



# EBERLINE SERVICES

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June 19, 2008

**RECEIVED**

JUN 23 2008

Mr. Steve Trent  
Fluor Hanford Inc.  
1200 Jadwin Avenue  
Richland, WA 99352

Reference: **P.O. #33677**  
**Eberline Services R8-05-145-7094, SDG H3738** ✓

Dear Mr. Trent:

Enclosed is the report for three solid (soil) samples designated under SAF No. F08-031 received at Eberline Services on May 16, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion  
Senior Program Manager

MCM/njv

Enclosure: Data Package

**RECEIVED**  
JAN 22 2009

**EDMC**

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## 1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3738 was composed of three solid (soil) samples designated under SAF No. F08-031 with a Project Designation of: 216-B-55 Supplemental Characterization.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

## 2.0 ANALYSIS NOTES

### 2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

### 2.2 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

### 2.3 Total Strontium Analysis

No problems were encountered during the course of the analyses.

### 2.4 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

### 2.5 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

### 2.6 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

### 2.7 Neptunium-237 Analysis

Neptunium-237 activity greater than the sample MDA was observed in the QC blank sample; the error in the observed activity was 100% at  $2\sigma$ . All field sample results were less than the respective sample specific MDA, and all MDA's were less than the RDL (1.0 pCi/g). The source of the activity was probably the QC LCS. No other problems were encountered during the course of the analyses.

### 2.8 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

### 2.9 Americium-241 Analysis

No problems were encountered during the course of the analyses.

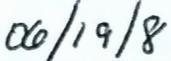
**2.10 Gamma Spectroscopy**

No problems were encountered during the course of the analyses.

**3.0 Case Narrative Certification Statement**

**"I 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 obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."**

  
\_\_\_\_\_  
Melissa C. Mannion  
Senior Program Manager

  
\_\_\_\_\_  
Date

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H3728

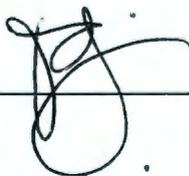
SDG 7094  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Case no SDG\_H3738

S U M M A R Y   D A T A   S E C T I O N

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Prepared by



*Melissa C. Mannion*

Reviewed by

Lab id EBRLNE  
Protocol Fluor  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 06/19/08

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3728

SDG 7094  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG\_H3738

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE  
Protocol Fluor  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 06/19/08

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3728

SDG 7094  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H3738

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094

Contact Melissa C. Mannion

**LAB SAMPLE SUMMARY**

Client Hanford

Contract No. 630

Case no SDG H3738

LAB						CHAIN OF	
SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAP NO	CUSTODY	COLLECTED
R805145-01	B1VDT5	C6743, I-003	SOLID		F08-031	F08-031-167	05/12/08 13:10
R805145-02	B1VDT9	C6743, I-004	SOLID		F08-031	F08-031-173	05/13/08 07:35
R805145-03	B1VDV5	C6743, I-005	SOLID		F08-031	F08-031-181	05/13/08 10:00
R805145-04	Lab Control Sample		SOLID		F08-031		
R805145-05	Method Blank		SOLID		F08-031		
R805145-06	Duplicate (R805145-01)	C6743, I-003	SOLID		F08-031		05/12/08 13:10

LAB SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE  
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 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094  
 Contact Melissa C. Mannion

**QC SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H3738

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7094	F08-031-167	B1VDT5	SOLID	94.0	674 g		05/16/08	4	R805145-01	7094-001
	F08-031-173	B1VDT9	SOLID	97.0	828 g		05/16/08	3	R805145-02	7094-002
	F08-031-181	B1VDV5	SOLID	98.0	792 g		05/16/08	3	R805145-03	7094-003
		Method Blank	SOLID						R805145-05	7094-005
		Lab Control Sample	SOLID						R805145-04	7094-004
		Duplicate (R805145-01)	SOLID	94.0	674 g		05/16/08	4	R805145-06	7094-006

QC SUMMARY

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094  
 Contact Melissa C. Mannion

**PREP BATCH SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H3738

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED			QUALI- FIERS
			BATCH	2σ %	CLIENT MORE	RE	BLANK	LCS	
<b>Alpha Spectroscopy</b>									
AM	SOLID	Americium 241 in Solids	6152-106	8.0	3		1	1	1/1
NP	SOLID	Neptunium in Solids	6152-106	14.8	3		1	1	1/1
PU	SOLID	Plutonium, Isotopic in Solids	6152-106	8.0	3		1	1	1/1
TH	SOLID	Thorium, Isotopic in Solids	6152-106	8.0	3		1	1	1/1
U	SOLID	Uranium, Isotopic in Solids	6152-106	8.0	3		1	1	1/1
<b>Beta Counting</b>									
SR	SOLID	Total Strontium in Solids	6152-106	10.4	3		1	1	1/1
TC	SOLID	Technetium 99 in Solids	6152-106	13.2	3		1	1	1/1
<b>Gamma Spectroscopy</b>									
GAM	SOLID	Gamma Scan	6152-106	7.0	3		1	1	1/1
<b>Liquid Scintillation Counting</b>									
H	SOLID	Tritium in Solids	6152-106	10.0	3		1	1	1/1
NI_L	SOLID	Nickel 63 in Solids	6152-106	11.2	3		1	1	1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.  
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H3738

**LAB WORK SUMMARY**

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION		MATRIX		FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No		PLANCHET	TEST					
R805145-01	B1VDT5			7094-001	AM	06/13/08	06/13/08	BW	Americium 241 in Solids	
05/12/08	C6743, I-003		SOLID	7094-001	GAM	06/04/08	06/06/08	CSS	Gamma Scan	
05/16/08	F08-031-167	F08-031		7094-001	H	06/05/08	06/10/08	BW	Tritium in Solids	
				7094-001	NI_L	06/13/08	06/18/08	BW	Nickel 63 in Solids	
				7094-001	NP	06/11/08	06/18/08	BW	Neptunium in Solids	
				7094-001	PU	06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids	
				7094-001	SR	06/09/08	06/16/08	BW	Total Strontium in Solids	
				7094-001	TC	06/09/08	06/11/08	BW	Technetium 99 in Solids	
				7094-001	TH	06/13/08	06/16/08	BW	Thorium, Isotopic in Solids	
				7094-001	U	06/12/08	06/12/08	BW	Uranium, Isotopic in Solids	
R805145-02	B1VDT9			7094-002	AM	06/13/08	06/13/08	BW	Americium 241 in Solids	
05/13/08	C6743, I-004		SOLID	7094-002	GAM	06/04/08	06/06/08	CSS	Gamma Scan	
05/16/08	F08-031-173	F08-031		7094-002	H	06/05/08	06/10/08	BW	Tritium in Solids	
				7094-002	NI_L	06/13/08	06/18/08	BW	Nickel 63 in Solids	
				7094-002	NP	06/11/08	06/18/08	BW	Neptunium in Solids	
				7094-002	PU	06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids	
				7094-002	SR	06/09/08	06/16/08	BW	Total Strontium in Solids	
				7094-002	TC	06/10/08	06/11/08	BW	Technetium 99 in Solids	
				7094-002	TH	06/13/08	06/16/08	BW	Thorium, Isotopic in Solids	
				7094-002	U	06/12/08	06/12/08	BW	Uranium, Isotopic in Solids	
R805145-03	B1VDV5			7094-003	AM	06/13/08	06/13/08	BW	Americium 241 in Solids	
05/13/08	C6743, I-005		SOLID	7094-003	GAM	06/04/08	06/06/08	CSS	Gamma Scan	
05/16/08	F08-031-181	F08-031		7094-003	H	06/05/08	06/10/08	BW	Tritium in Solids	
				7094-003	NI_L	06/13/08	06/18/08	BW	Nickel 63 in Solids	
				7094-003	NP	06/11/08	06/18/08	BW	Neptunium in Solids	
				7094-003	PU	06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids	
				7094-003	SR	06/09/08	06/16/08	BW	Total Strontium in Solids	
				7094-003	TC	06/10/08	06/11/08	BW	Technetium 99 in Solids	
				7094-003	TH	06/13/08	06/16/08	BW	Thorium, Isotopic in Solids	
				7094-003	U	06/12/08	06/12/08	BW	Uranium, Isotopic in Solids	

WORK SUMMARY

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094

Contact Melissa C. Mannion

**WORK SUMMARY, cont.**

Client Hanford

Contract No. 630

Case no SDG H3738

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R805145-04	Lab Control Sample			7094-004	AM		06/13/08	06/13/08	BW	Americium 241 in Solids
			SOLID	7094-004	GAM		06/04/08	06/06/08	CSS	Gamma Scan
		F08-031		7094-004	H		06/05/08	06/10/08	BW	Tritium in Solids
				7094-004	NI_L		06/13/08	06/18/08	BW	Nickel 63 in Solids
				7094-004	NP		06/11/08	06/18/08	BW	Neptunium in Solids
				7094-004	PU		06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids
				7094-004	SR		06/09/08	06/16/08	BW	Total Strontium in Solids
				7094-004	TC		06/09/08	06/11/08	BW	Technetium 99 in Solids
				7094-004	TH		06/13/08	06/16/08	BW	Thorium, Isotopic in Solids
				7094-004	U		06/12/08	06/12/08	BW	Uranium, Isotopic in Solids
R805145-05	Method Blank			7094-005	AM		06/13/08	06/13/08	BW	Americium 241 in Solids
			SOLID	7094-005	GAM		06/04/08	06/06/08	CSS	Gamma Scan
		F08-031		7094-005	H		06/05/08	06/10/08	BW	Tritium in Solids
				7094-005	NI_L		06/13/08	06/18/08	BW	Nickel 63 in Solids
				7094-005	NP		06/18/08	06/18/08	BW	Neptunium in Solids
				7094-005	PU		06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids
				7094-005	SR		06/09/08	06/16/08	BW	Total Strontium in Solids
				7094-005	TC		06/10/08	06/11/08	BW	Technetium 99 in Solids
				7094-005	TH		06/13/08	06/16/08	BW	Thorium, Isotopic in Solids
				7094-005	U		06/12/08	06/12/08	BW	Uranium, Isotopic in Solids
R805145-06	Duplicate (R805145-01)			7094-006	AM		06/13/08	06/13/08	BW	Americium 241 in Solids
05/12/08	C6743, I-003		SOLID	7094-006	GAM		06/05/08	06/06/08	CSS	Gamma Scan
05/16/08		F08-031		7094-006	H		06/05/08	06/10/08	BW	Tritium in Solids
				7094-006	NI_L		06/13/08	06/18/08	BW	Nickel 63 in Solids
				7094-006	NP		06/11/08	06/17/08	BW	Neptunium in Solids
				7094-006	PU		06/13/08	06/13/08	BW	Plutonium, Isotopic in Solids
				7094-006	SR		06/09/08	06/16/08	BW	Total Strontium in Solids
				7094-006	TC		06/09/08	06/11/08	BW	Technetium 99 in Solids
				7094-006	TH		06/13/08	06/16/08	BW	Thorium, Isotopic in Solids
				7094-006	U		06/12/08	06/12/08	BW	Uranium, Isotopic in Solids

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LWS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

SDG 7094

Contact Melissa C. Mannion

**WORK SUMMARY, cont.**

Client Hanford

Contract No. 630

Case no SDG H3738

**COUNTS OF TESTS BY SAMPLE TYPE**

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	F08-031	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	3			1	1	1	6
GAM	F08-031	Gamma Scan	GAMMA_GS	3			1	1	1	6
H	F08-031	Tritium in Solids	TRITIUM_COX_LSC	3			1	1	1	6
NI_L	F08-031	Nickel 63 in Solids	NI63_LSC	3			1	1	1	6
NP	F08-031	Neptunium in Solids	NP237_LLE_PLATE_AEA	3			1	1	1	6
PU	F08-031	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	3			1	1	1	6
SR	F08-031	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	3			1	1	1	6
TC	F08-031	Technetium 99 in Solids	TC99_TR_SEP_GPC	3			1	1	1	6
TH	F08-031	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	3			1	1	1	6
U	F08-031	Uranium, Isotopic in Solids	UIISO_PLATE_AEA	3			1	1	1	6
<b>TOTALS</b>				<b>30</b>			<b>10</b>	<b>10</b>	<b>10</b>	<b>60</b>

WORK SUMMARY

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Lab id EBRLNE

Protocol Fluor

Version Ver 1.0

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H3728**

7094-005

Method Blank

**METHOD BLANK**

SDG <u>7094</u>	Client/Case no <u>Hanford</u>	<u>SDG H3738</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R805145-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7094-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F08-031</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1.65	3.8	3.13	400	U	H
Nickel 63	13981-37-8	-6.38	8.7	15.3	30.0	U	NI_L
Total Strontium	SR-RAD	-1.23	1.4	<u>2.01</u>	0.120	U	SR
Neptunium 237	13994-20-2	<u>0.429</u>	0.43	0.322	1.00		NP
Americium 241	14596-10-2	0	0.40	0.739	1.00	U	AM
Technetium 99	14133-76-7	0.390	0.69	2.08	12.0	U	TC
Thorium 228	14274-82-9	0.063	0.25	0.485	1.00	U	TH
Thorium 230	14269-63-7	0.127	0.25	0.484	1.00	U	TH
Thorium 232	TH-232	0	0.13	0.484	1.00	U	TH
Uranium 233/234	U-233/234	-0.054	0.11	0.410	1.00	U	U
Uranium 235	15117-96-1	0.195	0.26	0.496	1.00	U	U
Uranium 238	U-238	0	0.11	0.410	1.00	U	U
Plutonium 238	13981-16-3	0.058	0.35	0.716	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.12	0.446	1.00	U	PU
Beryllium 7	13966-02-4	U		0.209		U	GAM
Potassium 40	13966-00-2	U		0.439		U	GAM
Cobalt 60	10198-40-0	U		0.038	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.287		U	GAM
Antimony 125	14234-35-6	U		0.071		U	GAM
Cesium 134	13967-70-9	U		0.040		U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Europium 152	14683-23-9	U		0.086	0.100	U	GAM
Europium 154	15585-10-1	U		0.082	0.100	U	GAM
Europium 155	14391-16-3	U		0.066	0.100	U	GAM
Niobium 94	14681-63-1	U		0.031		U	GAM
Radium 226	13982-63-3	U		0.071		U	GAM
Radium 228	15262-20-1	U		0.144		U	GAM

216-B55 SupplementalCharacterization

**METHOD BLANKS**

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**SUMMARY DATA SECTION**

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Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H3728

7094-005

Method Blank

BLANK, cont.

SDG <u>7094</u>	Client/Case no <u>Hanford</u>	SDG <u>H3738</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R805145-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7094-005</u>	Material/Matrix _____	<u>SOLID</u>
	SAF No <u>F08-031</u>	

QC-BLANK #65890
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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

7094-004

Lab Control Sample

**LAB CONTROL SAMPLE**

SDG <u>7094</u> Contact <u>Melissa C. Mannion</u>  Lab sample id <u>R805145-04</u> Dept sample id <u>7094-004</u>	Client/Case no <u>Hanford</u> <u>SDG H3738</u> Contract No. <u>630</u>  Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F08-031</u>
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ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	594	19	6.04	400		H	612	24	97	84-116	80-120
Nickel 63	1040	28	14.7	30.0		NI_L	1100	44	95	83-117	80-120
Total Strontium	99.4	4.0	<u>2.05</u>	0.120		SR	93.2	3.7	107	81-119	80-120
Neptunium 237	52.0	4.2	0.193	1.00	B	NP	49.6	2.0	105	73-127	80-120
Americium 241	49.6	4.9	0.875	1.00		AM	51.0	2.0	97	81-119	80-120
Technetium 99	518	8.6	1.95	12.0		TC	545	22	95	80-120	80-120
Thorium 230	48.3	5.4	0.395	1.00		TH	47.2	1.9	102	78-122	80-120
Uranium 233/234	43.2	4.9	<u>2.23</u>	1.00		U	46.4	1.9	93	80-120	80-120
Uranium 235	34.5	4.2	0.560	1.00		U	37.8	1.5	91	79-121	80-120
Uranium 238	46.9	5.1	<u>2.11</u>	1.00		U	50.5	2.0	93	80-120	80-120
Plutonium 238	53.5	5.6	0.566	1.00		PU	58.5	2.3	91	81-119	80-120
Plutonium 239/240	60.4	6.2	0.566	1.00		PU	66.0	2.6	92	81-119	80-120
Cobalt 60	1.73	0.11	<u>0.051</u>	0.050		GAM	1.76	0.070	98	85-115	80-120
Cesium 137	2.08	0.098	0.056	0.100		GAM	1.90	0.076	110	85-115	80-120

216-B55 SupplementalCharacterization

QC-LCS #65889
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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

7094-006

B1VDT5

**DUPLICATE**

<u>SDG 7094</u>	<u>Client/Case no Hanford</u>	<u>SDG H3738</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
<u>DUPLICATE</u>	<u>ORIGINAL</u>	
<u>Lab sample id R805145-06</u>	<u>Lab sample id R805145-01</u>	<u>Client sample id B1VDT5</u>
<u>Dept sample id 7094-006</u>	<u>Dept sample id 7094-001</u>	<u>Location/Matrix C6743, I-003 SOLID</u>
	<u>Received 05/16/08</u>	<u>Collected/Weight 05/12/08 13:10 674 g</u>
<u>% solids 94.0</u>	<u>% solids 94.0</u>	<u>Custody/SAF No F08-031-167 F08-031</u>

ANALYTE	DUPLICATE		2σ ERR		MDA	RDL	QUALI-	TEST	ORIGINAL		2σ ERR		MDA	QUALI-	RPD	3σ	DER
	pCi/g	(COUNT)	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS		pCi/g	(COUNT)	pCi/g	(COUNT)	pCi/g	FIERS	%	TOT	σ
Tritium	-1.50	3.5	2.85	400	U	H		-0.593	3.4	2.85	U	-	-	-	0.4		
Nickel 63	0.696	9.1	15.4	30.0	U	NI_L		-4.60	8.7	15.1	U	-	-	-	0.8		
Total Strontium	18800	53	2.38	0.120		SR		18900	51	2.29		1	22	0.1			
Neptunium 237	0	0.15	0.228	1.00	U	NP		0.115	0.23	0.440	U	-	-	0.8			
Americium 241	0.102	0.41	0.978	1.00	U	AM		0	0.35	0.830	U	-	-	0.4			
Technetium 99	-0.310	0.65	1.66	12.0	U	TC		-0.339	0.61	1.84	U	-	-	0.1			
Thorium 228	1.10	0.53	0.504	1.00		TH		0.788	0.48	0.528		33	115	0.9			
Thorium 230	1.42	0.64	0.402	1.00		TH		1.06	0.48	0.301		29	98	0.9			
Thorium 232	0.998	0.43	0.402	1.00		TH		0.826	0.40	0.301		19	98	0.6			
Uranium 233/234	0.488	0.33	0.415	1.00		U		0.974	0.54	0.678		66	131	1.5			
Uranium 235	0.066	0.13	0.502	1.00	U	U		0.107	0.21	0.820	U	-	-	0.3			
Uranium 238	0.868	0.44	0.415	1.00		U		0.443	0.36	0.678	U	65	131	1.5			
Plutonium 238	-0.075	0.30	0.716	1.00	U	PU		-0.079	0.32	0.878	U	-	-	0			
Plutonium 239/240	0.149	0.15	0.571	1.00	U	PU		0	0.16	0.607	U	-	-	1.4			
Beryllium 7	U		30.5		U	GAM		U		35.0	U	-	-	0.2			
Potassium 40	10.5	1.7	1.55			GAM		10.7	2.2	1.97		2	42	0.1			
Cobalt 60	U		0.204	0.050	U	GAM		U		0.238	U	-	-	0.2			
Ruthenium 106	U		15.2		U	GAM		U		17.6	U	-	-	0.2			
Antimony 125	U		7.04		U	GAM		U		8.15	U	-	-	0.2			
Cesium 134	U		1.04		U	GAM		U		1.19	U	-	-	0.2			
Cesium 137	7340	7.0	2.78	0.100		GAM		7300	8.0	3.20		1	15	0.1			
Europium 152	U		6.08	0.100	U	GAM		U		7.07	U	-	-	0.2			
Europium 154	U		1.19	0.100	U	GAM		U		1.48	U	-	-	0.3			
Europium 155	U		4.39	0.100	U	GAM		U		5.09	U	-	-	0.2			
Niobium 94	U		0.700		U	GAM		U		0.818	U	-	-	0.2			
Radium 226	U		2.93		U	GAM		U		3.39	U	-	-	0.2			
Radium 228	U		2.81		U	GAM		U		3.02	U	-	-	0.1			

216-B55 SupplementalCharacterization

DUPLICATES

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3728

7094-006

B1VDT5

DUPLICATE, cont.

SDG <u>7094</u>		Client/Case no <u>Hanford</u>	<u>SDG H3738</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>	
<b>DUPLICATE</b>	<b>ORIGINAL</b>		
Lab sample id <u>R805145-06</u>	Lab sample id <u>R805145-01</u>	Client sample id <u>B1VDT5</u>	
Dept sample id <u>7094-006</u>	Dept sample id <u>7094-001</u>	Location/Matrix <u>C6743, I-003</u>	<u>SOLID</u>
	Received <u>05/16/08</u>	Collected/Weight <u>05/12/08 13:10</u>	<u>674 g</u>
% solids <u>94.0</u>	% solids <u>94.0</u>	Custody/SAF No <u>F08-031-167</u>	<u>F08-031</u>

QC-DUP#1 65891

DUPLICATES

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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**EBERLINE SERVICES / RICHMOND**

SAMPLE DELIVERY GROUP H3728

7094-001

B1VDT5

**DATA SHEET**

SDG 7094 Client/Case no Hanford SDG H3738  
 Contact Melissa C. Mannion Contract No. 630

Lab sample id R805145-01 Client sample id B1VDT5  
 Dept sample id 7094-001 Location/Matrix C6743, I-003 SOLID  
 Received 05/16/08 Collected/Weight 05/12/08 13:10 674 g  
 % solids 94.0 Custody/SAF No F08-031-167 F08-031

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.593	3.4	2.85	400	U	H
Nickel 63	13981-37-8	-4.60	8.7	15.1	30.0	U	NI_L
Total Strontium	SR-RAD	18900	51	2.29	0.120		SR
Neptunium 237	13994-20-2	0.115	0.23	0.440	1.00	U	NP
Americium 241	14596-10-2	0	0.35	0.830	1.00	U	AM
Technetium 99	14133-76-7	-0.339	0.61	1.84	12.0	U	TC
Thorium 228	14274-82-9	0.788	0.48	0.528	1.00		TH
Thorium 230	14269-63-7	1.06	0.48	0.301	1.00		TH
Thorium 232	TH-232	0.826	0.40	0.301	1.00		TH
Uranium 233/234	U-233/234	0.974	0.54	0.678	1.00		U
Uranium 235	15117-96-1	0.107	0.21	0.820	1.00	U	U
Uranium 238	U-238	0.443	0.36	0.678	1.00	U	U
Plutonium 238	13981-16-3	-0.079	0.32	0.878	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.16	0.607	1.00	U	PU
Beryllium 7	13966-02-4	U		35.0		U	GAM
Potassium 40	13966-00-2	10.7	2.2	1.97			GAM
Cobalt 60	10198-40-0	U		0.238	0.050	U	GAM
Ruthenium 106	13967-48-1	U		17.6		U	GAM
Antimony 125	14234-35-6	U		8.15		U	GAM
Cesium 134	13967-70-9	U		1.19		U	GAM
Cesium 137	10045-97-3	7300	8.0	3.20	0.100		GAM
Europium 152	14683-23-9	U		7.07	0.100	U	GAM
Europium 154	15585-10-1	U		1.48	0.100	U	GAM
Europium 155	14391-16-3	U		5.09	0.100	U	GAM
Niobium 94	14681-63-1	U		0.818		U	GAM
Radium 226	13982-63-3	U		3.39		U	GAM
Radium 228	15262-20-1	U		3.02		U	GAM

216-B55 SupplementalCharacterization

DATA SHEETS

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Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-DS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H3728**

7094-002

B1VDT9

**DATA SHEET**

SDG <u>7094</u>	Client/Case no <u>Hanford</u>	SDG <u>H3738</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R805145-02</u>	Client sample id <u>B1VDT9</u>	
Dept sample id <u>7094-002</u>	Location/Matrix <u>C6743, I-004</u>	<u>SOLID</u>
Received <u>05/16/08</u>	Collected/Weight <u>05/13/08 07:35</u>	<u>828 g</u>
% solids <u>97.0</u>	Custody/SAF No <u>F08-031-173</u>	<u>F08-031</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.283	<u>3.7</u>	3.00	400	U	H
Nickel 63	13981-37-8	0.708	2.0	3.30	30.0	U	NI_L
Total Strontium	SR-RAD	1.21	0.25	<u>0.236</u>	0.120		SR
Neptunium 237	13994-20-2	0	0.094	0.141	1.00	U	NP
Americium 241	14596-10-2	<u>-0.113</u>	0.11	0.432	1.00	U	AM
Technetium 99	14133-76-7	0.035	0.18	0.374	12.0	U	TC
Thorium 228	14274-82-9	0.942	0.46	0.417	1.00		TH
Thorium 230	14269-63-7	0.715	0.38	0.288	1.00		TH
Thorium 232	TH-232	0.940	0.38	0.288	1.00		TH
Uranium 233/234	U-233/234	0.548	0.22	0.210	1.00		U
Uranium 235	15117-96-1	0.033	0.066	0.254	1.00	U	U
Uranium 238	U-238	0.576	0.28	0.210	1.00		U
Plutonium 238	13981-16-3	0	0.13	0.321	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.033	0.067	0.256	1.00	U	PU
Beryllium 7	13966-02-4	U		0.308		U	GAM
Potassium 40	13966-00-2	17.8	1.0	0.338			GAM
Cobalt 60	10198-40-0	U		0.037	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.300		U	GAM
Antimony 125	14234-35-6	U		0.076		U	GAM
Cesium 134	13967-70-9	U		0.050		U	GAM
Cesium 137	10045-97-3	U		0.068	0.100	U	GAM
Europium 152	14683-23-9	U		0.089	0.100	U	GAM
Europium 154	15585-10-1	U		<u>0.123</u>	0.100	U	GAM
Europium 155	14391-16-3	U		0.084	0.100	U	GAM
Niobium 94	14681-63-1	U		0.031		U	GAM
Radium 226	13982-63-3	0.453	0.063	0.059			GAM
Radium 228	15262-20-1	0.687	0.14	0.131			GAM

216-B55 SupplementalCharacterization

Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

DATA SHEETS

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H3728**

7094-003

B1VDV5

**DATA SHEET**

SDG <u>7094</u>	Client/Case no <u>Hanford</u>	SDG <u>H3738</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R805145-03</u>	Client sample id <u>B1VDV5</u>	
Dept sample id <u>7094-003</u>	Location/Matrix <u>C6743, I-005</u>	<u>SOLID</u>
Received <u>05/16/08</u>	Collected/Weight <u>05/13/08 10:00</u>	<u>792 g</u>
% solids <u>98.0</u>	Custody/SAF No <u>F08-031-181</u>	<u>F08-031</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.909	3.5	2.92	400	U	H
Nickel 63	13981-37-8	0.654	1.9	3.22	30.0	U	NI_L
Total Strontium	SR-RAD	1.15	0.18	<u>0.186</u>	0.120		SR
Neptunium 237	13994-20-2	0.061	0.061	0.092	1.00	U	NP
Americium 241	14596-10-2	0	0.18	0.345	1.00	U	AM
Technetium 99	14133-76-7	-0.016	0.12	0.349	12.0	U	TC
Thorium 228	14274-82-9	1.42	0.47	0.366	1.00		TH
Thorium 230	14269-63-7	1.22	0.47	0.292	1.00		TH
Thorium 232	TH-232	1.41	0.47	0.292	1.00		TH
Uranium 233/234	U-233/234	0.683	0.29	0.180	1.00		U
Uranium 235	15117-96-1	0.029	0.057	0.218	1.00	U	U
Uranium 238	U-238	0.730	0.29	0.180	1.00		U
Plutonium 238	13981-16-3	0.076	0.15	0.243	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.051	0.194	1.00	U	PU
Beryllium 7	13966-02-4	U		0.275		U	GAM
Potassium 40	13966-00-2	17.8	0.75	0.319			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.236		U	GAM
Antimony 125	14234-35-6	U		0.067		U	GAM
Cesium 134	13967-70-9	U		0.047		U	GAM
Cesium 137	10045-97-3	U		0.033	0.100	U	GAM
Europium 152	14683-23-9	U		0.076	0.100	U	GAM
Europium 154	15585-10-1	U		<u>0.106</u>	0.100	U	GAM
Europium 155	14391-16-3	U		0.086	0.100	U	GAM
Niobium 94	14681-63-1	U		0.024		U	GAM
Radium 226	13982-63-3	0.611	0.062	0.058			GAM
Radium 228	15262-20-1	0.966	0.12	0.116			GAM

216-B55 SupplementalCharacterization

Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Client Hanford

Contract No. 630

Contract SDG H3738

Test AM Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

**LAB METHOD SUMMARY**

AMERICIUM 241 IN SOLIDS  
 ALPHA SPECTROSCOPY

**RESULTS**

LAB	RAW	SUF-		Americium
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	241
Preparation batch 6152-106				
R805145-01		7094-001	B1VDT5	U
R805145-02		7094-002	B1VDT9	U
R805145-03		7094-003	B1VDV5	U
R805145-04		7094-004	Lab Control Sample	ok
R805145-05		7094-005	Method Blank	U
R805145-06		7094-006	Duplicate (R805145-01)	- U

Nominal values and limits from method RDLs (pCi/g) 1.00  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 8.0 % Reference Lab Notebook #6152 pg. 106															
R805145-01		B1VDT5	0.830	0.200			49		142			32	06/12/08	06/13	SS-038
R805145-02		B1VDT9	0.432	0.500			39		141			31	06/12/08	06/13	SS-040
R805145-03		B1VDV5	0.345	0.500			42		142			31	06/12/08	06/13	SS-042
R805145-04		Lab Control Sample	0.875	0.200			61		145				06/12/08	06/13	SS-055
R805145-05		Method Blank	0.739	0.200			64		145				06/12/08	06/13	SS-056
R805145-06		Duplicate (R805145-01)	0.978	0.200			41		146			32	06/12/08	06/13	SS-061

Nominal values and limits from method 1.00 0.200 20-105 100 100 180

PROCEDURES REFERENCE AMCMISO\_IE\_PLATE\_AEA  
 SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7  
 CP-963 Americium and Curium in Water and Dissolved  
 Samples by Extraction Chromatography, rev 6  
 CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 0.700 ± 0.509  
 FOR 6 SAMPLES YIELD 49 ± 22

METHOD SUMMARIES

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Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test NP Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**LAB METHOD SUMMARY**

NEPTUNIUM IN SOLIDS  
 ALPHA SPECTROSCOPY

**RESULTS**

LAB	RAW	SUF-		Neptunium
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
				237
Preparation batch 6152-106				
R805145-01			7094-001	B1VDT5 U
R805145-02			7094-002	B1VDT9 U
R805145-03			7094-003	B1VDV5 U
R805145-04			7094-004	Lab Control Sample ok
R805145-05			7094-005	Method Blank <u>0.429</u>
R805145-06			7094-006	Duplicate (R805145-01) - U

Nominal values and limits from method RDLs (pCi/g) 1.00  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-					
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE	ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 14.8 % Reference Lab Notebook #6152 pg. 106																		
R805145-01			B1VDT5			0.440	0.200			77		130	30	06/10/08	06/11	SS-055		
R805145-02			B1VDT9			0.141	0.500			41		130	29	06/10/08	06/11	SS-056		
R805145-03			B1VDV5			0.092	0.500			59		130	29	06/10/08	06/11	SS-057		
R805145-04			Lab Control Sample			0.193	0.200			67		130		06/10/08	06/11	SS-058		
R805145-05			Method Blank			0.322	0.200			63		<u>96</u>		06/10/08	06/18	SS-060		
R805145-06			Duplicate (R805145-01)			0.228	0.200			70		130	30	06/10/08	06/11	SS-062		

Nominal values and limits from method 1.00 0.200 20-105 100 180

PROCEDURES REFERENCE NP237\_LLE\_PLATE\_AEA  
 SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7  
 CP-930 Neptunium from Solids and Water by Extraction Chromatography, rev 1  
 CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 0.236 ± 0.254  
 FOR 6 SAMPLES YIELD 63 ± 25

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-IMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test PU Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**LAB METHOD SUMMARY**

PLUTONIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

**RESULTS**

LAB	RAW	SUF-		Plutonium	Plutonium	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	238	239/240
Preparation batch 6152-106						
R805145-01			7094-001	B1VDT5	U	U
R805145-02			7094-002	B1VDT9	U	U
R805145-03			7094-003	B1VDV5	U	U
R805145-04			7094-004	Lab Control Sample	ok	ok
R805145-05			7094-005	Method Blank	U	U
R805145-06			7094-006	Duplicate (R805145-01)	- U	- U

Nominal values and limits from method RDLs (pCi/g) 1.00 1.00  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-		MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 8.0 % Reference Lab Notebook #6152 pg. 106																
R805145-01			B1VDT5	0.878	0.200			59		147			32	06/12/08	06/13	SS-062
R805145-02			B1VDT9	0.321	0.500			62		150			31	06/12/08	06/13	SS-063
R805145-03			B1VDV5	0.243	0.500			63		150			31	06/12/08	06/13	SS-064
R805145-04			Lab Control Sample	0.566	0.200			62		151				06/12/08	06/13	SS-065
R805145-05			Method Blank	0.716	0.200			65		148				06/12/08	06/13	SS-027
R805145-06			Duplicate (R805145-01)	0.716	0.200			59		148			32	06/12/08	06/13	SS-028

Nominal values and limits from method 1.00 0.200 20-105 100 100 180

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	0.573 ± 0.495
FOR 6 SAMPLES	YIELD	62 ± 5

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test TH Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**LAB METHOD SUMMARY**

THORIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

**RESULTS**

LAB RAW SUF-  
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Thorium 230

Preparation batch 6152-106

R805145-01	7094-001	B1VDT5	1.06
R805145-02	7094-002	B1VDT9	0.715
R805145-03	7094-003	B1VDV5	1.22
R805145-04	7094-004	Lab Control Sample	ok
R805145-05	7094-005	Method Blank	U
R805145-06	7094-006	Duplicate (R805145-01)	ok

Nominal values and limits from method RDLs (pCi/g) 1.00  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB RAW SUF- MAX MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-  
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 6152-106 2σ prep error 8.0 % Reference Lab Notebook #6152 pg. 106

R805145-01	B1VDT5	0.528	0.200	98	150	32	06/12/08	06/13	SS-055
R805145-02	B1VDT9	0.417	0.250	97	151	31	06/12/08	06/13	SS-062
R805145-03	B1VDV5	0.366	0.250	83	151	31	06/12/08	06/13	SS-064
R805145-04	Lab Control Sample	0.395	0.200	88	151		06/12/08	06/13	SS-065
R805145-05	Method Blank	0.485	0.200	74	151		06/12/08	06/13	SS-066
R805145-06	Duplicate (R805145-01)	0.504	0.200	81	152	32	06/12/08	06/13	SS-028

Nominal values and limits from method 1.00 0.200 20-105 150 180

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
SPP-061		Determination of Moisture Content in Solid Samples rev 0
SPP-070		Soil Dissolution, < 1.0g Aliquot, rev 7
CP-900		Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
CP-008		Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	<u>0.449</u> ± <u>0.131</u>
FOR 6 SAMPLES	YIELD	<u>87</u> ± <u>19</u>

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test U Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

**LAB METHOD SUMMARY**

URANIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**RESULTS**

LAB SAMPLE ID	RAW TEST	SUP- FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium			2: Uranium			3: Uranium			RESULT RATIOS (%)			
					233/234			235			238			1+3	2σ	2+3	2σ
Preparation batch 6152-106																	
R805145-01			7094-001	B1VDT5	0.974			U			U						
R805145-02			7094-002	B1VDT9	0.548			U			0.576		95	60	6	12	
R805145-03			7094-003	B1VDV5	0.683			U			0.730		94	54	4	8	
R805145-04			7094-004	Lab Control Sample	ok			ok			ok						
R805145-05			7094-005	Method Blank	U			U			U						
R805145-06			7094-006	Duplicate (R805145-01)	ok			-		U	ok		56	48	8	15	
Nominal values and limits from method					RDLs (pCi/g)	1.00		1.00			1.00		100			4	
216-B55 Supplemental Characterization													Averages	82		6	

**METHOD PERFORMANCE**

LAB SAMPLE ID	RAW TEST	SUP- FIX	CLIENT SAMPLE ID	MAX pCi/g	MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EPF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL-		
															PREPARED	YZED	DETECTOR
Preparation batch 6152-106																	
				2σ prep error	8.0 %	Reference Lab Notebook #6152 pg. 106											
R805145-01			B1VDT5	0.820	0.200				76		114			31	06/11/08	06/12	SS-040
R805145-02			B1VDT9	0.254	0.500				86		114			30	06/11/08	06/12	SS-042
R805145-03			B1VDV5	0.218	0.500				85		114			30	06/11/08	06/12	SS-036
R805145-04			Lab Control Sample	<u>2.23</u>	0.200				88		114				06/11/08	06/12	SS-038
R805145-05			Method Blank	0.496	0.200				87		122				06/11/08	06/12	SS-036
R805145-06			Duplicate (R805145-01)	0.502	0.200				91		122			31	06/11/08	06/12	SS-038
Nominal values and limits from method				1.00	0.200				20-105		100	100		180			

PROCEDURES REFERENCE UIISO\_PLATE\_AEA  
 SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7  
 CP-921 Uranium in Water and Dissolved Samples by  
 Extraction Chromatography, rev 1  
 CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 0.753 ± 1.51  
 FOR 6 SAMPLES YIELD 86 ± 10

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test SR Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

**LAB METHOD SUMMARY**

TOTAL STRONTIUM IN SOLIDS  
 BETA COUNTING

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**RESULTS**

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 6152-106				
R805145-01		7094-001	B1VDT5	18900
R805145-02		7094-002	B1VDT9	1.21
R805145-03		7094-003	B1VDV5	1.15
R805145-04		7094-004	Lab Control Sample	ok
R805145-05		7094-005	Method Blank	U
R805145-06		7094-006	Duplicate (R805145-01)	ok

Nominal values and limits from method RDLs (pCi/g) 0.120  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 10.4 % Reference Lab Notebook #6152 pg. 106															
R805145-01		B1VDT5	<u>2.29</u>	0.100			73		400			28	06/09/08	06/09	GRB-225
R805145-02		B1VDT9	<u>0.236</u>	1.00			88		400			27	06/09/08	06/09	GRB-226
R805145-03		B1VDV5	<u>0.186</u>	1.00			88		400			27	06/09/08	06/09	GRB-227
R805145-04		Lab Control Sample	<u>2.05</u>	0.100			76		400				06/09/08	06/09	GRB-230
R805145-05		Method Blank	<u>2.01</u>	0.100			75		400				06/09/08	06/09	GRB-228
R805145-06		Duplicate (R805145-01)	<u>2.38</u>	0.100			70		400			28	06/09/08	06/09	GRB-229

Nominal values and limits from method 0.120 0.100 30-105 100 180

PROCEDURES REFERENCE SRTOT\_SEP\_PRECIP\_GPC  
 SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 5  
 CP-381 Strontium in Solids, rev 1

AVERAGES ± 2 SD MDA 1.53 ± 2.06  
 FOR 6 SAMPLES YIELD 78 ± 16

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test TC Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

**LAB METHOD SUMMARY**

TECHNETIUM 99 IN SOLIDS  
 BETA COUNTING

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**RESULTS**

LAB	RAW	SUF-	Technetium	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
Preparation batch 6152-106				
R805145-01			7094-001	B1VDT5
R805145-02			7094-002	B1VDT9
R805145-03			7094-003	B1VDV5
R805145-04			7094-004	Lab Control Sample
R805145-05			7094-005	Method Blank
R805145-06			7094-006	Duplicate (R805145-01)

Nominal values and limits from method RDLs (pCi/g) 12.0  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-			
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 13.2 % Reference Lab Notebook #6152 pg. 106																
R805145-01			B1VDT5	1.84	0.200			96	100			28	06/05/08	06/09	GRB-228	
R805145-02			B1VDT9	0.374	1.00			104	100			28	06/05/08	06/10	GRB-201	
R805145-03			B1VDV5	0.349	1.00			100	100			28	06/05/08	06/10	GRB-202	
R805145-04			Lab Control Sample	1.95	0.200			98	100				06/05/08	06/09	GRB-231	
R805145-05			Method Blank	2.08	0.200			83	100				06/05/08	06/10	GRB-203	
R805145-06			Duplicate (R805145-01)	1.66	0.200			94	150			28	06/05/08	06/09	GRB-201	

Nominal values and limits from method 12.0 0.200 20-105 50 180

PROCEDURES REFERENCE TC99\_TR\_SEP\_GPC  
 SPP-062 Sample Aliquoting, rev 0  
 CP-431 Technetium-99 Purification of Soil or Resin by  
 Extraction Chromatography, rev 2  
 CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 1.38 ± 1.59  
 FOR 6 SAMPLES YIELD 96 ± 14

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Test GAM Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**LAB METHOD SUMMARY**

GAMMA SCAN  
 GAMMA SPECTROSCOPY

**RESULTS**

LAB	RAW	SUF-				
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137	
Preparation batch 6152-106						
R805145-01		7094-001	B1VDT5	U	7300	
R805145-02		7094-002	B1VDT9	U	U	
R805145-03		7094-003	B1VDV5	U	U	
R805145-04		7094-004	Lab Control Sample	ok	ok	
R805145-05		7094-005	Method Blank	U	U	
R805145-06		7094-006	Duplicate (R805145-01)	- U	ok	

Nominal values and limits from method RDLs (pCi/g) 0.050 0.100  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 7.0 % Reference Lab Notebook #6152 pg. 106															
R805145-01		B1VDT5	<u>486</u>	247					104			23	05/29/08	06/04	JR,05,00
R805145-02		B1VDT9	<u>8.35</u>	656					120			22	05/29/08	06/04	MB,06,00
R805145-03		B1VDV5	<u>6.11</u>	629					120			22	05/29/08	06/04	MB,07,00
R805145-04		Lab Control Sample	<u>0.051</u>	246					120				05/29/08	06/04	MB,08,00
R805145-05		Method Blank	<u>9.24</u>	246					102				05/29/08	06/04	01,01,00
R805145-06		Duplicate (R805145-01)	<u>420</u>	247					141			24	05/29/08	06/05	JR,05,00
Nominal values and limits from method			0.050	246					100						180

PROCEDURES REFERENCE GAMMA\_GS  
 SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 155 ± 464  
 FOR 6 SAMPLES YIELD \_\_\_\_\_ ± \_\_\_\_\_

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

**LAB METHOD SUMMARY**

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Test H Matrix SOLID  
 SDG 7094  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG H3738

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Tritium
Preparation batch 6152-106					
R805145-01		7094-001	B1VDT5		U
R805145-02		7094-002	B1VDT9		U
R805145-03		7094-003	B1VDV5		U
R805145-04		7094-004	Lab Control Sample		ok
R805145-05		7094-005	Method Blank		U
R805145-06		7094-006	Duplicate (R805145-01)		- U

Nominal values and limits from method RDLs (pCi/g) 400  
 216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 10.0 % Reference Lab Notebook #6152 pg. 106															
R805145-01		B1VDT5	2.85	0.438			100		100			24	06/03/08	06/05	LSC-005
R805145-02		B1VDT9	3.00	0.422			100		100			23	06/03/08	06/05	LSC-005
R805145-03		B1VDV5	2.92	0.430			100		100			23	06/03/08	06/05	LSC-005
R805145-04		Lab Control Sample	6.04	0.400			100		<u>23</u>				06/03/08	06/05	LSC-005
R805145-05		Method Blank	3.13	0.400			100		100				06/03/08	06/05	LSC-005
R805145-06		Duplicate (R805145-01)	2.85	0.440			100		100			24	06/03/08	06/05	LSC-005

Nominal values and limits from method 400 0.400 25 180

PROCEDURES REFERENCE TRITIUM\_COX\_LSC  
 CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 3.46 ± 2.53  
 FOR 6 SAMPLES YIELD 100 ± 0

Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 06/19/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3728

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract <u>SDG H3738</u>

Test <u>NI L Matrix SOLID</u>
SDG <u>7094</u>
Contact <u>Melissa C. Mannion</u>

**LAB METHOD SUMMARY**

NICKEL 63 IN SOLIDS  
LIQUID SCINTILLATION COUNTING

**RESULTS**

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
Preparation batch 6152-106				
R805145-01		7094-001	B1VDT5	U
R805145-02		7094-002	B1VDT9	U
R805145-03		7094-003	B1VDV5	U
R805145-04		7094-004	Lab Control Sample	ok
R805145-05		7094-005	Method Blank	U
R805145-06		7094-006	Duplicate (R805145-01)	- U

Nominal values and limits from method RDLs (pCi/g) 30.0  
216-B55 Supplemental Characterization

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6152-106 2σ prep error 11.2 % Reference Lab Notebook #6152 pg. 106															
R805145-01		B1VDT5	15.1	0.100			97		50			32	06/10/08	06/13	LSC-004
R805145-02		B1VDT9	3.30	0.500			90		50			31	06/10/08	06/13	LSC-004
R805145-03		B1VDV5	3.22	0.500			92		50			31	06/10/08	06/13	LSC-004
R805145-04		Lab Control Sample	14.7	0.100			99		50				06/10/08	06/13	LSC-004
R805145-05		Method Blank	15.3	0.100			97		50				06/10/08	06/13	LSC-004
R805145-06		Duplicate (R805145-01)	15.4	0.100			96		50			32	06/10/08	06/13	LSC-004

Nominal values and limits from method 30.0 0.100 30-105 25 180

PROCEDURES	REFERENCE	NI63_LSC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD	MDA	<u>11.2</u> ± <u>12.3</u>
FOR 6 SAMPLES	YIELD	<u>95</u> ± <u>7</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LMS</u>
Version <u>3.06</u>
Report date <u>06/19/08</u>

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3728

SDG 7094  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG\_H3738

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SUMMARY DATA SECTION

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3728

SDG 7094  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG\_H3738

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SDG 7094  
Contact Melissa C. Mannion

REPORT GUIDE

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

\* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.  
  
If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

\* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

\* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

\* Aliquots are underlined if less than the nominal value specified for the method.

\* Preparation factors are underlined if greater than the nominal value specified for the method.

\* Dilution factors are underlined if greater than the nominal value specified for the method.

\* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

\* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

\* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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Lab id EBRLNE

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METHOD SUMMARY

- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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SUMMARY DATA SECTION

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-031-167	PAGE 1 OF 1	
<b>COLLECTOR</b> NCO Sampler <i>Kauer, Rosane, McIntyre</i>		<b>COMPANY CONTACT</b> TRENT, SJ		<b>TELEPHONE NO.</b> 373-5869	<b>PROJECT COORDINATOR</b> WIDRIG, DL	<b>PRICE CODE</b> 8N	<b>DATA TURNAROUND</b> 45 Days / 45 Days	
<b>SAMPLING LOCATION</b> C6743, I-003		<b>PROJECT DESIGNATION</b> 216-B-55 Supplemental Characterization <i>H3738 (7094)</i>			<b>SAF NO.</b> F08-031	<b>AIR QUALITY</b> <input type="checkbox"/>		
<b>ICE CHEST NO.</b> <i>GRP-08-02</i>		<b>FIELD LOGBOOK NO.</b> <i>HNF-N-583-1</i>	<b>ACTUAL SAMPLE DEPTH</b> <i>17.3' to 19.8'</i>	<b>COA</b> 123055J278	<b>METHOD OF SHIPMENT</b> FEDERAL EXPRESS			
<b>SHIPPED TO</b> Eberline Services		<b>OFFSITE PROPERTY NO.</b> SEE PTR			<b>BILL OF LADING/AIR BILL NO.</b> SEE PTR			
<b>MATRIX*</b> A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		<b>PRESERVATION</b> None				
		<b>TYPE OF CONTAINER</b>	Square Bottle - Poly					
		<b>NO. OF CONTAINER(S)</b>	1					
		<b>VOLUME</b>	500mL					
<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1VDT2 or B1TFM4		<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS					
<b>SAMPLE NO.</b>	<b>MATRIX*</b>	<b>SAMPLE DATE</b>	<b>SAMPLE TIME</b>					
B1VDT5	SOIL	05-12-08	1310	✓				
<b>CHAIN OF POSSESSION</b>		<b>SIGN/ PRINT NAMES</b>			<b>SPECIAL INSTRUCTIONS</b>			
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	<b>** TestAmerica St Louis is the primary lab for all chemical analyses with the exception of Anions by method 300.0</b> <b>** The 200 Area S&amp;GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.</b> <b>** Analytical batch QC must be run on a sample associated with this SAF.</b> (1)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Gamma Spec - Add-on {Niobium-94, Radium-226, Radium-228} Isotopic Uranium; Neptunium-237; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Americium-241 {Americium-241} Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}		
<i>Ed Kauer / Ed Kauer</i>		<i>5-12-08 1355</i>	<i>B-55 Site REF</i>		<i>5-12-08 1355</i>			
<i>B-55 Site FRIG</i>		<i>5-14-08 1100</i>	<i>Ed Kauer / Ed Kauer</i>		<i>5-14-08 1100</i>			
<i>Ed Kauer / Ed Kauer</i>		<i>5-14-08 1230</i>	<i>MO 745 REF #3</i>		<i>5-14-08 1230</i>			
<i>MO 745 REF #3</i>		<i>5/15/08 11:00</i>	<i>Beatehn DuBate</i>		<i>5/15/08 11:00</i>			
<i>DW B... / Beatehn</i>		<i>5/15/08 13:00</i>	<i>FED EX</i>					
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME			
<i>FED EX</i>			<i>MO 05/16/08</i>		<i>09:30</i>			
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME			
<b>LABORATORY SECTION</b>	<b>RECEIVED BY</b>				<b>TITLE</b>	<b>DATE/TIME</b>		
<b>FINAL SAMPLE DISPOSITION</b>	<b>DISPOSAL METHOD</b>				<b>DISPOSED BY</b>	<b>DATE/TIME</b>		

<b>COLLECTOR</b> NCO Sampler <i>Kausa, Rosane, McIntyre</i>	<b>COMPANY CONTACT</b> TRENT, SJ	<b>TELEPHONE NO.</b> 373-5869	<b>PROJECT COORDINATOR</b> WIDRIG, DL	<b>PRICE CODE</b> 8N	<b>DATA TURNAROUND</b> 45 Days / 45 Days
<b>SAMPLING LOCATION</b> C6743, I-004	<b>PROJECT DESIGNATION</b> 216-B-55 Supplemental Characterization <i>H3738 (7094)</i>		<b>SAF NO.</b> F08-031	<b>AIR QUALITY</b> <input type="checkbox"/>	
<b>ICE CHEST NO.</b> <i>GRP-08-02</i>	<b>FIELD LOGBOOK NO.</b> <i>HNF-N-583-1</i>	<b>ACTUAL SAMPLE DEPTH</b> <i>27.5'-30'</i>	<b>COA</b> 123055J278	<b>METHOD OF SHIPMENT</b> FEDERAL EXPRESS	
<b>SHIPPED TO</b> Eberline Services	<b>OFFSITE PROPERTY NO.</b> SEE PTR		<b>BILL OF LADING/AIR BILL NO.</b> SEE PTR		

<b>MATRIX*</b> A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	<b>PRESERVATION</b>	None										
		<b>TYPE OF CONTAINER</b>	Square Bottle - Poly										
		<b>NO. OF CONTAINER(S)</b>	1										
		<b>VOLUME</b>	500mL										
	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1VDT6 or B1TFM2	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS										

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B1VDT9	SOIL	5-13-08	0735	✓								

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>ARMcIntyre/GRP/af</i>	DATE/TIME 5-13-08 0830	RECEIVED BY/STORED IN <i>B-55 site Ref</i>
RELINQUISHED BY/REMOVED FROM <i>B-55 site Ref</i>	DATE/TIME 5/14/08 1100	RECEIVED BY/STORED IN <i>ARMcIntyre/GRP/af</i>
RELINQUISHED BY/REMOVED FROM <i>ARMcIntyre/GRP/af</i>	DATE/TIME 5/14/08 1230	RECEIVED BY/STORED IN <i>M0-745 REF #1</i>
RELINQUISHED BY/REMOVED FROM <i>M0745 REF #1</i>	DATE/TIME 5/15/08 11:00	RECEIVED BY/STORED IN <i>DWBooth/Heal/Boston</i>
RELINQUISHED BY/REMOVED FROM <i>DWBooth/Heal/Boston</i>	DATE/TIME 5/15/08 1300	RECEIVED BY/STORED IN <i>KFD Ex</i>
RELINQUISHED BY/REMOVED FROM <i>FED EX</i>	DATE/TIME	RECEIVED BY/STORED IN <i>[Signature]</i>
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN <i>[Signature]</i>

**SPECIAL INSTRUCTIONS**  
 \*\* Lionville is the primary laboratory for Chrome VI and anions analyses.  
 \*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
 \*\* Analytical batch QC must be run on a sample associated with this SAF.  
 (1)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Gamma Spec - Add-on {Niobium-94, Radium-226, Radium-228} Isotopic Uranium; Neptunium-237; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Americium-241 {Americium-241} Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

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

<b>Fluor Hanford Inc.</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>			<b>F08-031-181</b>	<b>PAGE 1 OF 1</b>
<b>COLLECTOR</b> NCO Sampler <i>Karin, Rosane, McIntyre</i>		<b>COMPANY CONTACT</b> TRENT, SJ	<b>TELEPHONE NO.</b> 373-5869	<b>PROJECT COORDINATOR</b> WIDRIG, DL	<b>PRICE CODE</b> 8N	<b>DATA TURNAROUND</b> 45 Days / 45 Days
<b>SAMPLING LOCATION</b> C6743, I-005		<b>PROJECT DESIGNATION</b> 216-B-55 Supplemental Characterization <i>H3738 (7094)</i>		<b>SAF NO.</b> F08-031	<b>AIR QUALITY</b> <input type="checkbox"/>	
<b>ICE CHEST NO.</b> <i>GRP-08-02</i>		<b>FIELD LOGBOOK NO.</b> <i>P52</i> <i>HNF-N-583-1</i>	<b>ACTUAL SAMPLE DEPTH</b> <i>47.8' - 50.3'</i>	<b>COA</b> 1230553278	<b>METHOD OF SHIPMENT</b> FEDERAL EXPRESS	
<b>SHIPPED TO</b> Eberline Services		<b>OFFSITE PROPERTY NO.</b> SEE PTR		<b>BILL OF LADING/AIR BILL NO.</b> SEE PTR		

<b>MATRIX*</b> A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	<b>PRESERVATION</b>	None																		
		<b>TYPE OF CONTAINER</b>	Square Bottle - Poly																		
		<b>NO. OF CONTAINER(S)</b>	1																		
		<b>VOLUME</b>	500mL																		
	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1VDV2 or B1TFM6	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS																		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME																		
B1VDV5	SOIL	5-13-08	1000	✓	✓																

<b>CHAIN OF POSSESSION</b>				<b>SIGN/ PRINT NAMES</b>				<b>SPECIAL INSTRUCTIONS</b>											
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		** TestAmerica St Louis is the primary lab for all chemical analyses with the exception of Anions by method 300.0 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** Analytical batch QC must be run on a sample associated with this SAF. (1)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Gamma Spec - Add-on {Niobium-94, Radium-226, Radium-228} Isotopic Uranium; Neptunium-237; Strontium-89,90 -- Total Sr; Isotopic Plutonium; Americium-241 {Americium-241} Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}											
<i>ARMcIntyre/ARupf</i>		<i>5-13-08 1045</i>		<i>B-55 site Ref</i>		<i>5-13-08 1045</i>													
<i>B-55 site Ref</i>		<i>5/14/08 1100</i>		<i>ARMcIntyre/ARupf</i>		<i>5/14/08 1100</i>													
<i>ARMcIntyre/Way</i>		<i>5/14/08 1230</i>		<i>MO 745 Ref</i>		<i>5/14/08 1230</i>													
<i>MO 745 Ref</i>		<i>5/15/08 1100</i>		<i>DuBard/DuBard</i>		<i>5/15/08 1100</i>													
<i>DuBard/DuBard</i>		<i>5/15/08 13:00</i>		<i>FED EX</i>															
<i>FED EX</i>				<i>Mary</i>		<i>05/16/08 09:30</i>													
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		TITLE											
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		DATE/TIME											
<b>LABORATORY SECTION</b>		<b>RECEIVED BY</b>		<b>DISPOSAL METHOD</b>		<b>DISPOSED BY</b>		<b>DATE/TIME</b>											
<b>FINAL SAMPLE DISPOSITION</b>		<b>DISPOSAL METHOD</b>		<b>DISPOSED BY</b>		<b>DATE/TIME</b>													



**RICHMOND, CA LABORATORY**  
SAMPLE RECEIPT CHECKLIST

*JK 5/16/08*

Client: FLUOR HANFORD City RICHMOND State WA  
 Date/Time received 05/16/08 09:00 CoC No. F08-031-167, 173, 181  
 Container I.D. No. GRP 08-02 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

**INSPECTION**

1. Custody seals on shipping container intact? Yes [] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry []
6. Number of samples in shipping container: 3 Sample Matrix S
7. Number of containers per sample: 1 (Or see CoC         )
8. Samples are in correct container Yes [] No [ ]
9. Paperwork agrees with samples? Yes [] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels []
11. Samples are: In good condition [] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH          Preservative
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date
15. Inspected by MFW Date: 05/16/08 Time: 10:45

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
BIVDT5	13,000						
OTHERS	< 60						

Ion Chamber Ser. No.          Calibration date           
 Alpha Meter Ser. No.          Calibration date           
 Beta/Gamma Meter Ser. No. 113722 Calibration date 13 SEP 08