H1250

0055510

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1250 was composed of two solid (soil) samples designated under SAF No. B00-029 with a Project Designation of: 100 F Area – Quick Turn.

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 March 9, 2001.

RECEIVED
OCT 23 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

No 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 Mannion

Melissa C. Mannion
Program Manager

3/9/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

SAMPLE SUMMARY

SDG 7637
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1250

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11DF5	100-F-19	SOLID		R102119-01	B00-029	B00-029-075	02/14/01 09:30
B11DF6	100-F-19	SOLID		R102119-02	B00-029	B00-029-075	02/14/01 09:39
Method Blank		SOLID		R102119-04	B00-029		
Lab Control Sample		SOLID		R102119-03	B00-029		
Duplicate (R102119-01)	100-F-19	SOLID		R102119-05	B00-029		02/14/01 09:30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

QC SUMMARY

SDG 7637
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1250

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
7637	B00-029-075	B11DF5	SOLID	95.7			02/23/01	9	R102119-01	7637-001
		B11DF6	SOLID	96.1			02/23/01	9	R102119-02	7637-002
		Method Blank	SOLID						R102119-04	7637-004
		Lab Control Sample	SOLID						R102119-03	7637-003
		Duplicate (R102119-01)	SOLID	95.7			02/23/01	9	R102119-05	7637-005

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

SDG 7637
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1250

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOLID	Plutonium, Isotopic in Solids	6963-172	5.0	2			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6963-172	5.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6963-172	10.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6963-172	15.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6963-172	10.0	2			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6963-172	10.0	2			1	1	1/1		

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

WORK SUMMARY

SDG 7637
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1250

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11DF5			R102119-01	7637-001	C		02/27/01	03/09/01	MCM	Carbon 14 in Soil
100-F-19		SOLID	02/14/01	7637-001	GAM		02/26/01	03/09/01	MCM	Gamma Scan
B00-029-075	B00-029		02/23/01	7637-001	NI_L		03/02/01	03/09/01	MCM	Nickel 63 in Soil
				7637-001	PU		03/01/01	03/09/01	MCM	Plutonium, Isotopic in Solids
				7637-001	SR		02/27/01	03/09/01	MCM	Total Strontium in Soil
				7637-001	U		02/27/01	03/09/01	MCM	Uranium, Isotopic in Soil
B11DF6			R102119-02	7637-002	C		02/27/01	03/09/01	MCM	Carbon 14 in Soil
100-F-19		SOLID	02/14/01	7637-002	GAM		02/26/01	03/09/01	MCM	Gamma Scan
B00-029-075	B00-029		02/23/01	7637-002	NI_L		03/02/01	03/09/01	MCM	Nickel 63 in Soil
				7637-002	PU		03/01/01	03/09/01	MCM	Plutonium, Isotopic in Solids
				7637-002	SR		02/27/01	03/09/01	MCM	Total Strontium in Soil
				7637-002	U		02/27/01	03/09/01	MCM	Uranium, Isotopic in Soil
Method Blank			R102119-04	7637-004	C		02/27/01	03/09/01	MCM	Carbon 14 in Soil
		SOLID		7637-004	GAM		02/26/01	03/09/01	MCM	Gamma Scan
	B00-029			7637-004	NI_L		03/02/01	03/09/01	MCM	Nickel 63 in Soil
				7637-004	PU		03/01/01	03/09/01	MCM	Plutonium, Isotopic in Solids
				7637-004	SR		02/27/01	03/09/01	MCM	Total Strontium in Soil
				7637-004	U		02/27/01	03/09/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R102119-03	7637-003	C		02/27/01	03/09/01	MCM	Carbon 14 in Soil
		SOLID		7637-003	GAM		02/26/01	03/09/01	MCM	Gamma Scan
	B00-029			7637-003	NI_L		03/02/01	03/09/01	MCM	Nickel 63 in Soil
				7637-003	PU		03/01/01	03/09/01	MCM	Plutonium, Isotopic in Solids
				7637-003	SR		02/27/01	03/09/01	MCM	Total Strontium in Soil
				7637-003	U		02/27/01	03/09/01	MCM	Uranium, Isotopic in Soil
Duplicate (R102119-01)			R102119-05	7637-005	C		02/27/01	03/09/01	MCM	Carbon 14 in Soil
100-F-19		SOLID	02/14/01	7637-005	GAM		02/26/01	03/09/01	MCM	Gamma Scan
	B00-029		02/23/01	7637-005	NI_L		03/02/01	03/09/01	MCM	Nickel 63 in Soil
				7637-005	PU		03/01/01	03/09/01	MCM	Plutonium, Isotopic in Solids
				7637-005	SR		02/27/01	03/09/01	MCM	Total Strontium in Soil
				7637-005	U		02/27/01	03/09/01	MCM	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

SDG 7637
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1250

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	B00-029	Carbon 14 in Soil	C14_COX_LSC	2			1	1	1	5
GAM	B00-029	Gamma Scan	GAMMA_GS	2			1	1	1	5
NI_L	B00-029	Nickel 63 in Soil	NI63_LSC	2			1	1	1	5
PU	B00-029	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2			1	1	1	5
SR	B00-029	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
U	B00-029	Uranium, Isotopic in Soil	UISO_PLATE_AEA	2			1	1	1	5
TOTALS				12			6	6	6	30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1250

R102119-04 Method Blank

METHOD BLANK

SDG	7637	Client/Case no	Hanford	SDG H1250	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102119-04	Client sample id	Method Blank		
Dept sample id	7637-004	Material/Matrix		SOLID	
		SAF No	B00-029		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.30	3.0	5.0	50	U	C
Nickel 63	13981-37-8	-0.147	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.040	0.14	0.31	1.0	U	SR
Uranium 233	U-233/234	-0.024	0.048	0.18	1.0	U	U
Uranium 235	15117-96-1	0	0.058	0.22	1.0	U	U
Uranium 238	U-238	0	0.048	0.18	1.0	U	U
Plutonium 238	13981-16-3	0	0.075	0.29	1.0	U	PU
Plutonium 239/240	PU-239/240	0.037	0.075	0.29	1.0	U	PU
Potassium 40	13966-00-2	U		0.41		U	GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.10	U	GAM
Radium 226	13982-63-3	U		0.051	0.10	U	GAM
Radium 228	15262-20-1	U		0.099	0.20	U	GAM
Europium 152	14683-23-9	U		0.066	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.062	0.10	U	GAM
Thorium 228	14274-82-9	U		0.034		U	GAM
Thorium 232	TH-232	U		0.099		U	GAM
Uranium 235	15117-96-1	U		0.097		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Americium 241	14596-10-2	U		0.081		U	GAM

100 F Area - Quick Turn

QC-BLANK 37746

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

R102119-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7637
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1250
Case no TRC-SBB-207925

Lab sample id R102119-03
Dept sample id 7637-003

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-029

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
Carbon 14	9790	200	30	50		C	11300	450	87	85-115	80-120
Nickel 63	228	4.9	2.5	30		NI_L	232	9.3	98	84-116	80-120
Total Strontium	23.1	0.94	0.29	1.0		SR	21.9	0.88	106	82-118	80-120
Uranium 233	18.7	1.7	0.84	1.0		U	18.6	0.74	100	83-117	80-120
Uranium 235	15.6	1.5	0.18	1.0		U	15.1	0.60	103	82-118	80-120
Uranium 238	20.7	1.8	0.81	1.0		U	20.2	0.81	102	83-117	80-120
Plutonium 238	25.1	2.7	0.23	1.0		PU	24.8	0.99	101	81-119	80-120
Plutonium 239/240	29.1	3.0	0.23	1.0		PU	26.4	1.1	110	80-120	80-120
Cobalt 60	0.432	0.068	0.038	0.050		GAM	0.414	0.017	104	65-135	80-120
Cesium 137	0.386	0.053	0.037	0.10		GAM	0.409	0.016	94	71-129	80-120

100 F Area - Quick Turn

QC-LCS 37745

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

R102119-05 B11DF5

DUPLICATE

SDG	7637			Client/Case no	Hanford SDG H1250
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R102119-05	Lab sample id	R102119-01	Client sample id	B11DF5
Dept sample id	7637-005	Dept sample id	7637-001	Location/Matrix	100-F-19 SOLID
		Received	02/23/01	Collected	02/14/01 09:30
% solids	95.7	% solids	95.7	Custody/SAF No	B00-029-075 B00-029

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 PROT TOT LIMIT
Carbon 14	2.80	3.0	5.0	50	U	C	3.09	3.0	4.9	U	-	
Nickel 63	131	3.5	2.3	30		NI_L	127	3.3	2.2		3	22
Total Strontium	0.543	0.18	0.25	1.0	J	SR	0.589	0.13	0.14	J	8	63
Uranium 233	0.389	0.17	0.17	1.0	J	U	0.454	0.23	0.17	J	15	102
Uranium 235	0	0.052	0.20	1.0	U	U	0.028	0.055	0.21	U	-	
Uranium 238	0.367	0.17	0.17	1.0	J	U	0.454	0.18	0.17	J	21	91
Plutonium 238	0.028	0.11	0.21	1.0	U	PU	0	0.056	0.22	U	-	
Plutonium 239/240	1.67	0.47	0.21	1.0		PU	2.14	0.53	0.22		25	57
Potassium 40	29.4	2.0	1.5			GAM	28.5	1.9	1.5		3	35
Cobalt 60	5.91	0.28	0.24	0.050		GAM	6.07	0.28	0.24		3	33
Cesium 137	7.94	0.40	0.46	0.10		GAM	7.48	0.40	0.47		6	34
Radium 226	0.580	0.48	0.68	0.10	U	GAM	0.754	0.48	0.67		26	156
Radium 228	U		1.5	0.20	U	GAM	U		1.5	U	-	
Europium 152	295	1.8	1.3	0.10		GAM	293	1.8	1.3		1	32
Europium 154	22.0	1.1	1.0	0.10		GAM	21.0	1.0	0.97		5	33
Europium 155	U		1.5	0.10	U	GAM	U		1.5	U	-	
Thorium 228	0.588	0.21	0.37			GAM	0.572	0.26	0.43		3	92
Thorium 232	U		1.5		U	GAM	U		1.5	U	-	
Uranium 235	U		1.4		U	GAM	U		1.4	U	-	
Uranium 238	U		47		U	GAM	U		47	U	-	
Americium 241	U		2.8		U	GAM	U		2.9	U	-	

100 F Area - Quick Turn

QC-DUP#1 37747

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1250

R102119-01 B11DF5

DATA SHEET

SDG	7637	Client/Case no	Hanford SDG H1250
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102119-01	Client sample id	B11DF5
Dept sample id	7637-001	Location/Matrix	100-F-19 SOLID
Received	02/23/01	Collected	02/14/01 09:30
% solids	95.7	Custody/SAF No	B00-029-075 B00-029

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	3.09	3.0	4.9	50	U	C
Nickel 63	13981-37-8	127	3.3	2.2	30		NI_L
Total Strontium	SR-RAD	0.589	0.13	0.14	1.0	J	SR
Uranium 233	U-233/234	0.454	0.23	0.17	1.0	J	U
Uranium 235	15117-96-1	0.028	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.454	0.18	0.17	1.0	J	U
Plutonium 238	13981-16-3	0	0.056	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	2.14	0.53	0.22	1.0		PU
Potassium 40	13966-00-2	28.5	1.9	1.5			GAM
Cobalt 60	10198-40-0	6.07	0.28	0.24	0.050		GAM
Cesium 137	10045-97-3	7.48	0.40	0.47	0.10		GAM
Radium 226	13982-63-3	0.754	0.48	0.67	0.10		GAM
Radium 228	15262-20-1	U		1.5	0.20	U	GAM
Europium 152	14683-23-9	293	1.8	1.3	0.10		GAM
Europium 154	15585-10-1	21.0	1.0	0.97	0.10		GAM
Europium 155	14391-16-3	U		1.5	0.10	U	GAM
Thorium 228	14274-82-9	0.572	0.26	0.43			GAM
Thorium 232	TH-232	U		1.5		U	GAM
Uranium 235	15117-96-1	U		1.4		U	GAM
Uranium 238	U-238	U		47		U	GAM
Americium 241	14596-10-2	U		2.9		U	GAM

100 F Area - Quick Turn

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1250

R102119-02 B11DF6

DATA SHEET

SDG	7637	Client/Case no	Hanford SDG_H1250
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102119-02	Client sample id	B11DF6
Dept sample id	7637-002	Location/Matrix	100-F-19 SOLID
Received	02/23/01	Collected	02/14/01 09:39
% solids	96.1	Custody/SAF No	B00-029-075 B00-029

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	3.16	3.1	5.1	50	U	C
Nickel 63	13981-37-8	39.1	2.2	2.2	30		NI_L
Total Strontium	SR-RAD	0.424	0.17	0.26	1.0	J	SR
Uranium 233	U-233/234	0.846	0.28	0.17	1.0	J	U
Uranium 235	15117-96-1	0.028	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.480	0.23	0.17	1.0	J	U
Plutonium 238	13981-16-3	0.163	0.13	0.25	1.0	U	PU
Plutonium 239/240	PU-239/240	4.04	0.80	0.25	1.0		PU
Potassium 40	13966-00-2	27.0	2.1	1.6			GAM
Cobalt 60	10198-40-0	6.74	0.34	0.30	0.050		GAM
Cesium 137	10045-97-3	10.6	0.45	0.53	0.10		GAM
Radium 226	13982-63-3	U		0.91	0.10	U	GAM
Radium 228	15262-20-1	U		1.7	0.20	U	GAM
Europium 152	14683-23-9	278	1.6	0.98	0.10		GAM
Europium 154	15585-10-1	16.9	1.2	1.2	0.10		GAM
Europium 155	14391-16-3	U		1.2	0.10	U	GAM
Thorium 228	14274-82-9	0.771	0.33	0.51			GAM
Thorium 232	TH-232	U		1.7		U	GAM
Uranium 235	15117-96-1	U		1.4		U	GAM
Uranium 238	U-238	U		51		U	GAM
Americium 241	14596-10-2	U		1.3		U	GAM

100 F Area - Quick Turn

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/09/01

Test PU Matrix SOLID
SDG 7637
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1250

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240
Preparation batch 6963-172							
B11DF5	R102119-01			7637-001	U		2.14
B11DF6	R102119-02			7637-002	U		4.04
BLK (QC ID=37746)	R102119-04			7637-004	U		U
LCS (QC ID=37745)	R102119-03			7637-003	ok		ok
Duplicate (R102119-01)	R102119-05			7637-005	-	U	ok
Nominal values and limits from method 100 F Area - Quick Turn				RDLs (pCi/g)	1.0		1.0

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 172																
B11DF5	R102119-01			0.22	0.500			65		128			15	03/01/01	03/01	SS-043
B11DF6	R102119-02			0.25	0.500			55		128			15	03/01/01	03/01	SS-044
BLK (QC ID=37746)	R102119-04			0.29	0.500			49		128				03/01/01	03/01	SS-046
LCS (QC ID=37745)	R102119-03			0.23	0.500			60		128				03/01/01	03/01	SS-045
Duplicate (R102119-01) (QC ID=37747)	R102119-05			0.21	0.500			65		128			15	03/01/01	03/01	SS-047
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 2
	CP-940	Plutonium Separation and Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.24 ± 0.063
YIELD 59 ± 14

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

Test U Matrix SOLID
SDG 7637
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1250

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 6963-172											
B11DF5	R102119-01			7637-001	0.454 J	U	0.454 J	100	64	6	12
B11DF6	R102119-02			7637-002	0.846 J	U	0.480 J	176	103	6	12
BLK (QC ID=37746)	R102119-04			7637-004	U	U	U				
LCS (QC ID=37745)	R102119-03			7637-003	ok	ok	ok				
Duplicate (R102119-01)	R102119-05			7637-005	ok J	- U	ok J	106	67	0	14
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100 F Area - Quick Turn								Averages 127		4	

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 172											
B11DF5	R102119-01			0.21	0.500			85		118			13	02/27/01	02/27	SS-029
B11DF6	R102119-02			0.21	0.500			81		118			13	02/27/01	02/27	SS-032
BLK (QC ID=37746)	R102119-04			0.22	0.500			82		118				02/27/01	02/27	SS-036
LCS (QC ID=37745)	R102119-03			0.84	0.500			96		118				02/27/01	02/27	SS-034
Duplicate (R102119-01) (QC ID=37747)	R102119-05			0.20	0.500			91		118			13	02/27/01	02/27	SS-037
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.34 ± 0.56
YIELD 87 ± 13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

Test SR	Matrix SOLID
SDG 7637	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1250	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6963-172						
B11DF5	R102119-01			7637-001	0.589	J
B11DF6	R102119-02			7637-002	0.424	J
BLK (QC ID=37746)	R102119-04			7637-004	U	
LCS (QC ID=37745)	R102119-03			7637-003	ok	
Duplicate (R102119-01)	R102119-05			7637-005	ok	J
Nominal values and limits from method 100 F Area - Quick Turn				RDLs (pCi/g)	1.0	

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 172															
B11DF5	R102119-01			0.14	1.00			95		400			13	02/27/01	02/27	GRB-229
B11DF6	R102119-02			0.26	1.00			97		100			13	02/27/01	02/27	GRB-202
BLK (QC ID=37746)	R102119-04			0.31	1.00			92		101				02/27/01	02/27	GRB-202
LCS (QC ID=37745)	R102119-03			0.29	1.00			84		100				02/27/01	02/27	GRB-203
Duplicate (R102119-01) (QC ID=37747)	R102119-05			0.25	1.00			96		100			13	02/27/01	02/27	GRB-230
Nominal values and limits from method				1.0	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-502	Strontium in Solids, rev 2
	CP-519	Strontium Planchet Demounting and Preparation for 90Y Decontamination, rev 2

AVERAGES ± 2 SD	MDA	0.25	± 0.13
FOR 5 SAMPLES	YIELD	93	± 11

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

Test GAM Matrix SOLID
SDG 7637
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1250

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6963-172						
B11DF5	R102119-01			7637-001	6.07	7.48
B11DF6	R102119-02			7637-002	6.74	10.6
BLK (QC ID=37746)	R102119-04			7637-004	U	U
LCS (QC ID=37745)	R102119-03			7637-003	ok	ok
Duplicate (R102119-01)	R102119-05			7637-005	ok	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
100 F Area - Quick Turn						

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172	2σ prep error 15.0 % Reference Lab Notebook 6963 pg. 172															
B11DF5	R102119-01			2.0	597					101			12	02/23/01	02/26	MB,05,00
B11DF6	R102119-02			1.9	723					101			12	02/23/01	02/26	02,03,00
BLK (QC ID=37746)	R102119-04			0.067	597					104				02/23/01	02/26	01,03,00
LCS (QC ID=37745)	R102119-03			0.038	597					101				02/23/01	02/26	01,01,00
Duplicate (R102119-01) (QC ID=37747)	R102119-05			2.0	597					102			12	02/23/01	02/26	MB,05,00
Nominal values and limits from method				0.050	597					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 2
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD MDA 1.2 ± 2.1
FOR 5 SAMPLES YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/09/01

Test C Matrix SOLID
SDG 7637
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1250

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-172						
B11DF5	R102119-01			7637-001	U	
B11DF6	R102119-02			7637-002	U	
BLK (QC ID=37746)	R102119-04			7637-004	U	
LCS (QC ID=37745)	R102119-03			7637-003	ok	
Duplicate (R102119-01)	R102119-05			7637-005	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
100 F Area - Quick Turn						

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 172											
B11DF5	R102119-01			4.9	0.214			100		100			13	02/26/01	02/27	LSC-004
B11DF6	R102119-02			5.1	0.207			100		100			13	02/26/01	02/27	LSC-004
BLK (QC ID=37746)	R102119-04			5.0	0.200			100		100				02/26/01	02/27	LSC-004
LCS (QC ID=37745)	R102119-03			30	0.200			100		3				02/26/01	02/27	LSC-004
Duplicate (R102119-01) (QC ID=37747)	R102119-05			5.0	0.208			100		100			13	02/26/01	02/27	LSC-004
Nominal values and limits from method				50	0.200					50			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-060	Soil Preparation, rev 2
	CP-251	Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 10 ± 22
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1250

Test NI_L Matrix SOLID
SDG 7637
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1250

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 6963-172					
B11DF5	R102119-01			7637-001	127
B11DF6	R102119-02			7637-002	39.1
BLK (QC ID=37746)	R102119-04			7637-004	U
LCS (QC ID=37745)	R102119-03			7637-003	ok
Duplicate (R102119-01)	R102119-05			7637-005	ok
Nominal values and limits from method				RDLs (pCi/g)	30
100 F Area - Quick Turn					

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-172	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 172															
B11DF5	R102119-01			2.2	0.500			88		100			16	02/28/01	03/02	LSC-004
B11DF6	R102119-02			2.2	0.500			87		100			16	02/28/01	03/02	LSC-004
BLK (QC ID=37746)	R102119-04			2.2	0.500			90		100				02/28/01	03/02	LSC-004
LCS (QC ID=37745)	R102119-03			2.5	0.500			91		76				02/28/01	03/02	LSC-004
Duplicate (R102119-01) (QC ID=37747)	R102119-05			2.3	0.500			87		100			16	02/28/01	03/02	LSC-004
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 2
	RP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 2.3 ± 0.26
YIELD 89 ± 4

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/09/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-075	Page 1 of 1

Collector: Renee Nielson	Company Contact: Mike Stankovich	Telephone No.: 531-7620 H1250 (7687)	Project Coordinator: TRENT, SJ
Price Code: 2E	Data Turnaround: 15 day	Air Quality ☐	
Project Designation: 100 F Area - Quick Turn	Sampling Location: 2/14/01 ~~100-F-10 Pipelines~~ RJN 100-F-19 Pipelines	SAF No.: B00-029	
Ice Chest No.: ERC99.046 (1of1)	Field Logbook No.: EL-1535	COA: R10F192600	Method of Shipment: Federal Express
Shipped To: TMA/RECRA EBERline	Offsite Property No.: A010224	Bill of Lading/Air Bill No.: 4235 7954 — 2628	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None	None	None						
Type of Container	sG	sG	sG	sG	Marinelli						
No. of Container(s)	1	1	1	1	1						
Volume	60mL	60mL	60mL	60mL	500mL						
SAMPLE ANALYSIS	Chromium Hex - 7196	See item (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; ~~Americium-241~~ RJN 2/14/01	Nickel-63; Strontium-89,90 -- Total Sr; Carbon-14; ~~Technetium-99~~ RJN 2/14/01	See item (2) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time								
B11DF5	SOIL	2-14-01	0930	X	X	X	X	X			B11DF7
B11DF6	SOIL	2-14-01	0939	X	X	X	X	X			B11DF8

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	2/14/01 1605	RJN 2/14/01 STORE IN Ref. #1A	2/14/01 1605
Relinquished By: Removed from R. Nielson 1A 3728	2.22.01 1130	R. Thoren	2.22.01 1130
R. Thoren	2.22.01 1130	FED EX	2-22-01
FED EX EXP12055	2/23/01 10:00	E. Segura	2/23/01 10 AM
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) ~~RCP Metals - 6010A (Superfrac) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)~~ RT 2.20.01
(2) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01 Collector not available to relinquish samples on 2/2/01 for shipment. RT 2.22.01

Matrix *
S=Soil
SB=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (10/99)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 2-23-01

CoC No. B00- 029-075

Container I.D. No. ERC99-046 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: 2
7. Number of containers per sample: 1 (EACH) (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad 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 E. Rogers Date: 2/23/01 Time: 10:Am

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-029 H1250

MAR 2001 RECEIVED

DATE RECEIVED: 02/23/01 LVL LOT # :0102L079

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11DF5						
ARSENIC, TOTAL	001	S	01L0074	02/14/01	02/16/01	02/26/01
ARSENIC, TOTAL	001 REP	S	01L0074	02/14/01	02/16/01	02/26/01
ARSENIC, TOTAL	001 MS	S	01L0074	02/14/01	02/16/01	02/26/01
CHROMIUM, TOTAL	001	S	01L0074	02/14/01	02/16/01	02/26/01
CHROMIUM, TOTAL	001 REP	S	01L0074	02/14/01	02/16/01	02/26/01
CHROMIUM, TOTAL	001 MS	S	01L0074	02/14/01	02/16/01	02/26/01
MERCURY, TOTAL	001	S	01C0057	02/14/01	02/26/01	02/27/01
MERCURY, TOTAL	001 REP	S	01C0057	02/14/01	02/26/01	02/27/01
MERCURY, TOTAL	001 MS	S	01C0057	02/14/01	02/26/01	02/27/01
LEAD, TOTAL	001	S	01L0074	02/14/01	02/16/01	02/26/01
LEAD, TOTAL	001 REP	S	01L0074	02/14/01	02/16/01	02/26/01
LEAD, TOTAL	001 MS	S	01L0074	02/14/01	02/16/01	02/26/01
B11DF6						
ARSENIC, TOTAL	002	S	01L0074	02/14/01	02/16/01	02/26/01
CHROMIUM, TOTAL	002	S	01L0074	02/14/01	02/16/01	02/26/01
MERCURY, TOTAL	002	S	01C0057	02/14/01	02/26/01	02/27/01
LEAD, TOTAL	002	S	01L0074	02/14/01	02/16/01	02/26/01

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
ARSENIC, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
CHROMIUM LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
CHROMIUM, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
MERCURY LABORATORY	LC1 BS	S	01C0057	N/A	02/26/01	02/27/01
MERCURY, TOTAL	MB1	S	01C0057	N/A	02/26/01	02/27/01
LEAD LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
LEAD, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-029
LVL#: 0102L079
SDG/SAF#: H1250/B00-029

W.O.#: 11343-606-001-9999-00
Date Received: 02-23-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B11DF5	Chromium	1000	99.2

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

12. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

15. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

gmb/m02-079

0315-01
Date

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01021079

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	__6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	✓7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/05/01

CLIENT: TNU-HANFORD B00-029 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11DF5	Arsenic, Total	2.3	MG/KG	0.25	1.0
		Chromium, Total	50.6	MG/KG	0.06	1.0
		Mercury, Total	1.1	MG/KG	0.02	1.0
		Lead, Total	8.2	MG/KG	0.22	1.0
-002	B11DF6	Arsenic, Total	2.2	MG/KG	0.23	1.0
		Chromium, Total	132	MG/KG	0.06	1.0
		Mercury, Total	0.33	MG/KG	0.02	1.0
		Lead, Total	6.7	MG/KG	0.20	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/05/01

CLIENT: TNU-HANFORD B00-029 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0074-MB1	Arsenic, Total	0.24 u	MG/KG	0.24	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
BLANK1	01C0057-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/05/01

CLIENT: TNU-HANFORD B00-029 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11DF5	Arsenic, Total	184	2.3	205	88.7	1.0
		Chromium, Total	63.3	50.6	20.5	62.0	1.0
		Mercury, Total	0.75	1.1	0.17	-200. *	1.0
		Lead, Total	54.1	8.2	51.3	89.5	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/05/01

CLIENT: TNU-HANFORD B00-029 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11DF5	Arsenic, Total	2.3	2.1	9.1	1.0
		Chromium, Total	50.6	42.0	18.6	1.0
		Mercury, Total	1.1	0.73	39.4	1.0
		Lead, Total	8.2	7.9	3.7	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/05/01

CLIENT: TNU-HANFORD B00-029 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0074-LC1	Arsenic, LCS	930	1000	MG/KG	93.0
		Chromium, LCS	49.5	50.0	MG/KG	99.0
		Lead, LCS	241	250	MG/KG	96.3
LCS1	01C0057-LC1	Mercury, LCS	2.5	2.5	MG/KG	102.3

Lionville Laboratory Use Only: 01021079

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TMU-Hanford B00-029
Est. Final Proj. Sampling Date:
Project #: 11343-1006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spc Del: Std TAT: 15 day
Date Rec'd: 2/23/01 Date Due: 3/10/01

Refrigerator #: A 2, B 2
#/Type Container (Liquid / Solid): A 1 Pkg, B 1 Pkg
Volume (Liquid / Solid): A 100, B 100
Preservatives: A -, B -

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

Lionville Laboratory Use Only: A Met(1), B ICP/9

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met(1)	ICP/9
001	B11DF5			S	2/14/01	0930	✓	✓
002	↓ 6			↓	↓	0939	✓	✓

Special Instructions: SAF B00-029
Run matrix QC

DATE/REVISIONS:
Met(1) 1. As, Cr, Pb, Hg
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___
Airbill # Sel Below
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec'd (Y) or N

Cooler Temp 3° C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 4235 7954 2606

Relinquished by	Received by	Date	Time
FedEx	[illegible]	2/23/01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL!		

11

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-075	Page 1 of 1

Collector: Renee Nielson	Company Contact: Mike Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 2E; Data Turnaround: 15 day
Project Designation: 100 F Area - Quick Turn	Sampling Location: 2/14/01 ~~100-F-10 Pipeline~~ RJN 100-F-19 Pipelines	SAF No.: B00-029	Air Quality ☐
Ice Chest No.: 96ET22201 ERC-99-044 (3of4)	Field Logbook No.: EL-1535; COA: R10F192600	Method of Shipment: Federal Express	
Shipped To: TMA/RBCRA	Offsite Property No.: A0102D7	Bill of Lading/Air Bill No.: 42357954-20006	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None	None	None						
Type of Container	sG	sG	sG	sG	Manicelli						
No. of Container(s)	1	1	1	1	1						
Volume	60mL	60mL	60mL	60mL	500mL						
SAMPLE ANALYSIS	Chromium Flux - 7196	See item (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; Americium-241 RJN 2/14/01	Nickel-63; Strontium-89,90 - Total Sr; Cesium-14; Technetium-99 RJN 2/14/01	See item (2) in Special Instructions.						

Sample No.	Matrix *	Sample Date	Sample Time											
B11DF5	SOIL	2-14-01	0930	X	X	X	X	X						B11DF7
B11DF6	SOIL	2-14-01	0939	X	X	X	X	X						B11DF8

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	2/14/01 1605	RJN 2/14/01 STORE IN Ref. #1A	2/14/01 1605
R. Nielson Ref 1A 3728	2/22/01 1130	R. Thoren	2/22/01 1130
R. Thoren	2/22/01 1130	FEDEX	
Fedex	2/23/01 0935		2/23/01 0935

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)
~~(2) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ RT 2.20.01

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01.
Collector not available to relinquish samples on 2/22/01 for shipment. RT 2.22.01

Matrix *: S=Soil; SE=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-029 H1250

DATE RECEIVED: 02/23/01 LVL LOT # :0102L079

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11DF5						
% SOLIDS	001	S	01L%S026	02/14/01	02/26/01	02/27/01
% SOLIDS	001 REP	S	01L%S026	02/14/01	02/26/01	02/27/01
CHROMIUM VI	001	S	01LVI022	02/14/01	03/07/01	03/07/01
CHROMIUM VI	001 REP	S	01LVI022	02/14/01	03/07/01	03/07/01
CHROMIUM VI	001 MS	S	01LVI022	02/14/01	03/07/01	03/07/01
CHROMIUM VI	001 MSD	S	01LVI022	02/14/01	03/07/01	03/07/01
B11DF6						
% SOLIDS	002	S	01L%S026	02/14/01	02/26/01	02/27/01
CHROMIUM VI	002	S	01LVI022	02/14/01	03/07/01	03/07/01
CHROMIUM VI	002 REP	S	01LVI022	02/14/01	03/07/01	03/07/01

LAB QC:

CHROMIUM VI	MB1	S	01LVI022	N/A	03/07/01	03/07/01
CHROMIUM VI	MB1 BS	S	01LVI022	N/A	03/07/01	03/07/01
CHROMIUM VI	MB1 BSD	S	01LVI022	N/A	03/07/01	03/07/01

MAR 2001 RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-029 H1250
LVL#: 0102L079

W.O.#: 11343-606-001-9999-00
Date Received: 02-23-01

INORGANIC NARRATIVE

As of 27 January 2001, Recra LabNet Philadelphia became Lionville Laboratory Inc. Some forms may still reference Recra LabNet Philadelphia.

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The cooler temperature was recorded on the chain of custody.

5. The method blank for Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

03-20-01
Date

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

njp\i02-079

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: **Method:**

Other: **Method**

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/09/01

CLIENT: TNUHANFORD B00-029 H1250 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11DF5	% Solids	95.5	%	0.01	1.0
		Chromium VI	1.6	MG/KG	0.42	1.0
-002	B11DF6	% Solids	95.2	%	0.01	1.0
		Chromium VI	7.8	MG/KG	0.42	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/09/01

CLIENT: TNUHANFORD B00-029 H1250 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LVI022-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/09/01

CLIENT: TNUHANFORD B00-029 H1250 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11DF5	Soluble Chromium VI	6.7	1.6	4.2	122.1	1.0
		Insoluble Chromium VI	1390	1.6	1210	115.0	100
BLANK10	01LVI022-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.6	1.0
		Insoluble Chromium VI	1210	0.40u	1110	109.4	100

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/09/01

CLIENT: TNUHANFORD B00-029 H1250 LVL LOT #: 0102L079

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11DP5	% Solids	95.5	94.9	0.61	1.0
		Chromium VI	1.6	1.7	4.6	1.0
-002REP	B11DP6	Chromium VI	7.8	7.4	4.9	1.0

Lionville Laboratory Use Only
01021079

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI 09

Client: TRU-Hanford B00-029
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spc Del: Std TAT: 15 day
Date Rec'd: 2/23/01 Date Due: 3/10/01

		A	B
Refrigerator #		2	2
#/Type Container	Liquid		
	Solid	1 Pint	1 Pint
Volume	Liquid		
	Solid	60	60
Preservatives		-	-

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

Lionville Laboratory Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal(1)	ICP/O
001	B11DF5			S	2/14/01	0930	✓	✓
002	↓ 6			↓	↓	0939	✓	✓

Special Instructions: SAF B00-029
Run matrix QC

DATE/REVISIONS:
Met(1): As, Cr, Pb, Hg
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped / or Hand Delivered
Airbill # See Below
2) Ambient or Chilled
3) Received In Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N
Cooler Temp 3° C

Relinquished by	Received by	Date	Time
FedEx	P. Hendy	2/23/01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL!		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2606

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-075	Page 1 of 1

Collector: Renee Nielson	Company Contact: Mike Stankovich — Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 2E — Date Turnaround: 15 day
Project Designation: 100 F Area - Quick Turn	Sampling Location: 2/14/01 ~~100-F-10 Pipelines~~ RJN 100-F-19 Pipelines	SAF No.: B00-029	Air Quality ☐
Ice Chest No.: 96ETE2201 ERC-99-044 (3 of 4)	Field Logbook No.: EL-1535 — COA: R10F192600	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-20020	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None	None	None						
Type of Container	uG	uG	uG	uG	Marinelli						
No. of Container(s)	1	1	1	1	1						
Volume	60mL	60mL	60mL	60mL	500mL						
SAMPLE ANALYSIS	Chromium Hex - 7196	See Item (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; Americium-241 RJN 2/14/01	Nickel-63; Strontium-89,90 - Total Sr; Carbon-14; Technetium-99 RJN 2/14/01	See Item (2) in Special Instructions.						

Sample No.	Matrix *	Sample Date	Sample Time										
B11DF5	SOIL	2-14-01	0930	X	X	X	X	X					B11DF7
B11DF6	SOIL	2-14-01	0939	X	X	X	X	X					B11DF8

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	2/14/01 1605	RJN 2/14/01 STORE IN Ref. #1A	2/14/01 1605
2) Relinquished By: Removed from Ref 1A 3728	2-22-01 1130	R. Thoren	2-22-01 1130
R. Thoren	2-22-01 1130	FEDEX	
Relinquished By	2/23/01 0935	Received By	2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)
~~(2) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ RT 2.20.01

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01.
Collector not available to relinquish samples on 2/22/01 for shipment. RT 2.22.01

Matrix *: S=Soil; SE=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

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

BHI-EE-011 (10/99)