H1268

0055501

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1268 was composed of one solid (soil) sample designated under SAF No. B00-029 with a Project Designation of: 100 F Area – Quick Turn.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on March 16, 2001.

RECEIVED
OCT 23 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium 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 Americium-241 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

3/21/01
Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

SAMPLE SUMMARY

SDG 7645
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1268

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11J64	1607-F2	SOLID		R103012-01	B00-029	B00-029-079	02/22/01 08:50
Method Blank		SOLID		R103012-03	B00-029		
Lab Control Sample		SOLID		R103012-02	B00-029		
Duplicate (R103012-01)	1607-F2	SOLID		R103012-04	B00-029		02/22/01 08:50

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

QC SUMMARY

SDG 7645
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1268

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
7645	B00-029-079	B11J64	SOLID	86.4			03/02/01	8	R103012-01	7645-001
		Method Blank	SOLID						R103012-03	7645-003
		Lab Control Sample	SOLID						R103012-02	7645-002
		Duplicate (R103012-01)	SOLID	86.4			03/02/01	8	R103012-04	7645-004

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

SDG 7645
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1268

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 Soil	6981-006	5.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6981-006	5.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6981-006	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6981-006	10.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6981-006	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6981-006	10.0	1			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 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

WORK SUMMARY

SDG 7645
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1268

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11J64			R103012-01	7645-001	AM		03/08/01	03/16/01	MCM	Americium 241 in Soil
1607-F2		SOLID	02/22/01	7645-001	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
B00-029-079	B00-029		03/02/01	7645-001	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7645-001	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7645-001	SR		03/08/01	03/16/01	MCM	Total Strontium in Soil
				7645-001	U		03/08/01	03/16/01	MCM	Uranium, Isotopic in Soil
Method Blank			R103012-03	7645-003	AM		03/08/01	03/16/01	MCM	Americium 241 in Soil
		SOLID		7645-003	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
	B00-029			7645-003	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7645-003	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7645-003	SR		03/08/01	03/16/01	MCM	Total Strontium in Soil
				7645-003	U		03/08/01	03/16/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R103012-02	7645-002	AM		03/08/01	03/16/01	MCM	Americium 241 in Soil
		SOLID		7645-002	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
	B00-029			7645-002	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7645-002	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7645-002	SR		03/08/01	03/16/01	MCM	Total Strontium in Soil
				7645-002	U		03/08/01	03/16/01	MCM	Uranium, Isotopic in Soil
Duplicate (R103012-01)			R103012-04	7645-004	AM		03/08/01	03/16/01	MCM	Americium 241 in Soil
1607-F2		SOLID	02/22/01	7645-004	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
	B00-029		03/02/01	7645-004	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7645-004	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7645-004	SR		03/08/01	03/16/01	MCM	Total Strontium in Soil
				7645-004	U		03/09/01	03/16/01	MCM	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

SDG 7645
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1268

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B00-029	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	1			1	1	1	4
C	B00-029	Carbon 14 in Soil	C14_COX_LSC	1			1	1	1	4
GAM	B00-029	Gamma Scan	GAMMA_GS	1			1	1	1	4
PU	B00-029	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	B00-029	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
U	B00-029	Uranium, Isotopic in Soil	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				6			6	6	6	24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

R103012-03 Method Blank

METHOD BLANK

SDG	7645	Client/Case no	Hanford SDG H1268
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103012-03	Client sample id	Method Blank
Dept sample id	7645-003	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	0.695	2.6	4.4	50	U	C
Total Strontium	SR-RAD	0.035	0.14	0.28	1.0	U	SR
Americium 241	14596-10-2	0	0.20	0.49	1.0	U	AM
Uranium 233	U-233/234	0	0.051	0.20	1.0	U	U
Uranium 235	15117-96-1	0.062	0.062	0.24	1.0	U	U
Uranium 238	U-238	0	0.051	0.20	1.0	U	U
Plutonium 238	13981-16-3	0.015	0.015	0.028	1.0	U	PU
Plutonium 239/240	PU-239/240	0.011	0.015	0.028	1.0	U	PU
Potassium 40	13966-00-2	U		0.68		U	GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.10	U	GAM
Radium 226	13982-63-3	U		0.046	0.10	U	GAM
Radium 228	15262-20-1	U		0.10	0.20	U	GAM
Europium 152	14683-23-9	U		0.050	0.10	U	GAM
Europium 154	15585-10-1	U		0.066	0.10	U	GAM
Europium 155	14391-16-3	U		0.043	0.10	U	GAM
Thorium 228	14274-82-9	U		0.031		U	GAM
Thorium 232	TH-232	U		0.10		U	GAM
Uranium 235	15117-96-1	U		0.073		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Americium 241	14596-10-2	U		0.023		U	GAM

100 F Area - Quick Turn

QC-BLANK 37844

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

R103012-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7645
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1268
Case no TRC-SBB-207925

Lab sample id R103012-02
Dept sample id 7645-002

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	9950	100	13	50		C	11300	450	88	85-115	80-120
Total Strontium	22.8	0.84	0.23	1.0		SR	23.0	0.92	99	83-117	80-120
Americium 241	21.3	2.5	0.36	1.0		AM	21.0	0.84	101	80-120	80-120
Uranium 233	19.5	1.9	0.89	1.0		U	19.3	0.77	101	82-118	80-120
Uranium 235	15.6	1.6	0.21	1.0		U	15.7	0.63	99	82-118	80-120
Uranium 238	19.6	1.9	0.85	1.0		U	21.0	0.84	93	84-116	80-120
Plutonium 238	27.0	0.92	0.042	1.0		PU	27.2	1.1	99	89-111	80-120
Plutonium 239/240	27.9	0.94	0.030	1.0		PU	29.0	1.2	96	89-111	80-120
Cobalt 60	0.396	0.058	0.033	0.050		GAM	0.435	0.017	91	71-129	80-120
Cesium 137	0.455	0.056	0.039	0.10		GAM	0.429	0.017	106	69-131	80-120

100 F Area - Quick Turn

QC-LCS 37843

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

R103012-04 B11J64

DUPLICATE

SDG	7645			Client/Case no	Hanford SDG H1268
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R103012-04	Lab sample id	R103012-01	Client sample id	B11J64
Dept sample id	7645-004	Dept sample id	7645-001	Location/Matrix	1607-F2 SOLID
		Received	03/02/01	Collected	02/22/01 08:50
% solids	86.4	% solids	86.4	Custody/SAF No	B00-029-079 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 TOT	PROT LIMIT
Carbon 14	-0.249	2.8	4.7	50	U	C	1.24	2.6	4.3	U	-		
Total Strontium	-0.002	0.12	0.25	1.0	U	SR	-0.052	0.11	0.24	U	-		
Americium 241	-0.092	0.18	0.44	1.0	U	AM	0.119	0.24	0.38	U	-		
Uranium 233	0.280	0.16	0.15	1.0	J	U	0.297	0.20	0.19	J	6	134	
Uranium 235	0.145	0.097	0.19	1.0	U	U	0	0.060	0.23	U	-		
Uranium 238	0.140	0.12	0.15	1.0	U	U	0.346	0.20	0.19	J	85	144	
Plutonium 238	0.008	0.008	0.030	1.0	U	PU	0	0.013	0.037	U	-		
Plutonium 239/240	0.012	0.016	0.030	1.0	U	PU	0.003	0.013	0.025	U	-		
Potassium 40	13.0	0.86	0.46			GAM	14.6	0.91	0.38		12	35	
Cobalt 60	U		0.042	0.050	U	GAM	U		0.048	U	-		
Cesium 137	0.173	0.046	0.047	0.10		GAM	0.155	0.044	0.048		11	66	
Radium 226	0.367	0.079	0.086	0.10		GAM	0.378	0.080	0.082		3	55	
Radium 228	0.529	0.16	0.18	0.20		GAM	0.721	0.21	0.20		31	71	
Europium 152	U		0.098	0.10	U	GAM	U		0.11	U	-		
Europium 154	U		0.13	0.10	U	GAM	U		0.13	U	-		
Europium 155	U		0.092	0.10	U	GAM	U		0.13	U	-		
Thorium 228	0.432	0.040	0.045			GAM	0.467	0.042	0.045		8	37	
Thorium 232	0.529	0.16	0.18			GAM	0.721	0.21	0.20		31	71	
Uranium 235	U		0.13		U	GAM	U		0.16	U	-		
Uranium 238	U		5.5		U	GAM	U		5.4	U	-		
Americium 241	U		0.12		U	GAM	U		0.33	U	-		

100 F Area - Quick Turn

QC-DUP#1 37845

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/16/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1268

R103012-01 B11J64

DATA SHEET

SDG	7645	Client/Case no	Hanford	SDG H1268	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R103012-01	Client sample id	B11J64		
Dept sample id	7645-001	Location/Matrix	1607-F2	SOLID	
Received	03/02/01	Collected	02/22/01 08:50		
% solids	86.4	Custody/SAF No	B00-029-079	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	1.24	2.6	4.3	50	U	C
Total Strontium	SR-RAD	-0.052	0.11	0.24	1.0	U	SR
Americium 241	14596-10-2	0.119	0.24	0.38	1.0	U	AM
Uranium 233	U-233/234	0.297	0.20	0.19	1.0	J	U
Uranium 235	15117-96-1	0	0.060	0.23	1.0	U	U
Uranium 238	U-238	0.346	0.20	0.19	1.0	J	U
Plutonium 238	13981-16-3	0	0.013	0.037	1.0	U	PU
Plutonium 239/240	PU-239/240	0.003	0.013	0.025	1.0	U	PU
Potassium 40	13966-00-2	14.6	0.91	0.38			GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	0.155	0.044	0.048	0.10		GAM
Radium 226	13982-63-3	0.378	0.080	0.082	0.10		GAM
Radium 228	15262-20-1	0.721	0.21	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.467	0.042	0.045			GAM
Thorium 232	TH-232	0.721	0.21	0.20			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.4		U	GAM
Americium 241	14596-10-2	U		0.33		U	GAM

100 F Area - Quick Turn

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/16/01

Test AM Matrix SOLID
SDG 7645
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1268

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 6981-006						
B11J64	R103012-01			7645-001	U	
BLK (QC ID=37844)	R103012-03			7645-003	U	
LCS (QC ID=37843)	R103012-02			7645-002	ok	
Duplicate (R103012-01)	R103012-04			7645-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
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 6981-006	2σ prep error 5.0 %				Reference Lab Notebook 6981 pg. 006											
B11J64	R103012-01			0.38	0.500			73		105			14	03/08/01	03/08	SS-019
BLK (QC ID=37844)	R103012-03			0.49	0.500			64		103				03/08/01	03/08	SS-022
LCS (QC ID=37843)	R103012-02			0.36	0.500			77		106				03/08/01	03/08	SS-021
Duplicate (R103012-01) (QC ID=37845)	R103012-04			0.44	0.500			58		106			14	03/08/01	03/08	SS-023
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-940	Plutonium Separation and Purification, rev 2
	CP-960	Americium-Curium Purification, Large Aliquot, rev 4
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.42	±	0.12
FOR 4 SAMPLES	YIELD	68	±	17

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

Test	PU
Matrix	SOLID
SDG	7645
Contact	Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1268

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6981-006								
B11J64	R103012-01			7645-001	U		U	
BLK (QC ID=37844)	R103012-03			7645-003	U		U	
LCS (QC ID=37843)	R103012-02			7645-002	ok		ok	
Duplicate (R103012-01)	R103012-04			7645-004	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
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 6981-006	2σ prep error 5.0 %				Reference Lab Notebook 6981 pg. 006											
B11J64	R103012-01			0.037	0.500			89		802			15	03/09/01	03/09	SS-045
BLK (QC ID=37844)	R103012-03			0.028	0.500			80		802				03/09/01	03/09	SS-048
LCS (QC ID=37843)	R103012-02			0.042	0.500			93		802				03/09/01	03/09	SS-047
Duplicate (R103012-01) (QC ID=37845)	R103012-04			0.030	0.500			74		802			15	03/09/01	03/09	SS-049
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 4 SAMPLES				
MDA	0.034	±	0.013
YIELD	84	±	17

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

Test U Matrix SOLID
SDG 7645
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1268

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 6981-006											
B11J64	R103012-01			7645-001	0.297 J	U	0.346 J	86	76	0	17
BLK (QC ID=37844)	R103012-03			7645-003	U	U	U				
LCS (QC ID=37843)	R103012-02			7645-002	ok	ok	ok				
Duplicate (R103012-01)	R103012-04			7645-004	ok J	- U	ok U				
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100 F Area - Quick Turn								Averages 86		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 6981-006 2σ prep error 5.0 % Reference Lab Notebook 6981 pg. 006																
B11J64	R103012-01			0.23	0.500			86		108			14	03/08/01	03/08	SS-029
BLK (QC ID=37844)	R103012-03			0.24	0.500			87		109				03/08/01	03/08	SS-038
LCS (QC ID=37843)	R103012-02			0.89	0.500			97		109				03/08/01	03/08	SS-037
Duplicate (R103012-01) (QC ID=37845)	R103012-04			0.19	0.500			98		115			15	03/08/01	03/09	SS-032
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 4 SAMPLES
MDA 0.39 ± 0.67
YIELD 92 ± 13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

Test SR Matrix SOLID
SDG 7645
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1268

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6981-006						
B11J64	R103012-01			7645-001	U	
BLK (QC ID=37844)	R103012-03			7645-003	U	
LCS (QC ID=37843)	R103012-02			7645-002	ok	
Duplicate (R103012-01)	R103012-04			7645-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
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 6981-006	2σ prep error 10.0 % Reference Lab Notebook 6981 pg. 006															
B11J64	R103012-01			0.24	1.00			95		100			14	03/08/01	03/08	GRB-222
BLK (QC ID=37844)	R103012-03			0.28	1.00			89		100				03/08/01	03/08	GRB-201
LCS (QC ID=37843)	R103012-02			0.23	1.00			89		91				03/08/01	03/08	GRB-223
Duplicate (R103012-01) (QC ID=37845)	R103012-04			0.25	1.00			96		100			14	03/08/01	03/08	GRB-202
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 FOR 4 SAMPLES				
MDA	0.25	±	0.043
YIELD	92	±	8

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

Test GAM Matrix SOLID
SDG 7645
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1268

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6981-006						
B11J64	R103012-01			7645-001	U	0.155
BLK (QC ID=37844)	R103012-03			7645-003	U	U
LCS (QC ID=37843)	R103012-02			7645-002	ok	ok
Duplicate (R103012-01)	R103012-04			7645-004	- U	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 6981-006	2σ prep error 15.0 % Reference Lab Notebook 6981 pg. 006															
B11J64	R103012-01			0.10	627					112			12	03/05/01	03/06	MB,05,00
BLK (QC ID=37844)	R103012-03			0.052	627					105				03/05/01	03/06	MB,07,00
LCS (QC ID=37843)	R103012-02			0.033	627					112				03/05/01	03/06	01,03,00
Duplicate (R103012-01) (QC ID=37845)	R103012-04			0.093	627					185			12	03/05/01	03/06	02,03,00
Nominal values and limits from method				0.050	627					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 FOR 4 SAMPLES
MDA 0.070 ± 0.065
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1268

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Test C Matrix SOLID
SDG 7645
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1268

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6981-006						
B11J64	R103012-01			7645-001	U	
BLK (QC ID=37844)	R103012-03			7645-003	U	
LCS (QC ID=37843)	R103012-02			7645-002	ok	
Duplicate (R103012-01)	R103012-04			7645-004	-	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 6981-006	2σ prep error 10.0 %				Reference Lab Notebook 6981 pg. 006											
B11J64	R103012-01			4.3	0.218			100		100			18	03/09/01	03/12	LSC-007
BLK (QC ID=37844)	R103012-03			4.4	0.200			100		100				03/09/01	03/12	LSC-007
LCS (QC ID=37843)	R103012-02			13	0.200			100		13				03/09/01	03/12	LSC-007
Duplicate (R103012-01) (QC ID=37845)	R103012-04			4.7	0.206			100		100			18	03/09/01	03/12	LSC-007
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 4 SAMPLES
MDA 6.6 ± 8.5
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/16/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-079	Page 1 of 1

Collector: Stankovich	Company Contact: MT Stankovich	Telephone No.: 532-7620	Project Coordinator: TRENT, SJ
Price Code: 2E	Data Turnaround: 15 Days		
Project Designation: 100 F Area - Quick Turn	Sampling Location: 1607-F2 H1268 (7645)	SAF No.: B00-029	Air Quality ☐
Ice Chest No.: ERC 00-004	Field Logbook No.: EL-1535	COA: R607F22600	Method of Shipment: Fex Ex
Shipped To: TMA/RECRA EBERline	Offsite Property No.: A01022	Bill of Lading/Air Bill No.: 4235 7454 2786	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

			Preservation	Cool 4C	None	None	None	Cool 4C	None				
			Type of Container	aG	aG	aG	aG	aG	P				
			No. of Container(s)	1	1	1	1	1	1				
			Volume	60mL	60mL	60mL	60mL	120mL	500mL				
				PCBs - 8082	Sediment (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; Americium-241	[redacted] Strontium-89,90 -- Total Sr; Carbon-14; [redacted]	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time			✓	✓		✓				
✓ B11J64	SOIL	2-22-01	0850			X	X		X				B11563

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
[signature]	2-22-01 1540	Stored in Frig 3C	2-22-01 1540
Removed from Ref 3C 3728	3-1-01 0900	[signature] R Thorens	3-1-01 0900
[signature] R Thorens	3-1-01 0900	[signature]	3-01-01
Fed Ex	3-02-01 10:00	[signature] / R Corso	3-2-01 10:00

Sign/Print Names

SPECIAL INSTRUCTIONS

RT 2-26-01

(1) ~~ICP-Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)~~

(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Samples stored in Ref. 3C at the 3728 Shipping Facility on 2-22-01.
Collector not available to relinquish samples on 3/1/01 for shipment.
RT 3-1-01

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)

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 3-2-01 10:00

CoC No. B00-029-079

Container I.D. No. ERC 00-204 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: 1
7. Number of containers per sample: 3 (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: I could not tell if there are custody seals on the shipping container
13. Was P.M. notified of any anomalies? Yes [✓] No [ ] Date 3-2-01
14. Received by [signature] Date: 3-2-01 Time: 10:00

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-029 H1268

DATE RECEIVED: 03/02/01 LVL LOT # :0103L176

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11J64						
ARSENIC, TOTAL	001	S	01L0092	02/22/01	03/05/01	03/05/01
ARSENIC, TOTAL	001 REP	S	01L0092	02/22/01	03/05/01	03/05/01
ARSENIC, TOTAL	001 MS	S	01L0092	02/22/01	03/05/01	03/05/01
CHROMIUM, TOTAL	001	S	01L0092	02/22/01	03/05/01	03/05/01
CHROMIUM, TOTAL	001 REP	S	01L0092	02/22/01	03/05/01	03/05/01
CHROMIUM, TOTAL	001 MS	S	01L0092	02/22/01	03/05/01	03/05/01
MERCURY, TOTAL	001	S	01C0067	02/22/01	03/05/01	03/06/01
MERCURY, TOTAL	001 REP	S	01C0067	02/22/01	03/05/01	03/06/01
MERCURY, TOTAL	001 MS	S	01C0067	02/22/01	03/05/01	03/06/01
LEAD, TOTAL	001	S	01L0092	02/22/01	03/05/01	03/05/01
LEAD, TOTAL	001 REP	S	01L0092	02/22/01	03/05/01	03/05/01
LEAD, TOTAL	001 MS	S	01L0092	02/22/01	03/05/01	03/05/01

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	01L0092	N/A	03/05/01	03/05/01
ARSENIC, TOTAL	MB1	S	01L0092	N/A	03/05/01	03/05/01
CHROMIUM LABORATORY	LC1 BS	S	01L0092	N/A	03/05/01	03/05/01
CHROMIUM, TOTAL	MB1	S	01L0092	N/A	03/05/01	03/05/01
MERCURY LABORATORY	LC1 BS	S	01C0067	N/A	03/05/01	03/06/01
MERCURY, TOTAL	MB1	S	01C0067	N/A	03/05/01	03/06/01
LEAD LABORATORY	LC1 BS	S	01L0092	N/A	03/05/01	03/05/01
LEAD, TOTAL	MB1	S	01L0092	N/A	03/05/01	03/05/01

LVLI
LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-029
LVL#: 0103L176
SDG/SAF#: H1268/B00-029

W.O.#: 11343-606-001-9999-00
Date Received: 03-02-01

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 soil sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was reported with a three fold dilution for Mercury due to the high concentration of this analyte.

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
B11J64	Chromium	100	106.5

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.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

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.

for Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

03-15-01
Date

gmb/m03-176

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0103L176

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 03/13/01

CLIENT: TNUHANFORD B00-029 H1268 LVL LOT #: 0103L176

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11J64	Arsenic, Total	3.1	MG/KG	0.54	1.0
		Chromium, Total	36.5	MG/KG	0.12	1.0
		Mercury, Total	4.1	MG/KG	0.07	3.0
		Lead, Total	34.6	MG/KG	0.37	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/13/01

CLIENT: TNUHANFORD B00-029 H1268 LVL LOT #: 0103L176

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0092-MB1	Arsenic, Total	0.32 u	MG/KG	0.32	1.0
		Chromium, Total	0.07 u	MG/KG	0.07	1.0
		Lead, Total	0.22 u	MG/KG	0.22	1.0
BLANK1	01C0067-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/13/01

CLIENT: TNUHANFORD B00-029 H1268 LVL LOT #: 0103L176

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11J64	Arsenic, Total	276	3.1	335	81.6	1.0
		Chromium, Total	61.3	36.5	33.5	74.0	1.0
		Mercury, Total	4.7	4.1	0.24	240.6*	3.0
		Lead, Total	104	34.6	83.8	82.8	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/13/01

CLIENT: TNUHANFORD B00-029 H1268 LVL LOT #: 0103L176

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11J64	Arsenic, Total	3.1	2.9	6.7	1.0
		Chromium, Total	36.5	34.4	5.9	1.0
		Mercury, Total	4.1	2.9	34.1	3.0
		Lead, Total	34.6	31.9	8.1	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/13/01

CLIENT: TNUHANFORD B00-029 H1268 LVL LOT #: 0103L176

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0092-LC1	Arsenic, LCS	964	1000	MG/KG	96.4
		Chromium, LCS	50.1	50.0	MG/KG	100.2
		Lead, LCS	247	250	MG/KG	98.6
LCS1	01C0067-LC1	Mercury, LCS	2.7	2.5	MG/KG	107.9

Lionville Laboratory Use Only: 01031176

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TRU-Hanford B00-029
Est. Final Proj. Sampling Date:
Project #: 11343-CCLC-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: Al
QC: Spec Del: Std TAT: 15 day
Date Rec'd: 3-2-01 Date Due: 3-17-01

		A	C					B							
Refrigerator #		2	2					2							
#/Type Container	Liquid														
	Solid	1AG	1AG					1AG							
Volume	Liquid														
	Solid	120	60					60							
Preservatives			-					-							
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN						
		↓ Lionville Laboratory Use Only ↓													
			8270SH	8082B				MET (1)							

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													
001	B11JC4	✓	✓	S	2-22-01	0850		✓	✓					✓					

Special Instructions: Saf B00-029

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

Relinquished by	Received by	Date	Time
FedEx	TBeppel	3-2-01	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2775

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 4.3 C

0103L176

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-079	Page 1 of 1

Collector: Stankovich	Company Contact: MT Stankovich	Telephone No.: 532-7620	Project Coordinator: TRENT, SJ
Price Code: 2E	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 100 F Area - Quick Turn	Sampling Location: 1607-F2	SAF No.: B00-029	
Ice Chest No.: 2RC000-0005	Field Logbook No.: EL-1535	COA: R607F2 2600	Method of Shipment: Fex Ex
Shipped To: TMA/(RECRA)	Offsite Property No.: A010204	Bill of Lading/Air Bill No.: 4235 7954-2775	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	C Cool 4C	B None	None	None	A Cool 4C	None					
Type of Container	sG	sG	sG	sG	sG	P					
No. of Container(s)	1	1	1	1	1	1					
Volume	60mL	60mL	60mL	60mL	120mL	500mL					
SAMPLE ANALYSIS	PCBs - 8082	See item (1) in Special Instructions	Isotopic Uranium; Isotopic Plutonium; Americium-241	Nickel-63; Strontium-89,90 -- Total Sr; Carbon-14; Technetium-99	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions					

Sample No.	Matrix *	Sample Date	Sample Time										
B11J64	SOIL	2-22-01	0850	X	X			X					B11563

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Stankovich	2-22-01 1540	Received By Stored in F-07 3C	2-22-01 1540
Relinquished By	Ref 3C 3728	3-1-01 0900	Received By RT Thorell	3-1-01 0900
Relinquished By	RT Thorell	3-1-01 0900	Received By FEDEX	
Relinquished By	FedEx 3201	1000	Received By Thorell 3201	1000
Relinquished By			Received By	
Relinquished By			Received By	

RT 3-1-01

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) [Arsenic, Chromium, Lead]; Mercury - 7471 - (CV)
~~(2) Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]~~
RT 2-26-01

Samples stored in Ref. 3C at the 3728 Shipping Facility on 2/22/01.
Collector not available to relinquish samples on 3/1/01 for shipment.
RT 3-1-01

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)

1 of 2

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-029 H1268

DATE RECEIVED: 03/02/01 LVL LOT # :0103L176

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11J64	001	S	01LE0253	02/22/01	03/08/01	03/17/01
B11J64	001 MS	S	01LE0253	02/22/01	03/08/01	03/17/01
B11J64	001 MSD	S	01LE0253	02/22/01	03/08/01	03/17/01
LAB QC:						
PBLKRI	MB1	S	01LE0253	N/A	03/08/01	03/17/01
PBLKRI	MB1 BS	S	01LE0253	N/A	03/08/01	03/17/01

gw 03-27-01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-029
LVL#: 0103L176
SDG/SAF#: H1268/B01-029

W.O.#: 11343-606-001-9999-00
Date Received: 03-02-01

PCB

One (1) soil sample was collected on 02-22-01.

The sample and its associated QC samples were extracted on 03-08-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-17-01. The extraction procedure was based on method 3550 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature has been recorded on the chain-of-custody.

2. All required holding times for extraction and analysis have been met.

3. The sample and its associated QC samples received a sulfuric acid and a sulfur cleanup.

4. The method blank was below the reporting limits for all target compounds.

5. All surrogate recoveries were within acceptance criteria.

6. The blank spike recovery was within acceptance criteria.

7. One (1) of two (2) matrix spike recoveries was outside acceptance criteria. The inconsistent matrix spike results may be due to sample inhomogeniety. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

8. All initial calibrations associated with this data set were within acceptance criteria.

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

10. Patterns for Aroclors 1254 and 1260 were identified in these samples. The reported Aroclor was chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.

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 9 pages.

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

12. 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.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-30-01
Date

pef\r:\group\data\pest\03L-176.pcb

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01GC121

Initiator: M. Kobel Batch: G103L176 Parameter: OPCB
Date: 3/26/01 Samples: MSD Matrix: soil
Client: IMD Method: (SW846)/MCAWW/CLP/ Prep Batch: 01LE0253

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

low AR1254 in MSD @ 19%. The MS and BS were good, and the sample did contain AR1254 @ 170 mg/kg.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: [signature] 3/26/01

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 3/26/01 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
✓	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

L-WI-006/E-01/01

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 03/26/01 21:29

RFW Batch Number: **0103L176** Client: **TNUHANFORD B00-029 H1268** Work Order: 11343606001 Page: 1

	Cust ID:	B11J64	B11J64	B11J64	PBLKRI	PBLKRI BS
Sample Information	RFW#:	001	001 MS	001 MSD	01LE0253-MB1	01LE0253-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	88 %	75 %	52 %	70 %	108 %
	Decachlorobiphenyl	90 %	77 %	52 %	68 %	109 %
Aroclor-1016		83 U	82 U	83 U	33 U	33 U
Aroclor-1221		170 U	160 U	170 U	67 U	67 U
Aroclor-1232		83 U	82 U	83 U	33 U	33 U
Aroclor-1242		83 U	82 U	83 U	33 U	33 U
Aroclor-1248		83 U	82 U	83 U	33 U	33 U
Aroclor-1254		170	78 %	19 * %	33 U	104 %
Aroclor-1260		83 U	82 U	83 U	33 U	33 U

03-27-01

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only: 0103L176

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TRU-Hanford B00-029

Est. Final Proj. Sampling Date:

Project #: 11343-CCLO-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 15 day

Date Rec'd: 3-2-01 Date Due: 3-17-01

		A	C	B
Refrigerator #		2	2	2
#/Type Container	Liquid			
	Solid	1PG	1PG	1PG
Volume	Liquid			
	Solid	120	60	60
Preservatives			-	-

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN
								Lionville Laboratory Use Only					
									Cl2CSH	OPCB		MetD	
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	001	B11J64	✓	✓	S	2-22-01	0850		✓	✓		✓	

Special Instructions: Saf B00-029

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

Relinquished by	Received by	Date	Time
FedEx	TBeppel	3-2-01	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 2775

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. 4.3 °C

0103L176

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-079	Page 1 of 1

Collector: Stankovich	Company Contact: MT Stankovich	Telephone No.: 532-7620	Project Coordinator: TRENT, SJ
Price Code: 2E	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 100 F Area - Quick Turn	Sampling Location: 1607-F2	SAF No.: B00-029	
Ice Chest No.: ERC00-0005	Field Logbook No.: EL-1535	COA: R607F2 2600	Method of Shipment: Fex Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010204	Bill of Lading/Air Bill No.: 4235795 4-2775	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS													
			Preservation	Cool 4C	None	None	None	Cool 4C	None				
			Type of Container	sG	sG	sG	sG	sG	P				
			No. of Container(s)	1	1	1	1	1	1				
			Volume	60mL	60mL	60mL	60mL	120mL	500mL				
				PCBs - 8082	See item (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; Americium-241	Nickel-63; Strontium-89,90 -- Total Sr; Carbon-14; Technetium-99	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time										
B11J64	SOIL	2-22-01	0850	X	X			X					B11J63

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Stankovich	2-22-01 1540	[illegible] 2-22-01	
[illegible]		Stored in Frig 3C	2-22-01 1540
Removed from Ref 3C 3728	3.1.01 0400	R L Thorne	3.1.01 0400
R L Thorne	3.1.01 0400	FEDEX	
FEDEX 3201	1000	[illegible] 3201	1000

RT 3.1.01

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~
RT 2.26.01

Samples stored in Ref.# 3C at the 3728 Shipping Facility on 2/22/01.
Collector not available to relinquish samples on 3/1/01 for shipment.
RT 3.1.01

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)

1.2

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-029 H1268

DATE RECEIVED: 03/02/01 LVL LOT # :0103L176

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11J64	001	S	01LE0234	02/22/01	03/06/01	03/08/01
B11J64	001 MS	S	01LE0234	02/22/01	03/06/01	03/08/01
B11J64	001 MSD	S	01LE0234	02/22/01	03/06/01	03/08/01
LAB QC:						
SBLKSB	MB1	S	01LE0234	N/A	03/06/01	03/08/01
SBLKSB	MB1 BS	S	01LE0234	N/A	03/06/01	03/08/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

APR 2001 RECEIVED

Client: TNU-HANFORD B00-029
RFW #: 0103L176
SDG/SAF #: H1268/B00-029

W.O. #: 11343-60[illegible]001-[illegible]
Date Received: 03-[illegible]-2001

SEMIVOLATILE

One (1) soil sample was collected on 02-22-2001.

The sample and its associated QC samples were extracted on 03-06-2001 and analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 03-08-2001.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was extracted and analyzed within required holding times.
3. Non-target compounds were detected in the sample.
4. The sample and its associated QC samples required a 20-fold dilution due to high levels of non-target compounds. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. All surrogate recoveries were within EPA QC limits.
6. All blanks spike recoveries were within EPA QC limits.
7. Six (6) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.
8. The method blank contained the common laboratory contaminant Bis(2-Ethylhexyl)phthalate at a level less than the CRQL.
9. Internal standard area and retention time criteria were met.
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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."
11. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-23-01
Date

som\gorup\data\bna\tnu-hanford-0103-176.doc

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 1 1 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01EX046

Initiator: Bernard Filey Batch: 0103L176 Parameter: 0625
Date: 3/7/01 Samples: 1 lms msd Matrix: S
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE023H

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Elevated final Volumes 2ml

2. Known or Probable Causes(s)

Matrix effect

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

proceed

4. Project Manager Instructions...signature/date: [signature] 3/7/01

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: CST 3/17/01 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Samples required further dilution (10x) prior to analysis 20fold final dilution

When Final Action has been recorded, forward original to QA Specialist for distribution and filing. noted 03/20/01

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Doughty
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson	__	__ GC/LC: Pastor
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

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GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

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Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 03/09/01 10:00

RFW Batch Number: 0103L176 Client: TNUHANFORD B00-029 H1268 Work Order: 11343606001 Page: 1a

	Cust ID:	B11J64		B11J64		B11J64		SBLKSB		SBLKSB BS	
Sample Information	RFW#:	001		001 MS		001 MSD		01LE0234-MB1		01LE0234-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	20.0		20.0		20.0		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	64	%	64	%	70	%	68	%	61	%
	2-Fluorobiphenyl	67	%	73	%	76	%	67	%	65	%
	Terphenyl-d14	80	%	87	%	85	%	86	%	79	%
	Phenol-d5	62	%	64	%	71	%	67	%	64	%
	2-Fluorophenol	58	%	55	%	58	%	63	%	61	%
	2,4,6-Tribromophenol	59	%	68	%	71	%	59	%	70	%
Phenol		11000	U	67	%	76	%	330	U	65	%
bis(2-Chloroethyl)ether		11000	U	11000	U	11000	U	330	U	330	U
2-Chlorophenol		11000	U	66	%	68	%	330	U	66	%
1,3-Dichlorobenzene		11000	U	11000	U	11000	U	330	U	330	U
1,4-Dichlorobenzene		5700	J	89	%	402 *	%	330	U	63	%
1,2-Dichlorobenzene		11000	U	11000	U	11000	U	330	U	330	U
2-Methylphenol		11000	U	11000	U	11000	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		11000	U	11000	U	11000	U	330	U	330	U
4-Methylphenol		11000	U	11000	U	11000	U	330	U	330	U
N-Nitroso-di-n-propylamine		11000	U	101	%	133 *	%	330	U	69	%
Hexachloroethane		11000	U	11000	U	11000	U	330	U	330	U
Nitrobenzene		11000	U	11000	U	11000	U	330	U	330	U
Isophorone		11000	U	11000	U	11000	U	330	U	330	U
2-Nitrophenol		11000	U	11000	U	11000	U	330	U	330	U
2,4-Dimethylphenol		11000	U	11000	U	11000	U	330	U	330	U
bis(2-Chloroethoxy)methane		11000	U	11000	U	11000	U	330	U	330	U
2,4-Dichlorophenol		11000	U	11000	U	11000	U	330	U	330	U
1,2,4-Trichlorobenzene		11000	U	64	%	67	%	330	U	65	%
Naphthalene		11000	U	11000	U	11000	U	330	U	330	U
4-Chloroaniline		11000	U	11000	U	11000	U	330	U	330	U
Hexachlorobutadiene		11000	U	11000	U	11000	U	330	U	330	U
4-Chloro-3-methylphenol		11000	U	67	%	66	%	330	U	68	%
2-Methylnaphthalene		11000	U	11000	U	11000	U	330	U	330	U
Hexachlorocyclopentadiene		11000	U	11000	U	11000	U	330	U	330	U
2,4,6-Trichlorophenol		11000	U	11000	U	11000	U	330	U	330	U
2,4,5-Trichlorophenol		27000	U	28000	U	28000	U	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0103L176 Client: TMUHANFORD B00-029 H1268 Work Order: 11343606001 Page: 1b

Cust ID:	B11J64		B11J64		B11J64		SBLKSB		SBLKSB BS	
RFW#:	001		001 MS		001 MSD		01LE0234-MB1		01LE0234-MB1	
2-Chloronaphthalene	11000	U	11000	U	11000	U	330	U	330	U
2-Nitroaniline	27000	U	28000	U	28000	U	830	U	830	U
Dimethylphthalate	11000	U	11000	U	11000	U	330	U	330	U
Acenaphthylene	11000	U	11000	U	11000	U	330	U	330	U
2,6-Dinitrotoluene	11000	U	11000	U	11000	U	330	U	330	U
3-Nitroaniline	27000	U	28000	U	28000	U	830	U	830	U
Acenaphthene	11000	U	74	%	80	%	330	U	67	%
2,4-Dinitrophenol	27000	U	28000	U	28000	U	830	U	830	U
4-Nitrophenol	27000	U	154 *	%	165 *	%	830	U	50	%
Dibenzofuran	11000	U	11000	U	11000	U	330	U	330	U
2,4-Dinitrotoluene	11000	U	66	%	55	%	330	U	72	%
Diethylphthalate	11000	U	11000	U	11000	U	330	U	330	U
4-Chlorophenyl-phenylether	11000	U	11000	U	11000	U	330	U	330	U
Fluorene	11000	U	11000	U	11000	U	330	U	330	U
4-Nitroaniline	27000	U	28000	U	28000	U	830	U	830	U
4,6-Dinitro-2-methylphenol	27000	U	28000	U	28000	U	830	U	830	U
N-Nitrosodiphenylamine (1)	11000	U	11000	U	11000	U	330	U	330	U
4-Bromophenyl-phenylether	11000	U	11000	U	11000	U	330	U	330	U
Hexachlorobenzene	11000	U	11000	U	11000	U	330	U	330	U
Pentachlorophenol	27000	U	205 *	%	210 *	%	830	U	33	%
Phenanthrene	11000	U	11000	U	11000	U	330	U	330	U
Anthracene	11000	U	11000	U	11000	U	330	U	330	U
Carbazole	11000	U	11000	U	11000	U	330	U	330	U
Di-n-butylphthalate	11000	U	11000	U	11000	U	330	U	330	U
Fluoranthene	11000	U	11000	U	11000	U	330	U	330	U
Pyrene	11000	U	82	%	82	%	330	U	76	%
Butylbenzylphthalate	11000	U	11000	U	11000	U	330	U	330	U
3,3'-Dichlorobenzidine	11000	U	11000	U	11000	U	330	U	330	U
Benzo(a)anthracene	11000	U	11000	U	11000	U	330	U	330	U
Chrysene	11000	U	11000	U	11000	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	11000	U	11000	U	11000	U	27	J	330	U
Di-n-octyl phthalate	11000	U	11000	U	11000	U	330	U	330	U
Benzo(b)fluoranthene	11000	U	11000	U	11000	U	330	U	330	U
Benzo(k)fluoranthene	11000	U	11000	U	11000	U	330	U	330	U
Benzo(a)pyrene	11000	U	11000	U	11000	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	11000	U	11000	U	11000	U	330	U	330	U
Dibenz(a,h)anthracene	11000	U	11000	U	11000	U	330	U	330	U
Benzo(g,h,i)perylene	11000	U	11000	U	11000	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11J64

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B00-029 H1268

Matrix: SOIL Lab Sample ID: 0103L176-001

Sample wt/vol: 30.6 (g/mL) G Lab File ID: D030811

Level: (low/med) LOW Date Received: 03/02/01

% Moisture: not dec. 40 dec. Date Extracted: 03/06/01

Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 03/08/01

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 10.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	14.237	5000	J
2.	ALKANE	15.358	5000	J
3.	UNKNOWN	21.695	5000	J
4.	UNKNOWN	34.587	9000	J
5.	UNKNOWN	35.230	5000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKSB

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B00-029 H1268

Matrix: SOIL Lab Sample ID: 01LE0234-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D030805

Level: (low/med) LOW Date Received: 03/06/01

% Moisture: not dec. 0 dec. Date Extracted: 03/06/01

Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 03/08/01

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.500

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	23.351	70	J

FORM 1 SV-TIC 12/88 Rev.

Lionville Laboratory Use Only: 01031176

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TRU-Hanford B00-029

Est. Final Proj. Sampling Date:

Project #: 113443-C0C0-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 15 day

Date Rec'd: 3-2-01 Date Due: 3-17-01

		A	C					B							
Refrigerator #		2	2					2							
#/Type Container	Liquid														
	Solid	1AG	1AG					1AG							
Volume	Liquid														
	Solid	100	100					100							
Preservatives			-					-							
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN						
		Lionville Laboratory Use Only													
			OCBSH	OPCB				Met (1)							

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														
001	B1N1C4	✓	✓	S	2-28-01	0850		✓	✓						✓					

Special Instructions: SAF B00-029

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

Relinquished by	Received by	Date	Time
FedEx	Thrappel	3-2-01	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 2775

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't (Y) or N

Cooler Temp. 4.3 °C

0103L176

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-029-079	Page 1 of 1
Collector: Stankovich	Company Contact: MT Stankovich; Telephone No.: 532-7620	Project Coordinator: TRENT, SJ	Price Code: 2E; Data Turnaround: 15 Days
Project Designation: 100 F Area - Quick Turn	Sampling Location: 1607-F2	SAF No.: B00-029	Air Quality ☐
Ice Chest No.: 2RC000-0005	Field Logbook No.: EL-1535; COA: R607F2 2600	Method of Shipment: Fex Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010204	Bill of Lading/Air Bill No.: 4235 7954-2775	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS												
			Preservation	C Cool 4C	B None	None	None	A Cool 4C	None				
			Type of Container	sG	sG	sG	sG	sG	P				
			No. of Container(s)	1	1	1	1	1	1				
			Volume	60mL	60mL	60mL	60mL	120mL	500mL				
				PCBs - 8082	See item (1) in Special Instructions.	Isotopic Uranium; Isotopic Plutonium; Americium-241	Nickel-63; Strontium-89,90 – Total Sr; Carbon-14; Technetium-99	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time										
B11J64	SOIL	2-22-01	0860	X	X			X					B11563

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: Stankovich; Date/Time: 2-22-01 1540	Received By: [illegible] 2-22-01; Date/Time: Stored in Freg 3C 2-22-01 1540	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)	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
Relinquished By: Remained on Ref 3C 3728; Date/Time: 0400 3.1.01	Received By: RT Thorne; Date/Time: 0400 3.1.01	~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ ZT 2.26.01	
Relinquished By: RT Thorne; Date/Time: 0400 3.1.01	Received By: FEDEX; Date/Time:		
Relinquished By: FEDEX 3201 1000	Received By: [illegible] 3201 1000	Samples stored in Ref.# 3C at the 3728 Shipping Facility on 2.22.01. Collector not available to relinquish samples on 3.1.01 for shipment. RT 3.1.01	
Relinquished By:	Received By:		
Relinquished By:	Received By:		

RT 3.1.01

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

BHI-EE-011 (10/99)

1.3