

Eberline Services
W.O. No. R1-10-009-7097

Bechtel Hanford Inc.
SDG H1522

Case Narrative

RECEIVED
MAR 26 2002

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EDMC

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1522 was composed of three other solid (Rabbit Brush; a.k.a. Bunny Brush) samples designated under SAF No. B00-055 with a Project Designation of: 100-NR-1 TSD R.A. Sampling – Other Solid. Samples were analyzed as received (on a wet weight basis).

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on November 3 and 10, 2001.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analyses

The RPD (31%) between sample B13295 and its sample duplicate was greater than the 3σ limit (22%), but within BHI's protocol limit (35%). No other problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Isotopic Plutonium Analyses

Due to low yields (less than 20%) the Pu samples were reanalyzed with new QC samples. No problems were encountered during the course of the reanalyses.

2.5 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

There was contamination in the method blank from Cs-137 (24 pCi/g) greater the RDL (0.1 pCi/g). The client sample activities were greater than 5-times the blank activity. The method blank was counted twice to confirm the Cs-137 contamination. No other problems were encountered during the course of the analyses.

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 Mann
Melissa C. Mannion
Program Manager

11/12/01
Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

SAMPLE SUMMARY

SDG 7097
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H1522

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B13293	116-N-1 Trench-Perimeter	SOLID		R110009-01	B00-055	B00-055-011	09/20/01 09:00
B13294	116-N-1 Trench-Perimeter	SOLID		R110009-02	B00-055	B00-055-011	09/20/01 09:05
B13295	116-N-1 Trench-Perimeter	SOLID		R110009-03	B00-055	B00-055-011	09/20/01 09:10
Method Blank		SOLID		R110009-05	B00-055		
Method Blank		SOLID		R110009-08	B00-055		
Lab Control Sample		SOLID		R110009-04	B00-055		
Lab Control Sample		SOLID		R110009-07	B00-055		
Duplicate (R110009-03)	116-N-1 Trench-Perimeter	SOLID		R110009-06	B00-055		09/20/01 09:10
Duplicate (R110009-03)	116-N-1 Trench-Perimeter	SOLID		R110009-09	B00-055		09/20/01 09:10

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

SDG 7097
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1522

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7097	B00-055-011	B13293	SOLID	100.0	4.21 g		09/28/01	8	R110009-01	7097-001
		B13294	SOLID	100.0	2.08 g		09/28/01	8	R110009-02	7097-002
		B13295	SOLID	100.0	1.45 g		09/28/01	8	R110009-03	7097-003
		Method Blank	SOLID						R110009-05	7097-005
		Method Blank	SOLID						R110009-08	7097-008
		Lab Control Sample	SOLID						R110009-04	7097-004
		Lab Control Sample	SOLID						R110009-07	7097-007
		Duplicate (R110009-03)	SOLID	100.0	1.45 g		09/28/01	8	R110009-06	7097-006
		Duplicate (R110009-03)	SOLID	100.0	1.45 g		09/28/01	8	R110009-09	7097-009

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

SDG 7097
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1522

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS		DUP/ORIG MS/ORIG
Alpha Spectroscopy										
AM	SOLID	Americium 241 in Soil	7008-200	5.0	3			1	1	1/1
PU	SOLID	Plutonium, Isotopic in Solids	7008-200	5.0	3			1	1	1/1
Beta Counting										
SR	SOLID	Total Strontium in Soil	7008-200	10.0	3			1	1	1/1
Gas Proportional Counting										
93A	SOLID	Gross Alpha in Soil	7008-200	20.0	3			1	1	1/1
93B	SOLID	Gross Beta in Soil	7008-200	15.0	3			1	1	1/1
Gamma Spectroscopy										
GAM	SOLID	Gamma Scan	7008-200	15.0	3			1	1	1/1
Liquid Scintillation Counting										
NI_L	SOLID	Nickel 63 in Soil	7008-200	10.0	3			1	1	1/1

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

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

SDG 7097
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG_H1522

CLIENT SAMPLE ID	LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD
CUSTODY	SAF No	RECEIVED			FIX				
B13293		R110009-01	7097-001	93A/93		11/06/01	11/10/01	MCM	Gross Alpha in Soil
116-N-1 Trench-Perimeter	SOLID	09/20/01	7097-001	93B/93		10/23/01	11/03/01	MCM	Gross Beta in Soil
800-055-011	800-055	09/28/01	7097-001	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
			7097-001	GAM		10/22/01	11/10/01	MCM	Gamma Scan
			7097-001	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
			7097-001	PU	A1	11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
			7097-001	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
B13294		R110009-02	7097-002	93A/93		11/07/01	11/10/01	MCM	Gross Alpha in Soil
116-N-1 Trench-Perimeter	SOLID	09/20/01	7097-002	93B/93		10/23/01	11/03/01	MCM	Gross Beta in Soil
800-055-011	800-055	09/28/01	7097-002	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
			7097-002	GAM		10/22/01	11/10/01	MCM	Gamma Scan
			7097-002	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
			7097-002	PU	A1	11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
			7097-002	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
B13295		R110009-03	7097-003	93A/93		11/06/01	11/10/01	MCM	Gross Alpha in Soil
116-N-1 Trench-Perimeter	SOLID	09/20/01	7097-003	93B/93		10/23/01	11/03/01	MCM	Gross Beta in Soil
800-055-011	800-055	09/28/01	7097-003	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
			7097-003	GAM		11/01/01	11/10/01	MCM	Gamma Scan
			7097-003	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
			7097-003	PU	A1	11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
			7097-003	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
Method Blank		R110009-05	7097-005	93A/93		10/23/01	11/03/01	MCM	Gross Alpha in Soil
	SOLID		7097-005	93B/93		10/23/01	11/03/01	MCM	Gross Beta in Soil
	800-055		7097-005	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
			7097-005	GAM		11/07/01	11/10/01	MCM	Gamma Scan
			7097-005	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
			7097-005	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
Method Blank		R110009-08	7097-008	PU		11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
	SOLID								
	800-055								

Lab id TMANG
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

SDG 7097
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1522

CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample 800-055		SOLID	R110009-04	7097-004	93A/93		10/25/01	11/03/01	MCM	Gross Alpha in Soil
				7097-004	93B/93		10/25/01	11/03/01	MCM	Gross Beta in Soil
				7097-004	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
				7097-004	GAM		11/05/01	11/10/01	MCM	Gamma Scan
				7097-004	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
				7097-004	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
Lab Control Sample 800-055		SOLID	R110009-07	7097-007	PU		11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
Duplicate (R110009-03) 116-N-1 Trench-Perimeter 800-055		SOLID	R110009-06	7097-006	93A/93		11/06/01	11/10/01	MCM	Gross Alpha in Soil
			09/20/01	7097-006	93B/93		10/23/01	11/03/01	MCM	Gross Beta in Soil
			09/28/01	7097-006	AM		10/25/01	11/03/01	MCM	Americium 241 in Soil
				7097-006	GAM		11/05/01	11/10/01	MCM	Gamma Scan
				7097-006	NI_L		10/18/01	11/03/01	MCM	Nickel 63 in Soil
				7097-006	SR		10/17/01	11/03/01	MCM	Total Strontium in Soil
Duplicate (R110009-03) 116-N-1 Trench-Perimeter 800-055		SOLID	R110009-09	7097-009	PU		11/07/01	11/10/01	MCM	Plutonium, Isotopic in Solids
			09/20/01							
			09/28/01							

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	800-055	Gross Alpha in Soil	900.0_ALPHABETA_GPC	3			1	1	1		6
93B/93	800-055	Gross Beta in Soil	900.0_ALPHABETA_GPC	3			1	1	1		6
AM	800-055	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	3			1	1	1		6
GAM	800-055	Gamma Scan	GAMMA_GS	3			1	1	1		6
NI_L	800-055	Nickel 63 in Soil	NI63_LSC	3			1	1	1		6
PU	800-055	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	3			1	1	1		6
SR	800-055	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	3			1	1	1		6
TOTALS				21			7	7	7		42

Lab Id THANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-05

Method Blank

METHOD BLANK

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110009-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7097-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-055</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-1.12	1.9	4.7	10	U	93A
Gross Beta	12587-47-2	0.024	7.8	13	15	U	93B
Nickel 63	13981-37-8	-4.39	8.0	14	30	U	NI_L
Total Strontium	SR-RAD	0.341	1.6	<u>3.2</u>	1.0	U	SR
Americium 241	14596-10-2	-0.130	0.26	0.99	1.0	U	AM
Potassium 40	13966-00-2	U		45		U	GAM
Cobalt 60	10198-40-0	U		<u>5.2</u>	0.050	U	GAM
Cesium 137	10045-97-3	<u>24.0</u>	4.9	<u>4.5</u>	0.10		GAM
Radium 226	13982-63-3	U		<u>15</u>	0.10	U	GAM
Radium 228	15262-20-1	U		<u>29</u>	0.20	U	GAM
Europium 152	14683-23-9	U		<u>9.6</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>12</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>7.3</u>	0.10	U	GAM
Thorium 228	14274-82-9	U		5.5		U	GAM
Thorium 232	TH-232	U		29		U	GAM
Uranium 235	15117-96-1	U		12		U	GAM
Uranium 238	U-238	U		480		U	GAM
Americium 241	14596-10-2	U		6.6		U	GAM

100-NR-1 TSD Sites R.A. Sampling-OS

QC-BLANK 39912

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-08

Method Blank

METHOD BLANK

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110009-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7097-008</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-055</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Plutonium 238	13981-16-3	0.151	0.30	<u>1.2</u>	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.30	<u>1.2</u>	1.0	U	PU

100-NR-1 TSD Sites R.A. Sampling-OS

QC-BLANK #40133

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

R110009-04

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Marnion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R110009-04</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7097-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-055</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	REL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LNTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	196	17	4.9	10	93A	204	8.2	96	68-132	70-130
Gross Beta	229	15	13	15	93B	234	9.4	98	75-125	70-130
Nickel 63	1610	31	14	30	NI_L	1660	66	97	84-116	80-120
Total Strontium	325	11	<u>3.1</u>	1.0	SR	311	12	104	82-118	80-120
Americium 241	131	12	<u>1.1</u>	1.0	AM	136	5.4	96	84-116	80-120
Cobalt 60	327	12	<u>5.0</u>	0.050	GAM	327	13	100	76-124	80-120
Cesium 137	407	9.8	<u>5.0</u>	0.10	B GAM	375	15	108	75-125	80-120

100-NR-1 TSD Sites R.A. Sampling-08

QC-LCS 39911

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Harnion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R110009-07</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7097-007</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-055</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	MDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Plutonium 238	118	12	<u>1.1</u>	1.0	PU	123	4.9	96	83-117	80-120
Plutonium 239/240	131	14	<u>1.1</u>	1.0	PU	132	5.3	99	81-119	80-120

100-NR-1 TSD Sites R.A. Sampling-OS

QC-LCS #40132

Lab id <u>TMNC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

R110009-06

B13295

DUPLICATE

SDG <u>7097</u>		Client/Case no <u>Manford</u>		SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>		Case no <u>No. 630</u>		
DUPLICATE		ORIGINAL		
Lab sample id <u>R110009-06</u>	Lab sample id <u>R110009-03</u>	Client sample id <u>B13295</u>		
Dept sample id <u>7097-006</u>	Dept sample id <u>7097-003</u>	Location/Matrix <u>116-N-1 Trench-Perimeter SOLID</u>		
	Received <u>09/28/01</u>	Collected/Weight <u>09/20/01 09:10 1.45 g</u>		
% solids <u>100.0</u>	% solids <u>100.0</u>	Custody/SAF No <u>B00-055-011 B00-055</u>		

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	PROT LIMIT
Gross Alpha	1.87	2.3	3.7	10	U	93A	4.30	3.2	4.5	U	-		
Gross Beta	7370	68	12	15		93B	7360	68	10		0	32	
Nickel 63	-1.33	8.5	14	30	U	NI_L	-4.87	8.9	15	U	-		
Total Strontium	1600	26	<u>3.6</u>	1.0		SR	1170	22	<u>3.5</u>		<u>31</u>	22	
Americium 241	0.145	0.58	<u>1.1</u>	1.0	U	AM	0	0.92	<u>1.7</u>	U	-		
Potassium 40	U		40		U	GAM	U		24	U	-		
Cobalt 60	13.0	4.6	<u>4.1</u>	0.050		GAM	12.0	2.9	<u>2.4</u>		8	73	
Cesium 137	5130	35	<u>8.9</u>	0.10	B	GAM	5390	26	<u>5.7</u>	B	5	32	
Radium 226	U		<u>12</u>	0.10	U	GAM	U		<u>8.9</u>	U	-		
Radium 228	U		<u>19</u>	0.20	U	GAM	U		<u>8.8</u>	U	-		
Europium 152	U		<u>27</u>	0.10	U	GAM	U		<u>18</u>	U	-		
Europium 154	U		<u>12</u>	0.10	U	GAM	U		<u>5.7</u>	U	-		
Europium 155	U		<u>11</u>	0.10	U	GAM	U		<u>10</u>	U	-		
Thorium 228	U		9.8		U	GAM	U		7.3	U	-		
Thorium 232	U		19		U	GAM	U		8.8	U	-		
Uranium 235	U		20		U	GAM	U		15	U	-		
Uranium 238	U		580		U	GAM	U		260	U	-		
Americium 241	U		5.4		U	GAM	U		12	U	-		

100-NR-1 TSD Sites R.A. Sampling-OS

QC-DUP#3 39913

DUPLICATES
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SUMMARY DATA SECTION
Page 12

Lab id IMANC
Protocol Manford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-09

B13295

DUPLICATE

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R110009-09</u>	Lab sample id <u>R110009-03</u>	Client sample id <u>B13295</u>
Dept sample id <u>7097-009</u>	Dept sample id <u>7097-003</u>	Location/Matrix <u>116-N-1 Trench-Perimeter SOLID</u>
	Received <u>09/28/01</u>	Collected/Weight <u>09/20/01 09:10 1.45 g</u>
% solids <u>100.0</u>	% solids <u>100.0</u>	Custody/SAF No <u>B00-055-011 B00-055</u>

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	PROT LIMIT
Plutonium 238	0	0.28	<u>1.1</u>	1.0	U	PU	0.144	0.29	<u>1.1</u>	U	-		
Plutonium 239/240	0.138	0.28	<u>1.1</u>	1.0	U	PU	0.143	0.29	<u>1.1</u>	U	-		

100-NR-1 TSD Sites R.A. Sampling-06

QC-DUP#3A1 40134

Lab id <u>TMANG</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-01

B13293

DATA SHEET

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110009-01</u>	Client sample id <u>B13293</u>	
Dept sample id <u>7097-001</u>	Location/Matrix <u>116-N-1 Trench-Perimeter SOLID</u>	
Received <u>09/28/01</u>	Collected/Weight <u>09/20/01 09:00 4.21 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-055-011</u>	<u>B00-055</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	16.0	4.4	3.8	10		93A
Gross Beta	12587-47-2	25000	100	10	15		93B
Nickel 63	13981-37-8	42.2	7.1	9.8	30		NI_L
Total Strontium	SR-RAD	2770	23	<u>2.0</u>	1.0		SR
Americium 241	14596-10-2	3.70	1.2	0.77	1.0		AM
Plutonium 238	13981-16-3	0.603	0.72	0.92	1.0	U	PU
Plutonium 239/240	PU-239/240	4.10	1.5	0.92	1.0		PU
Potassium 40	13966-00-2	U		25		U	GAM
Cobalt 60	10198-40-0	406	8.9	<u>3.4</u>	0.050		GAM
Cesium 137	10045-97-3	26000	50	<u>11</u>	0.10		GAM
Radium 226	13982-63-3	U		<u>14</u>	0.10	U	GAM
Radium 228	15262-20-1	U		<u>21</u>	0.20	U	GAM
Europium 152	14683-23-9	U		<u>34</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>7.4</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>13</u>	0.10	U	GAM
Thorium 228	14274-82-9	U		14		U	GAM
Thorium 232	TH-232	U		21		U	GAM
Uranium 235	15117-96-1	U		23		U	GAM
Uranium 238	U-238	U		640		U	GAM
Americium 241	14596-10-2	U		9.4		U	GAM

100-NR-1 TSD Sites R.A. Sampling-OS

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-02

B13294

DATA SHEET

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110009-02</u>	Client sample id <u>B13294</u>	
Dept sample id <u>7097-002</u>	Location/Matrix <u>116-N-1 Trench-Perimeter SOLID</u>	
Received <u>09/28/01</u>	Collected/Weight <u>09/20/01 09:05 2.08 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-055-011 B00-055</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.111	1.3	2.8	10	U	93A
Gross Beta	12587-47-2	15100	81	6.5	15		93B
Nickel 63	13981-37-8	33.3	7.5	11	30		NI_L
Total Strontium	SR-RAD	1190	15	2.1	1.0		SR
Americium 241	14596-10-2	0	0.17	0.66	1.0	U	AM
Plutonium 238	13981-16-3	0.134	0.53	1.3	1.0	U	PU
Plutonium 239/240	PU-239/240	0.134	0.27	1.0	1.0	U	PU
Potassium 40	13966-00-2	U		12		U	GAM
Cobalt 60	10198-40-0	43.6	2.5	1.6	0.050		GAM
Cesium 137	10045-97-3	17200	30	5.8	0.10	B	GAM
Radium 226	13982-63-3	U		7.8	0.10	U	GAM
Radium 228	15262-20-1	U		5.2	0.20	U	GAM
Europium 152	14683-23-9	U		18	0.10	U	GAM
Europium 154	15585-10-1	U		2.9	0.10	U	GAM
Europium 155	14391-16-3	U		9.0	0.10	U	GAM
Thorium 228	14274-82-9	U		7.5		U	GAM
Thorium 232	TH-232	U		5.2		U	GAM
Uranium 235	15117-96-1	U		15		U	GAM
Uranium 238	U-238	U		200		U	GAM
Americium 241	14596-10-2	U		11		U	GAM

100-NR-1 TSD Sites R.A. Sampling-OS

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1522

R110009-03

B13295

DATA SHEET

SDG <u>7097</u>	Client/Case no <u>Hanford</u>	SDG <u>H1522</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110009-03</u>	Client sample id <u>B13295</u>	
Dept sample id <u>7097-003</u>	Location/Matrix <u>116-N-1 Trench-Perimeter SOLID</u>	
Received <u>09/28/01</u>	Collected/Weight <u>09/20/01 09:10 1.45 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-055-011 B00-055</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	4.30	3.2	4.5	10	U	93A
Gross Beta	12587-47-2	7360	68	10	15		93B
Nickel 63	13981-37-8	-4.87	8.9	15	30	U	NI_L
Total Strontium	SR-RAD	1170	22	3.5	1.0		SR
Americium 241	14596-10-2	0	0.92	1.7	1.0	U	AM
Plutonium 238	13981-16-3	0.144	0.29	1.1	1.0	U	PU
Plutonium 239/240	PU-239/240	0.143	0.29	1.1	1.0	U	PU
Potassium 40	13966-00-2	U		24		U	GAM
Cobalt 60	10198-40-0	12.0	2.9	2.4	0.050		GAM
Cesium 137	10045-97-3	5390	26	5.7	0.10	B	GAM
Radium 226	13982-63-3	U		8.9	0.10	U	GAM
Radium 228	15262-20-1	U		8.8	0.20	U	GAM
Europium 152	14683-23-9	U		18	0.10	U	GAM
Europium 154	15585-10-1	U		5.7	0.10	U	GAM
Europium 155	14391-16-3	U		10	0.10	U	GAM
Thorium 228	14274-82-9	U		7.3		U	GAM
Thorium 232	TH-232	U		8.8		U	GAM
Uranium 235	15117-96-1	U		15		U	GAM
Uranium 238	U-238	U		260		U	GAM
Americium 241	14596-10-2	U		12		U	GAM

100-NR-1 TSD Sites R.A. Sampling-OS

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/10/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test AM Matrix SOLID
 SDG 7097
 Contact Melissa C. Mannion

METHOD SUMMARY
 AMERICIUM 241 IN SOIL
 ALPHA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	Americium 241
Preparation batch 7008-200				
B13293	R110009-01		7097-001	3.70
B13294	R110009-02		7097-002	U
B13295	R110009-03		7097-003	U
BLK (QC ID=39912)	R110009-05		7097-005	U
LCS (QC ID=39911)	R110009-04		7097-004	ok
Duplicate (R110009-03)	R110009-06		7097-006	- U
Nominal values and limits from method				
100-NR-1 TSD Sites R.A. Sampling-OS			RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 5.0 % Reference Lab Notebook 7008 pg. 200														
B13293	R110009-01		0.77	0.100			86		145			35	10/18/01	SS-031
B13294	R110009-02		0.66	0.100			97		145			35	10/18/01	SS-032
B13295	R110009-03		<u>1.7</u>	0.0700			75		146			35	10/18/01	SS-041
BLK (QC ID=39912)	R110009-05		0.99	0.0700			88		145				10/18/01	SS-043
LCS (QC ID=39911)	R110009-04		<u>1.1</u>	0.0700			83		146				10/18/01	SS-042
Duplicate (R110009-03) (QC ID=39913)	R110009-06		<u>1.1</u>	0.0700			77		146			35	10/18/01	SS-044
Nominal values and limits from method														
			1.0	0.0700			20-105		100	100		180		

PROCEDURES	REFERENCE	ANCMISO_IE_PLATE_AEA
CP-060		Soil Preparation, rev 3
CP-070		Soil Dissolution, < 1.0g Aliquot, rev 4
CP-940		Plutonium Separation and Purification, rev 3
CP-960		Americium-Curium Purification, Large Aliquot, rev 4
CP-008		Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 6 SAMPLES	MDA <u>1.1</u> ± <u>0.73</u>
	YIELD <u>84</u> ± <u>16</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test PU Matrix SOLID
SDG 7097
Contact Melissa C. Mannion

METHOD SUMMARY
PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Plutonium 238 PLANCHET	Plutonium 239/240
Preparation batch 7008-200					
B13293	R110009-01	A1	7097-001	U	4.10
B13294	R110009-02	A1	7097-002	U	U
B13295	R110009-03	A1	7097-003	U	U
BLK (QC ID=40133)	R110009-08		7097-008	U	U
LCS (QC ID=40132)	R110009-07		7097-007	ok	ok
Duplicate (R110009-03)	R110009-09		7097-009	- U	- U
Nominal values and limits from method		RDIs (pCi/g)		1.0	1.0
100-MR-1 TSD Sites R.A. Sampling-OS					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 5.0 % Reference Lab Notebook 7008 pg. 200																
B13293	R110009-01	A1		0.92	0.100			86	117				48	11/07/01	11/07	SS-032
B13294	R110009-02	A1		<u>1.3</u>	0.100			74	116				48	11/07/01	11/07	SS-041
B13295	R110009-03	A1		<u>1.1</u>	0.100			69	117				48	11/07/01	11/07	SS-042
BLK (QC ID=40133)	R110009-08			<u>1.2</u>	0.100			64	116				11/07/01	11/07		SS-044
LCS (QC ID=40132)	R110009-07			<u>1.1</u>	0.100			68	115				11/07/01	11/07		SS-043
Duplicate (R110009-03) (QC ID=40134)	R110009-09			<u>1.1</u>	0.100			73	115				48	11/07/01	11/07	SS-047
Nominal values and limits from method				1.0	0.100			20-105	100	100			180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
CP-060		Soil Preparation, rev 3
CP-940		Plutonium Separation and Purification, rev 3
CP-008		Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD	MDA <u>1.1</u> ± <u>0.25</u>
FOR 6 SAMPLES	YIELD <u>72</u> ± <u>15</u>

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test SR Matrix SOLID
SDG 7097
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7008-200					
B13293	R110009-01			7097-001	2770
B13294	R110009-02			7097-002	1190
B13295	R110009-03			7097-003	1170
BLK (QC ID=39912)	R110009-05			7097-005	U
LCS (QC ID=39911)	R110009-04			7097-004	ok
Duplicate (R110009-03)	R110009-06			7097-006	OUT
Nominal values and limits from method		RDls (pCi/g)		1.0	
100-NR-1 TSD Sites R.A. Sampling-05					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 10.0 % Reference Lab Notebook 7008 pg. 200															
B13293	R110009-01			<u>2.0</u>	0.100			77	200				27	10/17/01	GRB-220
B13294	R110009-02			<u>2.1</u>	0.100			77	200				27	10/17/01	GRB-202
B13295	R110009-03			<u>3.5</u>	0.0700			77	100				27	10/17/01	GRB-223
BLK (QC ID=39912)	R110009-05			<u>3.2</u>	0.0700			76	100					10/17/01	GRB-203
LCS (QC ID=39911)	R110009-04			<u>3.1</u>	0.0700			81	100					10/17/01	GRB-204
Duplicate (R110009-03) (QC ID=39913)	R110009-06			<u>3.6</u>	0.0700			77	100				27	10/17/01	GRB-208
Nominal values and limits from method				1.0	0.0700			30-105	100			180			

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-502 Strontium in Solids, rev 4
CP-519 Strontium Planchet Demounting and Preparation for 90Y Decontamination, rev 3

AVERAGES ± 2 SD MDA 2.9 ± 1.4
FOR 6 SAMPLES YIELD 78 ± 4

Lab id THANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test 93A Matrix SOLID
 SDG 7097
 Contact Melissa C. Mervin

METHOD SUMMARY
 GROSS ALPHA IN SOIL
 GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7008-200					
B13293	R110009-01	93		7097-001	16.0
B13294	R110009-02	93		7097-002	U
B13295	R110009-03	93		7097-003	U
BLK (QC ID=39912)	R110009-05	93		7097-005	U
LCS (QC ID=39911)	R110009-04	93		7097-004	ok
Duplicate (R110009-03)	R110009-06	93		7097-006	- U
Nominal values and limits from method					RDls (pCi/g) 10
100-NR-1 TSD Sites R.A. Sampling-05					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 20.0 % Reference Lab Notebook 7008 pg. 200															
B13293	R110009-01	93		3.8	0.100			19	100	47	10/12/01	11/06	GRB-113		
B13294	R110009-02	93		2.8	0.100			10	100	48	10/12/01	11/07	GRB-116		
B13295	R110009-03	93		4.5	0.0700			7	100	47	10/12/01	11/06	GRB-115		
BLK (QC ID=39912)	R110009-05	93		4.7	0.0700			21	100		10/12/01	10/23	GRB-114		
LCS (QC ID=39911)	R110009-04	93		4.9	0.0700			22	100		10/12/01	10/25	GRB-114		
Duplicate (R110009-03) (QC ID=39913)	R110009-06	93		3.7	0.0700			6	100	47	10/12/01	11/06	GRB-116		
Nominal values and limits from method				10	0.0700			5-250	100				180		

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
 CP-060 Soil Preparation, rev 3
 CP-070 Soil Dissolution, < 1.0g Aliquot, rev 4
 CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3

AVERAGES ± 2 SD MDA 4.1 ± 1.6
 FOR 6 SAMPLES RESIDUE 14 ± 15

Lab id THANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test 938 Matrix SOLID
 SDG 7097
 Contact Melissa C. Mannion

METHOD SUMMARY
 GROSS BETA IN SOIL
 GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 7008-200					
B13293	R110009-01	93		7097-001	25000
B13294	R110009-02	93		7097-002	15100
B13295	R110009-03	93		7097-003	7360
BLK (QC ID=39912)	R110009-05	93		7097-005	U
LCS (QC ID=39911)	R110009-04	93		7097-004	ok
Duplicate (R110009-03)	R110009-06	93		7097-006	ok

Nominal values and limits from method RDLs (pCi/g) 15
 100-MR-1 TSD Sites R.A. Sampling-08

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 15.0 % Reference Lab Notebook 7008 pg. 200															
B13293	R110009-01	93		10	0.100			19	100				33	10/12/01	10/23 GRB-108
B13294	R110009-02	93		6.5	0.100			10	100				33	10/12/01	10/23 GRB-109
B13295	R110009-03	93		10	0.0700			7	100				33	10/12/01	10/23 GRB-110
BLK (QC ID=39912)	R110009-05	93		13	0.0700			21	100					10/12/01	10/23 GRB-114
LCS (QC ID=39911)	R110009-04	93		13	0.0700			22	100					10/12/01	10/25 GRB-114
Duplicate (R110009-03) (QC ID=39913)	R110009-06	93		12	0.0700			6	100				33	10/12/01	10/23 GRB-115

Nominal values and limits from method 15 0.0700 5-250 100 180

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	CP-060	Soil Preparation, rev 3
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3

AVERAGES ± 2 SD	MDA <u>11</u> ± <u>5.0</u>
FOR 6 SAMPLES	RESIDUE <u>14</u> ± <u>15</u>

Lab id THANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP #1522

Test GAM Matrix SOLID
SDG 7097
Contact Melissa C. Hannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG #1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7008-200					
B13293	R110009-01	7097-001		406	26000
B13294	R110009-02	7097-002		43.6	17200
B13295	R110009-03	7097-003		12.0	5390
BLK (QC ID=39912)	R110009-05	7097-005		U	24.0
LCS (QC ID=39911)	R110009-04	7097-004		ok	ok
Duplicate (R110009-03)	R110009-06	7097-006		ok	ok
Nominal values and limits from method			RDLs (pCi/g)	0.050	0.10
100-MR-1 TSD Sites R.A. Sampling-08					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED PREPARED	DETECTOR
Preparation batch 7008-200 2σ prep error 15.0 % Reference Lab Notebook 7008 pg. 200														
B13293	R110009-01		<u>11</u>	1.54					945		32	10/13/01	10/22	SP,01,00
B13294	R110009-02		<u>3.0</u>	1.30					945		32	10/13/01	10/22	SP,04,00
B13295	R110009-03		<u>5.0</u>	0.640					684		42	10/13/01	11/01	SP,04,00
BLK (QC ID=39912)	R110009-05		<u>7.3</u>	0.640					668			10/13/01	11/07	JR,04,00
LCS (QC ID=39911)	R110009-04		<u>5.0</u>	0.640					431			10/13/01	11/05	SP,04,00
Duplicate (R110009-03)	R110009-06		<u>10</u>	0.640					929		46	10/13/01	11/05	SP,01,00
(QC ID=39913)														
Nominal values and limits from method			0.050	0.640					100					180

PROCEDURES REFERENCE GAMMA_GS
CP-060 Soil Preparation, rev 3
CP-100 Ge(Li) Preparation for Commercial Samples, rev 3

AVERAGES ± 2 SD MDA 6.9 ± 6.3
FOR 6 SAMPLES YIELD _____ ± _____

Lab id TMAC
Protocol Hanford
Version Ver 1.0
Form RVD-CMS
Version 3.06
Report date 11/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1522

Test NI L Matrix SOLID
 SDG 7097
 Contact Melissa C. Mannion

METHOD SUMMARY
 NICKEL 63 IN SOIL
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H1522

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	Nickel 63
Preparation batch 7008-200				
B13293	R110009-01		7097-001	42.2
B13294	R110009-02		7097-002	33.3
B13295	R110009-03		7097-003	U
BLK (QC ID=39912)	R110009-05		7097-005	U
LCS (QC ID=39911)	R110009-04		7097-004	ok
Duplicate (R110009-03)	R110009-06		7097-006	- U

Nominal values and limits from method 100-NR-1 TSD Sites R.A. Sampling-05
 RDLs (pCi/g) 30

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7008-200 2σ prep error 10.0 % Reference Lab Notebook 7008 pg. 200															
B13293	R110009-01		9.8	0.100			93	100			28	10/18/01	10/18	LSC-005	
B13294	R110009-02		11	0.100			83	100			28	10/18/01	10/18	LSC-005	
B13295	R110009-03		15	0.0700			84	100			28	10/18/01	10/18	LSC-005	
BLK (QC ID=39912)	R110009-05		14	0.0700			93	100				10/18/01	10/18	LSC-005	
LCS (QC ID=39911)	R110009-04		14	0.0700			94	100				10/18/01	10/18	LSC-005	
Duplicate (R110009-03) (QC ID=39913)	R110009-06		14	0.0700			89	100			28	10/18/01	10/18	LSC-005	

Nominal values and limits from method 30 0.0700 30-105 50 180

PROCEDURES REFERENCE NI63_LSC
 CP-060 Soil Preparation, rev 3
 CP-431 Nickel-63 Purification, rev 4

AVERAGES ± 2 SD NDA 13 ± 4.1
 FOR 6 SAMPLES YIELD 89 ± 10

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 11/10/01

2

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-055-011	Page 1 of 2
Collector R.B. Kerkow	Company Contact J.D. Fancher	Telephone No. 313-9123	Project Coordinator TRENT, SJ	Price Code 7K	Data Turnaround 15 days
Project Designation 100-NR-1 TSD Sites R. A. Sampling - Other Solid	Sampling Location 116-N-1 Trench (Perimeter)	H1522 (7097)		SAF No. B00-055	Air Quality <input type="checkbox"/>
Ice Chest No. ERC-01-025	Field Logbook No. EL-1524-1	COA R130IN2600	Method of Shipment		
Shipped To TMA/RECRA	Offsite Property No. RSR# 107031	Bill of Lading/Air Bill No. NA			

POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Special Handling and/or Storage None	Preservation	None				Sample originally sent to RCF for on site analysis. Page 1 of 2 represents custody transfer to RCF. The sample was picked up from RCF and re-labeled for off-site analysis. A new COC was generated for appropriate off site custody transfer. Page 1 of 2 represents custody transfer to offsite laboratory for directed analysis. RT 9-27-01
	Type of Container	Metals Pill Box	PR 9/26/01			
	No. of Container(s)	1				
	Volume	60ml	PR 9/26/01			

SAMPLE ANALYSIS					See item (1) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time								
B13293	OTHER SOLID	9-20-01	0900	X						B12FK4	1
B13294	OTHER SOLID	9-20-01	0905	X						B12FK5	2
B13295	OTHER SOLID	9-20-01	0910	X						B12FK6	3

CHAIN OF POSSESSION		Sign/Print Names	SPECIAL INSTRUCTIONS		Matrix *
Relinquished By RB Kerkow	Date/Time 9/26/01 1400	Received By R. Thoren	Date/Time 9-26-01 1430	Lab COA: R130IN2P00 (1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium; Americium-241; Strontium-89,90 - Total Sr; Nickel-63; Tritium-H3 * DELETE TRITIUM - H3 ANALYSIS.	G-Gas SD-Sediment SO-Soil S-Slag W-Water O-Oil A-Air DL-Dissolved Solids LI-Liquor L-Liquid V-Vegetation O-Other
Relinquished By R. Thoren	Date/Time 9-26-01 1430	Received By IA 3728	Date/Time 9-26-01 1430		
Relinquished By R. Thoren	Date/Time 9-27-01 0830	Received By R. Thoren	Date/Time 9-27-01 0830		
Relinquished By R. Thoren	Date/Time 9-27-01 0830	Received By FED EX	Date/Time 9-27-01 0830		
Relinquished By Fed Ex	Date/Time 9-28-01 9:20	Received By W. J. R. L. L. L.	Date/Time 9-28-01 9:32		

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Beshtel Hartford Date/Time received 9-28-01 9:30

CoC No. BDD-055-011

Container I.D. No. ERC-01-025 Requested TAT (Days) 15 P.O. Received Yes [] No []

INSPECTION

1. Custody seals on shipping container intact? Yes [] No [] N/A []
2. Custody seals on shipping container dated & signed? Yes [] No [] N/A []
3. Custody seals on sample containers intact? Yes [] No [] N/A []
4. Custody seals on sample containers dated & signed? Yes [] No [] N/A []
5. Cooler Temperature: _____ Packing material is: Wet [] Dry []
6. Number of samples in shipping container: 3
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [] No []
9. Samples have: Tape [] Hazard labels [] Red labels [] Appropriate sample labels []
10. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [] No [] Date _____
14. Received by A. Corwin Date: 9-28-01 Time: 9:30

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr
<u>B13293</u>	<u>1400</u>	<u>50.01</u>	_____	_____	_____
<u>B13294</u>	<u>510</u>	<u>50.01</u>	_____	_____	_____
<u>B13295</u>	<u>410</u>	<u>50.01</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Ion Chamber Ser. No. 1198 Calibration date 1-5-01

Survey Meter Ser No. 112 Calibration date 5-12-01