H1620

0056764

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1620 was composed of one solid (soil) sample designated under SAF No. B01-113 with a Project Designation of: PFP Well Installation Sampling and Analysis – Soil.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on January 30, 2002.

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2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.3 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Plutonium Analyses

The RPDs for sample B13YD1 and its sample duplicate for Pu-238 and Pu-239/240 were 162% and 119% respectively, greater than their individual 3σ limits of 123% for Pu-238 and 111% for Pu-239/240. The differences between sample B13YD1's the Pu-238 and Pu239/240 results and its sample duplicate results for the isotopes were both less than the RDL (1 pCi/g) for both Pu-238 and Pu239/240. No other problems were encountered during the course of the analyses.

2.7 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.9 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

2/5/02

Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

SDG 7171
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1620

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B13DY1	200 West; Well No. C3803	SOLID		R111223-01	B01-113	B01-113-30	11/26/01 21:10
Method Blank		SOLID		R111223-03	B01-113		
Lab Control Sample		SOLID		R111223-02	B01-113		
Duplicate (R111223-01)	200 West; Well No. C3803	SOLID		R111223-04	B01-113		11/26/01 21:10
Spike (R111223-01)	200 West; Well No. C3803	SOLID		R111223-05	B01-113		11/26/01 21:10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

SDG 7171
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1620

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
7171	B01-113-30	B13DY1	SOLID	92.4	1114 g		11/30/01	4	R111223-01	7171-001
		Method Blank	SOLID						R111223-03	7171-003
		Lab Control Sample	SOLID						R111223-02	7171-002
		Duplicate (R111223-01)	SOLID	92.4	1114 g		11/30/01	4	R111223-04	7171-004
		Spike (R111223-01)	SOLID		1114 g		11/30/01	4	R111223-05	7171-005

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

SDG 7171
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1620

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7018-059	5.0	1			1	1	1/1		
NP	SOLID	Neptunium in Soil	7018-059	5.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7018-059	5.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	7018-059	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7018-059	10.0	1			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7018-059	10.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7018-059	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7018-059	10.0	1			1	1	1/1	1/1	X

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 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

SDG 7171
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1620

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B13DY1			R111223-01	7171-001	AM		01/14/02	01/30/02	MCM	Americium 241 in Soil
200 West; Well No. C3803		SOLID	11/26/01	7171-001	GAM		01/15/02	01/30/02	MCM	Gamma Scan
B01-113-30	B01-113		11/30/01	7171-001	H		01/21/02	01/30/02	MCM	Tritium in Soil
				7171-001	NP		01/12/02	01/30/02	MCM	Neptunium in Soil
				7171-001	PU		01/14/02	01/30/02	MCM	Plutonium, Isotopic in Solids
				7171-001	SR		01/15/02	01/30/02	MCM	Total Strontium in Soil
				7171-001	TC		01/14/02	01/30/02	MCM	Technetium 99 in Soil
				7171-001	U		01/11/02	01/30/02	MCM	Uranium, Isotopic in Soil
Method Blank			R111223-03	7171-003	AM		01/14/02	01/30/02	MCM	Americium 241 in Soil
		SOLID		7171-003	GAM		01/15/02	01/30/02	MCM	Gamma Scan
	B01-113			7171-003	H		01/22/02	01/30/02	MCM	Tritium in Soil
				7171-003	NP		01/12/02	01/30/02	MCM	Neptunium in Soil
				7171-003	PU		01/14/02	01/30/02	MCM	Plutonium, Isotopic in Solids
				7171-003	SR		01/15/02	01/30/02	MCM	Total Strontium in Soil
				7171-003	TC		01/12/02	01/30/02	MCM	Technetium 99 in Soil
				7171-003	U		01/11/02	01/30/02	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R111223-02	7171-002	AM		01/14/02	01/30/02	MCM	Americium 241 in Soil
		SOLID		7171-002	GAM		01/15/02	01/30/02	MCM	Gamma Scan
	B01-113			7171-002	H		01/22/02	01/30/02	MCM	Tritium in Soil
				7171-002	NP		01/12/02	01/30/02	MCM	Neptunium in Soil
				7171-002	PU		01/14/02	01/30/02	MCM	Plutonium, Isotopic in Solids
				7171-002	SR		01/15/02	01/30/02	MCM	Total Strontium in Soil
				7171-002	TC		01/16/02	01/30/02	MCM	Technetium 99 in Soil
				7171-002	U		01/11/02	01/30/02	MCM	Uranium, Isotopic in Soil
Duplicate (R111223-01)			R111223-04	7171-004	AM		01/15/02	01/30/02	MCM	Americium 241 in Soil
200 West; Well No. C3803		SOLID	11/26/01	7171-004	GAM		01/15/02	01/30/02	MCM	Gamma Scan
	B01-113		11/30/01	7171-004	H		01/22/02	01/30/02	MCM	Tritium in Soil
				7171-004	NP		01/12/02	01/30/02	MCM	Neptunium in Soil
				7171-004	PU		01/16/02	01/30/02	MCM	Plutonium, Isotopic in Solids
				7171-004	SR		01/15/02	01/30/02	MCM	Total Strontium in Soil
				7171-004	TC		01/12/02	01/30/02	MCM	Technetium 99 in Soil
				7171-004	U		01/11/02	01/30/02	MCM	Uranium, Isotopic in Soil
Spike (R111223-01)			R111223-05	7171-005	H		01/22/02	01/30/02	MCM	Tritium in Soil
200 West; Well No. C3803		SOLID	11/26/01							
	B01-113		11/30/01							

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

SDG 7171
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1620

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B01-113	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
GAM	B01-113	Gamma Scan	GAMMA_GS	1			1	1	1		4
H	B01-113	Tritium in Soil	906.0_H3_LSC	1			1	1	1	1	5
NP	B01-113	Neptunium in Soil	NP237_LLE_PLATE_AEA	1			1	1	1		4
PU	B01-113	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1		4
SR	B01-113	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	B01-113	Technetium 99 in Soil	TC99_TR_SEP_LSC	1			1	1	1		4
U	B01-113	Uranium, Isotopic in Soil	UISO_PLATE_AEA	1			1	1	1		4
TOTALS				8			8	8	8	1	33

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

R111223-03 **Method Blank**

METHOD BLANK

SDG	7171	Client/Case no	Hanford	SDG H1620	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R111223-03	Client sample id	Method Blank		
Dept sample id	7171-003	Material/Matrix		SOLID	
		SAF No	B01-113		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.110	0.15	0.26	400	U	H
Total Strontium	SR-RAD	0.009	0.14	0.28	1.0	U	SR
Technetium 99	14133-76-7	0.077	0.19	0.59	15	U	TC
Uranium 233/234	U-233/234	-0.052	0.053	0.20	1.0	U	U
Uranium 235	15117-96-1	0.064	0.064	0.24	1.0	U	U
Uranium 238	U-238	0.052	0.053	0.20	1.0	U	U
Neptunium 237	13994-20-2	0.006	0.013	0.031	1.0	U	NP
Plutonium 238	13981-16-3	0	0.012	0.033	1.0	U	PU
Plutonium 239/240	PU-239/240	0.006	0.012	0.028	1.0	U	PU
Americium 241	14596-10-2	0.003	0.029	0.038	1.0	U	AM
Potassium 40	13966-00-2	U		0.49		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.12		U	GAM
Antimony 125	14234-35-6	U		0.038		U	GAM
Cesium 134	13967-70-9	U		0.022		U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.036	0.10	U	GAM
Radium 228	15262-20-1	U		0.081	0.20	U	GAM
Europium 152	14683-23-9	U		0.041	0.10	U	GAM
Europium 154	15585-10-1	U		0.053	0.10	U	GAM
Europium 155	14391-16-3	U		0.036	0.10	U	GAM
Thorium 228	14274-82-9	U		0.023		U	GAM
Thorium 232	TH-232	U		0.081		U	GAM
Uranium 235	15117-96-1	U		0.054		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Americium 241	14596-10-2	U		0.018		U	GAM

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/30/02

BLANK, cont.

SDG	7171	Client/Case no	Hanford SDG H1620
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R111223-03	Client sample id	Method Blank
Dept sample id	7171-003	Material/Matrix	SOLID
		SAF No	B01-113

QC-BLANK 40743

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

R111223-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7171

Contact Melissa C. Mannion

Client/Case no Hanford SDG H1620

Case no No. 630

Lab sample id R111223-02

Dept sample id 7171-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No B01-113

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	12.3	0.39	0.25	400	J	H	12.2	0.49	101	83-117	80-120
Total Strontium	24.6	1.0	0.34	1.0		SR	22.8	0.91	108	82-118	80-120
Technetium 99	138	2.9	0.57	15		TC	131	5.2	105	83-117	80-120
Uranium 233/234	18.3	1.9	0.94	1.0		U	19.3	0.77	95	83-117	80-120
Uranium 235	16.1	1.7	0.22	1.0		U	15.7	0.63	102	81-119	80-120
Uranium 238	19.1	1.9	0.91	1.0		U	21.0	0.84	91	84-116	80-120
Neptunium 237	22.4	0.74	0.043	1.0		NP	21.8	0.87	103	89-111	80-120
Plutonium 238	26.2	0.79	0.028	1.0		PU	27.0	1.1	97	90-110	80-120
Plutonium 239/240	29.3	0.86	0.024	1.0		PU	29.2	1.2	100	89-111	80-120
Americium 241	21.5	0.73	0.035	1.0		AM	21.0	0.84	102	89-111	80-120
Cobalt 60	1.18	0.063	0.029	0.050		GAM	1.06	0.042	111	73-127	80-120
Cesium 137	1.43	0.056	0.032	0.10		GAM	1.25	0.050	114	73-127	80-120

PFP Well Installation Smpl. & Anal.

QC-LCS 40742

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

R111223-04 B13DY1

DUPLICATE

SDG	7171			Client/Case no	Hanford SDG H1620
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R111223-04	Lab sample id	R111223-01	Client sample id	B13DY1
Dept sample id	7171-004	Dept sample id	7171-001	Location/Matrix	200 West; Well No. C3803 SOLID
		Received	11/30/01	Collected/Weight	11/26/01 21:10 1114 g
% solids	92.4	% solids	92.4	Custody/SAF No	B01-113-30 B01-113

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	0.098	0.081	0.13	400	U	H	0.050	0.073	0.12	U	-	
Total Strontium	-0.012	0.11	0.23	1.0	U	SR	0.055	0.14	0.27	U	-	
Technetium 99	-0.040	0.16	0.55	15	U	TC	-0.039	0.17	0.56	U	-	
Uranium 233/234	0.482	0.21	0.19	1.0	J	U	0.315	0.18	0.17	J	42	105
Uranium 235	0.031	0.061	0.23	1.0	U	U	0.054	0.055	0.21	U	-	
Uranium 238	0.811	0.31	0.19	1.0	J	U	0.742	0.27	0.17	J	9	80
Neptunium 237	0.018	0.024	0.040	1.0	U	NP	0.021	0.018	0.029	U	-	
Plutonium 238	0.114	0.046	0.029	1.0	J	PU	0.012	0.023	0.048	U	162	123
Plutonium 239/240	0.106	0.038	0.029	1.0	J	PU	0.027	0.031	0.043	U	119	111
Americium 241	0.031	0.18	0.41	1.0	U	AM	0.014	0.027	0.034	U	-	
Potassium 40	13.6	0.58	0.24			GAM	12.1	0.89	0.30		12	34
Cobalt 60	U		0.026	0.050	U	GAM	U		0.055	U	-	
Ruthenium 106	U		0.22		U	GAM	U		0.37	U	-	
Antimony 125	U		0.050		U	GAM	U		0.098	U	-	
Cesium 134	U		0.038		U	GAM	U		0.062	U	-	
Cesium 137	U		0.025	0.10	U	GAM	U		0.044	U	-	
Radium 226	0.479	0.053	0.049	0.10		GAM	0.495	0.089	0.085		3	45
Radium 228	0.671	0.12	0.12	0.20		GAM	1.06	0.25	0.20		45	58
Europium 152	U		0.050	0.10	U	GAM	U		0.10	U	-	
Europium 154	U		0.089	0.10	U	GAM	U		0.18	U	-	
Europium 155	U		0.067	0.10	U	GAM	U		0.085	U	-	
Thorium 228	0.726	0.035	0.030			GAM	0.655	0.050	0.046		10	34
Thorium 232	0.671	0.12	0.12			GAM	1.06	0.25	0.20		45	58
Uranium 235	U		0.095		U	GAM	U		0.14	U	-	
Uranium 238	U		3.1		U	GAM	U		6.2	U	-	
Americium 241	U		0.082		U	GAM	U		0.055	U	-	

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/30/02

DUPLICATE, cont.

SDG	7171			Client/Case no	Hanford SDG H1620
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R111223-04	Lab sample id	R111223-01	Client sample id	B13DY1
Dept sample id	7171-004	Dept sample id	7171-001	Location/Matrix	200 West; Well No. C3803 SOLID
		Received	11/30/01	Collected/Weight	11/26/01 21:10 1114 g
% solids	92.4	% solids	92.4	Custody/SAF No	B01-113-30 B01-113

QC-DUP#1 40744

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

R111223-05

B13DY1

MATRIX SPIKE

SDG	7171			Client/Case no	Hanford SDG H1620
Contact	Melissa C. Mannion			Case no	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R111223-05	Lab sample id	R111223-01	Client sample id	B13DY1
Dept sample id	7171-005	Dept sample id	7171-001	Location/Matrix	200 West; Well No. C3803 SOLID
		Received	11/30/01	Collected/Weight	11/26/01 21:10 1114 g
		% solids	92.4	Custody/SAF No	B01-113-30 B01-113

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	48.3	0.50	0.12	400	JX	H	54.6	2.2	0.050	0.073	88	85-115	60-140

PFP Well Installation Smpl. & Anal.

QC-MS#1 40745

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

R111223-01 B13DY1

DATA SHEET

SDG	7171	Client/Case no	Hanford SDG H1620
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R111223-01	Client sample id	B13DY1
Dept sample id	7171-001	Location/Matrix	200 West; Well No. C3803 SOLID
Received	11/30/01	Collected/Weight	11/26/01 21:10 1114 g
% solids	92.4	Custody/SAF No	B01-113-30 B01-113

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.050	0.073	0.12	400	U	H
Total Strontium	SR-RAD	0.055	0.14	0.27	1.0	U	SR
Technetium 99	14133-76-7	-0.039	0.17	0.56	15	U	TC
Uranium 233/234	U-233/234	0.315	0.18	0.17	1.0	J	U
Uranium 235	15117-96-1	0.054	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.742	0.27	0.17	1.0	J	U
Neptunium 237	13994-20-2	0.021	0.018	0.029	1.0	U	NP
Plutonium 238	13981-16-3	0.012	0.023	0.048	1.0	U	PU
Plutonium 239/240	PU-239/240	0.027	0.031	0.043	1.0	U	PU
Americium 241	14596-10-2	0.014	0.027	0.034	1.0	U	AM
Potassium 40	13966-00-2	12.1	0.89	0.30			GAM
Cobalt 60	10198-40-0	U		0.055	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.37		U	GAM
Antimony 125	14234-35-6	U		0.098		U	GAM
Cesium 134	13967-70-9	U		0.062		U	GAM
Cesium 137	10045-97-3	U		0.044	0.10	U	GAM
Radium 226	13982-63-3	0.495	0.089	0.085	0.10		GAM
Radium 228	15262-20-1	1.06	0.25	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.085	0.10	U	GAM
Thorium 228	14274-82-9	0.655	0.050	0.046			GAM
Thorium 232	TH-232	1.06	0.25	0.20			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		6.2		U	GAM
Americium 241	14596-10-2	U		0.055		U	GAM

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test AM Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7018-059					
B13DY1	R111223-01			7171-001	U
BLK (QC ID=40743)	R111223-03			7171-003	U
LCS (QC ID=40742)	R111223-02			7171-002	ok
Duplicate (R111223-01)	R111223-04			7171-004	- U
Nominal values and limits from method				*RDLs (pCi/g)*	*1.0*
PFP Well Installation Smpl. & Anal.					

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 7018-059	2σ prep error 5.0 %							Reference Lab Notebook 7018 pg. 059								
B13DY1	R111223-01			0.034	0.500			88		1018			49	01/14/02	01/14	SS-031
BLK (QC ID=40743)	R111223-03			0.038	0.500			81		1018				01/14/02	01/14	SS-033
LCS (QC ID=40742)	R111223-02			0.035	0.500			74		1018				01/14/02	01/14	SS-032
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.41	0.500			75		136			50	01/14/02	01/15	SS-021
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.13	±	0.37
YIELD	80	±	13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test NP Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7018-059						
B13DY1	R111223-01			7171-001	U	
BLK (QC ID=40743)	R111223-03			7171-003	U	
LCS (QC ID=40742)	R111223-02			7171-002	ok	
Duplicate (R111223-01)	R111223-04			7171-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
PFP Well Installation Smpl. & Anal.						

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 7018-059	2σ prep error 5.0 %							Reference Lab Notebook 7018 pg. 059								
B13DY1	R111223-01			0.029	0.500			74		1118			47	01/12/02	01/12	SS-031
BLK (QC ID=40743)	R111223-03			0.031	0.500			65		1119				01/12/02	01/12	SS-033
LCS (QC ID=40742)	R111223-02			0.043	0.500			65		1118				01/12/02	01/12	SS-032
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.040	0.500			70		1119			47	01/12/02	01/12	SS-034
Nominal values and limits from method				1.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 3
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 2

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.036 ± 0.014
YIELD 68 ± 9

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test PU Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7018-059						
B13DY1	R111223-01			7171-001	U	U
BLK (QC ID=40743)	R111223-03			7171-003	U	U
LCS (QC ID=40742)	R111223-02			7171-002	ok	ok
Duplicate (R111223-01)	R111223-04			7171-004	OUT J	OUT J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
PFP Well Installation Smpl. & Anal.						

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 7018-059	2σ prep error 5.0 %							Reference Lab Notebook 7018 pg. 059								
B13DY1	R111223-01			0.048	0.500			59		1017			49	01/14/02	01/14	SS-047
BLK (QC ID=40743)	R111223-03			0.033	0.500			83		1017				01/14/02	01/14	SS-049
LCS (QC ID=40742)	R111223-02			0.028	0.500			89		1017				01/14/02	01/14	SS-048
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.029	0.500			76		826			51	01/14/02	01/16	SS-057
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.034	±	0.019
YIELD	77	±	26

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test U Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7018-059											
B13DY1	R111223-01			7171-001	0.315 J	U	0.742 J	42	29	7	8
BLK (QC ID=40743)	R111223-03			7171-003	U	U	U				
LCS (QC ID=40742)	R111223-02			7171-002	ok	ok	ok				
Duplicate (R111223-01)	R111223-04			7171-004	ok J	- U	ok J	59	34	4	8
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
PFP Well Installation Smpl. & Anal.								Averages 51		6	

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 7018-059 2σ prep error 5.0 % Reference Lab Notebook 7018 pg. 059																
B13DY1	R111223-01			0.21	0.500			98		103			46	01/10/02	01/11	SS-043
BLK (QC ID=40743)	R111223-03			0.24	0.500			81		104				01/10/02	01/11	SS-045
LCS (QC ID=40742)	R111223-02			0.94	0.500			88		104				01/10/02	01/11	SS-044
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.23	0.500			93		105			46	01/10/02	01/11	SS-031
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.40	±	0.71
	YIELD	90	±	15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test SR Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7018-059					
B13DY1	R111223-01			7171-001	U
BLK (QC ID=40743)	R111223-03			7171-003	U
LCS (QC ID=40742)	R111223-02			7171-002	ok
Duplicate (R111223-01)	R111223-04			7171-004	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0
PFP Well Installation Smpl. & Anal.					

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 7018-059	2σ prep error 10.0 % Reference Lab Notebook 7018 pg. 059															
B13DY1	R111223-01			0.27	1.00			89		100			50	01/15/02	01/15	GRB-207
BLK (QC ID=40743)	R111223-03			0.28	1.00			80		100				01/15/02	01/15	GRB-217
LCS (QC ID=40742)	R111223-02			0.34	1.00			76		100				01/15/02	01/15	GRB-208
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.23	1.00			89		100			50	01/15/02	01/15	GRB-230
Nominal values and limits from method				1.0	1.00			30-105		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.28	±	0.091
	YIELD	84	±	13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test TC Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7018-059						
B13DY1	R111223-01			7171-001	U	
BLK (QC ID=40743)	R111223-03			7171-003	U	
LCS (QC ID=40742)	R111223-02			7171-002	ok	
Duplicate (R111223-01)	R111223-04			7171-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
PFP Well Installation Smpl. & Anal.						

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 7018-059	2σ prep error 10.0 % Reference Lab Notebook 7018 pg. 059															
B13DY1	R111223-01			0.56	1.03			87		50			49	01/08/02	01/14	GRB-220
BLK (QC ID=40743)	R111223-03			0.59	1.00			91		50				01/08/02	01/12	GRB-221
LCS (QC ID=40742)	R111223-02			0.57	1.00			90		50				01/08/02	01/16	GRB-217
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.55	1.03			90		50			47	01/08/02	01/12	GRB-222
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-060	Soil Preparation, rev 3
	CP-021	Preparation of Tc-99m Tracer, rev 1
	CP-002	Q.C. Preparation, rev 3
	CP-003	Tracing, rev 3
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.57	±	0.034
	YIELD	90	±	3

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test GAM Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7018-059								
B13DY1	R111223-01			7171-001	U		U	
BLK (QC ID=40743)	R111223-03			7171-003	U		U	
LCS (QC ID=40742)	R111223-02			7171-002	ok		ok	
Duplicate (R111223-01)	R111223-04			7171-004	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	
PFP Well Installation Smpl. & Anal.								

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 7018-059	2σ prep error 15.0 % Reference Lab Notebook 7018 pg. 059															
B13DY1	R111223-01			0.37	788					109			50	01/10/02	01/15	02,01,00
BLK (QC ID=40743)	R111223-03			0.12	788					109				01/10/02	01/15	MB,07,00
LCS (QC ID=40742)	R111223-02			0.029	788					106				01/10/02	01/15	MB,07,00
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.22	788					120			50	01/10/02	01/15	02,04,00
Nominal values and limits from method				0.050	788					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES			
MDA	0.18	±	0.29
YIELD		±	

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1620

Test H Matrix SOLID
SDG 7171
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1620

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7018-059						
B13DY1	R111223-01			7171-001	U	
BLK (QC ID=40743)	R111223-03			7171-003	U	
LCS (QC ID=40742)	R111223-02			7171-002	ok	J
Duplicate (R111223-01)	R111223-04			7171-004	-	U
Spike (R111223-01)	R111223-05			7171-005	ok	JX

Nominal values and limits from method RDLs (pCi/g) 400
PFP Well Installation Smpl. & Anal.

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 7018-059 2σ prep error 10.0 % Reference Lab Notebook 7018 pg. 059																
B13DY1	R111223-01			0.12	20.6			68		120			56	01/17/02	01/21	LSC-004
BLK (QC ID=40743)	R111223-03			0.26	20.0			33		120				01/17/02	01/22	LSC-004
LCS (QC ID=40742)	R111223-02			0.25	20.0			33		120				01/17/02	01/22	LSC-004
Duplicate (R111223-01) (QC ID=40744)	R111223-04			0.13	21.1			62		120			57	01/17/02	01/22	LSC-004
Spike (R111223-01) (QC ID=40745)	R111223-05			0.12	20.7			69		120			57	01/17/02	01/22	LSC-004
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES	REFERENCE	906.0_H3_LSC
	CP-060	Soil Preparation, rev 3
	CP-216	Tritium in Solid Samples by Azeotropic Distillation, rev 4

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	0.18	±	0.14
	YIELD	53	±	37

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/30/02

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: H1620 (7171) 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-99-0107	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA TMA	Offsite Property No.: A020085	Bill of Lading/Air Bill No.: 4255 7954 - 9324	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	500mL	500mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.

Samples stored in Ref. #2B at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment.
RT 11-29-01

Sample No.	Matrix *	Sample Date	Sample Time									
B13DY1	SOIL	11/26/01	2110			X					Tie B13	TO F06

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Renee Nielson / R Nielson	Date/Time: 0442 11/27/01	Received By: STACEY N / Ref #2B	Date/Time: 0442 11/27/01
Relinquished By: Removed from Ref 2B 3728	Date/Time: 1000 11-29-01	Received By: R Thoren	Date/Time: 1000 11-29-01
Relinquished By: R Thoren ERC	Date/Time: 1000 11-29-01	Received By: FEDEX	Date/Time: 11-29-01
Relinquished By: FED EXPRESS	Date/Time: 1030 11-30-01	Received By: Ms Mae Tag / E. MAE TAG	Date/Time: 1030 11/30/01
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR.

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045~~
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60}; Gamma Spec - Add-on {Antimony-125, Cesium-134, Ruthenium-106}; Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 – Total Sr

Matrix *
S=Soil
SD=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	B01-113-30	Page 1 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: H1620 (7171) 0'-2' 200 West; Well Number C3803, Well Name 299-W15-42	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-99-0607	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA TMA	Offsite Property No.: A020085	Bill of Lading/Air Bill No.: 42357954-9324	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS											
Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

RT 11-28-01 RT 11-28-01

Sample No.	Matrix *	Sample Date	Sample Time									
B13DY1	SOIL	11/26/01	2110						X			TICTO B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0442	STORED IN Ref #2B	11/27/01 0442
Remove Ofr R-ef 2B 3728 RT 11-29-01	11-29-01 1000	RThoren	11-29-01 1000
RThoren ERC	11-29-01 1000	FED EX	11-29-01
FED. EXPRESS	11-30-01 10:30	RS Marstas E-MARSTAS	11/30-01 10:30

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by BPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR.

RT 11-28-01

~~(1) Semi-VOA - 8270A (TCL); Semi-VOA - 8270A (Add-On) (Tributyl phosphate)~~

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.

RT 11-29-01

Matrix *
S=Soil
SD=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)

From: Melissa Marrison

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 11-30-01 10:30

CoC No. B01-113-30

Container I.D. No. ERC-99-067 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 1 SAMPLE
7. Number of containers per sample: (2 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 Chris L. Maestas Date: 11-30-01 Time: 10:30

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B01-113 H1620

RFW LOT # 1112L491

JAN 2002 RECEIVED

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
B13DY1	001	S	01LVG083	11/26/01	12/03/01	N/A	12/08/01
B13DY1	001 MS	S	01LVG083	11/26/01	12/03/01	N/A	12/08/01
B13DY1	001 MSD	S	01LVG083	11/26/01	12/03/01	N/A	12/08/01
LAB QC:							
VBLKCY	MB1	S	01LVG083	N/A	N/A	N/A	12/08/01
VBLKCY	MB1 BS	S	01LVG083	N/A	N/A	N/A	12/08/01

gd 12-N-01

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-113
LVL #: 0112L491
SDG/SAF #: H1620/B01-113

W.O. #: 11343-606-001-9999-00
Date Received: 12-03-2001

GC/MS VOLATILE

One (1) soil sample was collected on 11-26-2001.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL Volatile target compounds on 12-08-2001.

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. The analysis holding time was met.
3. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Acetone at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

J. Michael Taylor
President
Lionville Laboratory Incorporated

12/18/01
Date

som\group\data\voa\tnu-hanford\0112-491.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 2 pages.

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

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.

VLI
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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.

VLI
HONWILL LABORATORY INC.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - *Missed Peak*: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - *Proper Integration*: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

VLI
LIONVILLE LABORATORY INC.

Lionville Laboratory, Inc.

Volatiles By GC/MS, Special List

Report Date: 12/14/01 14:57

RFW Batch Number: **0112L491** Client: **TNUHANFORD B01-113 H1620** Work Order: 11343606001 Page: 1a

	Cust ID:	B13DY1		B13DY1		B13DY1		VBLKCY		VBLKCY BS	
Sample Information	RFW#:	001		001 MS		001 MSD		01LVG083-MB1		01LVG083-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.04		0.980		1.02		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	93	%	108	%	92	%	94	%	96	%
	Bromofluorobenzene	105	%	113	%	95	%	97	%	100	%
	1,2-Dichloroethane-d4	92	%	104	%	89	%	93	%	100	%
Chloromethane		11	U	11	U	11	U	10	U	10	U
Bromomethane		11	U	11	U	11	U	10	U	10	U
Vinyl Chloride		11	U	11	U	11	U	10	U	10	U
Chloroethane		11	U	11	U	11	U	10	U	10	U
Methylene Chloride		6	U	6	U	6	U	5	U	5	U
Acetone		5	BJ	4	BJ	4	JB	3	J	3	BJ
Carbon Disulfide		6	U	6	U	6	U	5	U	5	U
1,1-Dichloroethene		6	U	83	%	76	%	5	U	78	%
1,1-Dichloroethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	5	U	5	U
Chloroform		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	6	U	5	U	5	U
2-Butanone		11	U	11	U	11	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	6	U	5	U	5	U
Bromodichloromethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Trichloroethene		6	U	97	%	88	%	5	U	91	%
Dibromochloromethane		6	U	6	U	6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Benzene		6	U	97	%	91	%	5	U	91	%
Trans-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Bromoform		6	U	6	U	6	U	5	U	5	U
4-Methyl-2-pentanone		11	U	11	U	11	U	10	U	10	U
2-Hexanone		11	U	11	U	11	U	10	U	10	U
Tetrachloroethene		6	U	6	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	5	U	5	U
Toluene		6	U	109	%	102	%	5	U	97	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0112L491 Client: TNUHANFORD B01-113 H1620 Work Order: 11343606001 Page: 1b

Cust ID:	B13DY1	B13DY1	B13DY1	VBLKCY	VBLKCY BS
RFW#:	001	001 MS	001 MSD	01LVG083-MB1	01LVG083-MB1
Chlorobenzene	6 U	106 %	98 %	5 U	97 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U
N-butylbenzene	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B13DY1

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: ____ SAS No.: ____ SDG No.: ____

Matrix: (soil/water) SOIL Lab Sample ID: 0112L491-001

Sample wt/vol: 4.80 (g/mL) G Lab File ID: g120812

Level: (low/med) LOW Date Received: 12/03/01

% Moisture: not dec. 7 Date Analyzed: 12/08/01

Column: (pack/cap) CAP Dilution Factor: 1.04

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	19.666	40	J
2.	UNKNOWN	21.643	9	J

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKCY

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 01LVG083-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: q120810

Level: (low/med) LOW Date Received: 12/08/01

% Moisture: not dec. 0 Date Analyzed: 12/08/01

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 1/87 Rev.

(3) VOA PIPED BNA from WET DIG metals

Lionville Laboratory Use Only

0112L491

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives														LE AC HATC		
ANALYSES REQUESTED →		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: ~~Pest~~/PCB	ORGANIC: Herb	PEST	O/G (Grease Chemistry) HEX		INORG: Metal	INORG: CN	pH	Ammonia	Sulfides			
Lionville Laboratory Use Only		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNHO ISFD	RCRATCW ~~AHGTC~~		

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	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNHO ISFD	RCRATCW ~~AHGTC~~		
001	B13D41	✓	✓ 12-3-01	~~W~~ S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
002	B13D41 tclp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:
1. * In lab chron
2. 12-4-01 Add RCRATCW to tclp
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FEDEX	[illegible]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

4235 7954 9335

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. 1.5 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2

Collector Renee Nielson	Company Contact Virginia Rohay	Telephone No. 372-9100	Project Coordinator TRENT, SJ
Project Designation PFP Well Installation Sampling and Analysis - Soil	Sampling Location 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'		SAF No. B01-113
Ice Chest No. ERA-02-0004	Field Logbook No. EL-1562	COA T20ZP1D722	Method of Shipment Federal Express
Shipped To TMA/RECRA RECRA	Offsite Property No. A020047		Bill of Lading/Air Bill No. 4235795 4/-9335

Price Code 8N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None				
Type of Container	aG	aG	aG				
No. of Container(s)	1	1	1				
Volume	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.				

Samples stored in Ref. #2B at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment.
RT 11-29-01

Sample No.	Matrix *	Sample Date	Sample Time										
B13DY1	SOIL	11/26/01	2110	X	X								B13F06

TIC TO

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0442	STORED IN Ref # 2B	11/27/01 0442
Relinquished By	Date/Time	Received By	Date/Time
Removed for Ref 2B 3728	11-29-01 1000	R. T. RThoren	11-29-01 1000
Relinquished By	Date/Time	Received By	Date/Time
RThoren R.T. ERA	11-29-01 1000	FED EX	
Relinquished By	Date/Time	Received By	Date/Time
FEDEX	12-3-01 0950	Carl Nemf	12-3-01 0950
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2~~, pH (Soil) - 9045

~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add on (Antimony-125, Cesium-134, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89/90 - Total Sr~~

RT 11-28-01

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 1 of 2

Collector Renee Nielson	Company Contact Virginia Rohay	Telephone No. 372-9100	Project Coordinator TRENT, SJ
Project Designation PFP Well Installation Sampling and Analysis - Soil	Sampling Location 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'		SAF No. B01-113
Ice Chest No. ERC-02-0041	Field Logbook No. EL-1562	COA T20ZP1D722	Method of Shipment Federal Express
Shipped To TMA/RECRA RERA	Offsite Property No. A020047		Bill of Lading/Air Bill No. 4235745 4-9335

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

Sample No.	Matrix *	Sample Date	Sample Time										
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
											TIE TO	B13F06	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson / R Nelson	11/27/01 0442	STORED IN Ref # 2B	11/27/01 0442
Removed from Ref 2B 3728	11-29-01 1000	R Thoren	11-29-01 1000
R Thoren	11-29-01 1000	FEDEX	
FEDEX	12-3-01 0950	Carlo Hamp	12-3-01 0950

Sign/Print Names

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.

RT 11-29-01

Matrix *
S=Soil
SD=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)

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1	001	S	01LE1451	11/26/01	12/04/01	12/19/01
B13DY1	001 MS	S	01LE1451	11/26/01	12/04/01	12/19/01
B13DY1	001 MSD	S	01LE1451	11/26/01	12/04/01	12/19/01

LAB QC:

SBLKLM	MB1	S	01LE1451	N/A	12/04/01	12/18/01
SBLKLM	MB1 BS	S	01LE1451	N/A	12/04/01	12/18/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-113
LVL #: 0112L491
SDG/SAF #: H1620/B01-113

W.O. #: 11343-606-001-9999-00
Date Received: 12-03-01

SEMIVOLATILE

One (1) soil sample was collected on 11-26-01.

The sample and its associated QC samples were extracted on 12-04-01 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL and client specified Tributylphosphate Semivolatile target compounds on 12-18,19-01.

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 time.
3. Non-target compounds were detected in this sample.
4. The sample and its associated matrix QC required a 5-fold dilution due to dark and viscous nature of the extracts.
5. All surrogate recoveries were within EPA QC limits.
6. All blank and matrix spike recoveries were within EPA QC limits.
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.

by J. Michael Taylor
President
Lionville Laboratory Incorporated

01-04-02
Date

pef\gorup\data\bna\tnu-hanford-0112-491.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 12 pages.

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.

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.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

MP - Missed Peak: manually added peak not found by automatic quantitation program.

PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

RFW Batch Number: **0112L491** Client: **TNUHANFORD B01-113 H1620** Work Order: 11343606001 Report Date: 12/20/01 15:21 Page: 1a

9

	Cust ID:	B13DY1		B13DY1		B13DY1		SBLKLM		SBLKLM BS	
Sample Information	RFW#:	001		001 MS		001 MSD		01LE1451-MB1		01LE1451-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	5.00		5.00		5.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	85	%	84	%	82	%	97	%	96	%
	2-Fluorobiphenyl	95	%	94	%	87	%	89	%	90	%
	p-Terphenyl-d14	104	%	105	%	98	%	110	%	111	%
	Phenol-d5	65	%	69	%	66	%	78	%	75	%
	2-Fluorophenol	66	%	68	%	63	%	79	%	78	%
	2,4,6-Tribromophenol	73	%	84	%	82	%	82	%	84	%
Phenol		1800	U	72	%	67	%	330	U	73	%
bis(2-Chloroethyl)ether		1800	U	1800	U	1800	U	330	U	330	U
2-Chlorophenol		1800	U	75	%	69	%	330	U	75	%
1,3-Dichlorobenzene		1800	U	1800	U	1800	U	330	U	330	U
1,4-Dichlorobenzene		1800	U	80	%	75	%	330	U	81	%
1,2-Dichlorobenzene		1800	U	1800	U	1800	U	330	U	330	U
2-Methylphenol		1800	U	1800	U	1800	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		1800	U	1800	U	1800	U	330	U	330	U
3- and/or 4-Methylphenol		1800	U	1800	U	1800	U	330	U	330	U
N-Nitroso-Di-n-propylamine		1800	U	70	%	74	%	330	U	63	%
Hexachloroethane		1800	U	1800	U	1800	U	330	U	330	U
Nitrobenzene		1800	U	1800	U	1800	U	330	U	330	U
Isophorone		1800	U	1800	U	1800	U	330	U	330	U
2-Nitrophenol		1800	U	1800	U	1800	U	330	U	330	U
2,4-Dimethylphenol		1800	U	1800	U	1800	U	330	U	330	U
bis(2-Chloroethoxy)methane		1800	U	1800	U	1800	U	330	U	330	U
2,4-Dichlorophenol		1800	U	1800	U	1800	U	330	U	330	U
1,2,4-Trichlorobenzene		1800	U	87	%	83	%	330	U	90	%
Naphthalene		1800	U	1800	U	1800	U	330	U	330	U
4-Chloroaniline		1800	U	1800	U	1800	U	330	U	330	U
Hexachlorobutadiene		1800	U	1800	U	1800	U	330	U	330	U
4-Chloro-3-methylphenol		1800	U	73	%	76	%	330	U	77	%
2-Methylnaphthalene		1800	U	1800	U	1800	U	330	U	330	U
Hexachlorocyclopentadiene		1800	U	1800	U	1800	U	330	U	330	U
2,4,6-Trichlorophenol		1800	U	1800	U	1800	U	330	U	330	U
2,4,5-Trichlorophenol		4500	U	4500	U	4400	U	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0112L491 Client: TNUHANFORD B01-113 H1620 Work Order: 11343606001 Page: 1b

Cust ID:	B13DY1		B13DY1		B13DY1		SBLKLM		SBLKLM BS	
RFW#:	001		001 MS		001 MSD		01LE1451-MB1		01LE1451-MB1	
2-Chloronaphthalene	1800	U	1800	U	1800	U	330	U	330	U
2-Nitroaniline	4500	U	4500	U	4400	U	830	U	830	U
Dimethylphthalate	1800	U	1800	U	1800	U	330	U	330	U
Acenaphthylene	1800	U	1800	U	1800	U	330	U	330	U
2,6-Dinitrotoluene	1800	U	1800	U	1800	U	330	U	330	U
3-Nitroaniline	4500	U	4500	U	4400	U	830	U	830	U
Acenaphthene	1800	U	91	%	84	%	330	U	81	%
2,4-Dinitrophenol	4500	U	4500	U	4400	U	830	U	830	U
4-Nitrophenol	4500	U	48	%	56	%	830	U	80	%
Dibenzofuran	1800	U	1800	U	1800	U	330	U	330	U
2,4-Dinitrotoluene	1800	U	66	%	72	%	330	U	85	%
Diethylphthalate	1800	U	1800	U	1800	U	330	U	330	U
4-Chlorophenyl-phenylether	1800	U	1800	U	1800	U	330	U	330	U
Fluorene	1800	U	1800	U	1800	U	330	U	330	U
4-Nitroaniline	4500	U	4500	U	4400	U	830	U	830	U
4,6-Dinitro-2-methylphenol	4500	U	4500	U	4400	U	830	U	830	U
N-Nitrosodiphenylamine (1)	1800	U	1800	U	1800	U	330	U	330	U
4-Bromophenyl-phenylether	1800	U	1800	U	1800	U	330	U	330	U
Hexachlorobenzene	1800	U	1800	U	1800	U	330	U	330	U
Pentachlorophenol	4500	U	85	%	77	%	830	U	81	%
Phenanthrene	1800	U	1800	U	1800	U	330	U	330	U
Anthracene	1800	U	1800	U	1800	U	330	U	330	U
Carbazole	1800	U	1800	U	1800	U	330	U	330	U
Di-n-Butylphthalate	1800	U	1800	U	1800	U	330	U	330	U
Fluoranthene	1800	U	1800	U	1800	U	330	U	330	U
Pyrene	1800	U	100	%	91	%	330	U	107	%
Butylbenzylphthalate	1800	U	1800	U	1800	U	330	U	330	U
3,3'-Dichlorobenzidine	1800	U	1800	U	1800	U	330	U	330	U
Benzo(a)anthracene	1800	U	1800	U	1800	U	330	U	330	U
Chrysene	1800	U	1800	U	1800	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	1800	U	1800	U	1800	U	330	U	330	U
Di-n-Octyl phthalate	1800	U	1800	U	1800	U	330	U	330	U
Benzo(b)fluoranthene	1800	U	1800	U	1800	U	330	U	330	U
Benzo(k)fluoranthene	1800	U	1800	U	1800	U	330	U	330	U
Benzo(a)pyrene	1800	U	1800	U	1800	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	1800	U	1800	U	1800	U	330	U	330	U
Dibenzo(a,h)anthracene	1800	U	1800	U	1800	U	330	U	330	U
Benzo(g,h,i)perylene	1800	U	1800	U	1800	U	330	U	330	U
Tributylphosphate	1800	U	1800	U	1800	U	330	U	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B13DY1

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

Client: TNUHANFORD B01-113 H1620

Matrix: (soil/water) SOIL

Lab Sample ID: 0112L491-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: D121914

Level: (low/med) LOW

Date Received: 12/03/01

% Moisture: 7 decanted: (Y/N)

Date Extracted: 12/04/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/19/01

Injection Volume: 2.0(uL)

Dilution Factor: 5.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.459	400	J
2.	UNKNOWN	7.117	200	J
3.	UNKNOWN	7.696	600	JB
4.	UNKNOWN	9.274	400	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKLM

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

Client: TNUHANFORD B01-113 H1620

Matrix: (soil/water) SOIL

Lab Sample ID: 01LE1451-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: D121812

Level: (low/med) LOW

Date Received: 12/04/01

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 12/04/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/18/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.708	600	J

Lionville Laboratory Use Only

0112L491

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

	A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #	1	2	2	2	2	2	2	2		2	2	2			
#/Type Container – Liquid															
#/Type Container – Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume – Liquid															
Volume – Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives															
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb	PEST	OIL GREASE	Chromium HEX	INORG: Metal	CN	pH	Ammonia	Sulfides	LEACHATE		
Lionville Laboratory Use Only	0624X	0625X	0608H 0PCB	0H8GX	0608H	IOGGR	ICRG	ZTCLP		ZpH	IWH3N	ZCNTO ISFD	RCRATCW Metals		

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	0624X	0625X	0608H 0PCB	0H8GX	0608H	IOGGR	ICRG	ZTCLP		ZpH	IWH3N	ZCNTO ISFD	RCRATCW Metals		
001	B13D41	✓	✓	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
002	B13DY1 tclp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:
* 1. In lab chron
12-4-01 2. Add RCRATCW to tclp
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FEDEX	[signature]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 9335

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. 1.5 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-0004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4735795 4-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	500mL	500mL	1000mL

Samples stored in Ref. #28 at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment.
RT 11-29-01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.						TIC TO
B13DY1	SOIL	11/26/01	2110	X	X							B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0002	STORED IN Ref # 28	11/27/01 0002
Removed from Ref 28 3728	11-29-01 1000	R. Thoren	11-29-01 1000
R. Thoren ERC	11-29-01 1000		
FEDEX	12-3-01 0950	Carla Henry	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC-Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2~~; pH (Soil) - 9045

~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add-on (Antimony-125, Cesium-134, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89/90 - Total Sr~~

RT 11-29-01

Matrix *: S=Soil; SD=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	B01-113-30	Page 1 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA LERA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235754-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

Sample No.	Matrix *	Sample Date	Sample Time									
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
										TIE TO	B13H06	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson / R. Nelson	11/27/01 0442	STORED IN Ref # 2B	11/27/01 0442
Removed from Ref 2B 3728	11-29-01 1000	R Thoren	11-29-01 1000
R Thoren ERC	11-29-01 1000	FEDEX	
FEDEX	12-3-01 0950	Carlo Henry	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01.
Collector not available to relinquish samples on 11/29/01 for shipment.
RT 11-29-01

Matrix *
S=Soil
SD=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)

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1	001	S	01LE1466	11/26/01	12/06/01	12/31/01
B13DY1	001 MS	S	01LE1466	11/26/01	12/06/01	12/31/01
B13DY1	001 MSD	S	01LE1466	11/26/01	12/06/01	12/31/01

LAB QC:

PBLKBQ	MB1	S	01LE1466	N/A	12/06/01	12/31/01
PBLKBQ	MB1 BS	S	01LE1466	N/A	12/06/01	12/31/01

Flgr 12/31/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-113
LVL#: 0112L491
SDG/SAF#: H1620/B01-113

W.O.#: 11343-606-001-9999-00
Date Received: 12-03-01

PCB

One (1) soil sample was collected on 11-26-01.

The sample and its associated QC samples were extracted on 12-06-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-31-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfuric acid and a sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of ten (10) surrogate recoveries was outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. 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.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

1/4/02
Date

pef\r:\group\data\pest\12L-491.pcb

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 8 pages.

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

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form 1 and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/31/01 11:58

RFW Batch Number: 0112L491 Client: TNUHANFORD B01-113 H1620 Work Order: 11343606001 Page: 1

	Cust ID:	B13DY1	B13DY1	B13DY1	PBLKBQ	PBLKBQ BS
Sample Information	RFW#:	001	001 MS	001 MSD	01LE1466-MB1	01LE1466-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	95 %	98 %	122 * %	98 %	100 %
	Decachlorobiphenyl	90 %	93 %	113 %	88 %	93 %
Aroclor-1016		36 U	36 U	36 U	33 U	33 U
Aroclor-1221		72 U	72 U	72 U	67 U	67 U
Aroclor-1232		36 U	36 U	36 U	33 U	33 U
Aroclor-1242		36 U	36 U	36 U	33 U	33 U
Aroclor-1248		36 U	36 U	36 U	33 U	33 U
Aroclor-1254		36 U	103 %	127 %	33 U	101 %
Aroclor-1260		36 U	36 U	36 U	33 U	33 U

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

(5) VOA BNA Pest PCB WET DIG METALS

Lionville Laboratory Use Only

01121491

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives																
ANALYSES REQUESTED		ORGANIC								INORG						
		VOA	BNA	Pest/PCB	Herb	PEST	OIL GREASE	Chromium HEX	Metal	CN	PH	Ammonia	Sulfides	LEACH		
Lionville Laboratory Use Only		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNHO ISFD	RCRATCW		

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	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNHO ISFD	RCRATCW		
001	B13D41	✓	✓	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
002	B13D41 tclp of 001			L	x														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:
1. Su labchron
2. 12-4-01 Add RCRATCW to tclp
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FEDEX	[illegible]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 9335

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. 1.5 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RCRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235754954-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None
Type of Container	sG	sG	sG
No. of Container(s)	1	1	1
Volume	500mL	500mL	1000mL

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment. RT 11-29-01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.						TIC TO
B13DY1	SOIL	11/26/01	2110	X	X							B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 CW/2	Stored in Ref # 2B	11/27/01 CW/2
Removed for Ref 2B 3728	11-29-01 1000	R.T. (RThoren)	11-29-01 1000
R.T. (RThoren) ERA	11-29-01 1000	ERA	
FEDEX	12-3-01 0950	Carla Nemf	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. ** The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC-Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2;~~ pH (Soil) - 9045

(2) ~~Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add-on (Antimony-125, Cesium-134, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr~~

RT 11-28-01

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

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

BHI-FF-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 1 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay — Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-0004	Field Logbook No.: EL-1562 — COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA LTLRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235745 4-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

Sample No.	Matrix *	Sample Date	Sample Time										
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
												TIE TO	B13F06

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson / R. Nelson	11/27/01 0442	STORED IN Ref # 2B	11/27/01 0442
Removed from Ref 2B 3728	11-29-01 1000	R Thorn	11-29-01 1000
R Thorn — ERC	11-29-01 1000	FEDEX	
FEDEX	12-3-01 0950	Carla Henry	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR.

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 11/27/01.
Collector not available to relinquish samples on 11/29/01 for shipment.
RT 11-29-01

Matrix *
S=Soil
SD=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)

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1	001	S	01LE1466	11/26/01	12/06/01	12/31/01
B13DY1	001 MS	S	01LE1466	11/26/01	12/06/01	12/31/01
B13DY1	001 MSD	S	01LE1466	11/26/01	12/06/01	12/31/01

LAB QC:

PBLKBQ	MB1	S	01LE1466	N/A	12/06/01	12/27/01
PBLKBQ	MB1 BS	S	01LE1466	N/A	12/06/01	12/27/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-113
LVL#: 0112L491
SDG/SAF#: H1620/B01-113

W.O.#: 11343-606-001-9999-00
Date Received: 12-03-01

PESTICIDE

One (1) soil sample was collected on 11-26-01.

The sample and its associated QC samples were extracted on 12-06-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-27,31-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081.

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

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. 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.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

1/4/02
Date

pef\r:\group\data\pest\12L-491.pes

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 8 pages.

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

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List
Report Date: 12/31/01 10:04

RFW Batch Number: 0112L491 Client: TNUHANFORD B01-113 H1620 Work Order: 11343606001 Page: 1

	Cust ID:	B13DY1	B13DY1	B13DY1	PBLKBQ	PBLKBQ BS
Sample Information	RFW#:	001	001 MS	001 MSD	01LE1466-MB1	01LE1466-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		102 %	105 %	102 %	98 %	102 %
Decachlorobiphenyl		101 %	102 %	95 %	111 %	112 %
Alpha-BHC		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
Beta-BHC		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
Delta-BHC		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.8 U	85 %	80 %	1.7 U	75 %
Heptachlor		1.8 U	105 %	100 %	1.7 U	100 %
Aldrin		1.8 U	105 %	100 %	1.7 U	100 %
Heptachlor epoxide		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
Endosulfan I		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
Dieldrin		3.6 U	94 %	92 %	3.3 U	100 %
4,4'-DDE		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
Endrin		3.6 U	100 %	96 %	3.3 U	102 %
Endosulfan II		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
4,4'-DDD		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
Endosulfan sulfate		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
4,4'-DDT		3.6 U	106 %	108 %	3.3 U	98 %
Methoxychlor		18 U	18 U	18 U	17 U	17 U
Endrin ketone		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
Endrin aldehyde		3.6 U	3.6 U	3.6 U	3.3 U	3.3 U
alpha-Chlordane		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
gamma-Chlordane		1.8 U	1.8 U	1.8 U	1.7 U	1.7 U
Toxaphene		180 U	180 U	180 U	170 U	170 U

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

(6) BNA from WET DIG metals

Lionville Laboratory Use Only

01121491

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb	PEST	O/L GREASE	Chromium HEX	Metal	CN	PH	Ammonia	Sulfides	LEACHATE		
		Lionville Laboratory Use Only														
		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICR6	ZTCLP		ZPH	INH3N	ZCNTO ISFD	RCRATCW ~~PHENOL~~		

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	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICR6	ZTCLP		ZPH	INH3N	ZCNTO ISFD	RCRATCW ~~PHENOL~~		
001	B13D41	✓	✓ 12-3-01	~~W~~ S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
002	B13DY1 telp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:

*	1. Su labchron
12-4-01	2. Add RCRATCW to telp
	3.
	4.
	5.
	6.

Relinquished by	Received by	Date	Time
FEDEX	[illegible]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 9335

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. 1.5 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235795 4/-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Samples stored in Ref.# 28 at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment.
RT 11-29-01

Preservation	Cool 4C	None	None							
Type of Container	aG	aG	aG							
No. of Container(s)	1	1	1							
Volume	500mL	500mL	1000mL							

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.						TIC TO
B13DY1	SOIL	11/26/01	2110	X	X							B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 CHW2	Stored in Ref # 28	11/27/01 CHW2
Removed from Ref 28 3728	11-29-01 1000	R. T. (R Thoren)	11-29-01 1000
R. T. (R Thoren) ERC	11-29-01 1030	FED EX	
FEDEX	12-3-01 0950	Carlo Nenj	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate), NO2/NO3 - 353.2~~, pH (Soil) - 9045
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60), Gamma Spec - Add on (Antimony-125, Cesium-137, Ruthenium-106), Americium-241, Neptunium-237, Isotopic Plutonium, Strontium-89,90 - Total Sr~~
RT 11-28-01

Matrix *
S=Soil
SD=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)

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 1 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay — Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-0041	Field Logbook No.: EL-1562 — COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA (circled) RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235745 4-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)
Sample No. / Matrix * / Sample Date / Sample Time										
B13DY1 / SOIL / 11/26/01 / 2110	X	X	X	X	X		X	X	X	X
									TIE TO	B13F06

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Renee Nielson / R. Nielson	11/27/01 0442	Received By: STORED IN Ref # 2B	11/27/01 0442
Relinquished By: Removed from Ref 2B 3728		11-29-01 1000	Received By: RJH R Thoren	11-29-01 1000
Relinquished By: RJH R Thoren 82C		11-29-01 1000	Received By: FEDEX	
Relinquished By: FEDEX		12-3-01 0950	Received By: Carlo Hamy	12-3-01 0950
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. *If a limited quantity of sample material is received, perform analysis in order listed on FSR*

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.

RT 11-29-01

Matrix *
S=Soil
SD=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)

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1	001	S	01LE1479	11/26/01	12/10/01	12/14/01
B13DY1	001 MS	S	01LE1479	11/26/01	12/10/01	12/14/01
B13DY1	001 MSD	S	01LE1479	11/26/01	12/10/01	12/14/01
LAB QC:						
PBLKAL	MB1	S	01LE1479	N/A	12/10/01	12/14/01
PBLKAL	MB1 BS	S	01LE1479	N/A	12/10/01	12/14/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-079
LVL#: 0111L491
SDG/SAF#: H1620/B01-079

W.O.#: 11343-606-001-9999-00
Date Received: 12-03-01

HERBICIDE

One (1) soil sample was collected on 11-26-01.

The sample and its associated QC samples were extracted on 12-10-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-14-01. The extraction and analysis procedure was based on method 8151A.

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

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. One (1) of eight (8) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of target compound 2,4,5-T analyzed on 12-14-01 at 17:23 on the primary column. The data reflected an increase in instrument response, so the ability to identify 2,4,5-T was not impaired. A copy of the SDR has been enclosed.
9. 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.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

12/20/01
Date

pef\r:\group\data\herb\12L-491.her

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 8 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 016533

Initiator: Bryce Santoro
Date: 12/17/01
Client: Battelle Hanford
Batch: 0112491
Samples: 1-7 BS all
Method: SW846/MCAWW/CLP/
Parameter: OHBX
Matrix: Soil
Prep Batch: OLE 1479

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)

(1) CCV analyzed prior to samples was increased on the primary column for 2,4,5-T. Confirmation column is fine.

(7) Dinoseb recovery in BS was low @ 16% (QC limit = 20-100%). Recoveries in MS and MSD are good. All samples clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

report + narrate

4. Project Manager Instructions...signature/date: _____

✓ 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: _____ 12/18/01 Other Explanation:

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

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

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

QA-105-A-0801

GLOSSARY OF HERBICIDE DATA

DATA QUALIFIERS

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

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

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

E = Indicates that the compound was detected beyond the calibration range.

I = Interference.

SUFFIXES

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

ABBREVIATIONS

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Reported.

SP = Indicates spiked compound.

RFW#21-21-035/G-02/96

Lionville Laboratory, Inc.
Herbicides, Special List

Report Date: 12/17/01 12:01

RFW Batch Number: 0112L491 Client: TNUHANFORD B01-113 H1620 Work Order: 11343606001 Page: 1

	Cust ID:	B13DY1	B13DY1	B13DY1	PBLKAL	PBLKAL BS
Sample Information	RFW#:	001	001 MS	001 MSD	01LE1479-MB1	01LE1479-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Surrogate:	DCAA	72 %	74 %	80 %	73 %	73 %
Dalapon		180 U	81 %	89 %	170 U	88 %
Dicamba		71 U	77 %	84 %	67 U	82 %
Dichloroprop		180 U	67 %	77 %	170 U	66 %
2,4-D		36 U	69 %	73 %	33 U	69 %
2,4,5-TP (Silvex)		18 U	83 %	92 %	17 U	66 %
2,4,5-T		18 U	84 %	98 %	17 U	84 %
2,4-DB		180 U	76 %	86 %	170 U	70 %
Dinoseb		18 U	68 %	78 %	17 U	16 * %

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

(6) BNA from WET DIG METHOD

Lionville Laboratory Use Only

0112L491

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPIK Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb	PEST	OIL & GREASE	Chromium HEX	Metal	CN	pH	Ammonia	Sulfides	LEACHATE		
Lionville Laboratory Use Only		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IpH	IWNH	ICNO ISFD	RCRATCW		

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	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IpH	IWNH	ICNO ISFD	RCRATCW		
001	B13D41	✓	✓	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
002	B13D41 telp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:

* 1. See labchron

12-4-01 2. Add RCRATCW to telp

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. 1.5 °C

Relinquished by	Received by	Date	Time
FEDEX	[signature]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 9335

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERA-02-0004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235795 4/-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None								
Type of Container	aG	aG	aG								
No. of Container(s)	1	1	1								
Volume	500mL	500mL	1000mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time								
B13DY1	SOIL	11/26/01	2110	X	X						B13F06

Samples stored in Ref.# 3B at the 3728 Shipping Facility on 11 29 01. Collector not available to relinquish samples on 11 29 01 for shipment. RT 11-29-01

TIE TO

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0442	STORED IN Ref # 3B	11/27/01 0442
Removed fr Ref 3B 3728	11-29-01 1000	R.T. RThoren	11-29-01 1000
RThoren R.T. ERA	11-29-01 1000	ERA	
FEDEX	12-3-01 0950	Carla Nemf	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2;~~ pH (Soil) - 9045
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add on (Antimony-125, Cesium-134, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89/90 - Total Sr~~

RT 11-28-01

Matrix *
S=Soil
SD=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	B01-113-30	Page 1 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA LTLRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235795 4-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)
Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	~~None~~ 11-28-01	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	~~aG~~	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL

Sample No.	Matrix *	Sample Date	Sample Time	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
												TIE TO	B13F06

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: Renee Nielson / R. Nelson	Received By: STORED IN Ref # 2B	11/27/01 0442
Relinquished By: Removed from Ref 2B 3728	Received By: RJH R Thoren	11-29-01 1000
Relinquished By: RJH R Thoren ERC	Received By: FEDEX	11-29-01 1000
Relinquished By: FEDEX	Received By: Carlo Hemy	12-3-01 0950
Relinquished By:	Received By:	
Relinquished By:	Received By:	

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR.

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.
RT 11-29-01

Matrix *
S=Soil
SD=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)

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1						
TCLP	001	S	01LTO151	11/26/01	12/12/01	12/13/01
SILVER, TCLP LEACHAT	002	W	01L0822	12/13/01	12/15/01	12/15/01
SILVER, TCLP LEACHAT	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	002	W	01L0822	12/13/01	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
BARIUM, TCLP LEACHAT	002	W	01L0822	12/13/01	12/15/01	12/15/01
BARIUM, TCLP LEACHAT	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	002	W	01L0822	12/13/01	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	002	W	01L0822	12/13/01	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
MERCURY, TCLP LEACHA	002	W	01C0420	12/13/01	12/21/01	12/24/01
MERCURY, TCLP LEACHA	002 REP	W	01C0420	12/13/01	12/21/01	12/24/01
MERCURY, TCLP LEACHA	002 MS	W	01C0420	12/13/01	12/21/01	12/24/01
LEAD, TCLP LEACHATE	002	W	01L0822	12/13/01	12/15/01	12/15/01
LEAD, TCLP LEACHATE	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01
SELENIUM, TCLP LEACH	002	W	01L0822	12/13/01	12/15/01	12/15/01
SELENIUM, TCLP LEACH	002 MS	W	01L0822	12/13/01	12/15/01	12/15/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
SILVER, TCLP LEACHAT	MB1	W	01L0822	N/A	12/15/01	12/15/01
SILVER, TCLP LEACHAT	MB2	W	01L0822	N/A	12/15/01	12/15/01
SILVER, TCLP LEACHAT	MB3	W	01L0822	N/A	12/15/01	12/15/01
SILVER, TCLP LEACHAT	MB4	W	01L0822	N/A	12/15/01	12/15/01
ARSENIC LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	MB1	W	01L0822	N/A	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	MB2	W	01L0822	N/A	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	MB3	W	01L0822	N/A	12/15/01	12/15/01
ARSENIC, TCLP LEACHA	MB4	W	01L0822	N/A	12/15/01	12/15/01
BARIUM LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
BARIUM, TCLP LEACHAT	MB1	W	01L0822	N/A	12/15/01	12/15/01
BARIUM, TCLP LEACHAT	MB2	W	01L0822	N/A	12/15/01	12/15/01
BARIUM, TCLP LEACHAT	MB3	W	01L0822	N/A	12/15/01	12/15/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TCLP LEACHAT	MB4	W	01L0822	N/A	12/15/01	12/15/01
CADMIUM LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	MB1	W	01L0822	N/A	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	MB2	W	01L0822	N/A	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	MB3	W	01L0822	N/A	12/15/01	12/15/01
CADMIUM, TCLP LEACHA	MB4	W	01L0822	N/A	12/15/01	12/15/01
CHROMIUM LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	MB1	W	01L0822	N/A	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	MB2	W	01L0822	N/A	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	MB3	W	01L0822	N/A	12/15/01	12/15/01
CHROMIUM, TCLP LEACH	MB4	W	01L0822	N/A	12/15/01	12/15/01
MERCURY LABORATORY	LC1 BS	W	01C0420	N/A	12/21/01	12/24/01
MERCURY, TOTAL	MB1	W	01C0420	N/A	12/21/01	12/24/01
MERCURY, TCLP LEACHA	MB2	W	01C0420	N/A	12/21/01	12/24/01
LEAD LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
LEAD, TCLP LEACHATE	MB1	W	01L0822	N/A	12/15/01	12/15/01
LEAD, TCLP LEACHATE	MB2	W	01L0822	N/A	12/15/01	12/15/01
LEAD, TCLP LEACHATE	MB3	W	01L0822	N/A	12/15/01	12/15/01
LEAD, TCLP LEACHATE	MB4	W	01L0822	N/A	12/15/01	12/15/01
SELENIUM LABORATORY	LC1 BS	W	01L0822	N/A	12/15/01	12/15/01
SELENIUM, TCLP LEACH	MB1	W	01L0822	N/A	12/15/01	12/15/01
SELENIUM, TCLP LEACH	MB2	W	01L0822	N/A	12/15/01	12/15/01
SELENIUM, TCLP LEACH	MB3	W	01L0822	N/A	12/15/01	12/15/01
SELENIUM, TCLP LEACH	MB4	W	01L0822	N/A	12/15/01	12/15/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-113
LVL#: 0112L491
SDG/SAF#: H1620/B01-113

W.O.#: 11343-606-001-9999-00
Date Received: 12-03-01

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 TCLP leachate sample.

2. The sample was 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.

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 Mercury duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. The TCLP extract from sample B13DY1 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

01-03-02
Date

gmb/m12-491

LVLI
LIONVILLE LABORATORY INC

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01124491

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B13DY1	Silver, TCLP Leachate	5.1	u	UG/L	5.1	1.0
		Arsenic, TCLP Leachate	46.5	u	UG/L	46.5	1.0
		Barium, TCLP Leachate	207		UG/L	4.8	1.0
		Cadmium, TCLP Leachate	5.7	u	UG/L	5.7	1.0
		Chromium, TCLP Leachate	5.8	u	UG/L	5.8	1.0
		Mercury, TCLP Leachate	1.0	u	UG/L	1.0	10.0
		Lead, TCLP Leachate	27.8	u	UG/L	27.8	1.0
		Selenium, TCLP Leachate	50.4	u	UG/L	50.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0822-MB1	Silver, TCLP Leachate	5.1	u	UG/L	5.1	1.0
		Arsenic, TCLP Leachate	46.5	u	UG/L	46.5	1.0
		Barium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Cadmium, TCLP Leachate	5.7	u	UG/L	5.7	1.0
		Chromium, TCLP Leachate	5.8	u	UG/L	5.8	1.0
		Lead, TCLP Leachate	27.8	u	UG/L	27.8	1.0
		Selenium, TCLP Leachate	50.4	u	UG/L	50.4	1.0
BLANK2	01L0822-MB2	Silver, TCLP Leachate	5.1	u	UG/L	5.1	1.0
		Arsenic, TCLP Leachate	46.5	u	UG/L	46.5	1.0
		Barium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Cadmium, TCLP Leachate	5.7	u	UG/L	5.7	1.0
		Chromium, TCLP Leachate	5.8	u	UG/L	5.8	1.0
		Lead, TCLP Leachate	27.8	u	UG/L	27.8	1.0
		Selenium, TCLP Leachate	50.4	u	UG/L	50.4	1.0
BLANK3	01L0822-MB3	Silver, TCLP Leachate	5.1	u	UG/L	5.1	1.0
		Arsenic, TCLP Leachate	52.3		UG/L	46.5	1.0
		Barium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Cadmium, TCLP Leachate	5.7	u	UG/L	5.7	1.0
		Chromium, TCLP Leachate	5.8	u	UG/L	5.8	1.0
		Lead, TCLP Leachate	27.8	u	UG/L	27.8	1.0
		Selenium, TCLP Leachate	50.4	u	UG/L	50.4	1.0
BLANK4	01L0822-MB4	Silver, TCLP Leachate	5.1	u	UG/L	5.1	1.0
		Arsenic, TCLP Leachate	46.5	u	UG/L	46.5	1.0
		Barium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Cadmium, TCLP Leachate	5.7	u	UG/L	5.7	1.0
		Chromium, TCLP Leachate	5.8	u	UG/L	5.8	1.0
		Lead, TCLP Leachate	27.8	u	UG/L	27.8	1.0
		Selenium, TCLP Leachate	50.4	u	UG/L	50.4	1.0
BLANK1	01C0420-MB1	Mercury, Total	0.10	u	UG/L	0.10	1.0
BLANK2	01C0420-MB2	Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B13DY1	Silver, TCLP Leachate	4330	5.1 u	5000	86.5	1.0
		Arsenic, TCLP Leachate	4810	46.5 u	5000	96.1	1.0
		Barium, TCLP Leachate	92100	207	100000	91.9	1.0
		Cadmium, TCLP Leachate	899	5.7 u	1000	89.9	1.0
		Chromium, TCLP Leachat	4490	5.8 u	5000	89.7	1.0
		Mercury, TCLP Leachate	213	1.0 u	200	106.7	50.0
		Lead, TCLP Leachate	4640	27.8 u	5000	92.7	1.0
		Selenium, TCLP Leachat	927	50.4 u	1000	92.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B13DY1	Mercury, TCLP Leachate	1.0 u	1.0 u	NC	10.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0822-LC1	Silver, LCS	428	500	UG/L	85.6
		Arsenic, LCS	9560	10000	UG/L	95.6
		Barium, LCS	4700	5000	UG/L	94.0
		Cadmium, LCS	239	250	UG/L	95.5
		Chromium, LCS	477	500	UG/L	95.4
		Lead, LCS	2340	2500	UG/L	93.4
		Selenium, LCS	9440	10000	UG/L	94.4
LCS1	01C0420-LC1	Mercury, LCS	5.5	5.0	UG/L	109.9

(6) VOA PPCB BNA from WET DIG metals

Lionville Laboratory Use Only

01121491

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPK Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

	A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #	1	2	2	2	2	2	2	2		2	2	2			
#/Type Container, Liquid															
#/Type Container, Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume, Liquid															
Volume, Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives													HAT		
ANALYSES REQUESTED	ORGANIC: VOA	BNA	~~Pest~~ PCB	Herb	PEST	OIL & GREASE	Chromium HEX	INORG: Metal	CN	PH	Ammonia	Sulfides	L3 AC		

Lionville Laboratory Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X	0608H OPCB	0H8GX	0608H	IOGGR	IERG	ITCLP		IPH	IWH3N	ICNHO ISFD	RCRATCW HHATS		
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate Wi - Wipe X - Other F - Fish	001	B13D41	✓	✓ (12-3-01)	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
	002	B13DY1 telp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:

* 1. See labchron

12-4-01 2. Add RCRATCW to telp

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. 1.5 °C

Relinquished by	Received by	Date	Time
FEDEX	[signature]	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 9335

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235754954-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None	
Type of Container	aG	aG	~~aG~~	
No. of Container(s)	1	1	1	
Volume	500mL	500mL	1000mL	

Samples stored in Ref.# 28 at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment. RT 11-29-01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.						TIE TO
B13DY1	SOIL	11/26/01	2110	X	X							B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0842	STORED IN Ref # 28	11/27/01 0842
Removed from Ref 28 3728	11-29-01 1000	RThoren	11-29-01 1000
RThoren ERC	11-29-01	FED EX	
FEDEX	12-3-01 0950	Carla Nemf	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2;~~ pH (Soil) - 9045

~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add on (Antimony-125, Cesium-134, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr~~

RT 11-28-01

Matrix *
S=Soil
SD=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

13

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 1 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay — Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-004	Field Logbook No.: EL-1562 — COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/ERCRA (ERCRA)	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4235754-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None 11/28/01	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

Sample No.	Matrix *	Sample Date	Sample Time										
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
										TIED	B13F06		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: Renee Nielson / R Nelson	11/27/01 0442	Received By: STORED IN REF # 2B	11/27/01 0442
Relinquished By: Removed from Ref 2B 3728	11-29-01 1000	Received By: RJR Thoren	11-29-01 1000
Relinquished By: RJR Thoren ERC	11-29-01 1000	Received By: FEDEX	
Relinquished By: FEDEX	12-3-01 0950	Received By: Carlo Hamp	12-3-01 0950
Relinquished By		Received By	
Relinquished By		Received By	

SPECIAL INSTRUCTIONS

** The RRC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.

RT 11-29-01

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

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

JAN 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13DY1						
% SOLIDS	001	S	01L%S169	11/26/01	12/04/01	12/05/01
% SOLIDS	001 REP	S	01L%S169	11/26/01	12/04/01	12/05/01
TOTAL CYANIDE	001	S	01LC107	11/26/01	12/05/01	12/05/01
TOTAL CYANIDE	001 REP	S	01LC107	11/26/01	12/05/01	12/05/01
TOTAL CYANIDE	001 MS	S	01LC107	11/26/01	12/05/01	12/05/01
CHROMIUM VI	001	S	01LVI089	11/26/01	12/20/01	12/20/01
CHROMIUM VI	001 REP	S	01LVI089	11/26/01	12/20/01	12/20/01
CHROMIUM VI	001 MS	S	01LVI089	11/26/01	12/20/01	12/20/01
CHROMIUM VI	001 MSD	S	01LVI089	11/26/01	12/20/01	12/20/01
AMMONIA	001	S	01LAM055	11/26/01	12/19/01	12/19/01
AMMONIA	001 REP	S	01LAM055	11/26/01	12/19/01	12/19/01
AMMONIA	001 MS	S	01LAM055	11/26/01	12/19/01	12/19/01
OIL & GREASE BY GRAV	001	S	01LOG045	11/26/01	12/20/01	12/27/01
OIL AND GREASE BY GR	001 REP	S	01LOG045	11/26/01	12/20/01	12/27/01
OIL AND GREASE BY GR	001 MS	S	01LOG045	11/26/01	12/20/01	12/27/01
PH	001	S	01LPH082	11/26/01	12/05/01	12/05/01
PH	001 REP	S	01LPH082	11/26/01	12/05/01	12/05/01
SULFIDE	001	S	01LSDA66	11/26/01	12/06/01	12/06/01
SULFIDE	001 REP	S	01LSDA66	11/26/01	12/06/01	12/06/01
SULFIDE	001 MS	S	01LSDA66	11/26/01	12/06/01	12/06/01
TCLP	001	S	01LTO151	11/26/01	12/12/01	12/13/01

LAB QC:

TOTAL CYANIDE	LCS L	S	01LC107	N/A	12/05/01	12/05/01
TOTAL CYANIDE	LCS L	S	01LC107	N/A	12/05/01	12/05/01
TOTAL CYANIDE	MB1	S	01LC107	N/A	12/05/01	12/05/01
CHROMIUM VI	MB1	S	01LVI089	N/A	12/20/01	12/20/01
CHROMIUM VI	MB1 BS	S	01LVI089	N/A	12/20/01	12/20/01
CHROMIUM VI	MB1 BSD	S	01LVI089	N/A	12/20/01	12/20/01
AMMONIA	MB1	S	01LAM055	N/A	12/19/01	12/19/01
AMMONIA	MB1 BS	S	01LAM055	N/A	12/19/01	12/19/01
AMMONIA	MB1 BSD	S	01LAM055	N/A	12/19/01	12/19/01
OIL & GREASE BY GRAV	MB1	S	01LOG045	N/A	12/20/01	12/27/01
OIL AND GREASE BY GR	MB1 BS	S	01LOG045	N/A	12/20/01	12/27/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-113 H1620

DATE RECEIVED: 12/03/01 LVL LOT # :0112L491

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	MB1	S	01LSDA66	N/A	12/06/01	12/06/01
SULFIDE	MB1 BS	S	01LSDA66	N/A	12/06/01	12/06/01
SULFIDE	MB1 BSD	S	01LSDA66	N/A	12/06/01	12/06/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-113 H1620
LVL#: 0112L491

W.O.#: 11343-606-001-9999-00
Date Received: 12-03-01

INORGANIC NARRATIVE

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

2. The sample was 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 with the exception of Sulfide.

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike (MS) recoveries were within the 75-125% control limits with the exception of MS recovery for Total Cyanide that was below the control limits and may be attributed to sample inhomogeneity.

8. The replicate analyses were within the 20% RPD control limit.

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

01-03-02
Date

njp\i12-491

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 15 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/9014	__ 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: Ammonia **Method:** EPA 350.3

Other: **Method**

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B13DY1	% Solids	93.2		%	0.01	1.0
		Cyanide, Total	0.51	u	MG/KG	0.51	1.0
		Chromium VI	0.81		MG/KG	0.43	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		Oil & Grease Gravimetri	701		MG/KG	143	1.0
		pH	9.2		SOIL PH	0.01	1.0
		Sulfide	23.0	u	MG/KG	23.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01LC107-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	01LVI089-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	01LAM055-MB1	Ammonia, as N	2.5 u	MG/KG	2.5	1.0
BLANK10	01LOG045-MB1	Oil & Grease Gravimetri	133 u	MG/KG	133	1.0
BLANK10	01LSDA66-MB1	Sulfide	20.0 u	MG/KG	20.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B13DY1	Cyanide, Total	3.23	0.51u	5.03	64.2	1.0
		Soluble Chromium VI	4.9	0.81	4.3	96.2	1.0
		Insoluble Chromium VI	1520	0.81	1240	122.4	100
		Ammonia, as N	104	2.6 u	110	94.5	1.0
		Oil & Grease Gravimetr	5960	701	6280	83.7	1.0
		Sulfide	89.4	0.92	113	78.0	1.0
BLANK10	01LVI089-MB1	Soluble Chromium VI	3.6	0.40u	4.0	90.3	1.0
		Insoluble Chromium VI	1590	0.40u	1350	117.9	100
BLANK10	01LAM055-MB1	Ammonia, as N	91.5	2.5 u	100	91.5	1.0
		Ammonia, as N MSD	93.8	2.5 u	100	93.8	1.0
BLANK10	01LOG045-MB1	Oil & Grease Gravimetr	4150	133 u	5850	70.8	1.0
BLANK10	01LSDA66-MB1	Sulfide	83.0	20.0 u	85.0	97.6	1.0
		Sulfide MSD	166	20.0 u	170	97.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LAM055-MB1	Ammonia, as N	91.5	93.8	2.4
BLANK10	01LSDA66-MB1	Sulfide	97.6	97.6	0.00

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B13DY1	% Solids	93.2	93.1	0.11	1.0
		Cyanide, Total	0.51u	0.47u	NC	1.0
		Chromium VI	0.81	0.88	8.9	1.0
		Ammonia, as N	2.6 u	2.7 u	NC	1.0
		Oil & Grease Gravimetri	701	672	4.2	1.0
		pH	9.2	9.2	0.2	1.0
		Sulfide	23.0 u	26.7 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/02/02

CLIENT: TNUHANFORD B01-113 H1620 LVL LOT #: 0112L491

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LC107-LCS1	Cyanide, Total LCS	1.83	2.0	MG/KG	91.4
LCSS2	01LC107-LCS2	Cyanide, Total LCS	9.96	10.0	MG/KG	99.6

(5) VOA from BNA from WET DIG metals

Lionville Laboratory Use Only

0112L491

Custody Transfer Record/Lab Work Request

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Bechtel Hanford B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives																
ANALYSES REQUESTED →		ORGANIC									INORG					
		VOA	BNA	Pest/PCB	Herb	PEST	OIL GREASE	Chromium HEX	Metal	CN	PH	Ammonia	Sulfides	LEACHATE		
Lionville Laboratory Use Only		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNO ISFD	RERATCW		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N	ICNO ISFD	RERATCW		
S - Soil	001	B13D41	✓	✓	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
SE - Sediment	002	B13D41 tclp of 001			L	*														✓		
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																						

Special Instructions: SAF # B01-113

DATE/REVISIONS:

* 1. See labchron

12-4-01 2. Add RERATCW to tclp

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FEDEX	Lab Temp	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 9335

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. 1.5 °C

Lionville Laboratory Use Only
0112L491

Custody Transfer Record/Lab Work Request

LVLI

13

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: ~~Bechtel Hanford~~ TNU-Hanford (12-5-01) B01-113

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 12-3-01 Date Due: 1-2-02

		A	B	C	D	E	F	G	H		I	J	K			
Refrigerator #		1	2	2	2	2	2	2	2		2	2	2			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG	1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	250	250	250	250	120	60	120	500		500	60	120			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	PEST	OIL GREASE	Chromium HEX	Metal	CN	PH	Ammonia	Sulfides	LEACHATE		
		Lionville Laboratory Use Only														
		0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N		MHGTC		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X	0608H OPCB	OHBGX	0608H	IOGGR	ICRG	ITCLP		IPH	INH3N		MHGTC		
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	B13DY1	✓	✓ (12-3-01)	S	11-26-01	2110	X	X	X	X	X	X	X	X		X	X	X			
	002	B13DY1 telp of 001			L	*														✓		

Special Instructions: SAF # B01-113

DATE/REVISIONS:

* 1. In labchron

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FEDEX	Lab Rec'd	12-3-01	0950

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 9335

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. 1.5 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 2 of 2

Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Soil	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'	SAF No.: B01-113	Air Quality ☐
Ice Chest No.: ERC-02-0004	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020047	Bill of Lading/Air Bill No.: 4935795 4-9335	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	None	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	500mL	500mL	1000mL

Samples stored in Ref.# 3B at the 3728 Shipping Facility on 11 27 01. Collector not available to relinquish samples on 11 29 01 for shipment. RT 11-29-01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. pH only	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (2) in Special Instructions.						TIC TO
B13DY1	SOIL	11/26/01	2110	X	X							B13F06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	11/27/01 0442	STORED IN REF # 3B	11/27/01 0442
Removed from Ref 3B 3728	11-29-01 1000	R. Thoren	11-29-01 1000
R. Thoren ERC	11-29-01 1000	FED EX	
FEDEX	12-3-01 0950	Carla Nemf	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. *If a limited quantity of sample material is received, perform analysis in order listed on FSR.*

RJN 11/5/01

(1) ~~IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2;~~ pH (Soil) - 9045
(2) ~~Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add on (Antimony-125, Europium-154, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr~~

RT 11-28-01

Matrix *: S=Soil; SD=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)

14

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-113-30	Page 1 of 2

Collector Renee Nielson	Company Contact Virginia Rohay	Telephone No. 372-9100	Project Coordinator TRENT, SJ
Project Designation PFP Well Installation Sampling and Analysis - Soil	Sampling Location 200 West; Well Number C3803, Well Name 299-W15-42 0'-2'		SAF No. B01-113
Ice Chest No. ERC-02-0041	Field Logbook No. EL-1562	COA T20ZP1D722	Method of Shipment Federal Express
Shipped To TMA/RECRA RCRA	Offsite Property No. A020047		Bill of Lading/Air Bill No. 42357454-9335

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	120mL	120mL	120mL	120mL	250mL	250mL	250mL	250mL
SAMPLE ANALYSIS	Ammonia - 350.3	Oil & Grease - 413.1	Chromium Hex - 7196	Pesticides - 8081	Sulfides - 9030; Total Cyanide - 9010	Technetium-99; Tritium - H3; Isotopic Uranium	Herbicides - 8150A	PCBs - 8082	See item (1) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)

Sample No.	Matrix *	Sample Date	Sample Time										
B13DY1	SOIL	11/26/01	2110	X	X	X	X	X		X	X	X	X
											TIE TO	B13F06	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson / R. Nelson	11/27/01 0442	STORED IN Ref # 2B	11/27/01 0442
Removed from Ref 2B 3728	11-29-01 1000	R Thoren	11-29-01 1000
R Thoren ERC	11.29.01 1000	FEDEX	
FEDEX	12-3-01 0950	Carlos Henry	12-3-01 0950

SPECIAL INSTRUCTIONS

** The ERC acknowledges that the holding time for Nitrate by EPA Method 300.0 will not be met. **
The lab is to analyze pH within 24 hours of sample receipt. If a limited quantity of sample material is received, perform analysis in order listed on FSR

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)

Samples stored in Ref.#2B at the 3728 Shipping Facility on 11/27/01. Collector not available to relinquish samples on 11/29/01 for shipment.

RT 11-29-01

Matrix *
S=Soil
SD=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)