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EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

June 16, 2008

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

Reference: **P.O. #33677**
Eberline Services R8-05-079-7093, SDG H3723

Dear Mr. Trent:

Enclosed is the report for five solid (soil) samples designated under SAF No. F08-031 received at Eberline Services on May 7, 2008. The sample was 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/jag

Enclosure: Data Package

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3723 was composed of five 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

No 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 Mannion

Melissa C. Mannion
Senior Program Manager

06/16/08
Date

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 H3723

SDG	7093
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H3723

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	Fluor
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3723

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 Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

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 H3723

SDG 7093
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3723

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R805079-01	B1TFR1	C5942, I-1 4'-6'	SOLID		F08-031	F08-031-131	02/11/08 15:10
R805079-02	B1TFR2	C5942, I-2 12.5'-14.5'	SOLID		F08-031	F08-031-132	02/12/08 11:20
R805079-03	B1TFR5	C5942, I-4 27.5'-30.0'	SOLID		F08-031	F08-031-135	02/14/08 13:00
R805079-04	B1TFR6	C5942, I-5 47.5'-50.0'	SOLID		F08-031	F08-031-136	02/19/08 13:00
R805079-05	B1TFT2	C5942,I-4 Split 27.5-30'	SOLID		F08-031	F08-031-141	02/14/08 13:00
R805079-06	Lab Control Sample		SOLID		F08-031		
R805079-07	Method Blank		SOLID		F08-031		
R805079-08	Duplicate (R805079-02)	C5942, I-2 12.5'-14.5'	SOLID		F08-031		02/12/08 11:20
R805079-09	Duplicate (R805079-05)	C5942,I-4 Split 27.5-30'	SOLID		F08-031		02/14/08 13:00

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

SDG 7093
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3723

QC 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
7093	F08-031-131	B1TFR1	SOLID	82.0	191 g		05/07/08	86	R805079-01	7093-001
	F08-031-132	B1TFR2	SOLID	90.0	99 g		05/07/08	85	R805079-02	7093-002
	F08-031-135	B1TFR5	SOLID	96.0	145 g		05/07/08	83	R805079-03	7093-003
	F08-031-136	B1TFR6	SOLID	80.0	194 g		05/07/08	78	R805079-04	7093-004
	F08-031-141	B1TFT2	SOLID	89.0	782 g		05/07/08	83	R805079-05	7093-005
		Method Blank	SOLID						R805079-07	7093-007
		Lab Control Sample	SOLID						R805079-06	7093-006
		Duplicate (R805079-02)	SOLID	90.0	99 g		05/07/08	85	R805079-08	7093-008
		Duplicate (R805079-05)	SOLID	89.0	782 g		05/07/08	83	R805079-09	7093-009

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/16/08

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SAMPLE DELIVERY GROUP H3723

SDG 7093
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3723

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	6150-077	8.0	1			1	1	1/1		
NP	SOLID	Neptunium in Solids	6150-077	14.8	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6150-077	8.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6150-077	8.0	4			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6150-077	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6150-077	10.4	1			1	1	1/1		
TC	SOLID	Technetium 99 in Solids	6150-077	13.2	4			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6150-077	7.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Solids	6150-077	10.0	4			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6150-077	11.2	4			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 Fluor
Version Ver 1.0
Form DVD-PBS
Version 3.06
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SAMPLE DELIVERY GROUP H3723

SDG 7093
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3723

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R805079-01	B1TFR1			7093-001	H		06/04/08	06/06/08	BW	Tritium in Solids
02/11/08	C5942, I-1 4'-6'		SOLID	7093-001	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
05/07/08	F08-031-131	F08-031		7093-001	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids
				7093-001	TH		06/12/08	06/12/08	BW	Thorium, Isotopic in Solids
R805079-02	B1TFR2			7093-002	H		06/04/08	06/06/08	BW	Tritium in Solids
02/12/08	C5942, I-2 12.5'-14.5'		SOLID	7093-002	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
05/07/08	F08-031-132	F08-031		7093-002	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids
				7093-002	TH		06/10/08	06/12/08	BW	Thorium, Isotopic in Solids
R805079-03	B1TFR5			7093-003	H		06/04/08	06/06/08	BW	Tritium in Solids
02/14/08	C5942, I-4 27.5'-30.0'		SOLID	7093-003	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
05/07/08	F08-031-135	F08-031		7093-003	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids
				7093-003	TH		06/10/08	06/12/08	BW	Thorium, Isotopic in Solids
R805079-04	B1TFR6			7093-004	H		06/04/08	06/06/08	BW	Tritium in Solids
02/19/08	C5942, I-5 47.5'-50.0'		SOLID	7093-004	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
05/07/08	F08-031-136	F08-031		7093-004	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids
				7093-004	TH		06/10/08	06/12/08	BW	Thorium, Isotopic in Solids
R805079-05	B1TFT2			7093-005	AM		06/09/08	06/10/08	BW	Americium 241 in Solids
02/14/08	C5942,I-4 Split 27.5-30'		SOLID	7093-005	GAM		06/02/08	06/05/08	CSS	Gamma Scan
05/07/08	F08-031-141	F08-031		7093-005	NP		06/05/08	06/09/08	BW	Neptunium in Solids
				7093-005	PU		06/09/08	06/10/08	BW	Plutonium, Isotopic in Solids
				7093-005	SR		06/06/08	06/10/08	BW	Total Strontium in Solids
				7093-005	U		06/11/08	06/11/08	BW	Uranium, Isotopic in Solids
R805079-06	Lab Control Sample			7093-006	AM		06/09/08	06/10/08	BW	Americium 241 in Solids
			SOLID	7093-006	GAM		06/02/08	06/05/08	CSS	Gamma Scan
		F08-031		7093-006	H		06/04/08	06/06/08	BW	Tritium in Solids
				7093-006	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
				7093-006	NP		06/05/08	06/09/08	BW	Neptunium in Solids
				7093-006	PU		06/09/08	06/10/08	BW	Plutonium, Isotopic in Solids
				7093-006	SR		06/06/08	06/10/08	BW	Total Strontium in Solids
				7093-006	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids
				7093-006	TH		06/12/08	06/12/08	BW	Thorium, Isotopic in Solids
				7093-006	U		06/09/08	06/11/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

SDG 7093
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H3723

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R805079-07	Method Blank			7093-007	AM		06/09/08	06/10/08	BW	Americium 241 in Solids
			SOLID	7093-007	GAM		06/02/08	06/05/08	CSS	Gamma Scan
		F08-031		7093-007	H		06/04/08	06/06/08	BW	Tritium in Solids
				7093-007	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
				7093-007	NP		06/05/08	06/09/08	BW	Neptunium in Solids
				7093-007	PU		06/09/08	06/10/08	BW	Plutonium, Isotopic in Solids
				7093-007	SR		06/06/08	06/10/08	BW	Total Strontium in Solids
				7093-007	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids
				7093-007	TH		06/12/08	06/12/08	BW	Thorium, Isotopic in Solids
				7093-007	U		06/11/08	06/11/08	BW	Uranium, Isotopic in Solids
R805079-08	Duplicate (R805079-02)			7093-008	H		06/04/08	06/06/08	BW	Tritium in Solids
02/12/08	C5942, I-2 12.5'-14.5'		SOLID	7093-008	NI_L		06/08/08	06/13/08	BW	Nickel 63 in Solids
05/07/08		F08-031		7093-008	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids
				7093-008	TH		06/10/08	06/12/08	BW	Thorium, Isotopic in Solids
R805079-09	Duplicate (R805079-05)			7093-009	AM		06/09/08	06/10/08	BW	Americium 241 in Solids
02/14/08	C5942,I-4 Split 27.5-30'		SOLID	7093-009	GAM		06/03/08	06/05/08	CSS	Gamma Scan
05/07/08		F08-031		7093-009	NP		06/05/08	06/09/08	BW	Neptunium in Solids
				7093-009	PU		06/09/08	06/10/08	BW	Plutonium, Isotopic in Solids
				7093-009	SR		06/06/08	06/10/08	BW	Total Strontium in Solids
				7093-009	U		06/09/08	06/11/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

SDG 7093
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H3723

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	1			1	1	1	4
GAM	F08-031	Gamma Scan	GAMMA_GS	1			1	1	1	4
H	F08-031	Tritium in Solids	TRITIUM_COX_LSC	4			1	1	1	7
NI_L	F08-031	Nickel 63 in Solids	NI63_LSC	4			1	1	1	7
NP	F08-031	Neptunium in Solids	NP237_LLE_PLATE_AEA	1			1	1	1	4
PU	F08-031	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	F08-031	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TC	F08-031	Technetium 99 in Solids	TC99_TR_SEP_GPC	4			1	1	1	7
TH	F08-031	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	4			1	1	1	7
U	F08-031	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				22			10	10	10	52

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-007

Method Blank

METHOD BLANK

SDG	7093	Client/Case no	Hanford	SDG	H3723
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R805079-07	Client sample id	Method Blank		
Dept sample id	7093-007	Material/Matrix		SOLID	
		SAF No	F08-031		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.720	2.5	4.34	400	U	H
Nickel 63	13981-37-8	1.81	3.6	5.95	30.0	U	NI_L
Total Strontium	SR-RAD	0.006	0.16	0.319	0.120	U	SR
Neptunium 237	13994-20-2	0.042	0.042	0.062	1.00	U	NP
Americium 241	14596-10-2	0.017	0.070	0.117	1.00	U	AM
Technetium 99	14133-76-7	0.192	0.41	0.779	12.0	U	TC
Thorium 228	14274-82-9	-0.105	0.14	0.389	1.00	U	TH
Thorium 230	14269-63-7	0.035	0.21	0.267	1.00	U	TH
Thorium 232	TH-232	-0.035	0.070	0.267	1.00	U	TH
Uranium 233/234	U-233/234	0	0.064	0.246	1.00	U	U
Uranium 235	15117-96-1	0	0.078	0.298	1.00	U	U
Uranium 238	U-238	0	0.064	0.246	1.00	U	U
Plutonium 238	13981-16-3	-0.036	0.054	0.119	1.00	U	PU
Plutonium 239/240	PU-239/240	0.014	0.018	0.035	1.00	U	PU
Beryllium 7	13966-02-4	U		0.026		U	GAM
Potassium 40	13966-00-2	U		0.052		U	GAM
Cobalt 60	10198-40-0	U		0.004	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.033		U	GAM
Antimony 125	14234-35-6	U		0.009		U	GAM
Cesium 134	13967-70-9	U		0.005		U	GAM
Cesium 137	10045-97-3	U		0.004	0.100	U	GAM
Europium 152	14683-23-9	U		0.010	0.100	U	GAM
Europium 154	15585-10-1	U		0.011	0.100	U	GAM
Europium 155	14391-16-3	U		0.008	0.100	U	GAM
Niobium 94	14681-63-1	U		0.004		U	GAM
Radium 226	13982-63-3	U		0.009		U	GAM
Radium 228	15262-20-1	U		0.017		U	GAM

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

7093-007

Method Blank

BLANK, cont.

SDG	7093	Client/Case no	Hanford SDG H3723
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R805079-07	Client sample id	Method Blank
Dept sample id	7093-007	Material/Matrix	SOLID
		SAF No	F08-031

QC-BLANK #65717

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-006

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7093
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3723
Contract No. 630

Lab sample id R805079-06
Dept sample id 7093-006

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F08-031

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	608	12	4.29	400		H	612	24	99	84-116	80-120
Nickel 63	414	11	5.96	30.0		NI_L	440	18	94	83-117	80-120
Total Strontium	8.99	0.68	0.373	0.120		SR	9.32	0.37	96	80-120	80-120
Neptunium 237	22.3	2.0	0.106	1.00		NP	19.8	0.79	113	70-130	80-120
Americium 241	21.6	0.96	0.092	1.00		AM	20.4	0.82	106	84-116	80-120
Technetium 99	208	3.5	0.794	12.0		TC	218	8.7	95	80-120	80-120
Thorium 230	35.5	3.5	0.246	1.00		TH	37.8	1.5	94	81-119	80-120
Uranium 233/234	19.0	0.95	0.402	1.00		U	18.6	0.74	102	84-116	80-120
Uranium 235	15.2	0.81	0.067	1.00		U	15.1	0.60	101	84-116	80-120
Uranium 238	20.4	1.0	0.384	1.00		U	20.2	0.81	101	85-115	80-120
Plutonium 238	22.8	1.0	0.096	1.00		PU	23.4	0.94	97	85-115	80-120
Plutonium 239/240	25.9	1.1	0.054	1.00		PU	26.4	1.1	98	85-115	80-120
Cobalt 60	0.345	0.013	0.006	0.050		GAM	0.341	0.014	101	86-114	80-120
Cesium 137	0.395	0.012	0.007	0.100		GAM	0.370	0.015	107	86-114	80-120

216-B55 SupplementalCharacterization

QC-LCS #65716

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-008

B1TFR2

DUPLICATE

SDG	7093			Client/Case no	Hanford SDG H3723
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R805079-08	Lab sample id	R805079-02	Client sample id	B1TFR2
Dept sample id	7093-008	Dept sample id	7093-002	Location/Matrix	C5942, I-2 12.5'-14.5' SOLID
		Received	05/07/08	Collected/Weight	02/12/08 11:20 99 g
% solids	90.0	% solids	90.0	Custody/SAF No	F08-031-132 F08-031

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	-1.03	2.4	4.14	400	U	H	-0.869	2.4	4.20	U	-		0.1
Nickel 63	3.69	3.9	6.44	30.0	U	NI_L	3.08	3.8	6.27	U	-		0.2
Technetium 99	-0.033	0.60	0.866	12.0	U	TC	-0.041	0.39	0.743	U	-		0
Thorium 228	0.668	0.14	0.137	1.00		TH	0.542	0.11	0.091		21	47	1.3
Thorium 230	0.618	0.15	0.188	1.00		TH	0.883	0.16	0.204		35	47	2.2
Thorium 232	0.551	0.12	0.064	1.00		TH	0.495	0.091	0.050		11	46	0.7

216-B55 SupplementalCharacterization

QC-DUP#2 65718

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-009 B1TFT2

DUPLICATE

SDG	7093			Client/Case no	Hanford SDG H3723
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R805079-09	Lab sample id	R805079-05	Client sample id	B1TFT2
Dept sample id	7093-009	Dept sample id	7093-005	Location/Matrix	C5942,I-4 Split 27.5-30' SOLID
		Received	05/07/08	Collected/Weight	02/14/08 13:00 782 g
% solids	89.0	% solids	89.0	Custody/SAF No	F08-031-141 F08-031

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
Total Strontium	0.046	0.15	0.302	0.120	U	SR	0.004	0.16	0.313	U	-		0.4
Neptunium 237	0.039	0.039	0.058	1.00	U	NP	-0.022	0.045	0.171	U	-		2.0
Americium 241	-0.009	0.072	0.137	1.00	U	AM	0.024	0.12	0.202	U	-		0.5
Uranium 233/234	0.498	0.095	0.056	1.00		U	0.338	0.23	0.288		38	91	1.3
Uranium 235	0.028	0.029	0.045	1.00	U	U	0	0.091	0.348	U	-		0.6
Uranium 238	0.542	0.096	0.030	1.00		U	0.602	0.31	0.288		10	87	0.4
Plutonium 238	0.014	0.047	0.087	1.00	U	PU	-0.011	0.063	0.116	U	-		0.6
Plutonium 239/240	0.009	0.019	0.036	1.00	U	PU	0.005	0.021	0.050	U	-		0.3
Beryllium 7	U		0.685		U	GAM	U		0.278	U	-		1.1
Potassium 40	15.9	0.86	0.232			GAM	17.3	0.78	0.108		8	18	1.4
Cobalt 60	U		0.026	0.050	U	GAM	U		0.011	U	-		1.1
Ruthenium 106	U		0.226		U	GAM	U		0.098	U	-		1.0
Antimony 125	U		0.056		U	GAM	U		0.026	U	-		1.0
Cesium 134	U		0.038		U	GAM	U		0.015	U	-		1.1
Cesium 137	U		0.025	0.100	U	GAM	U		0.029	U	-		0.2
Europium 152	U		0.066	0.100	U	GAM	U		0.028	U	-		1.1
Europium 154	U		0.086	0.100	U	GAM	U		0.036	U	-		1.1
Europium 155	U		0.084	0.100	U	GAM	U		0.036	U	-		1.0
Niobium 94	U		0.022		U	GAM	U		0.009	U	-		1.1
Radium 226	0.458	0.050	0.042			GAM	0.493	0.029	0.022		7	24	0.9
Radium 228	0.586	0.11	0.107			GAM	0.697	0.054	0.042		17	32	1.6

216-B55 SupplementalCharacterization

QC-DUP#5 65735

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-001

B1TFR1

DATA SHEET

SDG	7093	Client/Case no	Hanford	SDG_H3723	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R805079-01	Client sample id	B1TFR1		
Dept sample id	7093-001	Location/Matrix	C5942, I-1 4'-6'	SOLID	
Received	05/07/08	Collected/Weight	02/11/08 15:10	191 g	
% solids	82.0	Custody/SAF No	F08-031-131	F08-031	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.164	2.3	3.97	400	U	H
Nickel 63	13981-37-8	0.235	2.0	3.35	30.0	U	NI_L
Technetium 99	14133-76-7	-0.058	0.25	0.393	12.0	U	TC
Thorium 228	14274-82-9	0.776	0.39	0.465	1.00		TH
Thorium 230	14269-63-7	1.12	0.40	0.246	1.00		TH
Thorium 232	TH-232	0.932	0.33	0.246	1.00		TH

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-002 B1TFR2

DATA SHEET

SDG	7093	Client/Case no	Hanford	SDG_H3723	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R805079-02	Client sample id	B1TFR2		
Dept sample id	7093-002	Location/Matrix	C5942, I-2 12.5'-14.5'	SOLID	
Received	05/07/08	Collected/Weight	02/12/08 11:20	99 g	
% solids	90.0	Custody/SAF No	F08-031-132	F08-031	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.869	2.4	4.20	400	U	H
Nickel 63	13981-37-8	3.08	3.8	6.27	30.0	U	NI_L
Technetium 99	14133-76-7	-0.041	0.39	0.743	12.0	U	TC
Thorium 228	14274-82-9	0.542	0.11	0.091	1.00		TH
Thorium 230	14269-63-7	0.883	0.16	0.204	1.00		TH
Thorium 232	TH-232	0.495	0.091	0.050	1.00		TH

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-003

B1TFR5

DATA SHEET

SDG	7093	Client/Case no	Hanford SDG_H3723
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R805079-03	Client sample id	B1TFR5
Dept sample id	7093-003	Location/Matrix	C5942, I-4 27.5'-30.0' SOLID
Received	05/07/08	Collected/Weight	02/14/08 13:00 145 g
% solids	96.0	Custody/SAF No	F08-031-135 F08-031

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.060	2.5	4.33	400	U	H
Nickel 63	13981-37-8	1.45	2.0	3.34	30.0	U	NI_L
Technetium 99	14133-76-7	0.101	0.15	0.413	12.0	U	TC
Thorium 228	14274-82-9	0.652	0.12	0.074	1.00		TH
Thorium 230	14269-63-7	0.639	0.15	0.197	1.00		TH
Thorium 232	TH-232	0.529	0.11	0.069	1.00		TH

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-004 B1TFR6

DATA SHEET

SDG	7093	Client/Case no	Hanford SDG_H3723
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R805079-04	Client sample id	B1TFR6
Dept sample id	7093-004	Location/Matrix	C5942, I-5 47.5'-50.0' SOLID
Received	05/07/08	Collected/Weight	02/19/08 13:00 194 g
% solids	80.0	Custody/SAF No	F08-031-136 F08-031

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-2.26	2.4	4.31	400	U	H
Nickel 63	13981-37-8	0.632	2.0	3.38	30.0	U	NI_L
Technetium 99	14133-76-7	0.079	0.22	0.455	12.0	U	TC
Thorium 228	14274-82-9	0.783	0.13	0.079	1.00		TH
Thorium 230	14269-63-7	0.549	0.14	0.208	1.00		TH
Thorium 232	TH-232	0.674	0.11	0.057	1.00		TH

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

7093-005 B1TFT2

DATA SHEET

SDG	7093	Client/Case no	Hanford SDG H3723
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R805079-05	Client sample id	B1TFT2
Dept sample id	7093-005	Location/Matrix	C5942,I-4 Split 27.5-30' SOLID
Received	05/07/08	Collected/Weight	02/14/08 13:00 782 g
% solids	89.0	Custody/SAF No	F08-031-141 F08-031

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.004	0.16	0.313	0.120	U	SR
Neptunium 237	13994-20-2	-0.022	0.045	0.171	1.00	U	NP
Americium 241	14596-10-2	0.024	0.12	0.202	1.00	U	AM
Uranium 233/234	U-233/234	0.338	0.23	0.288	1.00		U
Uranium 235	15117-96-1	0	0.091	0.348	1.00	U	U
Uranium 238	U-238	0.602	0.31	0.288	1.00		U
Plutonium 238	13981-16-3	-0.011	0.063	0.116	1.00	U	PU
Plutonium 239/240	PU-239/240	0.005	0.021	0.050	1.00	U	PU
Beryllium 7	13966-02-4	U		0.278		U	GAM
Potassium 40	13966-00-2	17.3	0.78	0.108			GAM
Cobalt 60	10198-40-0	U		0.011	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.098		U	GAM
Antimony 125	14234-35-6	U		0.026		U	GAM
Cesium 134	13967-70-9	U		0.015		U	GAM
Cesium 137	10045-97-3	U		0.029	0.100	U	GAM
Europium 152	14683-23-9	U		0.028	0.100	U	GAM
Europium 154	15585-10-1	U		0.036	0.100	U	GAM
Europium 155	14391-16-3	U		0.036	0.100	U	GAM
Niobium 94	14681-63-1	U		0.009		U	GAM
Radium 226	13982-63-3	0.493	0.029	0.022			GAM
Radium 228	15262-20-1	0.697	0.054	0.042			GAM

216-B55 SupplementalCharacterization

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test AM Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
Preparation batch 6150-077						
R805079-05			7093-005	B1TFT2	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-09			7093-009	Duplicate (R805079-05)	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00	
216-B55 SupplementalCharacterization						

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 8.0 %	Reference Lab Notebook #6150, pg. 77												
R805079-05			B1TFT2	0.202	0.500			32		729			116	06/09/08	06/09	SS-031
R805079-06			Lab Control Sample	0.092	0.500			68		729				06/09/08	06/09	SS-032
R805079-07			Method Blank	0.117	0.500			49		729				06/09/08	06/09	SS-040
R805079-09			Duplicate (R805079-05)	0.137	0.500			41		729			116	06/09/08	06/09	SS-042
Nominal values and limits from method				1.00	0.500			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	0.137	± 0.094
FOR 4 SAMPLES	YIELD	48	± 31

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test NP Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NEPTUNIUM IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Neptunium 237	
Preparation batch 6150-077						
R805079-05			7093-005	B1TFT2	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-09			7093-009	Duplicate (R805079-05)	-	U
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	1.00	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077 2σ prep error 14.8 % Reference Lab Notebook #6150, pg. 77																
R805079-05			B1TFT2	0.171	0.500			56		174			112	06/04/08	06/05	SS-055
R805079-06			Lab Control Sample	0.106	0.500			72		103				06/04/08	06/05	SS-042
R805079-07			Method Blank	0.062	0.500			65		174				06/04/08	06/05	SS-056
R805079-09			Duplicate (R805079-05)	0.058	0.500			67		174			112	06/04/08	06/05	SS-057
Nominal values and limits from method				1.00	0.500			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 FOR 4 SAMPLES				
	MDA	0.099	±	0.105
	YIELD	65	±	13

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test PU Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 6150-077								
R805079-05			7093-005	B1TFT2	U		U	
R805079-06			7093-006	Lab Control Sample	ok		ok	
R805079-07			7093-007	Method Blank	U		U	
R805079-09			7093-009	Duplicate (R805079-05)	-	U	-	U
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	1.00		1.00	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 8.0 %	Reference Lab Notebook #6150, pg. 77												
R805079-05			B1TFT2	0.116	0.500			59		728			116	06/09/08	06/09	SS-027
R805079-06			Lab Control Sample	0.096	0.500			63		728				06/09/08	06/09	SS-028
R805079-07			Method Blank	0.119	0.500			70		728				06/09/08	06/09	SS-055
R805079-09			Duplicate (R805079-05)	0.087	0.500			76		728			116	06/09/08	06/09	SS-059
Nominal values and limits from method				1.00	0.500			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 4 SAMPLES
MDA 0.104 ± 0.031
YIELD 67 ± 15

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test	TH
Matrix	SOLID
SDG	7093
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 6150-077					
R805079-01			7093-001	B1TFR1	1.12
R805079-02			7093-002	B1TFR2	0.883
R805079-03			7093-003	B1TFR5	0.639
R805079-04			7093-004	B1TFR6	0.549
R805079-06			7093-006	Lab Control Sample	ok
R805079-07			7093-007	Method Blank	U
R805079-08			7093-008	Duplicate (R805079-02)	ok
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	1.00

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 8.0 %	Reference Lab Notebook #6150, pg. 77												
R805079-01			B1TFR1	0.465	0.250			94		153			122	06/09/08	06/12	SS-055
R805079-02			B1TFR2	0.204	0.250			93		1265			119	06/09/08	06/10	SS-064
R805079-03			B1TFR5	0.197	0.250			91		1265			117	06/09/08	06/10	SS-065
R805079-04			B1TFR6	0.208	0.250			98		1265			112	06/09/08	06/10	SS-066
R805079-06			Lab Control Sample	0.246	0.250			100						06/09/08	06/12	ASPEC
R805079-07			Method Blank	0.389	0.250			103		153				06/09/08	06/12	SS-062
R805079-08			Duplicate (R805079-02)	0.188	0.250			84		1266			119	06/09/08	06/10	SS-062
Nominal values and limits from method				1.00	0.250			20-105		150			180			

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test	TH
Matrix	SOLID
SDG	7093
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H3723

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	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	0.271	±	0.221
FOR 7 SAMPLES	YIELD	95	±	13

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test	U
Matrix	SOLID
SDG	7093
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H3723

RESULTS

LAB SAMPLE 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
Preparation batch 6150-077											
R805079-05			7093-005	B1TFT2	0.338	U	0.602	56	48	0	15
R805079-06			7093-006	Lab Control Sample	ok	ok	ok				
R805079-07			7093-007	Method Blank	U	U	U				
R805079-09			7093-009	Duplicate (R805079-05)	ok	- U	ok	92	24	5	5
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
216-B55 SupplementalCharacterization								Averages 74		3	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 8.0 %	Reference Lab Notebook #6150, pg. 77												
R805079-05			B1TFT2	0.348	0.500			65		106			118	06/09/08	06/11	SS-028
R805079-06			Lab Control Sample	0.402	0.500			77		729				06/09/08	06/09	SS-034
R805079-07			Method Blank	0.298	0.500			65		106				06/09/08	06/11	SS-027
R805079-09			Duplicate (R805079-05)	0.056	0.500			85		728			116	06/09/08	06/09	SS-038
Nominal values and limits from method				1.00	0.500			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 4 SAMPLES				
MDA	0.276	±	0.305
YIELD	73	±	20

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test	SR
Matrix	SOLID
SDG	7093
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 6150-077						
R805079-05			7093-005	B1TFT2	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-09			7093-009	Duplicate (R805079-05)	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.120	
216-B55 SupplementalCharacterization						

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 10.4 % Reference Lab Notebook #6150, pg. 77													
R805079-05			B1TFT2	0.313	1.00			93		100			113	06/06/08	06/06	GRB-227
R805079-06			Lab Control Sample	0.373	1.00			93		100				06/06/08	06/06	GRB-221
R805079-07			Method Blank	0.319	1.00			94		100				06/06/08	06/06	GRB-229
R805079-09			Duplicate (R805079-05)	0.302	1.00			93		100			113	06/06/08	06/06	GRB-230
Nominal values and limits from method				0.120	1.00			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	0.327 ±	0.063
FOR 4 SAMPLES	YIELD	93 ±	1

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test TC Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 6150-077						
R805079-01			7093-001	B1TFR1	U	
R805079-02			7093-002	B1TFR2	U	
R805079-03			7093-003	B1TFR5	U	
R805079-04			7093-004	B1TFR6	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-08			7093-008	Duplicate (R805079-02)	-	U
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	12.0	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 13.2 % Reference Lab Notebook #6150, pg. 77													
R805079-01			B1TFR1	0.393	1.00			89		100			117	06/03/08	06/07	GRB-222
R805079-02			B1TFR2	0.743	0.500			94		100			116	06/03/08	06/07	GRB-223
R805079-03			B1TFR5	0.413	1.00			85		100			113	06/03/08	06/06	GRB-220
R805079-04			B1TFR6	0.455	1.00			84		100			109	06/03/08	06/07	GRB-225
R805079-06			Lab Control Sample	0.794	0.500			88		100				06/03/08	06/06	GRB-202
R805079-07			Method Blank	0.779	0.500			88		100				06/03/08	06/06	GRB-203
R805079-08			Duplicate (R805079-02)	0.866	0.500			81		100			116	06/03/08	06/07	GRB-202
Nominal values and limits from method				12.0	0.500			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 FOR 7 SAMPLES
MDA 0.635 ± 0.409
YIELD 87 ± 8

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test GAM Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6150-077								
R805079-05			7093-005	B1TFT2	U		U	
R805079-06			7093-006	Lab Control Sample	ok		ok	
R805079-07			7093-007	Method Blank	U		U	
R805079-09			7093-009	Duplicate (R805079-05)	-	U	-	U
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	0.050		0.100	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077 2σ prep error 7.0 % Reference Lab Notebook #6150, pg. 77																
R805079-05			B1TFT2	2.23	633					836			109	05/28/08	06/02	MB,08,00
R805079-06			Lab Control Sample	0.006	633					876				05/28/08	06/02	MB,07,00
R805079-07			Method Blank	1.15	633					856				05/28/08	06/02	01,01,00
R805079-09			Duplicate (R805079-05)	5.93	633					234			110	05/28/08	06/03	MB,06,00
Nominal values and limits from method				0.050	633					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.33 ± 5.13
YIELD ____ ± ____

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test H Matrix SOLID
SDG 7093
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 6150-077						
R805079-01			7093-001	B1TFR1	U	
R805079-02			7093-002	B1TFR2	U	
R805079-03			7093-003	B1TFR5	U	
R805079-04			7093-004	B1TFR6	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-08			7093-008	Duplicate (R805079-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	400	
216-B55 SupplementalCharacterization						

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 10.0 %	Reference Lab Notebook #6150, pg. 77												
R805079-01			B1TFR1	3.97	0.454			100		50			114	06/03/08	06/04	LSC-004
R805079-02			B1TFR2	4.20	0.429			100		50			113	06/03/08	06/04	LSC-004
R805079-03			B1TFR5	4.33	0.412			100		50			111	06/03/08	06/04	LSC-004
R805079-04			B1TFR6	4.31	0.415			100		50			106	06/03/08	06/04	LSC-004
R805079-06			Lab Control Sample	4.29	0.400			100		50				06/03/08	06/04	LSC-004
R805079-07			Method Blank	4.34	0.400			100		50				06/03/08	06/04	LSC-004
R805079-08			Duplicate (R805079-02)	4.14	0.430			100		50			113	06/03/08	06/04	LSC-004
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 FOR 7 SAMPLES
MDA 4.23 ± 0.269
YIELD 100 ± 0

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3723

Test	NI L Matrix SOLID
SDG	7093
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H3723

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 6150-077						
R805079-01			7093-001	B1TFR1	U	
R805079-02			7093-002	B1TFR2	U	
R805079-03			7093-003	B1TFR5	U	
R805079-04			7093-004	B1TFR6	U	
R805079-06			7093-006	Lab Control Sample	ok	
R805079-07			7093-007	Method Blank	U	
R805079-08			7093-008	Duplicate (R805079-02)	-	U
Nominal values and limits from method 216-B55 SupplementalCharacterization				RDLs (pCi/g)	30.0	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 6150-077			2σ prep error 11.2 % Reference Lab Notebook #6150, pg. 77													
R805079-01			B1TFR1	3.35	0.500			87		50			118	06/06/08	06/08	LSC-004
R805079-02			B1TFR2	6.27	0.250			93		50			117	06/06/08	06/08	LSC-004
R805079-03			B1TFR5	3.34	0.500			89		50			115	06/06/08	06/08	LSC-004
R805079-04			B1TFR6	3.38	0.500			87		50			110	06/06/08	06/08	LSC-004
R805079-06			Lab Control Sample	5.96	0.250			97		50				06/06/08	06/08	LSC-004
R805079-07			Method Blank	5.95	0.250			97		50				06/06/08	06/08	LSC-004
R805079-08			Duplicate (R805079-02)	6.44	0.250			90		50			117	06/06/08	06/08	LSC-004
Nominal values and limits from method				30.0	0.250			30-105		25			180			

PROCEDURES	REFERENCE	NI63_LSC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD	MDA	4.96	± 3.01
FOR 7 SAMPLES	YIELD	91	± 9

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3723

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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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3723

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).

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
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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.

SDG 7093
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3723

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

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3723

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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

SDG 7093
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3723

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 Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/16/08

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

F08-031-131

COLLECTOR
NCO Sampler KCP

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE 8N

DATA TURNAROUND
45 Days / 45 Days

SAMPLING LOCATION
C5942, I-1 4-6

PROJECT DESIGNATION
216-B-55 Supplemental Characterization

SAF NO.
F08-031 H3723 (7093)

AIR QUALITY ☐

ICE CHEST NO.
GLSS-5

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA
123055ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
Eberline Services

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
SEE PTR 7920516944490

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
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)

PRESERVATION None

TYPE OF CONTAINER G/P

NO. OF CONTAINER(S) 1

VOLUME 120mL

SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE
Radioactive Tie to B1TFM2

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B1TFR1	SOIL	2/11/08	1510								

024875

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
R. PFISTER	2/11/08 1544	BSS SITE FRIG	2/11/08 1544
B 55 site Ref	5-1-08 1100	D. Parch	5-1-08 1100
D. Parch	5-1-08 1300	D. Parch	5-1-08 1200
D. Parch	5-1-08 1600	MO 745 Ref #1	5-1-08
MO 745 REF #1	5/6/08 0730	V. Herrick	5/6/08 0730
V. Herrick	5/6/08 1000	FEDEX	
FED EX			05/07/08 09:20

SPECIAL INSTRUCTIONS

** Analytical batch QC must be run on a sample associated with this SAF.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

LABORATORY SECTION RECEIVED BY TITLE DATE/TIME

FINAL SAMPLE DISPOSITION DISPOSAL METHOD DISPOSED BY DATE/TIME

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-031-132

COLLECTOR
NCO Sampler

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE 8N

DATA TURNAROUND
45 Days / 45 Days

SAMPLING LOCATION
C5942, I-2 12.5'-14.5'

PROJECT DESIGNATION
216-B-55 Supplemental Characterization H3723 (7093)

SAF NO.
F08-031

AIR QUALITY ☐

ICE CHEST NO.
GUSS-5

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA
123055ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
Eberline Services

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
SEE PTR 792051694490

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
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)

PRESERVATION None

TYPE OF CONTAINER G/P

NO. OF CONTAINER(S) 1

VOLUME 120mL

SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE
Radioactive Tie to B1TFM3

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1TFR2	SOIL	2-12-08	11:20

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
E. Kraus/Schmidt Kraus	2-12-08 1210	B-55 Site Frig	2-12-08 1210
B-55 Site Rep	5-1-08 1100	D. Parker	5-1-08 1100
D. Parker	5-1-08 1200	MO 745 Rep	5-1-08 1300
MO 745 REF # B	5/6/08 0730	J. Herrick	5/6/08 0730
J. Herrick	5/6/08 1000	FED EX	
FED EX			05/07/08 09:20

SPECIAL INSTRUCTIONS

** Analytical batch QC must be run on a sample associated with this SAF.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

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

F08-031-135

COLLECTOR
NCO Sampler

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE 8N

DATA TURNAROUND
45 Days / 45 Days

SAMPLING LOCATION
C5942, I-4 27.5 - 30.0'

PROJECT DESIGNATION
216-B-55 Supplemental Characterization

SAF NO.
H3723 (7093)
F08-031

AIR QUALITY ☐

ICE CHEST NO.
Guss-5

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA
123055ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
Eberline Services

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
SEE PTR 79205/694490

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
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)

SPECIAL HANDLING AND/OR STORAGE
Radioactive Tie to B1TFM4

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1TFR5	SOIL	2-14-08	13:00

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
A. Kaiser / Edward Kaiser	2-14-08 1350	B-55 SITE FRIG	2-14-08 1350
B-55 Site Ref	5-1-08 1100	D. Parker / Q. Wang	5-1-08 1100
D. Parker / Q. Wang	5-1-08 1300	MO 745 Ref #1	5-1-08 1300
MO 745 REF #1	5/6/08 0730	J. Herrick / J. Herrick	5/6/08 0730
J. Herrick / J. Herrick	5/6/08 1000	FED EX	
FED EX			05/07/08 09:20

LABORATORY SECTION RECEIVED BY TITLE DATE/TIME

FINAL SAMPLE DISPOSITION DISPOSAL METHOD DISPOSED BY DATE/TIME

SPECIAL INSTRUCTIONS

** Analytical batch QC must be run on a sample associated with this SAF.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

A-6003-618(01/06)

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-031-136

COLLECTOR
NCO Sampler

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE 8N

DATA TURNAROUND
45 Days / 45 Days

SAMPLING LOCATION
C5942, I-5 47.5' - 50.0'

PROJECT DESIGNATION
216-B-55 Supplemental Characterization

H3723 (7093)

SAF NO.
F08-031

AIR QUALITY ☐

ICE CHEST NO.
Guss-5

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA
123055ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
Eberline Services

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
SEE PTR 792051694490

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
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)

SPECIAL HANDLING AND/OR STORAGE
Radioactive Tie to B1TFM6

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1TFR6	SOIL	2-19-08	13:00

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Ed Kruse / [signature]	2-19-08 13:25	B-55 [signature]	2-19-08 13:25
B-55 [signature]	5-1-08 1100	D. Parker [signature]	5-1-08
D. Parker [signature]	5-1-08 1300	MO 775 [signature]	5-1-08 1300
MO 745 REF #1	5/6/08 0730	J. Herrick [signature]	5/6/08 0730
J. Herrick [signature]	5/6/08 1000	FED EX	
FED EX		[signature]	05/07/08 09:20

SPECIAL INSTRUCTIONS

** Analytical batch QC must be run on a sample associated with this SAF.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

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

F08-031-141

COLLECTOR
NCO Sampler

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE 8N

DATA TURNAROUND
45 Days / 45 Days

SAMPLING LOCATION
C5942, ~~I~~-2-Split I-4 27.5-30.0

PROJECT DESIGNATION
216-B-55 Supplemental Characterization H3723 (7093)

SAF NO.
F08-031

AIR QUALITY ☐

ICE CHEST NO.
6U55-5

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA
123055ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
Eberline Services

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
SEE PTR 7920516944 90

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
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)

SPECIAL HANDLING AND/OR STORAGE
Radioactive Tie to B1TFM3

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
B1TFT2	SOIL	2-14-08	13 00

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible]	2-14-08 1350	B-55 Site Frig	2-14-08 1350
B-55 Site Ref	5-1-08 1100	D. Park	5-1-08 1100
D. Park	5-1-08 1130	MO 745 Ref	5-1-08 1130
MO 745 REF	5/6/08 0730	J. Heinich	5/6/08 0730
J. Heinich	5/6/08 1000	FED EX	
FED EX		[illegible]	05/07/08 09:10

SPECIAL INSTRUCTIONS

** Analytical batch QC must be run on a sample associated with this SAF.
** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} 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}

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

ESERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 5/7/08

7093

Client: F. HANFORD City: RICHLAND State: WA

Date/Time received: 05/07/08 09:20 CoC No. F08-131-131, 132, 135, 136, 141

Container I.D. No. GUSS-5 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: 5 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 05/07/08 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
B1TFR2	1800						
OTHERS	<60						

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No ____ Calibration date ____

Beta/Gamma Meter Ser. No. 100482 Calibration date 09MAY07

"over 55 years of quality nuclear services"

Form SCP-02, 07-30-07