H1274

0055541

Eberline Services
W.O. No. R1-03-043-7649

Bechtel Hanford Inc.
SDG H1274

Case Narrative

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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1274 was composed of six other solid (resin) samples designated under SAF No. B99-028 with a Project Designation of: 100-HR-3 Pump & Treat – Resin Sampling.

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

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium 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 Technetium-99 Analyses

Due to low yields the Tc-99 samples were reanalyzed with new QC samples. The data from the reanalyzed samples are reported herein. No problems were encountered during the course of the reanalyses.

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

4/16/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

SAMPLE SUMMARY

SDG 7649
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1274

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11JP0	100 HR 3	SOLID		R103043-01	B99-028	B99-028-66	03/05/01 09:30
B11JP1	100 HR 3	SOLID		R103043-02	B99-028	B99-028-66	03/05/01 09:52
B11JP2	100 HR 3	SOLID		R103043-03	B99-028	B99-028-66	03/05/01 10:20
B11JP3	100 HR 3	SOLID		R103043-04	B99-028	B99-028-66	03/05/01 10:35
B11JP4	100 HR 3	SOLID		R103043-05	B99-028	B99-028-66	03/05/01 11:15
B11JP5	100 HR 3	SOLID		R103043-06	B99-028	B99-028-66	03/05/01 11:25
Method Blank		SOLID		R103043-08	B99-028		
Method Blank		SOLID		R103043-11	B99-028		
Lab Control Sample		SOLID		R103043-07	B99-028		
Lab Control Sample		SOLID		R103043-10	B99-028		
Duplicate (R103043-02)	100 HR 3	SOLID		R103043-09	B99-028		03/05/01 09:52
Duplicate (R103043-02)	100 HR 3	SOLID		R103043-12	B99-028		03/05/01 09:52

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

QC SUMMARY

SDG 7649
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1274

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
7649	B99-028-66	B11JP0	SOLID	100.0			03/07/01	2	R103043-01	7649-001
		B11JP1	SOLID	100.0			03/07/01	2	R103043-02	7649-002
		B11JP2	SOLID	100.0			03/07/01	2	R103043-03	7649-003
		B11JP3	SOLID	100.0			03/07/01	2	R103043-04	7649-004
		B11JP4	SOLID	100.0			03/07/01	2	R103043-05	7649-005
		B11JP5	SOLID	100.0			03/07/01	2	R103043-06	7649-006
		Method Blank	SOLID						R103043-08	7649-008
		Method Blank	SOLID						R103043-11	7649-011
		Lab Control Sample	SOLID						R103043-07	7649-007
		Lab Control Sample	SOLID						R103043-10	7649-010
		Duplicate (R103043-02)	SOLID	100.0			03/07/01	2	R103043-09	7649-009
		Duplicate (R103043-02)	SOLID	100.0			03/07/01	2	R103043-12	7649-012

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 04/16/01

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SAMPLE DELIVERY GROUP H1274

SDG 7649
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1274

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
U	SOLID	Uranium, Isotopic in Soil	6981-017	5.0	6			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6981-017	10.0	6			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6981-017	10.0	6			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6981-017	10.0	6			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 04/16/01

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SAMPLE DELIVERY GROUP H1274

WORK SUMMARY

SDG 7649
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1274

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11JP0			R103043-01	7649-001	H		03/14/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-001	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-001	TC	A1	03/26/01	04/16/01	MCM	Technetium 99 in Soil
				7649-001	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
B11JP1			R103043-02	7649-002	H		03/14/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-002	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-002	TC	A1	03/23/01	04/16/01	MCM	Technetium 99 in Soil
				7649-002	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
B11JP2			R103043-03	7649-003	H		03/14/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-003	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-003	TC	A1	03/27/01	04/16/01	MCM	Technetium 99 in Soil
				7649-003	U		03/15/01	04/16/01	MCM	Uranium, Isotopic in Soil
B11JP3			R103043-04	7649-004	H		03/14/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-004	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-004	TC	A1	03/27/01	04/16/01	MCM	Technetium 99 in Soil
				7649-004	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
B11JP4			R103043-05	7649-005	H		03/15/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-005	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-005	TC	A1	03/27/01	04/16/01	MCM	Technetium 99 in Soil
				7649-005	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
B11JP5			R103043-06	7649-006	H		03/15/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-006	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
B99-028-66	B99-028		03/07/01	7649-006	TC	A1	03/27/01	04/16/01	MCM	Technetium 99 in Soil
				7649-006	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
Method Blank			R103043-08	7649-008	H		03/14/01	04/16/01	MCM	Tritium in Soil
		SOLID		7649-008	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
	B99-028			7649-008	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
Method Blank			R103043-11	7649-011	TC		03/23/01	04/16/01	MCM	Technetium 99 in Soil
		SOLID								
	B99-028									

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 04/16/01

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SAMPLE DELIVERY GROUP H1274

SDG 7649
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1274

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			R103043-07	7649-007	H		03/15/01	04/16/01	MCM	Tritium in Soil
		SOLID		7649-007	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
	B99-028			7649-007	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R103043-10	7649-010	TC		03/23/01	04/16/01	MCM	Technetium 99 in Soil
		SOLID								
	B99-028									
Duplicate (R103043-02)			R103043-09	7649-009	H		03/14/01	04/16/01	MCM	Tritium in Soil
100 HR 3		SOLID	03/05/01	7649-009	SR		03/13/01	04/16/01	MCM	Total Strontium in Soil
	B99-028		03/07/01	7649-009	U		03/14/01	04/16/01	MCM	Uranium, Isotopic in Soil
Duplicate (R103043-02)			R103043-12	7649-012	TC		03/26/01	04/16/01	MCM	Technetium 99 in Soil
100 HR 3		SOLID	03/05/01							
	B99-028		03/07/01							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
H	B99-028	Tritium in Soil	TRITIUM_COX_LSC	6			1	1	1	9
SR	B99-028	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	6			1	1	1	9
TC	B99-028	Technetium 99 in Soil	TC99_TR_SEP_LSC	6			1	1	1	9
U	B99-028	Uranium, Isotopic in Soil	UISO_PLATE_AEA	6			1	1	1	9
TOTALS				24			4	4	4	36

Lab id TMANC
Protocol Hanford
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Form DVD-CWS
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TMA/RICHMOND
SAMPLE DELIVERY GROUP H1274

R103043-08 Method Blank

METHOD BLANK

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103043-08	Client sample id	Method Blank
Dept sample id	7649-008	Material/Matrix	SOLID
		SAF No	B99-028

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	1.61	3.4	5.7	400	U	H
Total Strontium	SR-RAD	-0.050	0.12	0.26	1.0	U	SR
Uranium 233	U-233/234	0.069	0.092	0.18	1.0	U	U
Uranium 235	15117-96-1	0.028	0.056	0.21	1.0	U	U
Uranium 238	U-238	0.069	0.092	0.18	1.0	U	U

100-HR-3 Pump & Treat-Resin Sampling

QC-BLANK #37905

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

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SAMPLE DELIVERY GROUP H1274

R103043-11 **Method Blank**

METHOD BLANK

SDG	7649	Client/Case no	Hanford	SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925	
Lab sample id	R103043-11	Client sample id	Method Blank	
Dept sample id	7649-011	Material/Matrix		SOLID
		SAF No	B99-028	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Technetium 99	14133-76-7	0.075	0.38	1.2	15	U	TC

100-HR-3 Pump & Treat-Resin Sampling

QC-BLANK 37948

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7649
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1274
Case no TRC-SBB-207925

Lab sample id R103043-07
Dept sample id 7649-007

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B99-028

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	1420	20	6.0	400		H	1470	59	97	84-116	80-120
Total Strontium	24.3	0.90	0.25	1.0		SR	23.0	0.92	106	82-118	80-120
Uranium 233	20.6	2.0	0.92	1.0		U	19.3	0.77	107	82-118	80-120
Uranium 235	16.8	1.7	0.21	1.0		U	15.7	0.63	107	81-119	80-120
Uranium 238	22.7	2.1	0.89	1.0		U	21.0	0.84	108	82-118	80-120

100-HR-3 Pump & Treat-Resin Sampling

QC-LCS #37904

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-10

Lab Control Sample

LAB CONTROL SAMPLE

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
Lab sample id	R103043-10	Client sample id	Lab Control Sample
Dept sample id	7649-010	Material/Matrix	SOLID
		SAF No	B99-028

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
Technetium 99	255	10	1.1	15		TC	262	10	97	83-117	80-120

100-HR-3 Pump & Treat-Resin Sampling

QC-LCS 37947

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-09 B11JP1

DUPLICATE

SDG	7649			Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R103043-09	Lab sample id	R103043-02	Client sample id	B11JP1
Dept sample id	7649-009	Dept sample id	7649-002	Location/Matrix	100 HR 3 SOLID
		Received	03/07/01	Collected	03/05/01 09:52
% solids	100.0	% solids	100.0	Custody/SAF No	B99-028-66 B99-028

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	6.90	3.4	5.4	400	J	H	7.32	3.4	5.4	J	6	104	
Total Strontium	-0.065	0.15	0.34	1.0	U	SR	0.086	0.14	0.27	U	-		
Uranium 233	0.022	0.044	0.17	1.0	U	U	0.041	0.083	0.16	U	-		
Uranium 235	0.079	0.11	0.20	1.0	U	U	0	0.050	0.19	U	-		
Uranium 238	0.087	0.087	0.17	1.0	U	U	0.062	0.083	0.16	U	-		

100-HR-3 Pump & Treat-Resin Sampling

QC-DUP#2 37906

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-12 B11JP1

DUPLICATE

SDG	7649			Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R103043-12	Lab sample id	R103043-02	Client sample id	B11JP1
Dept sample id	7649-012	Dept sample id	7649-002	Location/Matrix	100 HR 3 SOLID
		Received	03/07/01	Collected	03/05/01 09:52
% solids	100.0	% solids	100.0	Custody/SAF No	B99-028-66 B99-028

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
Technetium 99	2.41	0.70	1.9	15	J	TC	1.79	0.90	1.7	J	30	84	

100-HR-3 Pump & Treat-Resin Sampling

QC-DUP#2A1 37949

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-01 B11JP0

DATA SHEET

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103043-01	Client sample id	B11JP0
Dept sample id	7649-001	Location/Matrix	100 HR 3 SOLID
Received	03/07/01	Collected	03/05/01 09:30
% solids	100.0	Custody/SAF No	B99-028-66 B99-028

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	3.90	3.2	5.1	400	U	H
Total Strontium	SR-RAD	0.018	0.13	0.27	1.0	U	SR
Technetium 99	14133-76-7	8.55	1.0	1.7	15	J	TC
Uranium 233	U-233/234	0.370	0.17	0.16	1.0	J	U
Uranium 235	15117-96-1	0	0.050	0.19	1.0	U	U
Uranium 238	U-238	0.349	0.17	0.16	1.0	J	U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-02 **B11JP1**

DATA SHEET

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103043-02	Client sample id	B11JP1
Dept sample id	7649-002	Location/Matrix	100 HR 3 SOLID
Received	03/07/01	Collected	03/05/01 09:52
% solids	100.0	Custody/SAF No	B99-028-66 B99-028

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	7.32	3.4	5.4	400	J	H
Total Strontium	SR-RAD	0.086	0.14	0.27	1.0	U	SR
Technetium 99	14133-76-7	1.79	0.90	1.7	15	J	TC
Uranium 233	U-233/234	0.041	0.083	0.16	1.0	U	U
Uranium 235	15117-96-1	0	0.050	0.19	1.0	U	U
Uranium 238	U-238	0.062	0.083	0.16	1.0	U	U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-03 B11JP2

DATA SHEET

SDG	7649	Client/Case no	Hanford	SDG H1274	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R103043-03	Client sample id	B11JP2		
Dept sample id	7649-003	Location/Matrix	100 HR 3	SOLID	
Received	03/07/01	Collected	03/05/01 10:20		
% solids	100.0	Custody/SAF No	B99-028-66	B99-028	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	7.94	3.5	5.4	400	J	H
Total Strontium	SR-RAD	0.019	0.12	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.535	0.60	1.8	15	U	TC
Uranium 233	U-233/234	0.217	0.15	0.18	1.0	J	U
Uranium 235	15117-96-1	0.029	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.241	0.15	0.18	1.0	J	U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-04 B11JP3

DATA SHEET

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103043-04	Client sample id	B11JP3
Dept sample id	7649-004	Location/Matrix	100 HR 3 SOLID
Received	03/07/01	Collected	03/05/01 10:35
% solids	100.0	Custody/SAF No	B99-028-66 B99-028

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	8.98	3.6	5.6	400	J	H
Total Strontium	SR-RAD	0.008	0.12	0.26	1.0	U	SR
Technetium 99	14133-76-7	0.022	0.58	1.9	15	U	TC
Uranium 233	U-233/234	0.083	0.083	0.16	1.0	U	U
Uranium 235	15117-96-1	0.025	0.050	0.19	1.0	U	U
Uranium 238	U-238	0.041	0.041	0.16	1.0	U	U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-05 **B11JP4**

DATA SHEET

SDG	7649	Client/Case no	Hanford SDG H1274
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R103043-05	Client sample id	B11JP4
Dept sample id	7649-005	Location/Matrix	100 HR 3 SOLID
Received	03/07/01	Collected	03/05/01 11:15
% solids	100.0	Custody/SAF No	B99-028-66 B99-028

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	12.4	3.7	5.5	400	J	H
Total Strontium	SR-RAD	-0.018	0.17	0.35	1.0	U	SR
Technetium 99	14133-76-7	0.025	0.90	1.9	15	U	TC
Uranium 233	U-233/234	1.38	0.33	0.15	1.0		U
Uranium 235	15117-96-1	0.072	0.097	0.18	1.0	U	U
Uranium 238	U-238	0.997	0.29	0.15	1.0	J	U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1274

R103043-06 B11JP5

DATA SHEET

SDG	7649	Client/Case no	Hanford	SDG H1274	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R103043-06	Client sample id	B11JP5		
Dept sample id	7649-006	Location/Matrix	100 HR 3	SOLID	
Received	03/07/01	Collected	03/05/01 11:25		
% solids	100.0	Custody/SAF No	B99-028-66	B99-028	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	5.22	3.5	5.6	400	U	H
Total Strontium	SR-RAD	0.028	0.16	0.33	1.0	U	SR
Technetium 99	14133-76-7	0.294	0.65	2.0	15	U	TC
Uranium 233	U-233/234	1.64	0.38	0.16	1.0		U
Uranium 235	15117-96-1	0.098	0.099	0.19	1.0	U	U
Uranium 238	U-238	1.32	0.34	0.16	1.0		U

100-HR-3 Pump & Treat-Resin Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test U Matrix SOLID
SDG 7649
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1274

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 6981-017											
B11JP0	R103043-01			7649-001	0.370 J	U	0.349 J	106	71	0	14
B11JP1	R103043-02			7649-002	U	U	U				
B11JP2	R103043-03			7649-003	0.217 J	U	0.241 J	90	84	12	25
B11JP3	R103043-04			7649-004	U	U	U				
B11JP4	R103043-05			7649-005	1.38	U	0.997 J	138	52	7	10
B11JP5	R103043-06			7649-006	1.64	U	1.32	124	43	7	8
BLK (QC ID=37905)	R103043-08			7649-008	U	U	U				
LCS (QC ID=37904)	R103043-07			7649-007	ok	ok	ok				
Duplicate (R103043-02)	R103043-09			7649-009	- U	- U	- U				
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100-HR-3 Pump & Treat-Resin Sampling								Averages 115		7	

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 6981-017 2σ prep error 5.0 % Reference Lab Notebook 6981 pg. 017																
B11JP0	R103043-01			0.19	0.530			92		116			9	03/14/01	03/14	SS-028
B11JP1	R103043-02			0.19	0.510			94		116			9	03/14/01	03/14	SS-029
B11JP2	R103043-03			0.22	0.530			92		100			10	03/14/01	03/15	SS-042
B11JP3	R103043-04			0.19	0.530			88		116			9	03/14/01	03/14	SS-034
B11JP4	R103043-05			0.18	0.510			99		116			9	03/14/01	03/14	SS-035
B11JP5	R103043-06			0.19	0.510			95		116			9	03/14/01	03/14	SS-036
BLK (QC ID=37905)	R103043-08			0.21	0.500			90		116				03/14/01	03/14	SS-038
LCS (QC ID=37904)	R103043-07			0.92	0.500			91		116				03/14/01	03/14	SS-037
Duplicate (R103043-02) (QC ID=37906)	R103043-09			0.20	0.510			89		116			9	03/14/01	03/14	SS-041
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test	U
Matrix	SOLID
SDG	7649
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1274

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	MDA	0.28	±	0.48
FOR 9 SAMPLES	YIELD	92	±	7

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test	SR
Matrix	SOLID
SDG	7649
Contact	Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1274

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6981-017						
B11JP0	R103043-01			7649-001	U	
B11JP1	R103043-02			7649-002	U	
B11JP2	R103043-03			7649-003	U	
B11JP3	R103043-04			7649-004	U	
B11JP4	R103043-05			7649-005	U	
B11JP5	R103043-06			7649-006	U	
BLK (QC ID=37905)	R103043-08			7649-008	U	
LCS (QC ID=37904)	R103043-07			7649-007	ok	
Duplicate (R103043-02)	R103043-09			7649-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
100-HR-3 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 6981-017	2σ prep error 10.0 % Reference Lab Notebook 6981 pg. 017															
B11JP0	R103043-01			0.27	1.03			89		100			8	03/12/01	03/13	GRB-223
B11JP1	R103043-02			0.27	1.01			91		100			8	03/12/01	03/13	GRB-224
B11JP2	R103043-03			0.25	1.04			91		100			8	03/12/01	03/13	GRB-221
B11JP3	R103043-04			0.26	1.00			88		100			8	03/12/01	03/13	GRB-222
B11JP4	R103043-05			0.35	1.00			89		100			8	03/12/01	03/13	GRB-202
B11JP5	R103043-06			0.33	1.01			91		100			8	03/12/01	03/13	GRB-203
BLK (QC ID=37905)	R103043-08			0.26	1.00			87		100				03/12/01	03/13	GRB-224
LCS (QC ID=37904)	R103043-07			0.25	1.00			91		100				03/12/01	03/13	GRB-223
Duplicate (R103043-02) (QC ID=37906)	R103043-09			0.34	1.01			87		100			8	03/12/01	03/13	GRB-220
Nominal values and limits from method				1.0	1.00			30-105		100			180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test	SR
Matrix	SOLID
SDG	7649
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1274

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

AVERAGES ± 2 SD	MDA	0.29	±	0.082
FOR 9 SAMPLES	YIELD	89	±	3

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test TC Matrix SOLID
SDG 7649
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1274

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6981-017						
B11JP0	R103043-01		A1	7649-001	8.55	J
B11JP1	R103043-02		A1	7649-002	1.79	J
B11JP2	R103043-03		A1	7649-003	U	
B11JP3	R103043-04		A1	7649-004	U	
B11JP4	R103043-05		A1	7649-005	U	
B11JP5	R103043-06		A1	7649-006	U	
BLK (QC ID=37948)	R103043-11			7649-011	U	
LCS (QC ID=37947)	R103043-10			7649-010	ok	
Duplicate (R103043-02)	R103043-12			7649-012	ok	J
Nominal values and limits from method 100-HR-3 Pump & Treat-Resin Sampling				RDLs (pCi/g)	15	

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 6981-017 2σ prep error 10.0 % Reference Lab Notebook 6981 pg. 017																
B11JP0	R103043-01		A1	1.7	0.500			61		54			21	03/20/01	03/26	GRB-204
B11JP1	R103043-02		A1	1.7	0.510			58		50			18	03/20/01	03/23	GRB-203
B11JP2	R103043-03		A1	1.8	0.510			58		50			22	03/20/01	03/27	GRB-207
B11JP3	R103043-04		A1	1.9	0.510			52		50			22	03/20/01	03/27	GRB-217
B11JP4	R103043-05		A1	1.9	0.510			53		50			22	03/20/01	03/27	GRB-218
B11JP5	R103043-06		A1	2.0	0.520			49		50			22	03/20/01	03/27	GRB-219
BLK (QC ID=37948)	R103043-11			1.2	0.500			84		50				03/20/01	03/23	GRB-223
LCS (QC ID=37947)	R103043-10			1.1	0.500			88		50				03/20/01	03/23	GRB-222
Duplicate (R103043-02) (QC ID=37949)	R103043-12			1.9	0.510			52		50			21	03/20/01	03/26	GRB-222
Nominal values and limits from method				15	0.500			20-105		50			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test	TC
Matrix	SOLID
SDG	7649
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1274

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	MDA	1.7	±	0.64
FOR 9 SAMPLES	YIELD	62	±	29

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	04/16/01

Test H Matrix SOLID
SDG 7649
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1274

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6981-017						
B11JP0	R103043-01			7649-001	U	
B11JP1	R103043-02			7649-002	7.32	J
B11JP2	R103043-03			7649-003	7.94	J
B11JP3	R103043-04			7649-004	8.98	J
B11JP4	R103043-05			7649-005	12.4	J
B11JP5	R103043-06			7649-006	U	
BLK (QC ID=37905)	R103043-08			7649-008	U	
LCS (QC ID=37904)	R103043-07			7649-007	ok	
Duplicate (R103043-02)	R103043-09			7649-009	ok	J

Nominal values and limits from method RDLs (pCi/g) 400
100-HR-3 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 6981-017	2σ prep error 10.0 % Reference Lab Notebook 6981 pg. 017															
B11JP0	R103043-01			5.1	0.221			100		100			9	03/13/01	03/14	LSC-006
B11JP1	R103043-02			5.4	0.212			100		100			9	03/13/01	03/14	LSC-006
B11JP2	R103043-03			5.4	0.214			100		100			9	03/13/01	03/14	LSC-006
B11JP3	R103043-04			5.6	0.206			100		100			9	03/13/01	03/14	LSC-006
B11JP4	R103043-05			5.5	0.211			100		100			10	03/13/01	03/15	LSC-006
B11JP5	R103043-06			5.6	0.206			100		100			10	03/13/01	03/15	LSC-006
BLK (QC ID=37905)	R103043-08			5.7	0.200			100		100				03/13/01	03/14	LSC-006
LCS (QC ID=37904)	R103043-07			6.0	0.200			100		100				03/13/01	03/15	LSC-006
Duplicate (R103043-02) (QC ID=37906)	R103043-09			5.4	0.216			100		100			9	03/13/01	03/14	LSC-006
Nominal values and limits from method				400	0.200					25			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/16/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1274

Test H	Matrix SOLID
SDG 7649	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1274	

PROCEDURES	REFERENCE	TRITIUM_COX_LSC
	CP-060	Soil Preparation, rev 2
	CP-216	Tritium in Solid Samples by Azeotropic Distillation, rev 2

AVERAGES ± 2 SD	MDA	5.5	±	0.50
FOR 9 SAMPLES	YIELD	100	±	0

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	04/16/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-66	Page 1 of 21

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3 H127H (7679)	SAF No.: B99-028	
Ice Chest No.: ERC-00-0006	Field Logbook No.: CL5116	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA EBERline	Offsite Property No.: A01022Ø	Bill of Lading/Air Bill No.: 4235 7454-2856	

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.

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	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.
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
B11JP0	OTHER SOLID	3-5-01	0930	X	X	X	X				
B11JP1	OTHER SOLID	3-5-01	0952	X	X	X	X				
B11JP2	OTHER SOLID	3-5-01	1020	X	X	X	X				
B11JP3	OTHER SOLID	3-5-01	1035	X	X	X	X				
B11JP4	OTHER SOLID	3-5-01	1115	X	X	X	X				

Delete MDB 3/6/01

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3-5-01 1240	Stored in Ref # 2C	3-5-01 1240
Removed from Ref 2C 3728	3-6-01 0900	R T Thorenz	3-6-01 0900
R T Thorenz	3-6-01 0900	FED EX	3-6-01
FED EXPRESS	3-7-01 10 AM	E. Segura	3-7-01 10 AM

RT 3-6-01

SPECIAL INSTRUCTIONS

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

Delete MDB 3-16-01

Samples stored in Ref. # 2C at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

RT 3-6-01

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)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-67	Page 1 of 1
Collector: Johansen/Watson	Company Contact: T Pickett; Telephone No.: 373-4630	Project Coordinator: TRENT, SJ	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3 H1274 (7649)	SAF No.: B99-028	Air Quality ☐
Ice Chest No.: ERC-00-0066	Field Logbook No.: CC 1516; COA: R10HR3C570	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA EBERline	Offsite Property No.: A010220	Bill of Lading/Air Bill No.: 4236 7454 - 2856	

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									
B11JP5	OTHER SOLID	3/5/01	1125	X	X	X	X					

Delete 3/5/01 mm

CHAIN OF POSSESSION — Sign Print Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	3-5-01 1200	[signature] TMA 3/5/01	3-5-01 1200
Removed from Ref 2C 3728	3-6-01 0900	[signature] R. Thorer	3-6-01 0900
[signature] R Thorer	3-6-01 0900	FED EXP	3-6-01
FED EXPRESS	3-7-01 10 AM	E. Segundo	3-7-01 10 AM

RT 3-6-0

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}

Delete 3-6-01

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

RT 3-6-01

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 3-7-01 10:AM

CoC No. B99-028-66 And B99-028-67

Container I.D. No. ERC 00-006 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: 6
7. Number of containers per sample: (4 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: 03-7-01 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 _____

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11JP0						
% SOLIDS	001	SO	01L%S030	03/05/01	03/08/01	03/09/01
% SOLIDS	001 REP	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	001	SO	01LICB26	03/05/01	04/17/01	04/17/01
NITRATE BY IC	001 REP	SO	01LICB26	03/05/01	04/17/01	04/17/01
NITRATE BY IC	001 MS	SO	01LICB26	03/05/01	04/17/01	04/17/01
TCLP	001	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP1						
% SOLIDS	002	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	002	SO	01LICB26	03/05/01	04/17/01	04/17/01
TCLP	002	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP2						
% SOLIDS	003	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	003	SO	01LICB26	03/05/01	04/17/01	04/17/01
TCLP	003	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP3						
% SOLIDS	004	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	004	SO	01LICB26	03/05/01	04/17/01	04/17/01
TCLP	004	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP4						
% SOLIDS	005	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	005	SO	01LICB26	03/05/01	04/17/01	04/17/01
TCLP	005	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP5						
% SOLIDS	006	SO	01L%S030	03/05/01	03/08/01	03/09/01
NITRATE BY IC	006	SO	01LICB26	03/05/01	04/17/01	04/17/01

178 4/24/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TCLP	006	SO	01LTO024	03/05/01	03/13/01	03/14/01

LAB QC:

NITRATE BY IC	MB1	S	01LICB26	N/A	04/17/01	04/17/01
NITRATE BY IC	MB1 BS	S	01LICB26	N/A	04/17/01	04/17/01

2
RD 12/2/14

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B99-028 H1274
LVL#: 0103L194

W.O.#: 11343-606-001-9999-00
Date Received: 03-07-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 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 Nitrate 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.

for Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

njp\i03-194

04-24-01
Date

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 13 pages.

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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

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

Other: **Method**

A2 4 1/4/10

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 Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/19/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11JP0	% Solids	45.6	%	0.01	1.0
		Nitrate by IC	16.4	MG/KG	2.74	1.0
-002	B11JP1	% Solids	45.3	%	0.01	1.0
		Nitrate by IC	15.2	MG/KG	2.76	1.0
-003	B11JP2	% Solids	46.0	%	0.01	1.0
		Nitrate by IC	25.3	MG/KG	2.72	1.0
-004	B11JP3	% Solids	45.1	%	0.01	1.0
		Nitrate by IC	34.5	MG/KG	2.77	1.0
-005	B11JP4	% Solids	47.6	%	0.01	1.0
		Nitrate by IC	45.4	MG/KG	2.63	1.0
-006	B11JP5	% Solids	47.7	%	0.01	1.0
		Nitrate by IC	47.1	MG/KG	2.62	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/19/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LICB26-MB1	Nitrate by IC	1.25 u	MG/KG	1.25	1.0

7

AS 4/24/01

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/19/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11JP0	Nitrate by IC	80.0	16.4	55.0	115.8	1.0
BLANK10	01LICB26-MB1	Nitrate by IC	25.1	1.25u	25.0	100.5	1.0

AG 4/26/01

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/19/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11JP0	% Solids	45.6	45.8	0.31	1.0
		Nitrate by IC	16.4	17.1	4.6	1.0

Lionville Laboratory Use Only

01036194

Custody Transfer Record/Lab Work Request

Page 1 of X2 TL 3-7-01

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLP

Client ~~BCHTCL Hanford~~ TL 3-7-01 Tru-Hanford SAF # B99-028

Est. Final Proj. Sampling Date

Project # 11343-6006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 3-7-01 Date Due 4-6-01

		A	B	C	D
Refrigerator #		1	2	2	2
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	1AG
Volume	Liquid	250			
	Solid	125	250	500	250
Preservatives		Crl-3-7-01			

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

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

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24X	OC25X						TCLP		ICNO3		Met(1)			
001	B11JP0			So	3-5-01	0930	X	X						X		X					
002	B11JP1					0952	X	X						X		X					
003	B11JP2					1020	X	X						X		X					
004	B11JP3					1035	X	X						X		X					
005	B11JP4					1115	X	X						X		X					
006	B11JP5					1125	X	X						X		X					
007	B11JP0 trip of 001			L	*	–															
008	1 002																				
009	2 003																				
010	3 004																				

Special Instructions: SAF B99-028

Run Matrix QC

DATE/REVISIONS:

* 1. Src lab chron

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

3.

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped — or Hand Delivered — Airbill # SEE BELOW

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 4.0 °C

Relinquished by	Received by	Date	Time
FED EX	Carla Hamrof	3-7-01	10:00

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 2834

4235 7954 2845

Lionville Laboratory Use Only
0103L194

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLF

Client: TMU- Hanford B99-028
Est. Final Proj. Sampling Date:
Project #: See
Project Contact/Phone #:
Lionville Laboratory Project Manager:
QC: Del Mat
Date Rec'd: Page 1 Date Due:

Refrigerator #																
#/Type Container	Liquid												1	2	3	4
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN						
		Lionville Laboratory Use Only														
													MMU			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
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	011	B11JP4 tclp of 005			L	*	–											✓		
	012	1 5 1 006			1	1	1											✓		

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
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. ____ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
FedEx		3-7-01	1000

Relinquished by	Received by	Date	Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-66	Page 1 of 21

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3		SAF No.: B99-028
Ice Chest No.: ERC 96065/ERC96042	Field Logbook No.: EC-1516	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010238		Bill of Lading/Air Bill No.: 4235 7954 - 2845

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							
B11JP0	OTHER SOLID	3-5-01	0930			X	X	X	X	
B11JP1	OTHER SOLID	3-5-01	0952			X	X	X	X	
B11JP2	OTHER SOLID	3-5-01	1020			X	X	X	X	
B11JP3	OTHER SOLID	3-5-01	1035			X	X	X	X	
B11JP4	OTHER SOLID	3-5-01	1115			X	X	X	X	

Recd 2 TPO 3-15-01

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3-5-01 1240	Stored in Ref #2C	3-5-01 1240
Relinquished By	Date/Time	Received By	Date/Time
Ref 2C 3728	3-6-01 0900	R Thorne	3-6-01 0900
Relinquished By	Date/Time	Received By	Date/Time
R Thorne	3-6-01 0900	FEDEX	
Relinquished By	Date/Time	Received By	Date/Time
FEDEX	3-7-01 10:00	[illegible]	3-7-01 10:00
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

PT 3-6-01

SPECIAL INSTRUCTIONS

(1) [illegible] Semi-VOA (TCL) [Chlorobenzene, Methylene Chloride, [illegible]]; Add'l Semi-VOA - 8260A (Add'l Org) [illegible] methylbenzene];
(2) [illegible] ICP (TCLP) [illegible] Chromium, Chromium [illegible] Lead
Add'l Metals by ICP (TCLP) Add'l [illegible] [Antimony, Beryllium, Nickel]

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/6/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

PT 3-6-01

Matrix *

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-67	Page 1 of 1

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3		SAF No.: B99-028
Ice Chest No.: ERC96 065/ERC96042	Field Logbook No.: EL1516	COA: R101R3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A01B238		Bill of Lading/Air Bill No.: 4235 7954-2834

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 and screen for off-site shipment.

SAMPLE ANALYSIS

Preservation	None	None	None	None	Cool-IC	Cool-IC	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	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										
B11JP5	OTHER SOLID	3/5/01	1125				X	X	X	X		

DELETE TRIP 3-5-01

CHAIN OF POSSESSION — Sign Over Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3-5-01 1240	Storwin Ref #X	3-5-01 1240
Ref RC 3728	3-6-01 0400	R. Thorson	3-6-01 0400
R. Thorson	3-6-01 0400	FEDEX	
FEDEX	3-7-01 10:00	[illegible]	3-7-01 10:00

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) [Chloroform, Methyl Chloride, Methyl Ethyl Ketone, Methylene Chloride, Methylene Chloride, Methylene Chloride]; VOA - 8260A (Add On) [Methylene Chloride, Methylene Chloride, Methylene Chloride]
(2) Metals - TCLP (TCLP) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (TCLP) Add-on - 6010 [Antimony, Beryllium, Nickel]

Samples stored in Ref.# X at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 for shipment..

3/6/01

Matrix *
S - Soil
SL - Sediment
SD - Solid
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquid
T - Tissue
WI - Wipe
L - Liquid
[illegible]
X - Other

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

BHI-EE-011 (10/99)

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11JP0						
TCLP	001	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP1						
TCLP	002	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP2						
TCLP	003	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP3						
TCLP	004	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP4						
TCLP	005	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP5						
TCLP	006	SO	01LTO024	03/05/01	03/13/01	03/14/01
B11JP0						
SILVER, TCLP LEACHAT	007	W	01L0126	03/14/01	03/20/01	03/30/01
SILVER, TCLP LEACHAT	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
SILVER, TCLP LEACHAT	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	007	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	007	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	007	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01

Lionville Laboratory, Inc.
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TNUHANFORD B99-028 H1274

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CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TCLP LEAC	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	007	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	007	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	007	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	007	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	007	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	007	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	007 REP	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	007 MS	W	01L0126	03/14/01	03/20/01	03/30/01
B11JP1						
SILVER, TCLP LEACHAT	008	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	008	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	008	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	008	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	008	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	008	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	008	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	008	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	008	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	008	W	01L0126	03/14/01	03/20/01	03/30/01
B11JP2						
SILVER, TCLP LEACHAT	009	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	009	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	009	W	01L0126	03/14/01	03/20/01	03/30/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TCLP LEAC	009	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	009	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	009	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	009	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	009	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	009	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	009	W	01L0126	03/14/01	03/20/01	03/30/01
B11JP3						
SILVER, TCLP LEACHAT	010	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	010	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	010	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	010	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	010	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	010	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	010	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	010	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	010	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	010	W	01L0126	03/14/01	03/20/01	03/30/01
B11JP4						
SILVER, TCLP LEACHAT	011	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	011	W	01L0126	03/14/01	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	011	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	011	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	011	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	011	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	011	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	011	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	011	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	011	W	01L0126	03/14/01	03/20/01	03/30/01
B11JP5						
SILVER, TCLP LEACHAT	012	W	01L0126	03/14/01	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	012	W	01L0126	03/14/01	03/20/01	03/30/01

Lionville Laboratory, Inc.
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TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TCLP LEACHAT	012	W	01L0126	03/14/01	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	012	W	01L0126	03/14/01	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	012	W	01L0126	03/14/01	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	012	W	01L0126	03/14/01	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	012	W	01L0126	03/14/01	03/20/01	03/30/01
LEAD, TCLP LEACHATE	012	W	01L0126	03/14/01	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	012	W	01L0126	03/14/01	03/20/01	03/30/01
SELENIUM, TCLP LEACH	012	W	01L0126	03/14/01	03/20/01	03/30/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
SILVER, TCLP LEACHAT	MB1	W	01L0126	N/A	03/20/01	03/30/01
SILVER, TCLP LEACHAT	MB2	W	01L0126	N/A	03/20/01	03/30/01
ARSENIC LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	MB1	W	01L0126	N/A	03/20/01	03/30/01
ARSENIC, TCLP LEACHA	MB2	W	01L0126	N/A	03/20/01	03/30/01
BARIUM LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	MB1	W	01L0126	N/A	03/20/01	03/30/01
BARIUM, TCLP LEACHAT	MB2	W	01L0126	N/A	03/20/01	03/30/01
BERYLLIUM LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	MB1	W	01L0126	N/A	03/20/01	03/30/01
BERYLLIUM, TCLP LEAC	MB2	W	01L0126	N/A	03/20/01	03/30/01
CADMIUM LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	MB1	W	01L0126	N/A	03/20/01	03/30/01
CADMIUM, TCLP LEACHA	MB2	W	01L0126	N/A	03/20/01	03/30/01
CHROMIUM LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	MB1	W	01L0126	N/A	03/20/01	03/30/01
CHROMIUM, TCLP LEACH	MB2	W	01L0126	N/A	03/20/01	03/30/01
NICKEL LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	MB1	W	01L0126	N/A	03/20/01	03/30/01
NICKEL, TCLP LEACHAT	MB2	W	01L0126	N/A	03/20/01	03/30/01
LEAD LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
LEAD, TCLP LEACHATE	MB1	W	01L0126	N/A	03/20/01	03/30/01
LEAD, TCLP LEACHATE	MB2	W	01L0126	N/A	03/20/01	03/30/01
ANTIMONY LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	MB1	W	01L0126	N/A	03/20/01	03/30/01
ANTIMONY, TCLP LEACH	MB2	W	01L0126	N/A	03/20/01	03/30/01

Lionville Laboratory, Inc.
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TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM LABORATORY	LC1 BS	W	01L0126	N/A	03/20/01	03/30/01
SELENIUM, TCLP LEACH	MB1	W	01L0126	N/A	03/20/01	03/30/01
SELENIUM, TCLP LEACH	MB2	W	01L0126	N/A	03/20/01	03/30/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B99-028
LVL#: 0103L194
SDG/SAF#: H1274/B99-028

W.O.#: 11343-606-001-9999-00
Date Received: 03-07-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 TCLP leachate samples.

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

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

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

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

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

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

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

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

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

11. The TCLP extract from sample B11JPO was selected for the matrix spike (MS) for this analytical batch. The matrix spike for Barium was below 50% recovery (5.7%). The recovery in the TCLP Leachate was below 80-120% of the action level so standard addition was not required per Federal Register, Vol.57, No.227, Nov. 24, 1992, page 55117.

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 20 pages.

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.

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

04-09-01
Date

gmb/m03-194

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01034194

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 04/03/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B11JP0	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	83.3		UG/L	31.9	1.0
		Barium, TCLP Leachate	9.9		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	3240		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	72.4		UG/L	37.1	1.0
-008	B11JP1	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	72.8		UG/L	31.9	1.0
		Barium, TCLP Leachate	10.1		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	3180		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	122		UG/L	37.1	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/03/01

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B11JP2	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	88.4		UG/L	31.9	1.0
		Barium, TCLP Leachate	18.1		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	9450		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.8		UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	94.7		UG/L	37.1	1.0
-010	B11JP3	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	82.7		UG/L	31.9	1.0
		Barium, TCLP Leachate	17.4		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	9080		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	37.6		UG/L	37.1	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/03/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B11JP4	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	128		UG/L	31.9	1.0
		Barium, TCLP Leachate	102		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	4690		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	37.6		UG/L	37.1	1.0
-012	B11JP5	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	82.5		UG/L	31.9	1.0
		Barium, TCLP Leachate	111		UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	5.2		UG/L	4.4	1.0
		Chromium, TCLP Leachate	4900		UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	50.1		UG/L	37.1	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/03/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0126-MB1	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	31.9	u	UG/L	31.9	1.0
		Barium, TCLP Leachate	3.7	u	UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	35.0	u	UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	37.1	u	UG/L	37.1	1.0
BLANK2	01L0126-MB2	Silver, TCLP Leachate	2.7	u	UG/L	2.7	1.0
		Arsenic, TCLP Leachate	84.9		UG/L	31.9	1.0
		Barium, TCLP Leachate	3.7	u	UG/L	3.7	1.0
		Beryllium,TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Cadmium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Chromium, TCLP Leachate	4.4	u	UG/L	4.4	1.0
		Nickel, TCLP Leachate	15.7	u	UG/L	15.7	1.0
		Lead, TCLP Leachate	40.9		UG/L	35.0	1.0
		Antimony, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Selenium, TCLP Leachate	37.1	u	UG/L	37.1	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 04/03/01

CLIENT: TNUHANFORD B99-028 H1274

LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-007	B11JP0	Silver, TCLP Leachate	3420	2.7 u	5000	68.4	1.0
		Arsenic, TCLP Leachate	5300	83.3	5000	104.3	1.0
		Barium, TCLP Leachate	5700	9.9	100000	5.7	1.0
		Beryllium, TCLP Leacha	871	0.30u	1000	87.1	1.0
		Cadmium, TCLP Leachate	949	4.4 u	1000	94.9	1.0
		Chromium, TCLP Leachat	8020	3240	5000	95.7	1.0
		Nickel, TCLP Leachate	894	15.7 u	1000	89.4	1.0
		Lead, TCLP Leachate	4150	35.0 u	5000	83.1	1.0
		Antimony, TCLP Leachat	976	22.9 u	1000	97.6	1.0
		Selenium, TCLP Leachat	1180	72.4	1000	110.3	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 04/03/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-007REP	B11JP0	Silver, TCLP Leachate	2.7 u	2.7 u	NC	1.0
		Arsenic, TCLP Leachate	83.3	94.1	12.2	1.0
		Barium, TCLP Leachate	9.9	10.0	1.0	1.0
		Beryllium TCLP Leachate	0.30u	0.42	NC	1.0
		Cadmium, TCLP Leachate	4.4 u	4.4 u	NC	1.0
		Chromium, TCLP Leachate	3240	3090	4.7	1.0
		Nickel, Leachate	15.7 u	15.7 u	NC	1.0
		Lead, TCLP Leachate	35.0 u	35.0 u	NC	1.0
		Antimony, Leachate	22.9 u	22.9 u	NC	1.0
		Selenium, TCLP Leachate	72.4	52.9	31.1	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/03/01

CLIENT: TNUHANFORD B99-028 H1274 LVL LOT #: 0103L194

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0126-LC1	Silver, LCS	481	500	UG/L	96.2
		Arsenic, LCS	9830	10000	UG/L	98.3
		Barium, LCS	4930	5000	UG/L	98.6
		Beryllium, LCS	243	250	UG/L	97.1
		Cadmium, LCS	231	250	UG/L	92.6
		Chromium, LCS	480	500	UG/L	95.9
		Nickel, LCS	1950	2000	UG/L	97.4
		Lead, LCS	2350	2500	UG/L	94.0
		Antimony, LCS	2880	3000	UG/L	96.2
		Selenium, LCS	10000	10000	UG/L	100

Lionville Laboratory Use Only

01036194

Custody Transfer Record/Lab Work Request

Page 1 of 12 TK 3-7-01

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

Client ~~Bechtel Hanford~~ TRU-Hanford SAF# B99-028 TK 3-7-01

Est. Final Proj. Sampling Date

Project # 11343-0006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 3-7-01 Date Due 4-6-01

		A	B	C	D
Refrigerator #		1	2	2	2
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	1AG
Volume	Liquid	250			
	Solid	~~125~~	250	500	250
Preservatives					
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb
		INORG: Metal	CN	HC Anions	

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	CL274X	CL275X						TCLP		TCNO3		metals			
001	B11JP0			SO	3-5-01	0930	X	X						X		X					
002	B11JP1					0952	X	X						X		X					
003	B11JP2					1020	X	X						X		X					
004	B11JP3					1035	X	X						X		X					
005	B11JP4					1115	X	X						X		X					
006	B11JP5					1125	X	X						X		X					
007	B11JP0 top of 001			L	*	–												✓			
008	1					002												✓			
009	2					003												✓			
010	3					004												✓			

Special Instructions: Exp B99-028

Run Matrix QC

DATE/REVISIONS:

* Exc lab chain

Metals: As, Ba, Cd, Cr, Hg, Se, Pb, Ni

3

4

5

6

Relinquished by	Received by	Date	Time
Fed Ex	Carla Hamrof	3-7-01	10:00

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Lionville Laboratory Use Only

Sample Condition

Received Cold or

Hand Delivered

Fed Ex

Sample Delivered

Pick up (Courier)

Sample Collected

COC Received with Sample

Holding Time

4355 7904 2334

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Lionville Laboratory Use Only
0103L194

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

Client: TDU- Hanford B99-028
Est. Final Proj. Sampling Date:
Project #: See
Project Contact/Phone #:
Lionville Laboratory Project Manager: page 1
QC: Del: TAT:
Date Rec'd: Date Due:

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

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

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	leachate (mix)
011	B11JP4 tclp of 005			L	*	–	✓
012	↓ 5 ↓ 006			↓	↓	↓	✓

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only
Samples were: 1) Shipped or Hand Delivered; Airbill #
Tamper Proof Custody: 1) Present on Outer Package Y or N; 2) Unbroken on Outer Package Y or N
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved
5) Received Within Holding Times
Discrepancies Between Sample Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FedEx		3-7-01	1000				

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-66	Page 1 of 21

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3	SAF No.: B99-028	
Ice Chest No.: ERC96065/ERC96042	Field Logbook No.: EC-15116	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010238	Bill of Lading/Air Bill No.: 4235954-2845	

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	R Anions - 300.0 [Nitrate]	See item (2) in Special Instructions

Reactz 110-21501

Sample No.	Matrix *	Sample Date	Sample Time										
B11JP0	OTHER SOLID	3-5-01	0930					X	X	X	X		
B11JP1	OTHER SOLID	3-5-01	0952					X	X	X	X		
B11JP2	OTHER SOLID	3-5-01	1020					X	X	X	X		
B11JP3	OTHER SOLID	3-5-01	1035					X	X	X	X		
B11JP4	OTHER SOLID	3-5-01	1115					X	X	X	X		

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Thomas Amstrup	3-5-01 1240	Stored in Ref #2C	3-5-01 1240
Relinquished from Ref 2C 3728	3-6-01 0900	R Thomas	3-6-01 0900
R Thomas	3-6-01 0900	FEDEX	
FEDEX	3-7-01 12:00	[illegible]	3-7-01 10:00

Sign Print Names

SPECIAL INSTRUCTIONS

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/6/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

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

BHI-EE-011 (10/99)

19

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-67	Page 1 of 1

Collector Johansen/Watson	**Company Contact** T Pickett	**Telephone No.** 373-4630	**Project Coordinator** TRENT, SJ
Project Designation 100-HR-3 Pump & Treat - Resin Sampling	**Sampling Location** 100 HR 3		**SAF No.** B99-028
Price Code 9N	**Data Turnaround** 45 Days	**Air Quality**	
Ice Chest No. ERC96-065/ERC96042	**Field Logbook No.** EL156	**COA** R10HR3C570	**Method of Shipment** Fed Ex
Shipped To TMA/RECRA	**Offsite Property No.** IA0102 38		**Bill of Lading/Air Bill No.** 4235 9954-2834

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 and screen for off-site shipment.

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Strontium-90 Total	Technetium-99	Tritium - H3	Semi-VOA - 8270A (HCL) [Bis(2-ethylhexyl) phthalate]	See item (1) in Special Instructions	IC Anions - 300.0 [Nitrate]	See item (2) in Special Instructions
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.
BT1JP5	OTHER SOLID	3/5/01	1125					X	X	X	X

Deleted 2-100 3-15-01

CHAIN OF POSSESSION	Sign Here - Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: [illegible] Date/Time 3-5-01 1240	Received By: Stored in Ref# 2C 3-5-01 1240	[illegible]	
Relinquished By: Removed from Ref 2C 3728 3-6-01 0400	Received By: R. Thorson 3-6-01 0400		
Relinquished By: R. Thorson 3-6-01 0400	Received By: FEDEX		
Relinquished By: FEDEX 3-7-01 10:00	Received By: [illegible] 3-7-01 10:00		
Relinquished By:	Received By:		
Relinquished By:	Received By:		

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 for shipment..

3/6/01

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11JP0	001	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP0	001 MS	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP0	001 MSD	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP1	002	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP2	003	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP3	004	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP4	005	SO	01LE0252	03/05/01	03/08/01	03/23/01
B11JP5	006	SO	01LE0252	03/05/01	03/08/01	03/23/01
LAB QC:						
SBLKSJ	MB1	S	01LE0252	N/A	03/08/01	03/23/01
SBLKSJ	MB1 BS	S	01LE0252	N/A	03/08/01	03/23/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B99-028
RFW #: 0103L194
SDG/SAF #: H1274/B99-028

W.O. #: 11343-606-001-9999-00
Date Received: 03-07-2001

SEMIVOLATILE

Six (6) solid samples were collected on 03-05-2001.

The samples and their associated QC samples were extracted on 03-08-2001 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 03-23-2001.

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. The sample was extracted and analyzed within required holding times.

3. All surrogate recoveries were within EPA QC limits.

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

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

6. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

8. "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."

9. 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

03-30-01
Date

som\gorup\data\bna\tnu-hanford-0103-194.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 0 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 Sample Discrepancy Report (SDR) SDR #: 01MS132

Initiator: John W. Smith Batch: 0103L194 Parameter: C625X
Date: 3/26/01 Samples: BS Matrix: SOLID
Client: Iron Horse 099-028 Method: SW846/MCAWW/CLP/ Prep Batch: 01LS0252
H1274

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)
Bis 2(ethylhexyl)phthalate contamination found in BS. No Bis found in BLK. Many samples have hits.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

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

Other Description:
Samples with hits flagged with a "B" to demonstrate BS contamination. Report + Narrate

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: CST 3/27/01

Other Explanation:
Blank contained a small amount of bis(2EH)phthalate (11 µg/kg); added to results 3/27/01. CST 3/27/01

__ 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: Doughty
	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson		__ GC/LC: Pastor
__	X Technical Mgr: Wesson/Daniels	1	X 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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 03/27/01 15:07

RFW Batch Number: **0103L194** Client: **TNUHANFORD B99-028 H1274** Work Order: 11343606001 Page: 1a

	Cust ID:	B11JP0		B11JP0		B11JP0		B11JP1		B11JP2		B11JP3	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	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	70	%	44	%	75	%	71	%	73	%	78	%
	2-Fluorobiphenyl	57	%	40	%	64	%	68	%	64	%	62	%
	p-Terphenyl-d14	103	%	60	%	96	%	97	%	89	%	92	%
bis(2-Ethylhexyl)phthalate		860	B	400	JB	59	JB	730	U	820	B	280	JB

	Cust ID:	B11JP4		B11JP5		SBLKSJ		SBLKSJ BS	
Sample Information	RFW#:	005		006		01LE0252-MB1		01LE0252-MB1	
	Matrix:	SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	70	%	64	%	102	%	84	%
	2-Fluorobiphenyl	61	%	56	%	93	%	83	%
	p-Terphenyl-d14	84	%	85	%	120	%	103	%
bis(2-Ethylhexyl)phthalate		250	JB	110	JB	11	J	180	JB

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

01036194

Custody Transfer Record/Lab Work Request

Page 1 of 12 TC 3-7-01

ALL

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: ~~Bechtel Hanford~~ TOU-Hanford SAF# B99-028 TC 3-7-01

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 3-7-01 Date Due: 4-6-01

		A	B	C	D
Refrigerator #		1	2	2	2
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	1AG
Volume	Liquid	250			
	Solid	125	250	500	250
Preservatives					

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	U H Anions

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	CLP24X	CLP25X						TCLP		TCN03		MCU			
001	B11JP0			SO	3-5-01	0930	X	X						X		X					
002	B11JP1					0952	X	X						X		X					
003	B11JP2					1020	X	X						X		X					
004	B11JP3					1035	X	X						X		X					
005	B11JP4					1115	X	X						X		X					
006	B11JP5					1125	X	X						X		X					
007	B11JP0 top of 001			L	*	–												✓			
008	1					002												✓			
009	2					003												✓			
010	3					004												✓			

Lionville Laboratory Use Only

Special Instructions: SAF B99-028

Run Matrix QC

DATE/REVISIONS:

* Spec lab Comm

Metals: As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

3

4

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Relinquished by	Received by	Date	Time
FED EX	Carlos Hernandez	3-7-01	10:00

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered. Airbill # 4255 7954 2314

2) Arrived on (Chilled)

3) Received in Good Condition (✓) or

4) Samples Properly Preserved (✓) or

5) Received Within Holding Times (✓) or

Tamper Resistant Seal: 1) Present on Outer Package (✓) or

2) Unbroken on Outer Package (✓) or

3) Present on Sample (✓) or

4) Unbroken on Sample (✓) or

Discrepancies Between Samples Labels and COC Record (✓) or

NOTES:

4255 7954 2314

Lionville Laboratory Use Only
0103L194

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TMU- Hanford B99-028
Est. Final Proj. Sampling Date:
Project #: See
Project Contact/Phone #:
Lionville Laboratory Project Manager:
QC: Del: Mat:
Date Rec'd: Date Due:

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/ PCB	Herb				Metal	CN							
		Lionville Laboratory Use Only															

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
011	B11JP4 tclp of 005			L	*	-											✓				
012	1 5 1 006			1	1	1											✓				

Special Instructions:

DATE/REVISIONS:
1
2
3
4
5
6

Relinquished by	Received by	Date	Time
FedEx		3-7-01	1000

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES

Lionville Laboratory Use Only

Samples were 1) Shipped or Hand Delivered
And if 2
2) An Intact Chilled & Delivered in Good Condition Y or N
3) Samples Properly Preserved 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
5) Received within Holding Time Y or N

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-66	Page 1 of 21

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3	SAF No.: B99-028	
Ice Chest No.: ERC96065/ERC96042	Field Logbook No.: EC-1516	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010238		Bill of Lading/Air Bill No.: 4235795 4-2845

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									
B11JP0	OTHER SOLID	3-5-01	0930					X	X	X	X	
B11JP1	OTHER SOLID	3-5-01	0952					X	X	X	X	
B11JP2	OTHER SOLID	3-5-01	1020					X	X	X	X	
B11JP3	OTHER SOLID	3-5-01	1035					X	X	X	X	
B11JP4	OTHER SOLID	3-5-01	1115					X	X	X	X	

Results 7 TPD 3-15-01

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3-5-01 1240	Stored in Ref #2C	3-5-01 1240
Removed from Ref 2C 3728	3-6-01 0900	R T Thornell	3-6-01 0900
R T Thornell	3-6-01 0900	FEDEX	
FEDEX	3-7-01 10:00	[illegible]	3-7-01 10:00

PT 3-6-01

SPECIAL INSTRUCTIONS

[illegible] VOA - 8260A (Add On); [illegible] methylene chloride; [illegible] Metals - Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver; Metals by ICP (TCLP) Add On - 13PB6010; Antimony, Beryllium, Nickel;

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/6/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

PT 3-6-01

Matrix *
A Ambient
[illegible]
[illegible]
[illegible]
O Oil
A Air
DS Drum Solids
DL Drum Liquid
T Tissue
W Wipe
L Liquid
[illegible]
[illegible]

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-67	Page 1 of 1

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3	SAF No.: B99-028	
Ice Chest No.: ERC96-065/ERC96042	Field Logbook No.: EL1516	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A0182 38	Bill of Lading/Air Bill No.: 4235 7954-2834	

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 and 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	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								
61HJP5	OTHER SOLID	3/5/01	1125			X	X	X	X		

Delete 3/6/01

CHAIN OF POSSESSION — Signature Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	3-5-01 1240	[illegible] Ref # 2C	3-5-01 1240
Removed from Ref 2C 3728	3-6-01 0400	R. Thorson	3-6-01 0400
R. Thorson	3-6-01 0400	FEDEX	
FEDEX	3-7-01 10:00	[illegible]	3-7-01 10:00

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL) [Chloroform, Methylene Chloride]; VOA - 8260A (Add On) [Tetrachloroethylene]

(2) Total Metals by ICP (TCLP) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (TCLP) Add-on - EPA 6010B [Antimony, Beryllium, Nickel]

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 EL for shipment..

3/6/01

Matrix *

S - Soil
SL - Sediment
CS - Solid
L - Liquids
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquid
T - Trans
WI - Wipe
L - Liquid
[illegible]
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.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-028 H1274

DATE RECEIVED: 03/07/01 LVL LOT # :0103L194

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11JP0	001	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP1	002	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP2	003	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP3	004	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP4	005	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP5	006	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP5	006 MS	SO	01LVH080	03/05/01	N/A	03/12/01
B11JP5	006 MSD	SO	01LVH080	03/05/01	N/A	03/12/01

LAB QC:

VBLKQI	MB1	S	01LVH080	N/A	N/A	03/12/01
VBLKQI	MB1 BS	S	01LVH080	N/A	N/A	03/12/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B99-028
RFW #: 0103L194
SDG/SAF #: H1274/B99-028

W.O. #: 11343-606-001-9999-00
Date Received: 03-07-2001

GC/MS VOLATILE

Six (6) solid samples were collected on 03-05-2001.

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 03-12-2001.

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. Samples were analyzed within required holding time.

3. Five (5) of thirty (30) surrogate recoveries were outside EPA QC limits. The surrogate recovery criteria were not met for samples B11JP4 and B11JP5. The analysis of associated matrix spike samples fulfills the reanalysis requirement of sample B11JP5. The other sample B11JP4 was not reanalyzed due to the sample matrix per client instruction.

4. Two (2) of ten (10) matrix spike recoveries were outside EPA QC limits.

   All blank spike recoveries were within EPA QC limits.

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

5. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL.

6. Internal standard area criteria were not met for these samples; however, samples were not reanalyzed due to the sample matrix as per client instruction.

7. "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."

8. 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

04-03-01
Date

som\group\data\voa\tnu-hanford-0103-194.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

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: 03/28/01 14:46

RFW Batch Number: **0103L194** Client: **TNUHANFORD B99-028 H1274** Work Order: 11343606001 Page: 1a

	Cust ID:	B11JP0	B11JP1	B11JP2	B11JP3	B11JP4	B11JP5
Sample Information	RFW#:	001	002	003	004	005	006
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	1.06	1.02	1.00	1.02	1.02	1.06
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	1,2-Dichloroethane-d4	95 %	94 %	101 %	98 %	93 %	98 %
	Toluene-d8	137 %	138 %	142 * %	138 %	143 * %	143 * %
	Bromofluorobenzene	83 %	81 %	86 %	82 %	88 %	87 %
Trichlorofluoromethane		12 U	12 U	2 J	12 U	3 J	11 U
Methylene Chloride		30 B	29 B	35 B	31 B	45 B	29 B
Chloroform		20	21	8 J	10 J	26	27

	Cust ID:	B11JP5	B11JP5	VBLKQI	VBLKQI BS
Sample Information	RFW#:	006 MS	006 MSD	01LVH080-MB1	01LVH080-MB1
	Matrix:	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.04	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	1,2-Dichloroethane-d4	101 %	99 %	101 %	93 %
	Toluene-d8	150 * %	143 * %	108 %	100 %
	Bromofluorobenzene	91 %	87 %	108 %	104 %
Trichlorofluoromethane		10 U	11 U	5 U	5 U
Methylene Chloride		29 B	29 B	4 J	7 B
Chloroform		31	30	5 U	5 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

01031.194

Custody Transfer Record/Lab Work Request

Page 1 of 12 TK 3-7-01

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client ~~Bechtel Hanford~~ TRU-Hanford SAF# B99-028 TK 3-7-01

Est. Final Proj. Sampling Date

Project # 11343-0006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 3-7-01 Date Due 4-6-01

Refrigerator #		A	B						C		D					
		1	2						2		2					
#/Type Container	Liquid															
	Solid	1AG	1AG						1AG		1AG					
Volume	Liquid	250														
	Solid	~~125~~	250						500		250					
Preservatives		CH 3-7-01														

ANALYSES REQUESTED →

	ORGANIC							INORG							
	VOA	BNA	Pest/PCB	Herb				Metal	CN	HC Anions	TCLP				
Lionville Laboratory Use Only	OC24X	OC25X						ITCLP		ICNO3	Metal				

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	OC25X	ITCLP	ICNO3	Metal
001	B11JP0			SO	3-5-01	0930	X	X	X	X	
002	B11JP1					0952	X	X	X	X	
003	B11JP2					1020	X	X	X	X	
004	B11JP3					1035	X	X	X	X	
005	B11JP4					1115	X	X	X	X	
006	B11JP5					1125	X	X	X	X	
C01	B11JP0 tclp of 001			L	*	–					✓
C08	1 C02										✓
C09	2 C03										✓
010	3 C04										✓

Special Instructions: SAF B99-028

Run Matrix QC

DATE/REVISIONS:

* Spec lab error

Metals: Ag, Ba, Ca, Cr, Hg, Se, Pb, Ni

3

4

5

6

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered; Airbill # [illegible]

2) Arrived at (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: 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

5) COC Tape Present

6) Tape on Sample (Y) or N

Relinquished by	Received by	Date	Time
Fed Ex	Carlos Hernandez	3-7-01	10:00

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

4235 1954 2334

Lionville Laboratory Use Only
0103L194

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TMU-Hanford B99-028

Est. Final Proj. Sampling Date:

Project #: See

Project Contact/Phone #:

Lionville Laboratory Project Manager:

QC: Del: TAT: page 1

Date Rec'd: Date Due:

Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		Lionville Laboratory Use Only														

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
011	B11JP4 tclp of 005			L	*	–															
012	1 5 1 006			1	1	1															

Special Instructions:

DATE/REVISIONS:
1.
2
3
4
5
6

Relinquished by	Received by	Date	Time
FedEx		3-7-01	1000

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES

Lionville Laboratory Use Only

Samples were 1) Shipped or Hand Delivered
Airbill #
2) Arrived on 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
5) Present Present Upon Sample Receipt Y or N
Temp

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-66	Page 1 of 21

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3		SAF No.: B99-028
Ice Chest No.: ERC96065/ERC96042	Field Logbook No.: EC1516	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010238		Bill of Lading/Air Bill No.: 4235954-2845

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.

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 (FCL) [Bis(2-ethylhexyl) phthalate]	See item (1) in Special Instructions	IC Anions - 300.0 [Nitrate]	See item (2) in Special Instructions

Request 1100 [illegible]

Sample No.	Matrix *	Sample Date	Sample Time										
B11JP0	OTHER SOLID	3-5-01	0930					X	X	X	X		
B11JP1	OTHER SOLID	3-5-01	0952					X	X	X	X		
B11JP2	OTHER SOLID	3-5-01	1020					X	X	X	X		
B11JP3	OTHER SOLID	3-5-01	1035					X	X	X	X		
B11JP4	OTHER SOLID	3-5-01	1115					X	X	X	X		

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Johnson/Amstrup	3-5-01 1240	Stored in Ref #2C	3-5-01 1240
Relinquished By: Removed from Ref 2C 3728	Date/Time: 0900 3-6-01	Received By: R Thorne	Date/Time: 0900 3-6-01
Relinquished By: R Thorne	Date/Time: 0900 3-6-01	Received By: FEDEX	Date/Time
Relinquished By: FEDEX	Date/Time: 3-7-01 12:00	Received By: [illegible]	Date/Time: 3-7-01 10:00
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

PT 3-6-01

SPECIAL INSTRUCTIONS

(1) [illegible] VOA (FCL) [Chlorobenzene, Methylene Chloride, Toluene]; VOA - 8260A (Add On) [Acetone, Methylene Chloride]; [illegible] ICP (FCL) [illegible]; [illegible] Chromium, Lead, Selenium, Silver; Metals by ICP (FCL) Add on - [illegible] [Antimony, Beryllium, Nickel]

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/6/01.
Collector not available to relinquish samples on 3/6/01 for shipment.

PT 3-6-01

Matrix *

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-028-67	Page 1 of 1

Collector: Johansen/Watson	Company Contact: T Pickett	Telephone No.: 373-4630	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality	
Project Designation: 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location: 100 HR 3		SAF No.: B99-028
Ice Chest No.: ERC96-065/ERC96042	Field Logbook No.: EL1516	COA: R10HR3C570	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A0182 38		Bill of Lading/Air Bill No.: 4235 7954-2834

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 and 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	Technetium-99	Tritium - H3	Semi-VOA - 8270A (ICP) [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									
61JP5	OTHER SOLID	3/5/01	1125				X	X	X	X		

Rec'd in RCF 3-6-01

CHAIN OF POSSESSION — Sign Names

Relinquished By	Date/Time	Received By	Date/Time
[signature]	3-5-01 1240	Rec'd in RCF #2C	3-5-01 1240
Ref 2C 3728	3-6-01 0400	R. Thorson	3-6-01 0400
R. Thorson	3-6-01 0400	FEDEX	
FEDEX	3-7-01 10:00	[signature]	3-7-01 10:00

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (ICP) [Chlorobenzene, Methyl Ethyl Ketone, Toluene]; VOA - 8260A (Add On) [Trichloroethylene, Tetrachloroethylene]
(2) Metals by ICP (ICP) [Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (ICP) Add-on - EPA 6010 [Antimony, Beryllium, Nickel]

Samples stored in Ref.# 2C at the 3728 Shipping Facility on 3/5/01.
Collector not available to relinquish samples on 3/6/01 for shipment..

3-6-01

Matrix *: S Soil; SL Sediment; O Solid; L Liquids; W Water; D Oil; A Air; DS Drum Solids; DL Drum Liquid; F Foam; WI Wipe; I Liquid; [illegible]; X Other

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

BHI-EE-011 (10/99)