523-456	U	<600		ug/kg	1	600	900	08/22/13
Hexachloroethane	67-72-1	LA-523-456		1900		ug/kg	1	600	900	08/22/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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 - 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.

REVISED

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834001  
 SAF# F11-031  
 Sample ID B2R1H3

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Am/Cm/Pu/U/Np Prep (AEA) S</b>										<b>08/21/13</b>
<b>Americium/Curium (AEA)</b>										
Americium-241	14596-10-2	LA-508-471		0.035	.019	pCi/g	1	0.029		08/22/13
<b>Plutonium (AEA)</b>										
Plutonium-238	13981-16-3	LA-508-471	U	-3.5E-3	.0052	pCi/g	1	0.016		08/22/13
Plutonium-239_240	PU-239/240	LA-508-471		0.021	.011	pCi/g	1	0.011		08/22/13
<b>Uranium (AEA)</b>										
Uranium-234	U-233/234	LA-508-471		0.29	.076	pCi/g	1	0.018		08/22/13
Uranium-235	15117-96-1	LA-508-471		0.024	.015	pCi/g	1	0.019		08/22/13
Uranium-238	U-238	LA-508-471		0.18	.053	pCi/g	1	0.018		08/22/13
<b>GAB Prep for Discrete Analysis (S)</b>										<b>08/12/13</b>
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415		0.45	.25	pCi/g	1	0.40		08/19/13
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		11	1.2	pCi/g	1	1.1		08/20/13
<b>Np Prep Solid (AEA) S</b>										<b>08/21/13</b>
<b>Neptunium (AEA)</b>										
Neptunium-237	13994-20-2	LA-904-400	U	4.6E-3	.026	pCi/g	1	0.060		08/23/13
<b>Preparation for GEA (S)</b>										<b>08/12/13</b>

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834001  
 SAF# F11-031  
 Sample ID B2R1H3

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Gamma Energy Analysis-general</b>										
Cesium-137	10045-97-3	LA-508-481	U	1.1E-3		pCi/g	1	0.022		09/03/13
Cobalt-60	10198-40-0	LA-508-481	U	-3.9E-3		pCi/g	1	0.021		09/03/13
Europium-152	14683-23-9	LA-508-481	U	0.011		pCi/g	1	0.060		09/03/13
Europium-154	15585-10-1	LA-508-481	U	0.012		pCi/g	1	0.065		09/03/13
Europium-155	14391-16-3	LA-508-481	U	0.056		pCi/g	1	0.077		09/03/13
Protactinium-231	14331-85-2	LA-508-481	U	-0.13		pCi/g	1	0.93		09/03/13
<b>Strontium 89/90 SOLID/SOIL PREP</b>										<b>08/14/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.16	.48	pCi/g	1	0.71		08/20/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

REVISED

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834002  
 SAF# F11-031  
 Sample ID B2R1H9

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Am/Cm/Pu/U/Np Prep (AEA) S</b>										<b>08/21/13</b>
<b>Americium/Curium (AEA)</b>										
Americium-241	14596-10-2	LA-508-471	U	6.6E-4	.012	pCi/g	1	0.027		08/22/13
<b>Plutonium (AEA)</b>										
Plutonium-238	13981-16-3	LA-508-471	U	-1.6E-3	.0048	pCi/g	1	0.015		08/22/13
Plutonium-239_240	PU-239/240	LA-508-471	U	0.013	.0099	pCi/g	1	0.015		08/22/13
<b>Uranium (AEA)</b>										
Uranium-234	U-233/234	LA-508-471		0.29	.078	pCi/g	1	0.015		08/22/13
Uranium-235	15117-96-1	LA-508-471	U	0.011	.011	pCi/g	1	0.017		08/22/13
Uranium-238	U-238	LA-508-471		0.19	.055	pCi/g	1	0.015		08/22/13
<b>GAB Prep for Discrete Analysis (S)</b>										<b>08/12/13</b>
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415	U	0.25	.23	pCi/g	1	0.40		08/19/13
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		3.3	.73	pCi/g	1	1.1		08/20/13
<b>Np Prep Solid (AEA) S</b>										<b>08/21/13</b>
<b>Neptunium (AEA)</b>										
Neptunium-237	13994-20-2	LA-904-400	U	-9.3E-3	.02	pCi/g	1	0.056		08/22/13
<b>Preparation for GEA (S)</b>										<b>08/12/13</b>

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834002  
 SAF# F11-031  
 Sample ID B2R1H9

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Gamma Energy Analysis-general</b>										
Cesium-137	10045-97-3	LA-508-481	U	4.8E-3		pCi/g	1	0.011		09/05/13
Cobalt-60	10198-40-0	LA-508-481	U	5.4E-5		pCi/g	1	0.011		09/05/13
Europium-152	14683-23-9	LA-508-481	U	0.018		pCi/g	1	0.028		09/05/13
Europium-154	15585-10-1	LA-508-481	U	-5.2E-3		pCi/g	1	0.031		09/05/13
Europium-155	14391-16-3	LA-508-481	U	7.7E-3		pCi/g	1	0.031		09/05/13
Protactinium-231	14331-85-2	LA-508-481	U	0.088		pCi/g	1	0.42		09/05/13
<b>Strontium 89/90 SOLID/SOIL PREP</b>										<b>08/14/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	-0.45	.42	pCi/g	1	0.66		08/20/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834003  
 SAF# F11-031  
 Sample ID B2R1F1

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Am/Cm/Pu/U/Np Prep (AEA) S</b>										<b>08/21/13</b>
<b>Americium/Curium (AEA)</b>										
Americium-241	14596-10-2	LA-508-471	U	8.3E-3	.014	pCi/g	1	0.031		08/22/13
<b>Plutonium (AEA)</b>										
Plutonium-238	13981-16-3	LA-508-471	U	5.5E-3	.0066	pCi/g	1	0.014		08/22/13
Plutonium-239_240	PU-239/240	LA-508-471	U	1.8E-3	.0042	pCi/g	1	0.011		08/22/13
<b>Uranium (AEA)</b>										
Uranium-234	U-233/234	LA-508-471		0.31	.076	pCi/g	1	0.017		08/22/13
Uranium-235	15117-96-1	LA-508-471		0.020	.012	pCi/g	1	6.8E-3		08/22/13
Uranium-238	U-238	LA-508-471		0.25	.065	pCi/g	1	0.017		08/22/13
<b>GAB Prep for Discrete Analysis (S)</b>										<b>08/12/13</b>
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415		0.76	.29	pCi/g	1	0.43		08/19/13
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		3.2	.71	pCi/g	1	1.2		08/20/13
<b>Np Prep Solid (AEA) S</b>										<b>08/21/13</b>
<b>Neptunium (AEA)</b>										
Neptunium-237	13994-20-2	LA-904-400	U	0.025	.018	pCi/g	1	0.038		08/22/13
<b>Preparation for GEA (S)</b>										<b>08/12/13</b>

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834003  
 SAF# F11-031  
 Sample ID B2R1F1

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Gamma Energy Analysis-general</b>										
Cesium-137	10045-97-3	LA-508-481	U	4.4E-3		pCi/g	1	0.016		09/05/13
Cobalt-60	10198-40-0	LA-508-481	U	3.8E-4		pCi/g	1	0.014		09/05/13
Europium-152	14683-23-9	LA-508-481	U	-1.7E-4		pCi/g	1	0.040		09/05/13
Europium-154	15585-10-1	LA-508-481	U	-1.3E-3		pCi/g	1	0.042		09/05/13
Europium-155	14391-16-3	LA-508-481	U	6.8E-3		pCi/g	1	0.036		09/05/13
Protactinium-231	14331-85-2	LA-508-481	U	-0.059		pCi/g	1	0.60		09/05/13
<b>Strontium 89/90 SOLID/SOIL PREP</b>										<b>08/14/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.30	.51	pCi/g	1	0.80		08/20/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 DF = Dilution Factor  
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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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834004  
 SAF# F11-031  
 Sample ID B2R1F7

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Am/Cm/Pu/U/Np Prep (AEA) S</b>										<b>08/21/13</b>
<b>Americium/Curium (AEA)</b>										
Americium-241	14596-10-2	LA-508-471	U	-2.2E-3	.013	pCi/g	1	0.031		08/22/13
<b>Plutonium (AEA)</b>										
Plutonium-238	13981-16-3	LA-508-471		9.7E-3	.0072	pCi/g	1	9.7E-3		08/22/13
Plutonium-239_240	PU-239/240	LA-508-471		0.019	.01	pCi/g	1	9.7E-3		08/22/13
<b>Uranium (AEA)</b>										
Uranium-234	U-233/234	LA-508-471		0.29	.073	pCi/g	1	0.016		08/22/13
Uranium-235	15117-96-1	LA-508-471		0.022	.014	pCi/g	1	0.018		08/22/13
Uranium-238	U-238	LA-508-471		0.18	.052	pCi/g	1	0.029		08/22/13
<b>GAB Prep for Discrete Analysis (S)</b>										<b>08/12/13</b>
<b>GAB Discrete analysis Alpha only</b>										
Gross Alpha	12587-46-1	LA-508-415		0.56	.26	pCi/g	1	0.40		08/19/13
<b>GAB Discrete analysis Beta only</b>										
Gross Beta	12587-47-2	LA-508-415		4.6	.79	pCi/g	1	1.2		08/20/13
<b>Np Prep Solid (AEA) S</b>										<b>08/21/13</b>
<b>Neptunium (AEA)</b>										
Neptunium-237	13994-20-2	LA-904-400	U	0.016	.02	pCi/g	1	0.040		08/22/13
<b>Preparation for GEA (S)</b>										<b>08/12/13</b>

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Sample # 130834004  
 SAF# F11-031  
 Sample ID B2R1F7

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Gamma Energy Analysis-general</b>										
Cesium-137	10045-97-3	LA-508-481	U	-2.9E-3		pCi/g	1	0.017		09/05/13
Cobalt-60	10198-40-0	LA-508-481	U	9.7E-3		pCi/g	1	0.017		09/05/13
Europium-152	14683-23-9	LA-508-481	U	0.018		pCi/g	1	0.045		09/05/13
Europium-154	15585-10-1	LA-508-481	U	1.1E-4		pCi/g	1	0.048		09/05/13
Europium-155	14391-16-3	LA-508-481	U	0.021		pCi/g	1	0.041		09/05/13
Protactinium-231	14331-85-2	LA-508-481	U	-0.19		pCi/g	1	0.68		09/05/13
<b>Strontium 89/90 SOLID/SOIL PREP</b>										<b>08/14/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	-0.23	.42	pCi/g	1	0.64		08/20/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834001  
 SAF# F11-031  
 Sample ID B2R1H3

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		84		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834002  
 SAF# F11-031  
 Sample ID B2R1H9

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		88		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834003  
 SAF# F11-031  
 Sample ID B2R1F1

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		80		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834004  
 SAF# F11-031  
 Sample ID B2R1F7

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		82		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834005  
 SAF# F11-031  
 Sample ID B2R1J2

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		90		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834006  
 SAF# F11-031  
 Sample ID B2R1H6

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		77		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834007  
 SAF# F11-031  
 Sample ID B2R1F4

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		92		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

Sample # 130834008  
 SAF# F11-031  
 Sample ID B2R1H0

Matrix OTHERSOLID  
 Sampled 08/07/13  
 Received 08/07/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										08/14/13
<b>Dry Weight/Percent Moisture</b>										
Percent Solids	%SOLIDS	LA-519-412		80		%	1			08/14/13

MDL = Minimum Detection Limit  
 RQ = Result Qualifier  
 TP Err = Total Propagated Error  
 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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 219775 (QC Batch: 219768) Test Gamma Energy Analysis-general  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>IBLANK</b>		<b>QC Sample #97642</b>								
Cesium-137	10045-97-3		-3.6E-3	pCi/g					U	09/12/13
Cobalt-60	10198-40-0		2.7E-3	pCi/g					U	09/12/13
Europium-152	14683-23-9		-6.6E-3	pCi/g					U	09/12/13
Europium-154	15585-10-1		5.3E-6	pCi/g					U	09/12/13
Europium-155	14391-16-3		0.011	pCi/g					U	09/12/13
Protactinium-231	14331-85-2		-0.022	pCi/g					U	09/12/13
<b>LCS</b>		<b>QC Sample #97643</b>								
Cesium-137	10045-97-3		6300	pCi/sample	104.5	80 - 120				09/11/13
Cobalt-60	10198-40-0		1.1E4	pCi/sample	108.9	80 - 120				09/11/13
<b>DUP</b>		<b>QC Sample #97644</b>								
		<b>Original 130834001</b>								
Cesium-137	10045-97-3	1.1E-3	-5.5E-4	pCi/g			588.70	30	* U	09/12/13
Cobalt-60	10198-40-0	-3.9E-3	1.5E-3	pCi/g			-459.40	30	* U	09/12/13
Europium-152	14683-23-9	0.011	0.015	pCi/g			31.40	30	* U	09/12/13
Europium-154	15585-10-1	0.012	-0.013	pCi/g			-4313.70	30	* U	09/12/13
Europium-155	14391-16-3	0.056	0.0040	pCi/g			173.60	30	* U	09/12/13
Protactinium-231	14331-85-2	-0.13	-0.10	pCi/g			-24.00	30	U	09/12/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130834

Analytical Batch 219874 (QC Batch: 219770) Test ICP-2008 MS All possible metal  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>			<b>QC Sample #96389</b>							
Uranium	7440-61-1		<0.050	ug/L					U	08/13/13
<b>LCS</b>			<b>QC Sample #96390</b>							
Uranium	7440-61-1		195	mg/kg	97.6	86 - 113				08/13/13
<b>MS</b>			<b>QC Sample #96391</b>							
			<b>Original 130834001</b>							
Uranium	7440-61-1	0.514	53.4	mg/kg	92	70 - 130				08/13/13
<b>MSD</b>			<b>QC Sample #96392</b>							
			<b>Original 130834001</b>							
			<b>Paired 96391</b>							
Uranium	7440-61-1	0.514	54.5	mg/kg	90.8	70 - 130	2.10	30		08/13/13

\* - QC result out of range n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Wet Chemistry

Group # WSCF130834

**Analytical Batch** 219914 (QC Batch: 219914) **Test** Dry Weight/Percent Moisture  
**Associated Samples** 130834001, 130834002, 130834003, 130834004, 130834005, 130834006, 130834007, 130834008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>LCS</b>		<b>QC Sample #96573</b>								
Percent Solids	%SOLIDS		95	%	99.7	80 - 120				08/14/13
<b>DUP</b>		<b>QC Sample #96574</b>								
		<b>Original 130834001</b>								
Percent Solids	%SOLIDS	84	84	%			0.24	5		08/14/13

\* - QC result out of range n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 219971 (QC Batch: 219667) Test Strontium 89/90 (GPC/GEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96376</b>								
Strontium-89_90	SR-RAD		-0.69	pCi/g					U	08/20/13
<b>LCS</b>		<b>QC Sample #96377</b>								
Strontium-89_90	SR-RAD		22	pCi/g	100.2	80 - 120				08/20/13
<b>DUP</b>		<b>QC Sample #96378</b>								
		<b>Original 130834001</b>								
Strontium-89_90	SR-RAD	0.16	-0.51	pCi/g			-390.30	30	* U	08/20/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 219977 (QC Batch: 219574) Test GAB Discrete analysis Alpha only  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96257</b>								
Gross Alpha	12587-46-1		-0.12	pCi/g					U	08/19/13
<b>LCS</b>		<b>QC Sample #96258</b>								
Gross Alpha	12587-46-1		8.6	pCi/g	71.8	80 - 120			X	08/19/13
<b>DUP</b>		<b>QC Sample #96259</b>								
		<b>Original 130834001</b>								
Gross Alpha	12587-46-1	0.45	0.32	pCi/g			35.80	30	* U	08/19/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 219978 (QC Batch: 219574) Test GAB Discrete analysis Beta only  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96257</b>								
Gross Beta	12587-47-2		0.82	pCi/g					U	08/20/13
<b>LCS</b>		<b>QC Sample #96258</b>								
Gross Beta	12587-47-2		45	pCi/g	90.6	80 - 120				08/20/13
<b>DUP</b>		<b>QC Sample #96259</b>								
		<b>Original 130834001</b>								
Gross Beta	12587-47-2	11	4.5	pCi/g			82.00	30	* X	08/20/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220274 (QC Batch: 219570) Test Neptunium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										
			<b>QC Sample #96235</b>							
Neptunium-237	13994-20-2		1.4E-7	pCi/g					U	08/23/13
<b>LCS</b>			<b>QC Sample #96236</b>							
Neptunium-237	13994-20-2		5.8	pCi/sample	100.7	80 - 120				08/22/13
<b>NpSPK</b>			<b>QC Sample #96237</b>							
Neptunium-237	13994-20-2		5.1	pCi/g	95.2	75 - 125				08/22/13
<b>NpDUP</b>			<b>QC Sample #96238</b>							
			<b>Original 130834001</b>							
Neptunium-237	13994-20-2	4.6E-3	0.025	pCi/g			137.10	30	* UX	08/23/13
<b>NDUPSK</b>			<b>QC Sample #96239</b>							
Neptunium-237	13994-20-2		5.5	pCi/g	103.5	75 - 125				08/23/13
<b>NpSPK</b>			<b>QC Sample #96240</b>							
Neptunium-237	13994-20-2		6.3	pCi/g	110.4	75 - 125				08/22/13
<b>NpSPK</b>			<b>QC Sample #96241</b>							
Neptunium-237	13994-20-2		5.6	pCi/g	101.8	75 - 125				08/22/13

\* - QC result out of range

n/a - Not Applicable

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Attention Scot Fitzgerald  
Department Radiochemistry

Group # WSCF130834

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Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>NpSPK</b>			<b>QC Sample #96242</b>							
Neptunium-237	13994-20-2		5.5	pCi/g	96.2	75 - 125				08/22/13
* - QC result out of range				n/a - Not Applicable						

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220275 (QC Batch: 219569) Test Americium/Curium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96232</b>								
Americium-241	14596-10-2		9.1E-3	pCi/g					U	08/22/13
<b>LCS</b>		<b>QC Sample #96233</b>								
Americium-241	14596-10-2		5.6	pCi/sample	101.8	80 - 120				08/22/13
<b>DUP</b>		<b>QC Sample #96234</b>								
		<b>Original 130834001</b>								
Americium-241	14596-10-2	0.035	8.8E-3	pCi/g			107.70	30	* U	08/22/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Analytical Batch 220279 (QC Batch: 219875) Test SW-846 8270D Semivolatiles  
 Associated Samples 130834005, 130834006, 130834007, 130834008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96453</b>								
1,4-Dichlorobenzene	106-46-7		<200	ug/kg					U	08/21/13
Bis-(2-Chloroethyl) ether	111-44-4		<200	ug/kg					U	08/21/13
Hexachlorobutadiene	87-68-3		<200	ug/kg					U	08/21/13
2-Methylphenol	95-48-7		<200	ug/kg					U	08/21/13
1,2-Dichlorobenzene	95-50-1		<200	ug/kg					U	08/21/13
3 & 4 Methylphenol, Total	65794-96-9		<200	ug/kg					U	08/21/13
Hexachloroethane	67-72-1		<200	ug/kg					U	08/21/13
<b>LCS</b>		<b>QC Sample #96454</b>								
1,4-Dichlorobenzene	106-46-7		4700	ug/kg	116.6	64 - 125				08/21/13
2-Methylphenol	95-48-7		6800	ug/kg	112.6	73 - 122				08/21/13
Hexachloroethane	67-72-1		6300	ug/kg	104.3	59 - 114				08/21/13
<b>MS</b>		<b>QC Sample #96455</b>								
		<b>Original 130834005</b>								
1,4-Dichlorobenzene	106-46-7	<500	4300	ug/kg	40.2	55 - 130			T	08/21/13
2-Methylphenol	95-48-7	<500	4000	ug/kg	24.9	61 - 129			T	08/21/13
Hexachloroethane	67-72-1	2.3E4	3.6E4	ug/kg	77.6	38 - 132				08/21/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>MSD</b>		<b>QC Sample #96456</b>								
									<b>Paired 96455</b>	
1,4-Dichlorobenzene	106-46-7	<500	3800	ug/kg	35.9	55 - 130	12.80	30	T	08/21/13
2-Methylphenol	95-48-7	<500	3800	ug/kg	24.1	61 - 129	4.90	30	T	08/21/13
Hexachloroethane	67-72-1	2.3E4	3.6E4	ug/kg	78.7	38 - 132	0.10	30		08/21/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220283 (QC Batch: 219569)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Test Plutonium (AEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96232</b>								
Plutonium-238	13981-16-3		8.2E-3	pCi/g					U	08/22/13
Plutonium-239_240	PU-239/240		0.012	pCi/g					X	08/22/13
<b>LCS</b>		<b>QC Sample #96233</b>								
Plutonium-239_240	PU-239/240		5.8	pCi/sample	100.8	80 - 120				08/22/13
<b>DUP</b>		<b>QC Sample #96234</b>								
		<b>Original 130834001</b>								
Plutonium-238	13981-16-3	-3.5E-3	-1.4E-3	pCi/g			-70.00	30	* U	08/22/13
Plutonium-239_240	PU-239/240	0.021	8.5E-3	pCi/g			70.20	30	* X	08/22/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220284 (QC Batch: 219569) Test Uranium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96232</b>								
Uranium-234	U-233/234		0.023	pCi/g					X	08/22/13
Uranium-235	15117-96-1		6.4E-3	pCi/g					U	08/22/13
Uranium-238	U-238		3.9E-3	pCi/g					U	08/22/13
<b>LCS</b>		<b>QC Sample #96233</b>								
Uranium-234	U-233/234		8.4	pCi/sample	102.9	80 - 120				08/22/13
<b>DUP</b>		<b>QC Sample #96234</b>								
		<b>Original 130834001</b>								
Uranium-234	U-233/234	0.29	0.28	pCi/g			15.10	30		08/22/13
Uranium-235	15117-96-1	0.024	0.0020	pCi/g			163.60	30	* U	08/22/13
Uranium-238	U-238	0.18	0.23	pCi/g			40.10	30	* X	08/22/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 219971 (QC Batch: 219667) Test Strontium 89/90 (GPC/GEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>				<b>Sample #130834001</b>						
Strontium-85	13967-73-2			pCi/sample	66	25 - 105				08/20/13
<b>SAMPLE</b>				<b>Sample #130834002</b>						
Strontium-85	13967-73-2			pCi/sample	67.6	25 - 105				08/20/13
<b>SAMPLE</b>				<b>Sample #130834003</b>						
Strontium-85	13967-73-2			pCi/sample	63.5	25 - 105				08/20/13
<b>SAMPLE</b>				<b>Sample #130834004</b>						
Strontium-85	13967-73-2			pCi/sample	75.7	25 - 105				08/20/13
<b>BLANK</b>				<b>QC Sample #96376</b>						
Strontium-85	13967-73-2			pCi/sample	73.4	25 - 105				08/20/13
<b>LCS</b>				<b>QC Sample #96377</b>						
Strontium-85	13967-73-2			pCi/sample	75.4	25 - 105				08/20/13
<b>DUP</b>				<b>QC Sample #96378</b>						
				<b>Original 130834001</b>						
Strontium-85	13967-73-2	76		pCi/sample	78.3	25 - 105	n/a			08/20/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220275 (QC Batch: 219569) Test Americium/Curium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>				<b>Sample #130834001</b>						
Americium-243 Tracer	14993-75-0				78.9	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834002</b>						
Americium-243 Tracer	14993-75-0				84.6	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834003</b>						
Americium-243 Tracer	14993-75-0				81.7	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834004</b>						
Americium-243 Tracer	14993-75-0				92.1	25 - 105				08/22/13
<b>BLANK</b>				<b>QC Sample #96232</b>						
Americium-243 Tracer	14993-75-0				73	25 - 105				08/22/13
<b>LCS</b>				<b>QC Sample #96233</b>						
Americium-243 Tracer	14993-75-0				80.7	25 - 105				08/22/13
<b>DUP</b>				<b>QC Sample #96234</b>						
Americium-243 Tracer	14993-75-0									
				<b>Original 130834001</b>						
Americium-243 Tracer	14993-75-0				85.2	25 - 105	n/a			08/22/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Analytical Batch 220279 (QC Batch: 219875) Test SW-846 8270D Semivolatiles  
 Associated Samples 130834005, 130834006, 130834007, 130834008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>		<b>Sample #130834005</b>								
2-Fluorophenol	367-12-4				40.9	38 - 151				08/21/13
Phenol-d5	4165-62-2				46.3	38 - 153				08/21/13
Nitrobenzene-d5	4165-60-0				50.9	42 - 153				08/21/13
2-Methylnaphthalene-d10	7297-45-2				37.6	27 - 197				08/21/13
2-Fluorobiphenyl	321-60-8				44.4	34 - 160				08/21/13
2,4,6-Tribromophenol	118-79-6				25.7	21 - 147				08/21/13
Fluoranthene-d10	93951-69-0				17.9	39 - 168			X	08/21/13
Terphenyl-d14	98904-43-9				23.8	51 - 155			X	08/21/13
<b>SAMPLE</b>		<b>Sample #130834006</b>								
2-Fluorophenol	367-12-4				47	38 - 151				08/21/13
Phenol-d5	4165-62-2				50.3	38 - 153				08/21/13
Nitrobenzene-d5	4165-60-0				65.5	42 - 153				08/21/13
2-Methylnaphthalene-d10	7297-45-2				49.6	27 - 197				08/21/13
2-Fluorobiphenyl	321-60-8				59.3	34 - 160				08/21/13
2,4,6-Tribromophenol	118-79-6				26.9	21 - 147				08/21/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Fluoranthene-d10	93951-69-0				21.3	39 - 168			X	08/21/13
Terphenyl-d14	98904-43-9				30.5	51 - 155			X	08/21/13
<b>SAMPLE</b>			<b>Sample #130834007</b>							
2-Fluorophenol	367-12-4				40.8	38 - 151				08/21/13
Phenol-d5	4165-62-2				48.7	38 - 153				08/21/13
Nitrobenzene-d5	4165-60-0				1717	42 - 153			X	08/21/13
2-Methylnaphthalene-d10	7297-45-2				38.5	27 - 197				08/21/13
2-Fluorobiphenyl	321-60-8				39.8	34 - 160				08/21/13
2,4,6-Tribromophenol	118-79-6				25.1	21 - 147				08/21/13
Fluoranthene-d10	93951-69-0				14.6	39 - 168			X	08/21/13
Terphenyl-d14	98904-43-9				18.7	51 - 155			X	08/21/13
<b>SAMPLE</b>			<b>Sample #130834008</b>							
2-Fluorophenol	367-12-4				37.4	38 - 151			X	08/22/13
Phenol-d5	4165-62-2				43.2	38 - 153				08/22/13
Nitrobenzene-d5	4165-60-0				54.9	42 - 153				08/22/13
2-Methylnaphthalene-d10	7297-45-2				34.9	27 - 197				08/22/13
2-Fluorobiphenyl	321-60-8				46.9	34 - 160				08/22/13
2,4,6-Tribromophenol	118-79-6				19.4	21 - 147			X	08/22/13
Fluoranthene-d10	93951-69-0				11.5	39 - 168			X	08/22/13
Terphenyl-d14	98904-43-9				17.7	51 - 155			X	08/22/13

\* - QC result out of range

n/a - Not Applicable

REVISED

Quality Control Report

Attention Scot Fitzgerald  
 Department Organic, Semivolatiles

Group # WSCF130834

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #96453</b>								
2-Fluorophenol	367-12-4				106.6	38 - 151				08/21/13
Fluoranthene-d10	93951-69-0			ug/kg	103.4	39 - 168				08/21/13
Phenol-d5	4165-62-2				107.6	38 - 153				08/21/13
Nitrobenzene-d5	4165-60-0				98.6	42 - 153				08/21/13
2-Methylnaphthalene-d10	7297-45-2				102.6	27 - 197				08/21/13
2-Fluorobiphenyl	321-60-8				103.7	34 - 160				08/21/13
2,4,6-Tribromophenol	118-79-6				91.2	21 - 147				08/21/13
Terphenyl-d14	98904-43-9				104.4	51 - 155				08/21/13
<b>LCS</b>		<b>QC Sample #96454</b>								
2-Fluorophenol	367-12-4			ug/kg	119.1	38 - 151				08/21/13
Phenol-d5	4165-62-2			ug/kg	119.1	38 - 153				08/21/13
Nitrobenzene-d5	4165-60-0			ug/kg	119.9	42 - 153				08/21/13
2,4,6-Tribromophenol	118-79-6			ug/kg	115.9	21 - 147				08/21/13
2-Fluorobiphenyl	321-60-8			ug/kg	116.8	34 - 160				08/21/13
Terphenyl-d14	98904-43-9			ug/kg	116.5	51 - 155				08/21/13
2-Methylnaphthalene-d10	7297-45-2			ug/kg	121.3	27 - 197				08/21/13
Fluoranthene-d10	93951-69-0			ug/kg	117.4	39 - 168				08/21/13
<b>MS</b>		<b>QC Sample #96455</b>								
		<b>Original 130834005</b>								
2-Fluorophenol	367-12-4			ug/kg	37.4	38 - 151			X	08/21/13

\* - QC result out of range

n/a - Not Applicable

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Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220283 (QC Batch: 219569) Test Plutonium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>				<b>Sample #130834001</b>						
Plutonium-242 Tracer	13982-10-0				83.1	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834002</b>						
Plutonium-242 Tracer	13982-10-0				88.1	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834003</b>						
Plutonium-242 Tracer	13982-10-0				89.8	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834004</b>						
Plutonium-242 Tracer	13982-10-0				88.2	25 - 105				08/22/13
<b>BLANK</b>				<b>QC Sample #96232</b>						
Plutonium-242 Tracer	13982-10-0				76.2	25 - 105				08/22/13
<b>LCS</b>				<b>QC Sample #96233</b>						
Plutonium-242 Tracer	13982-10-0				84.8	25 - 105				08/22/13
<b>DUP</b>				<b>QC Sample #96234</b>						
Plutonium-242 Tracer	13982-10-0			<b>Original 130834001</b>	87.2	25 - 105	n/a			08/22/13

\* - QC result out of range

n/a - Not Applicable

REVISED

Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130834

Analytical Batch 220284 (QC Batch: 219569)      Test Uranium (AEA)  
 Associated Samples 130834001, 130834002, 130834003, 130834004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>SAMPLE</b>				<b>Sample #130834001</b>						
Uranium-232 Tracer	14158-29-3				77.6	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834002</b>						
Uranium-232 Tracer	14158-29-3				85.6	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834003</b>						
Uranium-232 Tracer	14158-29-3				94.6	25 - 105				08/22/13
<b>SAMPLE</b>				<b>Sample #130834004</b>						
Uranium-232 Tracer	14158-29-3				84.4	25 - 105				08/22/13
<b>BLANK</b>				<b>QC Sample #96232</b>						
Uranium-232 Tracer	14158-29-3				84.6	25 - 105				08/22/13
<b>LCS</b>				<b>QC Sample #96233</b>						
Uranium-232 Tracer	14158-29-3				67.3	25 - 105				08/22/13
<b>DUP</b>				<b>QC Sample #96234</b>						
Uranium-232 Tracer	14158-29-3				93.5	25 - 105	n/a			08/22/13
				<b>Original 130834001</b>						

\* - QC result out of range

n/a - Not Applicable

REVISED

## Tentatively Identified Peak Report

SEPTEMBER 19, 2013

REVISION 1

Attention Scot Fitzgerald  
Department Organic, Semivolatiles

Group # WSCF130834

Peak Name	CAS #	RT	RQ	Result	Units
<b>130834007</b>	<b>B2R1F4</b>				
Trichloroacetyl chlori	76-02-8	4.9173		940	ug/kg
Trichloroethylene	79-01-6	5.4143		100	ug/kg
Tetrachloroethylene	127-18-4	6.5901		190	ug/kg
Ethene, tribromo-	598-16-3	8.4018		160	ug/kg
1-Hexanol, 2-ethyl-	104-76-7	8.9363		34	ug/kg
<b>130834008</b>	<b>B2R1H0</b>				
Carbon Tetrachloride	56-23-5	4.8907		410	ug/kg
2-Propanone, 1-chloro-	78-95-5	5.1365		6	ug/kg
4-Heptafluorobutyrylox	1000282-97-2	18.305		3.9	ug/kg
Benzenesulfonamide, N-	3622-84-2	18.406		6.2	ug/kg
<b>130834006</b>	<b>B2R1H6</b>				
2-Propanone, 1-chloro-	78-95-5	5.1313		6.2	ug/kg
Trichloroethylene	79-01-6	5.4039		31	ug/kg
Chloriodomethane	593-71-5	5.6444		3.4	ug/kg
Tetrachloroethylene	127-18-4	6.5369		74	ug/kg
2-Pentanone, 4-hydroxy	123-42-2	6.7988		20	ug/kg
Benzene, bromo-	108-86-1	7.8569		6.1	ug/kg
1-Hexanol, 2-ethyl-	104-76-7	8.8884		8.3	ug/kg
Benzenesulfonamide, N-	3622-84-2	18.385		5.1	ug/kg
<b>130834005</b>	<b>B2R1J2</b>				
Trichloroethylene	79-01-6	5.4145		170	ug/kg
Tetrachloroethylene	127-18-4	6.5475		73	ug/kg
Benzenesulfonamide, N-	3622-84-2	18.406		5.3	ug/kg

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Attention: Scot Fitzgerald

Group #

WSCF130834

**130834005** **B2R1J2****Department** Organic, Semivolatiles**Analyte** Fluoranthene-d10 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Terphenyl-d14 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**130834006** **B2R1H6****Department** Organic, Semivolatiles**Analyte** Fluoranthene-d10 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Terphenyl-d14 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**130834007** **B2R1F4****Department** Organic, Semivolatiles**Analyte** Fluoranthene-d10 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Nitrobenzene-d5 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Terphenyl-d14 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**130834008** **B2R1H0****Department** Organic, Semivolatiles**Analyte** 2,4,6-Tribromophenol - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** 2-Fluorophenol - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Fluoranthene-d10 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.**Analyte** Terphenyl-d14 - SW-846 8270D Semivolatiles  
[1] Surrogate recovery outside of established laboratory control limits.

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Attention: Scot Fitzgerald

Group #

WSCF130834

**Quality Control Comments**

Department Organic, Semivolatiles

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96455	B2R1J2(130834005MS)
<b>Analyte</b>	2-Fluorophenol - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	Fluoranthene-d10 - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	Terphenyl-d14 - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
96456	B2R1J2(130834005MSD)
<b>Analyte</b>	2-Fluorobiphenyl - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	2-Fluorophenol - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	Fluoranthene-d10 - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	Nitrobenzene-d5 - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.
<b>Analyte</b>	Terphenyl-d14 - SW-846 8270D Semivolatiles
[1]	Surrogate recovery outside of established laboratory control limits.

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Attention: Scot Fitzgerald

Group #

WSCF130834

**Quality Control Comments**

Department Radiochemistry

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96232	BLANK for HBN 219569 [RADP/797]
<b>Analyte</b>	Plutonium-239_240 - Plutonium (AEA)
[1]	The blank is less than 2X the MDC and is acceptable.
<b>Analyte</b>	Uranium-234 - Uranium (AEA)
[1]	The Blank is less than 5X the MDC and is acceptable, per S&GRP SOW.
96234	B2R1H3(130834001DUP)
<b>Analyte</b>	Plutonium-239_240 - Plutonium (AEA)
[1]	Duplicate RPD out-of-limits. RPD limit does not apply to results near the Minimum Detectable Concentration.
<b>Analyte</b>	Uranium-238 - Uranium (AEA)
[1]	The duplicate is outside of default RPD limits. RPD limit does not apply to results with greater than 20% counting uncertainty.
96238	B2R1H3(130834001NpDUP)
<b>Analyte</b>	Neptunium-237 - Neptunium (AEA)
[1]	The duplicate is outside of default RPD limits. RPD limit does not apply to results less than 5X the Minimum Detectable Concentration.
96258	LCS for HBN 219574 [RADP/7978]
<b>Analyte</b>	Gross Alpha - GAB Discrete analysis Alpha only
[1]	The LCS is outside of default limits. The LCS is within the range of 70-130% and is acceptable, per S&GRP SOW.
[2]	LCS accepted as all samples near detection limits. BDK
96259	B2R1H3(130834001DUP)
<b>Analyte</b>	Gross Beta - GAB Discrete analysis Beta only
[1]	The duplicate is outside of default RPD limits. RPD limit does not apply to results less than 5X the Minimum Detectable Concentration.

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ATTACHMENT4

**SAMPLE RECEIPT**

Consisting of 11 pages  
Including cover page

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**REVISED**

**Waste Sampling and Characterization Facility**  
**P.O. Box 650 S3-30, Richland WA 99352**  
**Phone: (509) 373-7005/FAX: (509) 372-0456**

## ACKNOWLEDGEMENT OF SAMPLES RECEIVED

### WSCF Laboratory

PO Box 650 S3-30  
 Richland, WA 99352

ATTN: Scot Fitzgerald

**Customer Code:** CHPRC  
**CACN:** 401639  
**Work Order #:** 130834  
**Customer Work ID:** F11-031-043  
**Due Date:** 08/22/2013

The following samples were received from you on 8/7/2013 10:50:00 AM. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact WSCF Client Services. Thank you for using Waste Sampling and Characterization Facility.

*The samples in this work order have been designated to be returned to the customer.*

Sample #	Sample ID	Matrix	Collected	Received
130834001	B2R1H3	OTHERSOLID	8/7/2013 10:21	8/7/2013 10:50
<b>Procedure</b>		<b>Compound List</b>		
Americium/Curium (AEA)		AM-241		
Dry Weight/Percent Moisture		% Moisture,% Solid		
GAB Discrete analysis Alpha only		Alpha		
GAB Discrete analysis Beta only		Beta		
Gamma Energy Analysis-general		Not a standard service list. There are too many compounds to list individually.		
ICP-2008 MS All possible metal		U		
Neptunium (AEA)		Np-237		
Plutonium (AEA)		Pu-238,Pu-239/240		
Strontium 89/90 (GPC/GEA)		SR89/90,Sr-85		
Uranium (AEA)		U-234,U-235,U-238		
Sample #	Sample ID	Matrix	Collected	Received
130834002	B2R1H9	OTHERSOLID	8/7/2013 07:45	8/7/2013 10:50
<b>Procedure</b>		<b>Compound List</b>		
Americium/Curium (AEA)		AM-241		
Dry Weight/Percent Moisture		% Moisture,% Solid		
GAB Discrete analysis Alpha only		Alpha		
GAB Discrete analysis Beta only		Beta		
Gamma Energy Analysis-general		Not a standard service list. There are too many compounds to list individually.		
ICP-2008 MS All possible metal		U		
Neptunium (AEA)		Np-237		
Plutonium (AEA)		Pu-238,Pu-239/240		
Strontium 89/90 (GPC/GEA)		SR89/90,Sr-85		
Uranium (AEA)		U-234,U-235,U-238		
Sample #	Sample ID	Matrix	Collected	Received
130834003	B2R1F1	OTHERSOLID	8/7/2013 09:30	8/7/2013 10:50
<b>Procedure</b>		<b>Compound List</b>		
Americium/Curium (AEA)		AM-241		
Dry Weight/Percent Moisture		% Moisture,% Solid		
GAB Discrete analysis Alpha only		Alpha		
GAB Discrete analysis Beta only		Beta		
Gamma Energy Analysis-general		Not a standard service list. There are too many compounds to list individually.		
ICP-2008 MS All possible metal		U		
Neptunium (AEA)		Np-237		
Plutonium (AEA)		Pu-238,Pu-239/240		

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**Waste Sampling and Characterization Facility**  
**P.O. Box 650 S3-30, Richland WA 99352**  
**Phone: (509) 373-7005/FAX: (509) 372-0456**

Strontium 89/90 (GPC/GEA)  
 Uranium (AEA)

SR89/90,Sr-85  
 U-234,U-235,U-238

Sample #	Sample ID	Matrix	Collected	Received
130834004	B2R1F7	OTHERSOLID	8/7/2013 10:15	8/7/2013 10:50

**Procedure****Compound List**

Americium/Curium (AEA)	AM-241
Dry Weight/Percent Moisture	% Moisture,% Solid
GAB Discrete analysis Alpha only	Alpha
GAB Discrete analysis Beta only	Beta
Gamma Energy Analysis-general	Not a standard service list. There are too many compounds to list individually.
ICP-2008 MS All possible metal	U
Neptunium (AEA)	Np-237
Plutonium (AEA)	Pu-238,Pu-239/240
Strontium 89/90 (GPC/GEA)	SR89/90,Sr-85
Uranium (AEA)	U-234,U-235,U-238

Sample #	Sample ID	Matrix	Collected	Received
130834005	B2R1J2	OTHERSOLID	8/7/2013 08:45	8/7/2013 10:50

**Procedure****Compound List**

Dry Weight/Percent Moisture	% Moisture,% Solid
SW-846 8270D Semivolatiles	Not a standard service list. There are too many compounds to list individually.

Sample #	Sample ID	Matrix	Collected	Received
130834006	B2R1H6	OTHERSOLID	8/7/2013 10:30	8/7/2013 10:50

**Procedure****Compound List**

Dry Weight/Percent Moisture	% Moisture,% Solid
SW-846 8270D Semivolatiles	Not a standard service list. There are too many compounds to list individually.

Sample #	Sample ID	Matrix	Collected	Received
130834007	B2R1F4	OTHERSOLID	8/7/2013 09:36	8/7/2013 10:50

**Procedure****Compound List**

Dry Weight/Percent Moisture	% Moisture,% Solid
SW-846 8270D Semivolatiles	Not a standard service list. There are too many compounds to list individually.

Sample #	Sample ID	Matrix	Collected	Received
130834008	B2R1H0	OTHERSOLID	8/7/2013 10:16	8/7/2013 10:50

**Procedure****Compound List**

Dry Weight/Percent Moisture	% Moisture,% Solid
SW-846 8270D Semivolatiles	Not a standard service list. There are too many compounds to list individually.

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Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F31-031-043	PAGE 1 OF 1
COLLECTOR <i>Kaizer Aguilera</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-PW-1-SET3 GAC COMPOSITE	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-481-3/90	SAF NO. F11-031	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE <b>ORIGINAL</b>
ICE CHEST NO.	OFFSITE PROPERTY NO. N/A	ACTUAL SAMPLE DEPTH N/A	COA 30283SES10	BILL OF LADING/AIR BILL NO. N/A	
Waste Sampling & Characterization					

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
B2RH-3	1 OTHER SOLID	8-7-13	1021						

CHAIN OF POSSESSION	RECEIVED BY	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORING IN	DATE/TIME	RECEIVED BY/STORING IN	DATE/TIME	TITLE	DATE/TIME
RELINQUISHED BY/REMOVED FROM <i>Elkman Elkman</i>		8-7-17 1050		7D Evans <i>Elkman</i>	8-7-13 1050				
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
RELINQUISHED BY/REMOVED FROM									
LABORATORY SECTION	DISPOSAL METHOD								
FINAL SAMPLE DISPOSITION									

**SPECIAL INSTRUCTIONS**

\*\* The CACN for all analytical work at WSCF laboratory is 401639. \*\*  
 The 200 Area SRGR Characterization and Monitoring Sampling and Analysis GRI applies to this SAF: TRVL-13-080. COMPOSITE FROM CANISTERS AE-1083, AE-1087, AE-1089, AE-1091, AE-1094, AE-1086, AE-1214 □  
 (1) GAMMA\_GS: COMMON; GAMMA\_GS: COMMON (Add-on)  
 {Protactinium-231}; ALPHA\_GPC: COMMON {Gross alpha}; BETA\_GPC: COMMON {Gross beta}; PUISO\_IE\_PRECIP\_AEA: COMMON; AMCMISO\_IE\_PRECIP\_AEA: COMMON; NP237\_IE\_PRECIP\_AEA: COMMON; SRTOT\_SEP\_PRECIP\_GPC: COMMON; UIISO\_IE\_PRECIP\_AEA: COMMON;

TRVL-13-080



Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F31-031-031		PAGE 1 OF 1	
COLLECTOR <i>Kayla Aguilera</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-2924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days		
SAMPLING LOCATION 200-PW-1 & 200-ZP-1 Spent GAC Composite	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-4491-5/90	SAF NO. F11-031	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
ICE CHEST NO.	NO. OF CONTAINER(S) 1	ACTUAL SAMPLE DEPTH N/A	COA 302853E510	BILL OF LADING/AIR BILL NO. N/A			
SHIPPED TO Waste Sampling & Characterization	PRESERVATION None	OFFSITE PROPERTY NO. N/A	METHOD OF SHIPMENT ORIGINAL				
MATRIX* A-Air DL-Drain L-Liquid DS-Drum S-Solid L-Liquid O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wire X-Other	POSSIBLE SAMPLE HAZARDS/ REMARKS **Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/17A Dangerous Goods Regulations but are not releasable per DOE Order 458.1.**	HOLDING TIME 6 Months	NO. OF CONTAINER(S) 1	TYPE OF CONTAINER rig	NO. OF CONTAINER(S) 1	VOLUME 60ml	SPECIAL HANDLING AND/OR STORAGE
B2R1F1	3 OTHER SOLID	SAMPLE DATE 8-7-13	SAMPLE TIME 0930				

  

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
<i>Richard ...</i>	8-7-13 1050	<i>TA ...</i>	8-7-13 1050	** The CACN for all analytical work at WSCF laboratory is 401639. ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF: TRVL-13-080, COMPOSITE FROM CANISTERS AE-1210, AE-1215, AE-1208, AE-1068, AE-1089, AE-1107, AE-1206, AE-1204. (1) GAMMA_GS: COMMON; GAMMA_GS: COMMON (Add-on) {Protactinium-231}; ALPHA_GPC: COMMON {Gross alpha}; BETA_GPC: COMMON {Gross beta}; PUISO_IE_PRECIP_AEA: COMMON; AMCMISO_IE_PRECIP_AEA: COMMON; NP237_IE_PRECIP_AEA: COMMON; SR101_SEP_PRECIP_GPC: COMMON; UISO_IE_PRECIP_AEA: COMMON;
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	DATE/TIME	TITLE	DISPOSED BY	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		TRVL-13-080		

PRINTED ON 8/1/2013

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Chain of Custody

CH2MHILL Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>Karen Aguilera</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-PW1-SET 2 GAC COMPOSITE	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-451-950	SAF NO. F11-031	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-451-950	ACTUAL SAMPLE DEPTH N/A	COA 302859E510	BILL OF LADING/AIR BILL NO. N/A	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A				

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SPECIAL HANDLING AND/OR STORAGE
Air Leachate Liquor Dredge Soils L-Lead O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other	**Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 459.1.**	None	6 Months	2G	1	60ml	200.8 METALS TOXICS: Uranium (644 (Uranium))
B2R1F7	OTHER SOLID	None	6 Months	Square Bottle - Poly	1	500ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

CHAIN OF POSSESSION	RECEIVED BY/STORER IN	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>Elaine E. Kline</i>	RECEIVED BY/STORER IN <i>Theresa M. Leventis</i>	DATE/TIME 8-7-13 1050	RECEIVED BY/STORER IN <i>Theresa M. Leventis</i>	DATE/TIME 8-7-13 1050	** The CACN for all analytical work at WSCF laboratory is 401639. ** The 200 Area SRGP Characterization and Monitoring Sampling and Analysis GRI applies to this SAF. TRVL-13-080. COMPOSITE FROM CANISTERS AE-1212, AE-1110, AE-1092, AE-1078, AE-1094, AE-1115, AE-1106, AE-1114, AE-1201. <input type="checkbox"/> (1) GAMMA GS: COMMON; GAMMA GS: COMMON (Add on) (Prodactinium-231); ALPHA GPC: COMMON (Gross alpha); BETA GPC: COMMON (Gross beta); PUISO IE PRECIP AEA: COMMON; AMCMISO IE PRECIP AEA: COMMON; NP237 IE PRECIP AEA: COMMON; SRTOT_SEP PRECIP GPC: COMMON; UIISO_IE_PRECIP_AEA: COMMON; TR-13-13-080
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	

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

PRINTED ON 8/1/2013

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Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>Karla Aguilar</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 313-7924	PROJECT COORDINATOR EVANS, RT	FIL-031-052	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-PW-SET 1 GAC, AE-1093	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-4415/86	SAF NO. E11-031	PRICE CODE 9C	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH N/A	COA 3028592510	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	COOL-TOC
A-Air	**Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/DATA	HOLDING TIME	14/90 Days
D-Water	Dangerous Goods Regulations but are not releasable per DOE Order 158.1.**	TYPE OF CONTAINER	2G
D-Solid		NO. OF CONTAINER(S)	1
L-Liquid		VOLUME	250mL
O-Oil		SPECIAL HANDLING AND/OR STORAGE	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
S-SOIL		SAMPLE ANALYSIS	
SE-Sediment			
T-Tissue			
V-Vegetation			
W-Water			
WI-Wipe			
X-Other			

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Carla Aguilar</i>	8-7-13 1050	<i>Ta Enge</i>	8-7-13 1050		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

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

**SPECIAL INSTRUCTIONS**  
 \*\* The CACN for all analytical work at WSCF laboratory is 401639. \*\*  
 The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-080. FROM CANISTER AE-1093 □  
 (1) 8270\_SVOA\_GCMS: COMMON {1,4-Dichlorobenzene, 2-Methylphenol (cresol, o-)}; 8270\_SVOA\_GCMS: CH 01 {1,2-Dichlorobenzene, Bis(2-chloroethyl) ether, Hexachlorobutadiene, Hexachloroethane}; 8270\_SVOA\_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>Kaus Aguilan</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT
SAMPLING LOCATION 200-PW1-SET 3 GAC, AE-1079	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. <i>HW-N-491-3/20</i>	ACTUAL SAMPLE DEPTH N/A
ICE CHEST NO.	OFFSITE PROPERTY NO. N/A	SAF NO. F11-031	COA 302853ES10
SHIPPED TO Waste Sampling & Characterization	BILL OF LADING/AIR BILL NO. N/A	PRICE CODE 9C	METHOD OF SHIPMENT GOVERNMENT VEHICLE
MATRIX* A-Air DA-Drum L-Liquids OS-Solids S-Solids O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other		PRESERVATION Cool-dc	DATA TURNAROUND 15 Days / 15 Days
**Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.**		SAF NO. F11-031	ORIGINAL

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2R1H6	OTHER SOLID	8-7-13	1030

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Elizabeth Clark</i>	8-7-13 1050	<i>TR Frank Clark</i>	8-7-13 1050
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
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

**SPECIAL INSTRUCTIONS**  
 \*\* The CACN for all analytical work at WSCF laboratory is 401639. \*\*  
 The 200 Area SRGRP Characterization and Monitoring Sampling and Analysis GRD applies to this SAF. TRVL-13-080. FROM CANISTER AE-1079. □  
 (1) 8270\_SVOA\_GCMS: COMMON {1,4-Dichlorobenzene, 2-Methylphenol (cresol, o-)}; 8270\_SVOA\_GCMS: CH 01 {1,2-Dichlorobenzene, Bis(2-chloroethyl) ether, Hexachlorobutadiene, Hexachloroethane}; 8270\_SVOA\_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)}; □

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Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>Raven Aguilera</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 9C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-PW1-SET1 GAC; AE1204	PROJECT DESIGNATION 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-491-5/50	SAF NO. F11-031	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH N/A	COA 3028585E10	ORIGINAL	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

MATRIX*	PRESERVATION	COOLING
A-Air		Cool-4C
D-L-Drum		
Liquids	HOLDING TIME	14-90 Days
D-Drum	TYPE OF CONTAINER	3G
Solid	NO. OF CONTAINER(S)	1
L-land	VOLUME	250ml
O-oil	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
S-SOIL	SPECIAL HANDLING AND/OR STORAGE	
Se-Sediment		
T-Tissue		
V-Vegetation		
W-Water		
Wf-Wipe		
X-Other		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2R1F4	OTHER SOLID	8-7-13	0936

  

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM <i>Raven Aguilera</i>	RECEIVED BY/STORER IN <i>TA Hines</i>	8-7-13 1050	8-7-13 1250
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORER IN	DATE/TIME	DATE/TIME

**SPECIAL INSTRUCTIONS**  
 \*\* The CACN for all analytical work at WSCF laboratory is 401639. \*\*  
 The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-080. FROM CANISTER AE-1204  
 (1) 8270\_SVOA\_GCMS: COMMON {1,4-Dichlorobenzene, 2-Methylphenol (cresol, o-)}; 8270\_SVOA\_GCMS: CH 01 {1,2-Dichlorobenzene, Bis(2-chloroethyl) ether, Hexachlorobutadiene, Hexachloroethane}; 8270\_SVOA\_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};

13-080

LABORATORY SECTION	RECEIVED BY	DISPOSED BY
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR <i>Karen Aguilera</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	FILE-031-040	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-FW1-SET 2 GAC; AE-1094	PROJECT DESIGNATION 200-FW-1 & 200-ZP-1 Spent GAC Canisters and Filters	FIELD LOGBOOK NO. HNF-N-491-8/56	SAFE NO. F11-031	PRICE CODE 9C	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.	OFFSITE PROPERTY NO. N/A	ACTUAL SAMPLE DEPTH N/A	COA 302852E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE <b>ORIGINAL</b>	
SHIPPED TO Waste Sampling & Characterization	PRESERVATION Cool-4C		BILL OF LADING/AIR BILL NO. N/A		
MATRIX* D=Air L=Leachate OS=Drum S=Soils L=Liquid O=Oil S-S=Soil SE=Sealment T=Truss V=Vegetation W=Water WC=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS **Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/LATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.**		HOLDING TIME 14/40 Days		
		TYPE OF CONTAINER 36	NO. OF CONTAINER(S) 1		
		VOLUME 250mL	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO. B2R1H0	MATRIX* 8	SAMPLE DATE 8-7-13	SAMPLE TIME 1016		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME 8-7-13	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 8-7-13	** The CACN for all analytical work at WSCF laboratory is 401639. ** The 200 Area S&SRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-080. FROM CANISTER AE-1094. (1) 8270_SVOA_GCMS: COMMON {1,4-Dichlorobenzene, 2-Methylphenol (cresol, o-)}; 8270_SVOA_GCMS: CH 01 {1,2-Dichlorobenzene, Bis(2-chloroethyl) ether, Hexachlorobutadiene, Hexachloroethane}; 8270_SVOA_GCMS: COMMON (add-on) {3+4 Methylphenol (cresol, m+p)};	
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		

TRVL-13-080

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