EBERLINE SERVICES

0077812
Part 1 of 2

September 6, 2007

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

Reference: **P.O. #630**
Eberline Services R7-07-083-7667, SDG H3546

Dear Mr. Trent:

Enclosed is the data report for two solid (soil) samples designated under SAF No. F07-043 received at Eberline Services on July 16, 2007. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

RECEIVED
JUN 11 2008
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2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
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0000001

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3546 was composed of two solid (soil) samples designated under SAF No. H3546 with a Project Designation of: 216-A-2 and 216-A-21 Characterization Sampling and Analysis-Soil.

Due to the high activity of the samples very small aliquots were taken for chemistry; as a consequence most MDA's were greater than their respective RDL's.

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 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.6 Iodine-129 Analysis

No problems were encountered during the course of the analyses.

2.7 Total Uranium Analysis

No problems were encountered during the course of the analyses.

2.8 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.9 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.10 Americium-241 Analysis

No problems were encountered during the course of the analyses.

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H3546

SDG 7667	Client Hanford
Contact Melissa C. Mannion	Contract No. 630
	Case no SDG H3546

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

T A B L E O F C O N T E N T S

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Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/06/07

SDG 7667
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3546

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/06/07

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.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3546

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R707083-01	B1NT07	C5515, I-006	SOLID		F07-043	F07-043-010	06/27/07 10:55
R707083-02	B1NRH1	C5515, I-006	SOLID		F07-043	F07-043-014	06/27/07 10:55
R707083-03	Lab Control Sample		SOLID		F07-043		
R707083-04	Method Blank		SOLID		F07-043		
R707083-05	Duplicate (R707083-02)	C5515, I-006	SOLID		F07-043		06/27/07 10:55

Lab id EBERLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3546

: BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
;67	F07-043-010	B1NT07	SOLID	97.2	736 g		07/16/07	19	R707083-01	7667-001
	F07-043-014	B1NRH1	SOLID	98.1	745 g		07/16/07	19	R707083-02	7667-002
		Method Blank	SOLID						R707083-04	7667-004
		Lab Control Sample	SOLID						R707083-03	7667-003
		Duplicate (R707083-02)	SOLID	98.1	745 g		07/16/07	19	R707083-05	7667-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3546

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Solids	6116-113	5.0	2			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6116-113	5.0	2			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6116-113	5.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6116-113	10.0	2			1	1	1/1		
TC	SOLID	Technetium 99 in Solids	6116-113	10.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6116-113	15.0	2			1	1	1/1		
I	SOLID	Iodine 129 in Solids	6116-113	10.0	2			1	1	1/1		
Kinetic Phosphorimetry, ug												
U_T	SOLID	Uranium, Total in Solids	6116-113	9.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6116-113	10.0	2			1	1	1/1		
H	SOLID	Tritium in Solids	6116-113	10.0	2			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6116-113	10.0	2			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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3546

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
707083-01	B1NT07			7667-001	AM		08/23/07	08/27/07	BW	Americium 241 in Solids
06/27/07	C5515, I-006		SOLID	7667-001	C		08/28/07	08/30/07	BW	Carbon 14 in Solids
07/16/07	F07-043-010	F07-043		7667-001	GAM		08/15/07	08/16/07	CSS	Gamma Scan
				7667-001	H		08/29/07	09/04/07	BW	Tritium in Solids
				7667-001	I		08/30/07	09/04/07	BW	Iodine 129 in Solids
				7667-001	NI_L		08/18/07	08/23/07	BW	Nickel 63 in Solids
				7667-001	PU		08/22/07	08/22/07	BW	Plutonium, Isotopic in Solids
				7667-001	SR		08/17/07	08/22/07	BW	Total Strontium in Solids
				7667-001	TC		08/25/07	08/29/07	BW	Technetium 99 in Solids
				7667-001	U		08/22/07	08/22/07	BW	Uranium, Isotopic in Solids
				7667-001	U_T		08/24/07	08/24/07	MWT	Uranium, Total in Solids
707083-02	B1NRH1			7667-002	AM		08/23/07	08/27/07	BW	Americium 241 in Solids
06/27/07	C5515, I-006		SOLID	7667-002	C		08/28/07	08/30/07	BW	Carbon 14 in Solids
07/16/07	F07-043-014	F07-043		7667-002	GAM		08/15/07	08/16/07	CSS	Gamma Scan
				7667-002	H		08/29/07	09/04/07	BW	Tritium in Solids
				7667-002	I		08/30/07	09/04/07	BW	Iodine 129 in Solids
				7667-002	NI_L		08/18/07	08/23/07	BW	Nickel 63 in Solids
				7667-002	PU		08/22/07	08/22/07	BW	Plutonium, Isotopic in Solids
				7667-002	SR		08/17/07	08/22/07	BW	Total Strontium in Solids
				7667-002	TC		08/28/07	08/29/07	BW	Technetium 99 in Solids
				7667-002	U		08/22/07	08/22/07	BW	Uranium, Isotopic in Solids
				7667-002	U_T		08/24/07	08/24/07	MWT	Uranium, Total in Solids
707083-03	Lab Control Sample			7667-003	AM		08/23/07	08/27/07	BW	Americium 241 in Solids
			SOLID	7667-003	C		08/29/07	08/30/07	BW	Carbon 14 in Solids
		F07-043		7667-003	GAM		08/15/07	08/16/07	CSS	Gamma Scan
				7667-003	H		08/29/07	09/04/07	BW	Tritium in Solids
				7667-003	I		08/31/07	09/04/07	BW	Iodine 129 in Solids
				7667-003	NI_L		08/18/07	08/23/07	BW	Nickel 63 in Solids
				7667-003	PU		08/22/07	08/22/07	BW	Plutonium, Isotopic in Solids
				7667-003	SR		08/17/07	08/22/07	BW	Total Strontium in Solids
				7667-003	TC		08/27/07	08/29/07	BW	Technetium 99 in Solids
				7667-003	U		08/22/07	08/22/07	BW	Uranium, Isotopic in Solids
				7667-003	U_T		08/24/07	08/24/07	MWT	Uranium, Total in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H3546

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
707083-04	Method Blank			7667-004	AM		08/23/07	08/27/07	BW	Americium 241 in Solids
			SOLID	7667-004	C		08/28/07	08/30/07	BW	Carbon 14 in Solids
		F07-043		7667-004	GAM		08/15/07	08/16/07	CSS	Gamma Scan
				7667-004	H		08/29/07	09/04/07	BW	Tritium in Solids
				7667-004	I		08/31/07	09/04/07	BW	Iodine 129 in Solids
				7667-004	NI_L		08/18/07	08/23/07	BW	Nickel 63 in Solids
				7667-004	PU		08/22/07	08/22/07	BW	Plutonium, Isotopic in Solids
				7667-004	SR		08/17/07	08/22/07	BW	Total Strontium in Solids
				7667-004	TC		08/28/07	08/29/07	BW	Technetium 99 in Solids
				7667-004	U		08/22/07	08/22/07	BW	Uranium, Isotopic in Solids
				7667-004	U_T		08/24/07	08/24/07	MWT	Uranium, Total in Solids
707083-05	Duplicate (R707083-02)			7667-005	AM		08/23/07	08/27/07	BW	Americium 241 in Solids
06/27/07	C5515, I-006		SOLID	7667-005	C		08/28/07	08/30/07	BW	Carbon 14 in Solids
07/16/07		F07-043		7667-005	GAM		08/15/07	08/16/07	CSS	Gamma Scan
				7667-005	H		08/29/07	09/04/07	BW	Tritium in Solids
				7667-005	I		08/31/07	09/04/07	BW	Iodine 129 in Solids
				7667-005	NI_L		08/18/07	08/23/07	BW	Nickel 63 in Solids
				7667-005	PU		08/22/07	08/22/07	BW	Plutonium, Isotopic in Solids
				7667-005	SR		08/17/07	08/22/07	BW	Total Strontium in Solids
				7667-005	TC		08/27/07	08/29/07	BW	Technetium 99 in Solids
				7667-005	U		08/22/07	08/22/07	BW	Uranium, Isotopic in Solids
				7667-005	U_T		08/24/07	08/24/07	MWT	Uranium, Total in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

SDG 7667
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H3546

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	F07-043	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	2			1	1	1	5
C	F07-043	Carbon 14 in Solids	C14_COX_LSC	2			1	1	1	5
GAM	F07-043	Gamma Scan	GAMMA_GS	2			1	1	1	5
H	F07-043	Tritium in Solids	TRITIUM_COX_LSC	2			1	1	1	5
I	F07-043	Iodine 129 in Solids	II29_SEP_LEPS_GS	2			1	1	1	5
NI_L	F07-043	Nickel 63 in Solids	NI63_LSC	2			1	1	1	5
PU	F07-043	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2			1	1	1	5
SR	F07-043	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TC	F07-043	Technetium 99 in Solids	TC99_TR_SEP_GPC	2			1	1	1	5
U	F07-043	Uranium, Isotopic in Solids	UISO_PLATE_AEA	2			1	1	1	5
U_T	F07-043	Uranium, Total in Solids	UTOT_KPA	2			1	1	1	5
TOTALS				22			11	11	11	55

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-004 Method Blank

METHOD BLANK

SDG	7667	Client/Case no	Hanford	SDG H3546	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R707083-04	Client sample id	Method Blank		
Dept sample id	7667-004	Material/Matrix		SOLID	
		SAF No	F07-043		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-14.3	24	42.2	400	U	H
Carbon 14	14762-75-5	7.50	22	37.6	50.0	U	C
Nickel 63	13981-37-8	5.18	45	76.8	30.0	U	NI_L
Total Strontium	SR-RAD	1.07	5.5	9.84	1.00	U	SR
Americium 241	14596-10-2	-2.60	5.2	19.9	1.00	U	AM
Technetium 99	14133-76-7	-0.002	1.5	5.12	15.0	U	TC
Total Uranium (ug/g)	7440-61-1	0	0.008	0.018	1.00	U	U_T
Uranium 233/234	U-233/234	0.652	1.3	4.99	1.00	U	U
Uranium 235	15117-96-1	0	1.6	6.04	1.00	U	U
Uranium 238	U-238	0.652	1.3	4.99	1.00	U	U
Plutonium 238	13981-16-3	0	4.2	9.32	1.00	U	PU
Plutonium 239/240	PU-239/240	0	1.4	5.32	1.00	U	PU
Iodine 129	15046-84-1	1.49	5.2	11.8	2.00	U	I
Potassium 40	13966-00-2	U		1.73		U	GAM
Cobalt 60	10198-40-0	U		0.065	0.050	U	GAM
Cesium 137	10045-97-3	U		0.076	0.100	U	GAM
Radium 226	13982-63-3	U		0.145	0.100	U	GAM
Radium 228	15262-20-1	U		0.300	0.200	U	GAM
Europium 152	14683-23-9	U		0.186	0.100	U	GAM
Europium 154	15585-10-1	U		0.209	0.100	U	GAM
Europium 155	14391-16-3	U		0.161	0.100	U	GAM
Thorium 228	14274-82-9	U		0.101		U	GAM
Thorium 232	TH-232	U		0.300		U	GAM
Uranium 235	15117-96-1	U		0.239		U	GAM
Uranium 238	U-238	U		7.44		U	GAM
Americium 241	14596-10-2	U		0.228		U	GAM

216A2/216A21CharactrztnSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-004 **Method Blank**

BLANK, cont.

SDG	7667	Client/Case no	Hanford	SDG H3546	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R707083-04	Client sample id	Method Blank		
Dept sample id	7667-004	Material/Matrix		SOLID	
		SAF No	F07-043		

QC-BLANK 62413

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7667

Contact Melissa C. Mannion

Client/Case no Hanford SDG H3546

Contract No. 630

Lab sample id R707083-03

Dept sample id 7667-003

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No F07-043

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	6080	120	40.5	400		H	6400	260	95	84-116	80-120
Carbon 14	16300	150	36.2	50.0		C	16000	640	102	84-116	80-120
Nickel 63	5380	140	77.3	30.0		NI_L	5550	220	97	84-116	80-120
Total Strontium	487	23	10.5	1.00		SR	475	19	102	82-118	80-120
Americium 241	257	50	12.3	1.00		AM	252	10	102	69-131	80-120
Technetium 99	1030	35	5.32	15.0		TC	1090	44	94	84-116	80-120
Total Uranium (ug/g)	88.5	11	0.183	1.00		U_T	82.5	3.3	107	75-125	80-120
Uranium 233/234	481	57	23.9	1.00		U	464	19	104	79-121	80-120
Uranium 235	340	45	6.54	1.00		U	378	15	90	80-120	80-120
Uranium 238	489	57	22.9	1.00		U	505	20	97	81-119	80-120
Plutonium 238	585	55	6.72	1.00		PU	590	24	99	83-117	80-120
Plutonium 239/240	636	58	4.65	1.00		PU	660	26	96	84-116	80-120
Iodine 129	1230	15	16.1	2.00		I	1160	46	106	83-117	80-120
Cobalt 60	2.20	0.17	0.097	0.050		GAM	2.18	0.087	101	74-126	80-120
Cesium 137	2.24	0.16	0.121	0.100		GAM	2.17	0.087	103	74-126	80-120

216A2/216A21CharactrztnSamp&Ana-Soil

QC-LCS 62412

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-005

B1NRH1

DUPLICATE

SDG	7667			Client/Case no	Hanford SDG H3546
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R707083-05	Lab sample id	R707083-02	Client sample id	B1NRH1
Dept sample id	7667-005	Dept sample id	7667-002	Location/Matrix	C5515, I-006 SOLID
		Received	07/16/07	Collected/Weight	06/27/07 10:55 745 g
% solids	98.1	% solids	98.1	Custody/SAF No	F07-043-014 F07-043

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	-15.2	21	37.0	400	U	H	-11.6	21	37.5	U	-		0.2
Carbon 14	7.59	18	30.7	50.0	U	C	12.4	19	31.0	U	-		0.4
Nickel 63	15.5	48	81.1	30.0	U	NI_L	27.2	44	73.4	U	-		0.4
Total Strontium	19800	170	15.6	1.00		SR	18700	220	19.4		6	21	0.8
Americium 241	1080	210	26.3	1.00		AM	1140	210	23.6		5	42	0.4
Technetium 99	6.08	1.7	4.45	15.0		TC	6.27	1.9	4.66		3	65	0.1
Total Uranium (ug/g)	101	12	0.183	1.00		U_T	103	12	0.183		2	31	0.2
Uranium 233/234	34.8	10	5.43	1.00		U	35.0	11	5.70		1	65	0
Uranium 235	1.72	1.7	6.57	1.00	U	U	2.70	3.6	6.90	U	-		0.5
Uranium 238	31.9	10	5.43	1.00		U	38.0	11	5.70		17	65	0.8
Plutonium 238	83.7	17	5.38	1.00		PU	78.1	16	5.74		7	45	0.5
Plutonium 239/240	5160	400	5.38	1.00		PU	5350	420	5.74		4	20	0.6
Iodine 129	4.73	5.2	11.9	2.00	U	I	4.30	5.2	11.8	U	-		0.1
Potassium 40	14.8	1.7	1.13			GAM	14.3	1.6	1.18		3	40	0.3
Cobalt 60	0.538	0.16	0.162	0.050		GAM	0.382	0.13	0.140		34	75	1.4
Cesium 137	3690	5.0	1.74	0.100		GAM	3700	5.0	1.64		0	32	0
Radium 226	U		2.00	0.100	U	GAM	U		1.93	U	-		0
Radium 228	U		1.49	0.200	U	GAM	U		2.04	U	-		0.4
Europium 152	U		4.96	0.100	U	GAM	U		4.75	U	-		0.1
Europium 154	U		2.03	0.100	U	GAM	U		3.09	U	-		0.6
Europium 155	U		4.01	0.100	U	GAM	U		3.85	U	-		0.1
Thorium 228	U		2.47		U	GAM	U		2.37	U	-		0.1
Thorium 232	U		1.49		U	GAM	U		2.04	U	-		0.4
Uranium 235	U		5.80		U	GAM	U		5.56	U	-		0.1
Uranium 238	U		40.8		U	GAM	U		40.3	U	-		0
Americium 241	U		602		U	GAM	U		607	U	-		0

216A2/216A21CharactrztnSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/06/07

000019

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-005 B1NRH1

DUPLICATE, cont.

SDG	7667			Client/Case no	Hanford SDG H3546
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R707083-05	Lab sample id	R707083-02	Client sample id	B1NRH1
Dept sample id	7667-005	Dept sample id	7667-002	Location/Matrix	C5515, I-006 SOLID
		Received	07/16/07	Collected/Weight	06/27/07 10:55 745 g
% solids	98.1	% solids	98.1	Custody/SAF No	F07-043-014 F07-043

QC-DUP#2 52414

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/06/07

000017

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-001 B1NT07

DATA SHEET

SDG	7667	Client/Case no	Hanford	SDG H3546	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R707083-01	Client sample id	B1NT07		
Dept sample id	7667-001	Location/Matrix	C5515, I-006	SOLID	
Received	07/16/07	Collected/Weight	06/27/07 10:55	736 g	
% solids	97.2	Custody/SAF No	F07-043-010	F07-043	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.394	16	27.9	400	U	H
Carbon 14	14762-75-5	1.10	14	23.2	50.0	U	C
Nickel 63	13981-37-8	4.30	17	29.4	30.0	U	NI_L
Total Strontium	SR-RAD	11800	100	6.92	1.00		SR
Americium 241	14596-10-2	418	72	8.38	1.00		AM
Technetium 99	14133-76-7	4.70	1.5	2.75	15.0		TC
Total Uranium (ug/g)	7440-61-1	147	18	0.732	1.00		U_T
Uranium 233/234	U-233/234	42.1	7.3	2.25	1.00		U
Uranium 235	15117-96-1	4.28	2.3	2.18	1.00		U
Uranium 238	U-238	49.7	8.0	2.25	1.00		U
Plutonium 238	13981-16-3	31.7	6.5	2.29	1.00		PU
Plutonium 239/240	PU-239/240	1970	160	2.29	1.00		PU
Iodine 129	15046-84-1	-0.911	3.8	8.60	2.00	U	I
Potassium 40	13966-00-2	12.4	2.7	1.15			GAM
Cobalt 60	10198-40-0	0.294	0.11	0.135	0.050		GAM
Cesium 137	10045-97-3	1510	3.0	1.07	0.100		GAM
Radium 226	13982-63-3	U		1.70	0.100	U	GAM
Radium 228	15262-20-1	U		0.963	0.200	U	GAM
Europium 152	14683-23-9	U		4.02	0.100	U	GAM
Europium 154	15585-10-1	U		1.12	0.100	U	GAM
Europium 155	14391-16-3	U		3.63	0.100	U	GAM
Thorium 228	14274-82-9	U		2.42		U	GAM
Thorium 232	TH-232	U		0.963		U	GAM
Uranium 235	15117-96-1	U		5.28		U	GAM
Uranium 238	U-238	U		98.1		U	GAM
Americium 241	14596-10-2	U		246		U	GAM

216A2/216A21CharactrztnSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/06/07

000015

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-002 B1NRH1

DATA SHEET

SDG	7667	Client/Case no	Hanford	SDG H3546	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R707083-02	Client sample id	B1NRH1		
Dept sample id	7667-002	Location/Matrix	C5515, I-006	SOLID	
Received	07/16/07	Collected/Weight	06/27/07 10:55	745 g	
% solids	98.1	Custody/SAF No	F07-043-014	F07-043	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-11.6	21	37.5	400	U	H
Carbon 14	14762-75-5	12.4	19	31.0	50.0	U	C
Nickel 63	13981-37-8	27.2	44	73.4	30.0	U	NI_L
Total Strontium	SR-RAD	18700	220	19.4	1.00		SR
Americium 241	14596-10-2	1140	210	23.6	1.00		AM
Technetium 99	14133-76-7	6.27	1.9	4.66	15.0		TC
Total Uranium (ug/g)	7440-61-1	103	12	0.183	1.00		U_T
Uranium 233/234	U-233/234	35.0	11	5.70	1.00		U
Uranium 235	15117-96-1	2.70	3.6	6.90	1.00	U	U
Uranium 238	U-238	38.0	11	5.70	1.00		U
Plutonium 238	13981-16-3	78.1	16	5.74	1.00		PU
Plutonium 239/240	PU-239/240	5350	420	5.74	1.00		PU
Iodine 129	15046-84-1	4.30	5.2	11.8	2.00	U	I
Potassium 40	13966-00-2	14.3	1.6	1.18			GAM
Cobalt 60	10198-40-0	0.382	0.13	0.140	0.050		GAM
Cesium 137	10045-97-3	3700	5.0	1.64	0.100		GAM
Radium 226	13982-63-3	U		1.93	0.100	U	GAM
Radium 228	15262-20-1	U		2.04	0.200	U	GAM
Europium 152	14683-23-9	U		4.75	0.100	U	GAM
Europium 154	15585-10-1	U		3.09	0.100	U	GAM
Europium 155	14391-16-3	U		3.85	0.100	U	GAM
Thorium 228	14274-82-9	U		2.37		U	GAM
Thorium 232	TH-232	U		2.04		U	GAM
Uranium 235	15117-96-1	U		5.56		U	GAM
Uranium 238	U-238	U		40.3		U	GAM
Americium 241	14596-10-2	U		607		U	GAM

216A2/216A21CharactrztnSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test AM Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241
eparation batch 6116-113					
707083-01			7667-001	B1NT07	418
707083-02			7667-002	B1NRH1	1140
707083-03			7667-003	Lab Control Sample	ok
707083-04			7667-004	Method Blank	U
707083-05			7667-005	Duplicate (R707083-02)	ok

ominal values and limits from method RDLs (pCi/g) 1.00
16A2/216A21CharactrztnSamp&Ana-Soil

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6116-113			2σ prep error 5.0 % Reference Lab Notebook #6116, pg.113													
707083-01			B1NT07	8.38	0.0500			23		121			57	08/20/07	08/23	SS-040
707083-02			B1NRH1	23.6	0.0200			17		123			57	08/20/07	08/23	SS-028
707083-03			Lab Control Sample	12.3	0.0200			29		121				08/20/07	08/23	SS-061
707083-04			Method Blank	19.9	0.0200			21		121				08/20/07	08/23	SS-062
707083-05			Duplicate (R707083-02)	26.3	0.0200			18		121			57	08/20/07	08/23	SS-063
ominal values and limits from method				1.00	0.0200			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	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-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 18.1 ± 15.1
FOR 5 SAMPLES YIELD 22 ± 10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test PU Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240
:eparation batch 6116-113						
'07083-01			7667-001	B1NT07	31.7	1970
'07083-02			7667-002	B1NRH1	78.1	5350
'07083-03			7667-003	Lab Control Sample	ok	ok
'07083-04			7667-004	Method Blank	U	U
'07083-05			7667-005	Duplicate (R707083-02)	ok	ok
›minal values and limits from method .6A2/216A21CharactrztnSamp&Ana-Soil				RDLs (pCi/g)	1.00	1.00

:ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
:eparation batch 6116-113 2σ prep error 5.0 % Reference Lab Notebook #6116, pg.113																
'07083-01			B1NT07	2.29	0.0500			80		115			56	08/20/07	08/22	SS-066
'07083-02			B1NRH1	5.74	0.0200			72		116			56	08/20/07	08/22	SS-028
'07083-03			Lab Control Sample	6.72	0.0200			78		116				08/20/07	08/22	SS-035
'07083-04			Method Blank	9.32	0.0200			72		116				08/20/07	08/22	SS-036
'07083-05			Duplicate (R707083-02)	5.38	0.0200			73		146			56	08/20/07	08/22	SS-063
›minal values and limits from method				1.00	0.0200			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 FOR 5 SAMPLES
MDA 5.89 ± 5.07
YIELD 75 ± 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test U Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
eparation batch 6116-113											
07083-01			7667-001	B1NT07	42.1	4.28	49.7	85	20	9	5
07083-02			7667-002	B1NRH1	35.0	2.70 U	38.0	92	39	7	10
07083-03			7667-003	Lab Control Sample	ok	ok	ok				
07083-04			7667-004	Method Blank	U	U	U				
07083-05			7667-005	Duplicate (R707083-02)	ok	- U	ok	109	46	5	6
ominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
6A2/216A21CharactrztnSamp&Ana-Soil							Averages	95		7	

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6116-113			2σ prep error 5.0 %	Reference Lab Notebook #6116, pg.113												
07083-01			B1NT07	2.25	0.0500			83		114			56	08/20/07	08/22	SS-061
07083-02			B1NRH1	6.90	0.0200			77		114			56	08/20/07	08/22	SS-062
07083-03			Lab Control Sample	23.9	0.0200			93		115				08/20/07	08/22	SS-063
07083-04			Method Blank	6.04	0.0200			78		115				08/20/07	08/22	SS-064
07083-05			Duplicate (R707083-02)	6.57	0.0200			82		115			56	08/20/07	08/22	SS-065
ominal values and limits from method				1.00	0.0200			20-105		100	100		180			

PROCEDURES	REFERENCE	
	UISO_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 FOR 5 SAMPLES
MDA 9.13 ± 16.9
YIELD 83 ± 13

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test SR Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
:eparation batch 6116-113					
'07083-01			7667-001	B1NT07	11800
'07083-02			7667-002	B1NRH1	18700
'07083-03			7667-003	Lab Control Sample	ok
'07083-04			7667-004	Method Blank	1.07 U
'07083-05			7667-005	Duplicate (R707083-02)	ok
›minal values and limits from method .6A2/216A21CharactrztnSamp&Ana-Soil				RDLs (pCi/g)	1.00

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113																
'07083-01			B1NT07	6.92	0.0500			81		100			51	08/17/07	08/17	GRB-221
'07083-02			B1NRH1	19.4	0.0200			70		100			51	08/17/07	08/17	GRB-222
'07083-03			Lab Control Sample	10.5	0.0200			78		168				08/17/07	08/17	GRB-227
'07083-04			Method Blank	9.84	0.0200			78		168				08/17/07	08/17	GRB-228
'07083-05			Duplicate (R707083-02)	15.6	0.0200			76		150			51	08/17/07	08/17	GRB-225
›minal values and limits from method				1.00	0.0200			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	12.5	±	9.97
	YIELD	77	±	8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test TC Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3546

.ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99
reparation batch 6116-113					
707083-01			7667-001	B1NT07	4.70
707083-02			7667-002	B1NRH1	6.27
707083-03			7667-003	Lab Control Sample	ok
707083-04			7667-004	Method Blank	U
707083-05			7667-005	Duplicate (R707083-02)	ok

ominal values and limits from method RDLs (pCi/g) 15.0
16A2/216A21CharactrztnSamp&Ana-Soil

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113																
707083-01			B1NT07	2.75	0.140			92		100			59	08/22/07	08/25	GRB-224
707083-02			B1NRH1	4.66	0.120			91		50			62	08/22/07	08/28	GRB-222
707083-03			Lab Control Sample	5.32	0.100			100		60				08/22/07	08/27	GRB-219
707083-04			Method Blank	5.12	0.100			100		50				08/22/07	08/28	GRB-223
707083-05			Duplicate (R707083-02)	4.45	0.120			97		50			61	08/22/07	08/27	GRB-228
ominal values and limits from method				15.0	0.100			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	4.46	±	2.03
	YIELD	96	±	9

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test GAM Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
eparation batch 6116-113						
707083-01			7667-001	B1NT07	0.294	1510
707083-02			7667-002	B1NRH1	0.382	3700
707083-03			7667-003	Lab Control Sample	ok	ok
707083-04			7667-004	Method Blank	U	U
707083-05			7667-005	Duplicate (R707083-02)	ok	ok
ominal values and limits from method 6A2/216A21CharactrztnSamp&Ana-Soil				RDLs (pCi/g)	0.050	0.100

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 6116-113 2σ prep error 15.0 % Reference Lab Notebook #6116, pg.113																
707083-01			B1NT07	246	228					103			49	08/14/07	08/15	JR,02,00
707083-02			B1NRH1	305	221					111			49	08/14/07	08/15	JR,01,00
707083-03			Lab Control Sample	0.097	220					110				08/14/07	08/15	JR,06,00
707083-04			Method Blank	16.6	220					110				08/14/07	08/15	JR,08,00
707083-05			Duplicate (R707083-02)	319	221					102			49	08/14/07	08/15	JR,01,00
ominal values and limits from method				0.050	220					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 177 ± 314
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test I Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOLIDS
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129
eparation batch 6116-113					
707083-01			7667-001	B1NT07	U
707083-02			7667-002	B1NRH1	4.30 U
707083-03			7667-003	Lab Control Sample	ok
707083-04			7667-004	Method Blank	U
707083-05			7667-005	Duplicate (R707083-02)	- U
minal values and limits from method				RDLs (pCi/g)	2.00
16A2/216A21CharactrztnSamp&Ana-Soil					

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6116-113			2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113													
707083-01			B1NT07	8.60	0.140			65		798			64	08/29/07	08/30	XSPEC-004
707083-02			B1NRH1	11.8	0.120			76		797			64	08/29/07	08/30	XSPEC-002
707083-03			Lab Control Sample	16.1	0.100			81		612				08/29/07	08/31	XSPEC-004
707083-04			Method Blank	11.8	0.100			87		613				08/29/07	08/31	XSPEC-002
707083-05			Duplicate (R707083-02)	11.9	0.120			65		1062			65	08/29/07	08/31	XSPEC-002
minal values and limits from method				2.00	0.100			20-105		300			180			

PROCEDURES	REFERENCE	I129_SEP_LEPS_GS
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	12.0	±	5.33
	YIELD	75	±	20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test U T Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOLIDS

KINETIC PHOSPHORIMETRY, DG

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Total Uranium
reparation batch 6116-113					
707083-01			7667-001	B1NT07	147
707083-02			7667-002	B1NRH1	103
707083-03			7667-003	Lab Control Sample	ok
707083-04			7667-004	Method Blank	U
707083-05			7667-005	Duplicate (R707083-02)	ok
ominal values and limits from method				RDLs (ug/g)	1.00
16A2/216A21CharactrztnSamp&Ana-Soil					

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA ug/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6116-113			2σ prep error 9.0 % Reference Lab Notebook #6116, pg.113													
707083-01			B1NT07	0.732	0.0500								58	08/22/07	08/24	KPA-001
707083-02			B1NRH1	0.183	0.0200								58	08/23/07	08/24	KPA-001
707083-03			Lab Control Sample	0.183	0.0200									08/23/07	08/24	KPA-001
707083-04			Method Blank	0.018	0.0200									08/23/07	08/24	KPA-001
707083-05			Duplicate (R707083-02)	0.183	0.0200								58	08/23/07	08/24	KPA-001
ominal values and limits from method				1.00	0.0200								180			

PROCEDURES	REFERENCE	UTOT_KPA
	CP-929	Calibration of the Kinetic Phosphorimeter, rev 9
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 8

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.260 ± 0.547
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

9 9 0 0 0 2 7

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test C Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
eparation batch 6116-113						
'07083-01			7667-001	B1NT07	U	
'07083-02			7667-002	B1NRH1	U	
'07083-03			7667-003	Lab Control Sample	ok	
'07083-04			7667-004	Method Blank	U	
'07083-05			7667-005	Duplicate (R707083-02)	-	U

minal values and limits from method RDLs (pCi/g) 50.0
.6A2/216A21CharactrztnSamp&Ana-Soil

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6116-113			2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113													
'07083-01			B1NT07	23.2	0.0614			100		50			62	08/24/07	08/28	LSC-004
'07083-02			B1NRH1	31.0	0.0459			100		50			62	08/24/07	08/28	LSC-004
'07083-03			Lab Control Sample	36.2	0.0400			100		50				08/24/07	08/29	LSC-004
'07083-04			Method Blank	37.6	0.0400			100		50				08/24/07	08/28	LSC-004
'07083-05			Duplicate (R707083-02)	30.7	0.0462			100		50			62	08/24/07	08/28	LSC-004
minal values and limits from method				50.0	0.0400					10			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 31.7 ± 11.3
FOR 5 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test H Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
eparation batch 6116-113					
07083-01			7667-001	B1NT07	U
07083-02			7667-002	B1NRH1	U
07083-03			7667-003	Lab Control Sample	ok
07083-04			7667-004	Method Blank	U
07083-05			7667-005	Duplicate (R707083-02)	- U

ominal values and limits from method RDLs (pCi/g) 400
.6A2/216A21CharactrztnSamp&Ana-Soil

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 6116-113			2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113													
07083-01			B1NT07	27.9	0.0614			100		50			63	08/24/07	08/29	LSC-004
07083-02			B1NRH1	37.5	0.0459			100		50			63	08/24/07	08/29	LSC-004
07083-03			Lab Control Sample	40.5	0.0400			100		50				08/24/07	08/29	LSC-004
07083-04			Method Blank	42.2	0.0400			100		50				08/24/07	08/29	LSC-004
07083-05			Duplicate (R707083-02)	37.0	0.0462			100		50			63	08/24/07	08/29	LSC-004
ominal values and limits from method				400	0.0400					25			180			

PROCEDURES REFERENCE TRITIUM_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 37.0 ± 11.1
FOR 5 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/06/07

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test NI L Matrix SOLID
SDG 7667
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3546

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
:eparation batch 6116-113						
'07083-01			7667-001	B1NT07	U	
'07083-02			7667-002	B1NRH1	U	
'07083-03			7667-003	Lab Control Sample	ok	
'07083-04			7667-004	Method Blank	U	
'07083-05			7667-005	Duplicate (R707083-02)	-	U
›minal values and limits from method				RDLs (pCi/g)	30.0	
.6A2/216A21CharactrztnSamp&Ana-Soil						

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
:eparation batch 6116-113			2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113													
'07083-01			B1NT07	29.4	0.0500			100		50			52	08/17/07	08/18	LSC-004
'07083-02			B1NRH1	73.4	0.0200			99		50			52	08/17/07	08/18	LSC-004
'07083-03			Lab Control Sample	77.3	0.0200			95		50				08/17/07	08/18	LSC-004
'07083-04			Method Blank	76.8	0.0200			97		50				08/17/07	08/18	LSC-004
'07083-05			Duplicate (R707083-02)	81.1	0.0200			91		50			52	08/17/07	08/18	LSC-004
›minal values and limits from method				30.0	0.0200			30-105		25			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	67.6	±	43.1
	YIELD	96	±	7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
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SDG 7667
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3546

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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Protocol Hanford
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Form DVD-RG
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Contact Melissa C. Mannion

REPORT GUIDE

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Contract No. 630
Case no SDG H3546

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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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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Case no SDG H3546

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'

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/06/07

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.

* Prepareation 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.

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

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.

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F07-043-010

PAGE 1 OF 1

COLLECTOR Pope/Pfister/Mokler	**COMPANY CONTACT** Trent, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
SAMPLING LOCATION C5515, I-006	**PROJECT DESIGNATION** H3546 (7667) 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		**SAF NO.** F07-043
ICE CHEST NO. GW0-06-11	**FIELD LOGBOOK NO.**	**COA** 122868ES10	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO Eberline Services	**OFFSITE PROPERTY NO.** See RSR G00100000		**BILL OF LADING/AIR BILL NO.** See RSR G00100000

PRICE CODE 8N

AIR QUALITY ☐

DATA TURNAROUND 45 Days / 45 Days

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS Rad tie to B1NRB5

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	Square Bottle - Poly
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
31NT07	SOIL	6/27/07	1055	X

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
NO-715 Ry 3	JUL 12 2007 0810	M.A. Baechler M.A. Baechler	JUL 12 2007 0810
M.A. Baechler M.A. Baechler	JUL 12 2007 0810	RD	
FED EX		HFW	07/16/07 09:15

SPECIAL INSTRUCTIONS

NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION
(1)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Total Uranium; Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}

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

A-6003-618(01/06)

Fluor Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | F07-043-014 | PAGE 1 OF 1

COLLECTOR Pope/Pfister/Mokler	**COMPANY CONTACT** Trent, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
SAMPLING LOCATION C5515, I-006	**PROJECT DESIGNATION** H3546 (7667) 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		**SAF NO.** F07-043
ICE CHEST NO. GWO-06-11	**FIELD LOGBOOK NO.**	**COA** 122868ES10	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO Eberline Services	**OFFSITE PROPERTY NO.** See RSR G00100000		**BILL OF LADING/AIR BILL NO.** See RSR G00100000

PRICE CODE 8N **AIR QUALITY** ☐ **DATA TURNAROUND** 45 Days / 45 Days

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegitation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS Rad tie to B1NRB5

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None													
TYPE OF CONTAINER	Square Bottle - Poly													
NO. OF CONTAINER(S)	1													
VOLUME	500mL													
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS													
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**											
B1NRH1	SOIL	6/27/07	1055	X										

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M2-745 M3	JUL 12 2007 0810	M. A. Baechler M.A. Baechler	JUL 12 2007 0810
I. A. Baechler M.A. Baechler	JUL 12 2007 0810	Fed Ex	
FED EX		Fed Ex	07/16/07 09:15

SPECIAL INSTRUCTIONS

NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION
(1)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Total Uranium; Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}

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

A-6003-618(01/06)

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 7/16/07

Client: F. HANFORD City RICHLAND State WA

Date/Time received 07/16/07 9:15 CoC No. F07-043-010, 014

Container I.D. No. GWD-06-11 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container. 2 Sample Matrix S
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are. In good condition [X] 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 [signature] Date: 07/16/07 Time: 9:30

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe
BINT07	1500						
BINRH1	3900						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 9 MAY 07

000004 8