H1240

0055508

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1240 was composed of two other solid (resin) samples designated under SAF No. B99-029 with a Project Designation of: 100-KR-4 Pump & Treat – Resin Sampling.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

RECEIVED
OCT 23 2001
EDMC

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Technetium-99 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

The RPD between sample B11C67 and its sample duplicate for U-238 was 47%, greater than the 3σ limit of 42%. The difference between sample B11C67 and its sample duplicate was less than 2-times the RDL (1.0 pCi/g) for U-238. No other problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion
Melissa C. Mannion
Program Manager

3/14/01
Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

SAMPLE SUMMARY

SDG 7631
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1240

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11C66	100-KR-4	SOLID		R102017-01	B99-029	B99-029-67	01/31/01 08:22
B11C67	100-KR-4	SOLID		R102017-02	B99-029	B99-029-67	01/31/01 08:43
Method Blank		SOLID		R102017-04	B99-029		
Lab Control Sample		SOLID		R102017-03	B99-029		
Duplicate (R102017-02)	100-KR-4	SOLID		R102017-05	B99-029		01/31/01 08:43

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

QC SUMMARY

SDG 7631
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1240

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
7631	B99-029-67	B11C66	SOLID	100.0			02/02/01	2	R102017-01	7631-001
		B11C67	SOLID	100.0			02/02/01	2	R102017-02	7631-002
		Method Blank	SOLID						R102017-04	7631-004
		Lab Control Sample	SOLID						R102017-03	7631-003
		Duplicate (R102017-02)	SOLID	100.0			02/02/01	2	R102017-05	7631-005

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

PREP BATCH SUMMARY

SDG 7631
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1240

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
U	SOLID	Uranium, Isotopic in Soil	6963-148	5.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6963-148	10.0	2			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6963-148	10.0	2			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6963-148	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 03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

WORK SUMMARY

SDG 7631
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1240

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11C66			R102017-01	7631-001	H		03/01/01	03/13/01	MCM	Tritium in Soil
100-KR-4		SOLID	01/31/01	7631-001	SR		02/16/01	03/13/01	MCM	Total Strontium in Soil
B99-029-67	B99-029		02/02/01	7631-001	TC		03/03/01	03/13/01	MCM	Technetium 99 in Soil
				7631-001	U		02/16/01	03/13/01	MCM	Uranium, Isotopic in Soil
B11C67			R102017-02	7631-002	H		03/01/01	03/13/01	MCM	Tritium in Soil
100-KR-4		SOLID	01/31/01	7631-002	SR		02/16/01	03/13/01	MCM	Total Strontium in Soil
B99-029-67	B99-029		02/02/01	7631-002	TC		03/03/01	03/13/01	MCM	Technetium 99 in Soil
				7631-002	U		02/16/01	03/13/01	MCM	Uranium, Isotopic in Soil
Method Blank			R102017-04	7631-004	H		03/01/01	03/13/01	MCM	Tritium in Soil
		SOLID		7631-004	SR		02/16/01	03/13/01	MCM	Total Strontium in Soil
	B99-029			7631-004	TC		03/03/01	03/13/01	MCM	Technetium 99 in Soil
				7631-004	U		02/16/01	03/13/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R102017-03	7631-003	H		03/01/01	03/13/01	MCM	Tritium in Soil
		SOLID		7631-003	SR		02/16/01	03/13/01	MCM	Total Strontium in Soil
	B99-029			7631-003	TC		03/03/01	03/13/01	MCM	Technetium 99 in Soil
				7631-003	U		02/16/01	03/13/01	MCM	Uranium, Isotopic in Soil
Duplicate (R102017-02)			R102017-05	7631-005	H		03/01/01	03/13/01	MCM	Tritium in Soil
100-KR-4		SOLID	01/31/01	7631-005	SR		02/16/01	03/13/01	MCM	Total Strontium in Soil
	B99-029		02/02/01	7631-005	TC		03/03/01	03/13/01	MCM	Technetium 99 in Soil
				7631-005	U		02/16/01	03/13/01	MCM	Uranium, Isotopic in Soil

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
H	B99-029	Tritium in Soil	TRITIUM_COX_LSC	2			1	1	1	5
SR	B99-029	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TC	B99-029	Technetium 99 in Soil	TC99_TR_SEP_LSC	2			1	1	1	5
U	B99-029	Uranium, Isotopic in Soil	UISO_PLATE_AEA	2			1	1	1	5
TOTALS				8			4	4	4	20

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/14/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1240

R102017-04 Method Blank

METHOD BLANK

SDG	7631	Client/Case no	Hanford	SDG H1240	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102017-04	Client sample id	Method Blank		
Dept sample id	7631-004	Material/Matrix		SOLID	
		SAF No	B99-029		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-1.05	3.1	5.3	400	U	H
Total Strontium	SR-RAD	-0.073	0.15	0.34	1.0	U	SR
Technetium 99	14133-76-7	-0.100	0.28	0.93	15	U	TC
Uranium 233	U-233/234	-0.016	0.032	0.058	1.0	U	U
Uranium 235	15117-96-1	-0.005	0.020	0.047	1.0	U	U
Uranium 238	U-238	-0.004	0.016	0.031	1.0	U	U

100-KR-4 Pump & Treat-Resin Sampling

QC-BLANK 37638

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

R102017-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7631
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1240
Case no TRC-SBB-207925

Lab sample id R102017-03
Dept sample id 7631-003

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B99-029

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
Tritium	1310	18	5.3	400		H	1370	55	96	84-116	80-120
Total Strontium	23.4	0.83	0.24	1.0		SR	21.9	0.88	107	82-118	80-120
Technetium 99	122	1.9	0.48	15		TC	118	4.7	103	83-117	80-120
Uranium 233	17.8	0.83	0.40	1.0		U	18.6	0.74	96	89-111	80-120
Uranium 235	15.0	0.75	0.058	1.0		U	15.1	0.60	99	88-112	80-120
Uranium 238	19.9	0.89	0.38	1.0		U	20.2	0.81	99	88-112	80-120

100-KR-4 Pump & Treat-Resin Sampling

QC-LCS 37637

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

R102017-05 B11C67

DUPLICATE

SDG	7631			Client/Case no	Hanford SDG H1240
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R102017-05	Lab sample id	R102017-02	Client sample id	B11C67
Dept sample id	7631-005	Dept sample id	7631-002	Location/Matrix	100-KR-4 SOLID
		Received	02/02/01	Collected	01/31/01 08:43
% solids	100.0	% solids	100.0	Custody/SAF No	B99-029-67 B99-029

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
Tritium	3.73	3.2	5.2	400	U	H	4.81	3.3	5.3	U	-		
Total Strontium	-0.166	0.17	0.37	1.0	U	SR	-0.142	0.13	0.32	U	-		
Technetium 99	0.004	0.31	0.98	15	U	TC	0.145	0.32	1.0	U	-		
Uranium 233	0.824	0.15	0.068	1.0	J	U	1.12	0.18	0.084		30	38	
Uranium 235	0.020	0.040	0.064	1.0	U	U	0.015	0.045	0.084	U	-		
Uranium 238	0.531	0.11	0.053	1.0	J	U	0.856	0.15	0.060	J	47	42	

100-KR-4 Pump & Treat-Resin Sampling

QC-DUP#2 37639

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/14/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1240

R102017-01

B11C66

DATA SHEET

SDG	7631	Client/Case no	Hanford	SDG H1240	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102017-01	Client sample id	B11C66		
Dept sample id	7631-001	Location/Matrix	100-KR-4	SOLID	
Received	02/02/01	Collected	01/31/01 08:22		
% solids	100.0	Custody/SAF No	B99-029-67	B99-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	4.68	3.3	5.2	400	U	H
Total Strontium	SR-RAD	-0.046	0.16	0.34	1.0	U	SR
Technetium 99	14133-76-7	0.229	0.32	0.90	15	U	TC
Uranium 233	U-233/234	1.07	0.14	0.040	1.0		U
Uranium 235	15117-96-1	0.041	0.031	0.039	1.0	J	U
Uranium 238	U-238	0.720	0.11	0.040	1.0	J	U

100-KR-4 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1240

R102017-02 B11C67

DATA SHEET

SDG	7631	Client/Case no	Hanford	SDG H1240	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102017-02	Client sample id	B11C67		
Dept sample id	7631-002	Location/Matrix	100-KR-4	SOLID	
Received	02/02/01	Collected	01/31/01 08:43		
% solids	100.0	Custody/SAF No	B99-029-67	B99-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	4.81	3.3	5.3	400	U	H
Total Strontium	SR-RAD	-0.142	0.13	0.32	1.0	U	SR
Technetium 99	14133-76-7	0.145	0.32	1.0	15	U	TC
Uranium 233	U-233/234	1.12	0.18	0.084	1.0		U
Uranium 235	15117-96-1	0.015	0.045	0.084	1.0	U	U
Uranium 238	U-238	0.856	0.15	0.060	1.0	J	U

100-KR-4 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

Test U Matrix SOLID
SDG 7631
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1240

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 6963-148											
B11C66	R102017-01			7631-001	1.07	0.041 J	0.720 J	149	30	6	4
B11C67	R102017-02			7631-002	1.12	U	0.856 J	131	31	2	5
BLK (QC ID=37638)	R102017-04			7631-004	U	U	U				
LCS (QC ID=37637)	R102017-03			7631-003	ok	ok	ok				
Duplicate (R102017-02)	R102017-05			7631-005	ok J	- U	OUT J	155	43	4	8
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100-KR-4 Pump & Treat-Resin Sampling							Averages	145		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 6963-148	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 118												
B11C66	R102017-01			0.040	0.500			62		888			16	02/16/01	02/16	SS-050
B11C67	R102017-02			0.084	0.500			55		896			16	02/16/01	02/16	SS-021
BLK (QC ID=37638)	R102017-04			0.058	0.500			78		896				02/16/01	02/16	SS-023
LCS (QC ID=37637)	R102017-03			0.40	0.500			76		872				02/16/01	02/16	SS-022
Duplicate (R102017-02) (QC ID=37639)	R102017-05			0.068	0.500			63		893			16	02/16/01	02/16	SS-024
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 0.13 ± 0.30
YIELD 67 ± 20

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/01

Test SR Matrix SOLID
SDG 7631
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1240

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6963-148						
B11C66	R102017-01			7631-001	U	
B11C67	R102017-02			7631-002	U	
BLK (QC ID=37638)	R102017-04			7631-004	U	
LCS (QC ID=37637)	R102017-03			7631-003	ok	
Duplicate (R102017-02)	R102017-05			7631-005	-	U
Nominal values and limits from method			RDLs (pCi/g)		1.0	
100-KR-4 Pump & Treat-Resin Sampling						

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 6963-148	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 118															
B11C66	R102017-01			0.34	1.00			79		100			16	02/16/01	02/16	GRB-202
B11C67	R102017-02			0.32	1.00			82		100			16	02/16/01	02/16	GRB-203
BLK (QC ID=37638)	R102017-04			0.34	1.00			81		100				02/16/01	02/16	GRB-207
LCS (QC ID=37637)	R102017-03			0.24	1.00			80		104				02/16/01	02/16	GRB-221
Duplicate (R102017-02) (QC ID=37639)	R102017-05			0.37	1.00			82		100			16	02/16/01	02/16	GRB-208
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 5 SAMPLES				
	MDA	0.32	±	0.098
	YIELD	81	±	3

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/01

Test TC Matrix SOLID
SDG 7631
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1240

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6963-148						
B11C66	R102017-01			7631-001	U	
B11C67	R102017-02			7631-002	U	
BLK (QC ID=37638)	R102017-04			7631-004	U	
LCS (QC ID=37637)	R102017-03			7631-003	ok	
Duplicate (R102017-02)	R102017-05			7631-005	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
100-KR-4 Pump & Treat-Resin Sampling						

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 6963-148	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 118															
B11C66	R102017-01			0.90	1.05			52		50			31	02/27/01	03/03	GRB-222
B11C67	R102017-02			1.0	1.06			48		50			31	02/27/01	03/03	GRB-223
BLK (QC ID=37638)	R102017-04			0.93	1.00			55		50				02/27/01	03/03	GRB-203
LCS (QC ID=37637)	R102017-03			0.48	1.00			83		89				02/27/01	03/03	GRB-204
Duplicate (R102017-02) (QC ID=37639)	R102017-05			0.98	1.06			49		50			31	02/27/01	03/03	GRB-203
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-060	Soil Preparation, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 0
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.86 ± 0.43
YIELD 57 ± 29

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1240

Test H Matrix SOLID
SDG 7631
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1240

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-148						
B11C66	R102017-01			7631-001	U	
B11C67	R102017-02			7631-002	U	
BLK (QC ID=37638)	R102017-04			7631-004	U	
LCS (QC ID=37637)	R102017-03			7631-003	ok	
Duplicate (R102017-02)	R102017-05			7631-005	-	U
Nominal values and limits from method				RDLs (pCi/g)	400	
100-KR-4 Pump & Treat-Resin Sampling						

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 6963-148	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 118															
B11C66	R102017-01			5.2	0.214			100		100			29	02/28/01	03/01	LSC-004
B11C67	R102017-02			5.3	0.215			100		100			29	02/28/01	03/01	LSC-004
BLK (QC ID=37638)	R102017-04			5.3	0.214			100		100				02/28/01	03/01	LSC-004
LCS (QC ID=37637)	R102017-03			5.3	0.214			100		100				02/28/01	03/01	LSC-004
Duplicate (R102017-02) (QC ID=37639)	R102017-05			5.2	0.219			100		100			29	02/28/01	03/01	LSC-004
Nominal values and limits from method				400	0.214					25			180			

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

AVERAGES ± 2 SD MDA 5.3 ± 0.11
FOR 5 SAMPLES YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B99-029-67	Page 1 of 1
Collector: Fahlberg	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ	Price Code: 9N
Project Designation: 100-KR-4 Pump & Treat - Resin Sampling	Sampling Location: 100-KR-4 H1240 (7631)		SAF No.: B99-029	Air Quality ☐
Ice Chest No.: ERC 99 0674 (1 of 1) (3 of 3) RT 2-1-01 RT 2-1-01	Field Logbook No.: EL 1517-1	COA: R10KR4C560	Method of Shipment: Fed EX	Data Turnaround: 45 Days
Shipped To: TMA/RECRA SBERline	Offsite Property No.: A010169		Bill of Lading/Air Bill No.: 4238 7954 2102	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
** Historical data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCT rad screen for off site shipment.

Preservation	None	None	None	None	Cool 4C	Cool 4C	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL		
SAMPLE ANALYSIS	Isotopic Uranium	Strontium-89,90 -- Total Sr	Technetium-99	Tritium - H3	Semi-VOA - 8270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	See item (2) in Special Instructions.		

01-31-01

Sample No.	Matrix *	Sample Date	Sample Time										
B11C66 ✓	OTHER SOLID	01-31-01 ✓	0822 ✓	X ✓	X ✓	X ✓	X ✓						
B11C67 ✓	OTHER SOLID	01-31-01 ✓	0843 ✓	X ✓	X ✓	X ✓	X ✓						

CHAIN OF POSSESSION — Sign/Print Names RF 01-31-01

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	01-31-01 12:00	Stored in Ref 2-B	01-31-01 12:00
Removed from Ref 2B 3728	2-1-01 0900	R. Thorne	2-1-01 0900
R. Thorne	2-1-01 0900	FEDEX	2-1-01
FED. EXPRESS	2/2/01 10 Am	E. Sagurt	2-2-01 10 Am

RT 2-1-01

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) (Chloroform, Methylenechloride); VOA - 8260A (Add-On) (Trichloromonofluoromethane)
(2) Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (TCLP) Add-on - 1311/6010 (Antimony, Beryllium, Nickel)

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 1/31/01.
Collector not available to relinquish samples on 2/1/01 for shipment.
TRT 2-1-01

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)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BECHTEL HANFORD INC. Date/Time received 2-2-01 10:AM

CoC No. B99-029-67

Container I.D. No. ERC99-067 Requested TAT (Days) 45 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. Segura Date: 2-2-01 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 _____

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1240

DATE RECEIVED: 02/02/01 LVL LOT # :0102L895

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11C66						
% SOLIDS	001	SO	01L%S017	01/31/01	02/05/01	02/06/01
% SOLIDS	001 REP	SO	01L%S017	01/31/01	02/05/01	02/06/01
NITRATE BY IC	001	SO	01LIC013	01/31/01	02/27/01	02/27/01
NITRATE BY IC	001 REP	SO	01LIC013	01/31/01	02/27/01	02/27/01
NITRATE BY IC	001 MS	SO	01LIC013	01/31/01	02/27/01	02/27/01
TCLP	001	SO	01LTO022	01/31/01	03/06/01	03/07/01
B11C67						
% SOLIDS	002	SO	01L%S017	01/31/01	02/05/01	02/06/01
NITRATE BY IC	002	SO	01LIC013	01/31/01	02/27/01	02/27/01
TCLP	002	SO	01LTO022	01/31/01	03/06/01	03/07/01

LAB QC:

NITRATE BY IC	MB1	S	01LIC013	N/A	02/27/01	02/27/01
NITRATE BY IC	MB1 BS	S	01LIC013	N/A	02/27/01	02/27/01

01

08 3/4/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B99-029 H1240
LVL#: 0102L895

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

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 solid samples.

2. The samples were prepared and analyzed in accordance with the methods indicated 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 Nitrate was within the method criteria.

6. The Laboratory Control Sample (LCS) for Nitrate was within the laboratory control limits.

7. The matrix spike recovery for Nitrate was 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.

Pat C

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

03-11-01
Date

njp\i02-895

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.

02

01 3/11/01

Lionville Laboratory, Inc.

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: Nitrate **Method:** EPA 300.0 (mod.)

Other: **Method**

L-WI-034/B-01/01

03
02 3/1/01

Lionville Laboratory Incorporated

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 B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11C66	% Solids	45.3	%	0.01	1.0
		Nitrate by IC	6.37	MG/KG	2.76	1.0
-002	B11C67	% Solids	45.1	%	0.01	1.0
		Nitrate by IC	5.94	MG/KG	2.77	1.0

05
~~04~~ 3/14/01

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/09/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LIC013-MB1	Nitrate by IC	1.25 u	MG/KG	1.25	1.0

06
05 3/14/01

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/09/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11C66	Nitrate by IC	63.3	6.37	55.2	103.2	1.0
BLANK10	01LIC013-MB1	Nitrate by IC	26.3	1.25u	25.0	105.2	1.0

07

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/09/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11C66	% Solids	45.3	43.8	3.5	1.0
		Nitrate by IC	6.37	6.02	5.5	1.0

08

07/31/01

RECRA LabNet Use Only

01021895

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client ~~BECHTEL Hanford~~ TMU Hanford B99-029

Est. Final Proj. Sampling Date TK 2-2-01

Project # 11343-6060-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 2-2-01 Date Due 3-4-01

Account #

Refrigerator #		A	B						C		D					
#/Type Container	Liquid	1AG														
	Solid	1AG	1AG						1AG		1AG					
Volume	Liquid															
	Solid	250g	250						500		250					
Preservatives																
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: ICP Metal	CN	VH Anions					
RECRA LabNet Use Only		OC24X	SVOC25X						ITCLP		ICNO3		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	OC24X	SVOC25X					ITCLP		ICNO3		Met ①			
001	B11C66			SO	1-31-01	0822	X	X					X		X					
002	B11C67			⊥	1-31-01	0843	X	X					X		X					
003	B11C66 trip of 001			L	*	-											✓			
004	⊥ 7 ⊥ 002			⊥	⊥	⊥											✓			

Special Instructions: Saf B99-029

Run Matrix QC

DATE/REVISIONS:

* 1. See labchron

Met ① 2. As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Br, Ni

3.

4.

5.

6.

RECRA LabNet 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) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape 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. 2° °C

Relinquished by	Received by	Date	Time
FED EX	Carla Hernandez	2-2-01	9:30

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REMITTED		

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

NOTES: Cpl 2-2-01

4235 7954 2098

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-029-67	Page 1 of 1

Collector: Fahlberg	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality:	
Project Designation: 100-KR-4 Pump & Treat - Resin Sampling	Sampling Location: 100-KR-4	SAF No.: B99-029	
Ice Chest No.: ERC99074 (3 of 3)	Field Logbook No.: EL 1517-1	COA: R10KR4C560	Method of Shipment: Fed EX
Shipped To: TMA (RECRA)	Offsite Property No.: A010198		Bill of Lading/Air Bill No.: 4235 7954 - 2098

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
** Historical data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.

SAMPLE ANALYSIS

Preservation	None	None	None	None	Cool 4C	Cool 4C	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL		
	Isotopic Uranium	Strontium-89,90 -- Total Sr	Technetium-99	Tritium - 113	Semi-VOA - 8270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	See item (2) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
B11C66	OTHER SOLID	01-31-01	0822					X	X	X	X	
B11C67	OTHER SOLID	01-31-01	0843					X	X	X	X	

01-31-01

CHAIN OF POSSESSION — Sign/Print Names RF 01-31-01

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	01-31-01 1200	Stored in Ref 2-B	01-31-01 1200
Removed from Ref 2B 3728	2-1-01 0400	R. Thorell	2-1-01 0400
R. Thorell	2-1-01 0400	FED EX	
FED EX	2-2-01 9:30	Carla Hinman	2-2-01 9:30

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) (Chloroform, Methylenechloride); VOA - 8260A (Add-On) (Trichloromonofluoromethane)
(2) Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (TCLP) Add-on - 1311/6010 (Antimony, Beryllium, Nickel)

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 1/31/01.
Collector not available to relinquish samples on 2/1/01 for shipment.. RT 2-1-01

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)

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1240

DATE RECEIVED: 02/02/01 LVL LOT # :0102L895

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11C66						
TCLP	001	SO	01LTO022	01/31/01	03/06/01	03/07/01
B11C67						
TCLP	002	SO	01LTO022	01/31/01	03/06/01	03/07/01
B11C66						
SILVER, TCLP LEACHAT	003	W	01L0097	03/07/01	03/10/01	03/10/01
SILVER, TCLP LEACHAT	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
SILVER, TCLP LEACHAT	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	003	W	01L0097	03/07/01	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	003	W	01L0097	03/07/01	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
BERYLLIUM, TCLP LEAC	003	W	01L0097	03/07/01	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	003	W	01L0097	03/07/01	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	003	W	01L0097	03/07/01	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	003	W	01L0097	03/07/01	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
LEAD, TCLP LEACHATE	003	W	01L0097	03/07/01	03/10/01	03/10/01
LEAD, TCLP LEACHATE	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
LEAD, TCLP LEACHATE	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	003	W	01L0097	03/07/01	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
SELENIUM, TCLP LEACH	003	W	01L0097	03/07/01	03/10/01	03/10/01
SELENIUM, TCLP LEACH	003 REP	W	01L0097	03/07/01	03/10/01	03/10/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1240

DATE RECEIVED: 02/02/01 LVL LOT # :0102L895

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TCLP LEACH	003 MS	W	01L0097	03/07/01	03/10/01	03/10/01
B11C67						
SILVER, TCLP LEACHAT	004	W	01L0097	03/07/01	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	004	W	01L0097	03/07/01	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	004	W	01L0097	03/07/01	03/10/01	03/10/01
BERYLLIUM, TCLP LEAC	004	W	01L0097	03/07/01	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	004	W	01L0097	03/07/01	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	004	W	01L0097	03/07/01	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	004	W	01L0097	03/07/01	03/10/01	03/10/01
LEAD, TCLP LEACHATE	004	W	01L0097	03/07/01	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	004	W	01L0097	03/07/01	03/10/01	03/10/01
SELENIUM, TCLP LEACH	004	W	01L0097	03/07/01	03/10/01	03/10/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
SILVER, TCLP LEACHAT	MB1	W	01L0097	N/A	03/10/01	03/10/01
SILVER, TCLP LEACHAT	MB2	W	01L0097	N/A	03/10/01	03/10/01
ARSENIC LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	MB1	W	01L0097	N/A	03/10/01	03/10/01
ARSENIC, TCLP LEACHA	MB2	W	01L0097	N/A	03/10/01	03/10/01
BARIUM LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	MB1	W	01L0097	N/A	03/10/01	03/10/01
BARIUM, TCLP LEACHAT	MB2	W	01L0097	N/A	03/10/01	03/10/01
BERYLLIUM LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
BERYLLIUM, TCLP LEAC	MB1	W	01L0097	N/A	03/10/01	03/10/01
BERYLLIUM, TCLP LEAC	MB2	W	01L0097	N/A	03/10/01	03/10/01
CADMIUM LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	MB1	W	01L0097	N/A	03/10/01	03/10/01
CADMIUM, TCLP LEACHA	MB2	W	01L0097	N/A	03/10/01	03/10/01
CHROMIUM LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	MB1	W	01L0097	N/A	03/10/01	03/10/01
CHROMIUM, TCLP LEACH	MB2	W	01L0097	N/A	03/10/01	03/10/01
NICKEL LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	MB1	W	01L0097	N/A	03/10/01	03/10/01
NICKEL, TCLP LEACHAT	MB2	W	01L0097	N/A	03/10/01	03/10/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1240

DATE RECEIVED: 02/02/01 LVL LOT # :0102L895

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
LEAD, TCLP LEACHATE	MB1	W	01L0097	N/A	03/10/01	03/10/01
LEAD, TCLP LEACHATE	MB2	W	01L0097	N/A	03/10/01	03/10/01
ANTIMONY LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	MB1	W	01L0097	N/A	03/10/01	03/10/01
ANTIMONY, TCLP LEACH	MB2	W	01L0097	N/A	03/10/01	03/10/01
SELENIUM LABORATORY	LC1 BS	W	01L0097	N/A	03/10/01	03/10/01
SELENIUM, TCLP LEACH	MB1	W	01L0097	N/A	03/10/01	03/10/01
SELENIUM, TCLP LEACH	MB2	W	01L0097	N/A	03/10/01	03/10/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B99-029
LVL#: 0102L895
SDG/SAF#: H1240/B99-029

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

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All samples were reported with five fold dilutions due to sample matrix.

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 duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. The TCLP extract from sample B11C66 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

12. 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.

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 14 pages.

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

13. 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.

14. 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

03-14-01
Date

gmb/m02-895

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01021895

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:_____

L-WI-033/M-03/01

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.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/14/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B11C66	Silver, TCLP Leachate	3.0	u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	27.8		UG/L	16.0	5.0
		Barium, TCLP Leachate	8.3		UG/L	1.0	5.0
		Beryllium,TCLP Leachate	0.50	u	UG/L	0.50	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	6430		UG/L	3.5	5.0
		Nickel, TCLP Leachate	5.5	u	UG/L	5.5	5.0
		Lead, TCLP Leachate	11.0	u	UG/L	11.0	5.0
		Antimony, TCLP Leachate	8.5	u	UG/L	8.5	5.0
		Selenium, TCLP Leachate	20.0		UG/L	15.5	5.0
-004	B11C67	Silver, TCLP Leachate	3.0	u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	28.2		UG/L	16.0	5.0
		Barium, TCLP Leachate	11.9		UG/L	1.0	5.0
		Beryllium,TCLP Leachate	0.50	u	UG/L	0.50	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	6030		UG/L	3.5	5.0
		Nickel, TCLP Leachate	5.5	u	UG/L	5.5	5.0
		Lead, TCLP Leachate	11.0	u	UG/L	11.0	5.0
		Antimony, TCLP Leachate	9.3		UG/L	8.5	5.0
		Selenium, TCLP Leachate	15.5	u	UG/L	15.5	5.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/14/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0097-MB1	Silver, TCLP Leachate	0.60	u	UG/L	0.60	1.0
		Arsenic, TCLP Leachate	3.2	u	UG/L	3.2	1.0
		Barium, TCLP Leachate	0.20	u	UG/L	0.20	1.0
		Beryllium,TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Cadmium, TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Chromium, TCLP Leachate	0.70	u	UG/L	0.70	1.0
		Nickel, TCLP Leachate	1.1	u	UG/L	1.1	1.0
		Lead, TCLP Leachate	2.2	u	UG/L	2.2	1.0
		Antimony, TCLP Leachate	1.7	u	UG/L	1.7	1.0
		Selenium, TCLP Leachate	3.1	u	UG/L	3.1	1.0
BLANK2	01L0097-MB2	Silver, TCLP Leachate	3.0	u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	16.0	u	UG/L	16.0	5.0
		Barium, TCLP Leachate	1.0	u	UG/L	1.0	5.0
		Beryllium,TCLP Leachate	0.50	u	UG/L	0.50	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	3.5	u	UG/L	3.5	5.0
		Nickel, TCLP Leachate	5.5	u	UG/L	5.5	5.0
		Lead, TCLP Leachate	39.8		UG/L	11.0	5.0
		Antimony, TCLP Leachate	8.5	u	UG/L	8.5	5.0
		Selenium, TCLP Leachate	15.5	u	UG/L	15.5	5.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/14/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B11C66	Silver, TCLP Leachate	4510	3.0 u	5000	90.3	5.0
		Arsenic, TCLP Leachate	4740	27.8	5000	94.2	5.0
		Barium, TCLP Leachate	85300	8.3	100000	85.3	5.0
		Cadmium, TCLP Leachate	956	1.5 u	1000	95.6	5.0
		Chromium, TCLP Leachat	10900	6430	5000	90.1	5.0
		Nickel, TCLP Leachate	944	5.5 u	1000	94.4	5.0
		Lead, TCLP Leachate	4650	11.0 u	5000	92.9	5.0
		Antimony, TCLP Leachat	953	8.5 u	1000	95.3	5.0
		Selenium, TCLP Leachat	957	20.0	1000	93.7	5.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/14/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	B11C66	Silver, TCLP Leachate	3.0 u	3.0 u	NC	5.0
		Arsenic, TCLP Leachate	27.8	19.8	33.6	5.0
		Barium, TCLP Leachate	8.3	4.3	63.5	5.0
		Cadmium, TCLP Leachate	1.5 u	1.5 u	NC	5.0
		Chromium, TCLP Leachate	6430	6400	0.57	5.0
		Nickel, Leachate	5.5 u	5.5 u	NC	5.0
		Lead, TCLP Leachate	11.0 u	12.6	~~NC~~ 200	5.0
		Antimony, Leachate	8.5 u	8.5 u	NC	5.0
		Selenium, TCLP Leachate	20.0	15.5 u	~~NC~~ 200	5.0

yjb 3/14/01

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/14/01

CLIENT: TNUHANFORD B99-029 H1240 LVL LOT #: 0102L895

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0097-LC1	Silver, LCS	470	500	UG/L	94.0
		Arsenic, LCS	9320	10000	UG/L	93.2
		Barium, LCS	4680	5000	UG/L	93.6
		Beryllium, LCS	240	250	UG/L	95.9
		Cadmium, LCS	242	250	UG/L	97.0
		Chromium, LCS	483	500	UG/L	96.7
		Nickel, LCS	1920	2000	UG/L	96.2
		Lead, LCS	2410	2500	UG/L	96.5
		Antimony, LCS	2860	3000	UG/L	95.3
		Selenium, LCS	9290	10000	UG/L	92.9

RECRA LabNet Use Only

01021895

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client ~~BechTel Hanford~~ TRU-Hanford B99-029

Est. Final Proj. Sampling Date TR 2-2-01

Project # 11343-6006-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 2-2-01 Date Due 3-4-01

Account #

		A	B						C		D				
Refrigerator #		1	6						6		6				
#/Type Container	Liquid														
	Solid	1AG	1AG						1AG		1AG				
Volume	Liquid														
	Solid	250	250						500		250				
Preservatives															

ANALYSES REQUESTED →

ORGANIC				INORG			
VOA	BNA	Pest/PCB	Herb	ICP Metal	CN	Hg As, Se	

RECRA LabNet 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	8260	SVOC VOA 8270					TCLP		ICP03		Met 1			
001	B11C66			SO	1-31-01	0822	X	X					X		X					
002	B11C67			L	1-31-01	0843	X	X					X		X					
003	B11C66 tclp of 001			L	*	-											✓			
004	1 7 1 002			1	1	1											✓			

Special Instructions: SAF B99-029

Run Matrix QC

DATE/REVISIONS:

* 1. See labchron

Met 1 2. As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

3.

4.

5.

6.

RECRA LabNet Use Only

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

COC Tape 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. 2 °C

Relinquished by	Received by	Date	Time
FED EX	Carla Hernandez	2-2-01	9:30

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL DOCUMENT		

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

NOTES: CH2-2-01

4235 7954 2098

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-029-67	Page 1 of 1
Collector: Fahlberg	Company Contact: T Pickett; Telephone No.: 373-4630	Project Coordinator: TRENT, SJ	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 100-KR-4 Pump & Treat - Resin Sampling	Sampling Location: 100-KR-4	SAF No.: B99-029	Air Quality:
Ice Chest No.: ERC99074 (3 of 3)	Field Logbook No.: EL 1517-1; COA: R10KR4C560	Method of Shipment: Fed EX	
Shipped To: TMA/RECRA	Offsite Property No.: A010198	Bill of Lading/Air Bill No.: 4235 7954 - 2098	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
** Historical data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.

SAMPLE ANALYSIS

Preservation	None	None	None	None	Cool 4C	Cool 4C	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL		
	Isotopic Uranium	Strontium-89,90 -- Total Sr	Technetium-99	Tritium - 103	Semi-VOA - 8270A (TCL) [Bis(2-ethylhexyl) phthalate]	See item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	See item (2) in Special Instructions		
Sample No.	Matrix *	Sample Date	Sample Time								
B11C66	OTHER SOLID	01-31-01	0822					X	X	X	X
B11C67	OTHER SOLID	01-31-01	0843					X	X	X	X

01-31-01

CHAIN OF POSSESSION — Sign/Print Names: RF 01-31-01

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	01-31-01 12:00	Stored in Ref 2-B	01-31-01 12:00
Removed from Ref 2B 3728	2-1-01 0400	R. Thore	2-1-01 0400
R. Thore	2-1-01 0900	FED EX	
FED EX	2-2-01 9:30	Carla Alvarez	2-2-01 9:30

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) [Chloroform, Methylenechloride]; VOA - 8260A (Add-On) [Trichloromonofluoromethane]
(2) Metals by ICP (TCLP) - 1311/6010 [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (TCLP) Add-on - 1311/6010 [Antimony, Beryllium, Nickel]

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 1/31/01.
Collector not available to relinquish samples on 2/1/01 for shipment.
RT 2-1-01

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)

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B99-029
RFW #: 0102L895
SDG/SAF #: H1240/B99-029

W.O. #: 11343-606-001-9999-00
Date Received: 02-02-2001

SEMIVOLATILE

Two (2) solid samples were collected on 01-31-2001.

The samples and their associated QC samples were extracted on 02-06-2001 and analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compound Bis(2-Ethylhexyl)phthalate on 02-08,23-2001.

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. Samples were extracted and analyzed within required holding times.

3. All surrogate recoveries were within EPA QC limits.

4. All matrix spike recoveries were within EPA QC limits.

   All blank spike recoveries were within EPA QC limits.

   The target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

5. Internal standard area and retention time criteria were met.

6. "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."

7. 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

03-07-01
Date

som\gorup\data\bna\tnu-hanford-0102-895.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 9 pages.

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

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.

mmz\10-94\gloss.bna

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.

mmz\10-94\gloss.bna

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 02/27/01 09:17

RFW Batch Number: **0102L895** Client: **TNUHANFORD B99-029 H1240** Work Order: 11343606001 Page: 1a

	Cust ID:	B11C66		B11C66		B11C66		B11C67		SBLKQC		SBLKQC BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		01LE0119-MB1		01LE0119-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	55	%	68	%	51	%	54	%	76	%	80	%
	2-Fluorobiphenyl	46	%	55	%	39	%	38	%	77	%	84	%
	p-Terphenyl-d14	64	%	83	%	79	%	87	%	102	%	99	%
bis(2-Ethylhexyl)phthalate		38	J	NS		NS		43	J	330	U	330	U

*= Outside of EPA CLP QC limits.

RECRA LabNet Use Only

01021895

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client ~~Bechtel Hanford~~ TMU Hanford B99-029

Est. Final Proj. Sampling Date 2-2-01

Project # 11343-6060-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 2-2-01 Date Due 3-4-01

Account #

		A	B						C		D					
Refrigerator #		1	6						6		6		5			
#/Type Container	Liquid															
	Solid	1AG	1AG						1AG		1AG					
Volume	Liquid															
	Solid	250g	250						500		250					
Preservatives																
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb					INORG: ICP Metal	CN	Hg	Anions				
RECRA LabNet Use Only		OC24X	SVOA OCCSX						ITCLP		ICM3		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	OC24X	SVOA OCCSX	ITCLP	ICM3	Met 1
001	B11C66			SO	1-31-01	0822	X	X	X	X	
002	B11C67			L	1-31-01	0843	X	X	X	X	
003	B11C66 tclp of 001			L	*	-					✓
004	1 7 1 002			1	1	1					✓

Special Instructions: Saf B99-029

Run Matrix QC

DATE/REVISIONS:

* 1. See labchron

Met 1 2. As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FED EX	Carla Hernandez	2-2-01	9:30

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: CW 2-2-01

4235 7954 2098

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # 426 10W
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape 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. 2° °C

5

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-029-67	Page 1 of 1

Collector Fahlberg	Company Contact T Pickett	Telephone No. 373-4630	Project Coordinator TRENT, SJ
Project Designation 100-KR-4 Pump & Treat - Resin Sampling	Sampling Location 100-KR-4		SAF No. B99-029
Ice Chest No. ERC99074(3 of 3)	Field Logbook No. EL 1517-1	COA R10KR4C560	Method of Shipment Fed EX
Shipped To TMA/RECRA	Offsite Property No. A010198		Bill of Lading/Air Bill No. 4235 7954 - 2098

Price Code 9N

Air Quality

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

** Historical data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.

SAMPLE ANALYSIS

Preservation				None	None	None	None	Cool 4C	Cool 4C	None	None		
Type of Container				aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)				1	1	1	1	1	1	1	1		
Volume				60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL		
				Isotopic Uranium	Strontium-89,90 -- Total Sr	Technetium-99	Tritium - H3	Semi-VOA - 8270A (TCL) {Bis(2-ethylhexyl) phthalate}	See item (1) in Special Instructions.	IC Anions - 300.0 {Nitrate}	See item (2) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time										
B11C66	OTHER SOLID	01-31-01	0822					X	X	X	X		
B11C67	OTHER SOLID	01-31-01	0843					X	X	X	X		

01-31-01

CHAIN OF POSSESSION — Sign/Print Names RF 01-31-01

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	01-31-01 1200	Stored in Ref 2-B	01-31-01 1200
Removed from Ref 2B 3728	2-1-01 0400	R. Thorell	2-1-01 0400
R. Thorell	2-1-01 0400	FED EX	
FED EX	2-2-01 9:30	Carla Hinman	2-2-01 9:30

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) {Chloroform, Methylenechloride}; VOA - 8260A (Add-On) {Trichloromonofluoromethane}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Metals by ICP (TCLP) Add-on - 1311/6010 {Antimony, Beryllium, Nickel}

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 1/31/01.
Collector not available to relinquish samples on 2/1/01 for shipment.
RT 2-1-01

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)

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B99-029
LVL#: 0102L895
SDG/SAF #: H1240/B99-029

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

GC/MS VOLATILE

The set of samples consisted of two (2) solid samples collected on 01-31-01.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8260A for client specified Volatile target compounds on 02-09-01.

The following is a summary of the QC results accompanying these 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 samples were analyzed within required holding time.

3. Non-target compounds were not detected in these samples.

4. Three (3) of eighteen (18) surrogate recoveries were outside EPA QC limits. The associated matrix spike analyses fulfilled its reanalysis requirement.

5. Two (2) of ten (10) matrix spike recoveries were outside EPA QC limits. However, the target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

6. All blank spike recoveries were within EPA QC limits.

7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than the CRQL.

8. All internal standard area and retention time criteria were met.

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

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 11 pages.

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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."

by J. Michael Taylor
President
Lionville laboratory Incorporated

02-22-01
Date

pef\group\data\voa\mu-hanford-02-895doc

GLOSSARY OF VOA 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.
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.

mmz\10-94\gloss.voa

GLOSSARY OF VOA 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.

mmz\10-94\gloss.voa

Lionville Laboratory, Inc.

Volatiles By GC/MS, Special List

Report Date: 02/14/01 11:05

RFW Batch Number: **0102L895** Client: **TNUHANFORD B99-029 H1240** Work Order: 11343606001 Page: 1a

	Cust ID:	B11C66	B11C67	B11C67	B11C67	VBLKMW	VBLKMW BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	01LVH036-MB1	01LVH036-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.06	1.02	1.04	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	1,2-Dichloroethane-d4	81 %	86 %	90 %	91 %	83 %	90 %
	Toluene-d8	138 %	141 * %	142 * %	141 * %	96 %	96 %
	Bromofluorobenzene	77 %	77 %	81 %	75 %	87 %	87 %
		fl	fl	fl	fl	fl	fl
Trichlorofluoromethane		3 J	3 J	2 J	2 J	5 U	5 U
Methylene Chloride		54 B	47 B	43 B	46 B	3 J	4 BJ
Chloroform		3 J	3 J	3 J	3 J	5 U	5 U

*= Outside of EPA CLP QC limits.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Lionville Laboratory Inc. Contract: 11343-606-001-9999-00

Lab Code: LVLI Case No.: SAS No.: SDG No.: 02L895

Matrix Spike - EPA Sample No.: B11C67 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	115.41	0.0000	133.53	116	59-172
Trichloroethene	115.41	0.0000	123.62	107	62-137
Benzene	115.41	0.0000	123.72	107	66-142
Toluene	115.41	0.0000	173.62	150*	59-139
Chlorobenzene	115.41	0.0000	123.62	107	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	110.79	124.48	112	4	22	59-172
Trichloroethene	110.79	116.70	105	2	24	62-137
Benzene	110.79	118.05	106	1	21	66-142
Toluene	110.79	168.10	152*	1	21	59-139
Chlorobenzene	110.79	117.96	106	1	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 2 out of 10 outside limits

COMMENTS: _____

3B
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Lionville Laboratory Inc. Contract: 11343-606-001-9999-00

Lab Code: LVLI Case No.: SAS No.: SDG No.: 02L895

Matrix Spike - EPA Sample No.: VBLKMW Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	44.109	88	61-145
Trichloroethene	50.000	0.0000	49.629	99	71-120
Benzene	50.000	0.0000	51.167	102	76-127
Toluene	50.000	0.0000	53.496	107	76-125
Chlorobenzene	50.000	0.0000	52.410	105	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

RECRA LabNet Use Only

01021895

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

TRU-Hanford

Client ~~Bechtel Hanford~~ B99-029

Est. Final Proj. Sampling Date TR 2-2-01

Project # 11343-6060-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 2-2-01 Date Due 3-4-01

Account #

		A	B	C	D
Refrigerator #		1	6	6	6
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	1AG
Volume	Liquid				
	Solid	250g	250	500	250
Preservatives					
ANALYSES REQUESTED	ORGANIC: VOA				
	ORGANIC: BNA				
	ORGANIC: Pest/PCB				
	ORGANIC: Herb				
	INORG: ICP Metal				
	INORG: CN				
	INORG: Hg, As, Anions				1 acetate

RECRA LabNet 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	VOA 8260	Semi-VOA 8270	Pest/PCB 8081	Herb			ICP Metal	CN	Hg, As, Anions	
001	B11C66			SO	1-31-01	0822	X	X					X		X	
002	B11C67			L	1-31-01	0843	X	X					X		X	
003	B11C66 tclp of 001			L	*	-										✓
004	1 7 1 002			1	1	1										✓

Special Instructions: SAF B99-029

Run Matrix QC

DATE/REVISIONS:

* 1. See labchron

Met ① 2. As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Br, Ni

3.

4.

5.

6.

RECRA LabNet Use Only

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

COC Tape 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. 2 °C

Relinquished by	Received by	Date	Time
FED EX	Carlie Hernandez	2-2-01	9:30

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL DEWATERED		

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

NOTES: Call 2-2-01

4235 7954 2098

10

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-029-67	Page 1 of 1

Collector: Fahlberg	Company Contact: T Pickett — Telephone No.: 373-4630	Project Coordinator: TRENT. SJ	Price Code: 9N — Data Turnaround: 45 Days — Air Quality: I
Project Designation: 100-KR-4 Pump & Treat - Resin Sampling	Sampling Location: 100-KR-4	SAF No.: B99-029	
Ice Chest No.: ERC99074(3 of 3)	Field Logbook No.: EL 1517-1 — COA: R10KR4C560	Method of Shipment: Fed EX	
Shipped To: TMA/RECRA	Offsite Property No.: A010198	Bill of Lading/Air Bill No.: 4235 7954 - 2098	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
** Historical data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.

SAMPLE ANALYSIS

Preservation	None	None	None	None	Cool 4C	Cool 4C	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL		
	Isotopic Uranium	Strontium-89,90 -- Total Sr	Technetium-99	Tritium - H3	Semi-VOA - 8270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	See item (2) in Special Instructions		
Sample No.	Matrix *	Sample Date	Sample Time									
B11C66	OTHER SOLID	01-31-01	0822					X	X	X	X	
B11C67	OTHER SOLID	01-31-01	0843					X	X	X	X	

01-31-01

CHAIN OF POSSESSION — Sign/Print Names RF 01-31-01

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	01-31-01 1200	Stored in Ref 2-B	01-31-01 1200
Removed from Ref 2B 3728	2-1-01 0400	R. L. Thorell	2-1-01 0400
R. L. Thorell	2-1-01 0400	FED EX	
FED EX	2-2-01 9:30	Carla Hinman	2-2-01 9:30

RT 2-1-01

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) {Chloroform, Methylenechloride}; VOA - 8260A (Add-On) {Trichloromonofluoromethane}
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Metals by ICP (TCLP) Add-on - 1311/6010 {Antimony, Beryllium, Nickel}

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 1/31/01.
Collector not available to relinquish samples on 2/1/01 for shipment.. RT 2-1-01

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)

Figure 1. Sample Check-in List

Date/Time Received: 2-2-01 / 0930

SDG#: 01021895

Work Order Number: — SAF# B99-029

Shipping Container ID: - Chain of Custody # B99-029-67

1. Custody Seals on shipping container intact? Yes [✓] No [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 2°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 8
7. Sample holding times exceeded? Yes [ ] No [✓]

8. Samples have:
   ____tape ____hazard labels
   ✓ custody seals ✓ appropriate sample labels

9. Samples are:
   ✓ in good condition ____leaking
   ____broken ____have air bubbles

10. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Thappie / Lionuik Date: 2-2-01

Telephoned to: _____ On _____ By _____