1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1252 was composed of two water samples designated under SAF No. B01-053 with a Project Designation of: 276-S Hexone Tank – QC Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on March 15, 2001.

RECEIVED
OCT 23 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

The LCS and method blank were not scaled to the nominal aliquot of 0.01 Liters. No problems were encountered during the course of the analyses.

2.3 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.4 *Total Strontium Analyses*

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.6 Americium-241/Curium-244 Analyses

No problems were encountered during the course of the analyses.

2.7 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.8 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

3/21/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

SAMPLE SUMMARY

SDG 7639
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1252

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11CX1	200 West	WATER		R102121-01	B01-053	B01-053-01	02/21/01 11:20
B11CX2	200 West	WATER		R102121-02	B01-053	B01-053-01	02/21/01 13:15
Method Blank		WATER		R102121-04	B01-053		
Lab Control Sample		WATER		R102121-03	B01-053		
Duplicate (R102121-02)	200 West	WATER		R102121-05	B01-053		02/21/01 13:15
Spike (R102121-02)	200 West	WATER		R102121-06	B01-053		02/21/01 13:15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

QC SUMMARY

SDG 7639
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1252

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
7639	B01-053-01	B11CX1	WATER				02/23/01	2	R102121-01	7639-001
		B11CX2	WATER				02/23/01	2	R102121-02	7639-002
		Method Blank	WATER						R102121-04	7639-004
		Lab Control Sample	WATER						R102121-03	7639-003
		Duplicate (R102121-02)	WATER				02/23/01	2	R102121-05	7639-005
		Spike (R102121-02)	WATER				02/23/01	2	R102121-06	7639-006

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

PREP BATCH SUMMARY

SDG 7639
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1252

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	WATER	Plutonium, Isotopic in Water	6963-180	5.0	2			1	1	1/1		
TP	WATER	Americium 241/Curium in Water	6963-180	5.0	2			1	1	1/1		
U	WATER	Uranium, Isotopic in Water	6963-180	5.0	2			1	1	1/1		
Beta Counting												
SR	WATER	Total Strontium in Water	6963-180	10.0	2			1	1	1/1		
TC	WATER	Technetium 99 in Water	6963-180	10.0	2			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	6963-180	15.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	WATER	Carbon 14 in Water	6963-180	10.0	2			1	1	1/1	1/1	X
H	WATER	Tritium in Water	6963-180	10.0	2			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 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

WORK SUMMARY

SDG 7639
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1252

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11CX1			R102121-01	7639-001	C		03/10/01	03/19/01	MCM	Carbon 14 in Water
200 West		WATER	02/21/01	7639-001	GAM		03/02/01	03/14/01	MCM	Gamma Emitters
B01-053-01	B01-053		02/23/01	7639-001	H		03/08/01	03/19/01	MCM	Tritium in Water
				7639-001	PU		03/08/01	03/14/01	MCM	Plutonium, Isotopic in Water
				7639-001	SR		03/02/01	03/14/01	MCM	Total Strontium in Water
				7639-001	TC		03/06/01	03/14/01	MCM	Technetium 99 in Water
				7639-001	TP		03/08/01	03/14/01	MCM	Americium 241/Curium in Water
				7639-001	U		03/06/01	03/14/01	MCM	Uranium, Isotopic in Water
B11CX2			R102121-02	7639-002	C		03/10/01	03/19/01	MCM	Carbon 14 in Water
200 West		WATER	02/21/01	7639-002	GAM		03/02/01	03/14/01	MCM	Gamma Emitters
B01-053-01	B01-053		02/23/01	7639-002	H		03/08/01	03/19/01	MCM	Tritium in Water
				7639-002	PU		03/08/01	03/14/01	MCM	Plutonium, Isotopic in Water
				7639-002	SR		03/02/01	03/14/01	MCM	Total Strontium in Water
				7639-002	TC		03/06/01	03/14/01	MCM	Technetium 99 in Water
				7639-002	TP		03/08/01	03/14/01	MCM	Americium 241/Curium in Water
				7639-002	U		03/06/01	03/14/01	MCM	Uranium, Isotopic in Water
Method Blank			R102121-04	7639-004	C		03/11/01	03/19/01	MCM	Carbon 14 in Water
		WATER		7639-004	GAM		03/02/01	03/14/01	MCM	Gamma Emitters
	B01-053			7639-004	H		03/08/01	03/19/01	MCM	Tritium in Water
				7639-004	PU		03/08/01	03/14/01	MCM	Plutonium, Isotopic in Water
				7639-004	SR		03/02/01	03/14/01	MCM	Total Strontium in Water
				7639-004	TC		03/06/01	03/14/01	MCM	Technetium 99 in Water
				7639-004	TP		03/08/01	03/14/01	MCM	Americium 241/Curium in Water
				7639-004	U		03/06/01	03/14/01	MCM	Uranium, Isotopic in Water
Lab Control Sample			R102121-03	7639-003	C		03/11/01	03/19/01	MCM	Carbon 14 in Water
		WATER		7639-003	GAM		03/02/01	03/14/01	MCM	Gamma Emitters
	B01-053			7639-003	H		03/08/01	03/19/01	MCM	Tritium in Water
				7639-003	PU		03/08/01	03/14/01	MCM	Plutonium, Isotopic in Water
				7639-003	SR		03/02/01	03/14/01	MCM	Total Strontium in Water
				7639-003	TC		03/05/01	03/14/01	MCM	Technetium 99 in Water
				7639-003	TP		03/08/01	03/14/01	MCM	Americium 241/Curium in Water
				7639-003	U		03/06/01	03/14/01	MCM	Uranium, Isotopic in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

SDG 7639
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract IRC-SBB-207925
Case no SDG H1252

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R102121-02)			R102121-05	7639-005	C		03/11/01	03/19/01	MCM	Carbon 14 in Water
200 West		WATER	02/21/01	7639-005	GAM		03/02/01	03/14/01	MCM	Gamma Emitters
	B01-053		02/23/01	7639-005	H		03/08/01	03/19/01	MCM	Tritium in Water
				7639-005	PU		03/08/01	03/14/01	MCM	Plutonium, Isotopic in Water
				7639-005	SR		03/02/01	03/14/01	MCM	Total Strontium in Water
				7639-005	TC		03/05/01	03/14/01	MCM	Technetium 99 in Water
				7639-005	TP		03/08/01	03/14/01	MCM	Americium 241/Curium in Water
				7639-005	U		03/06/01	03/14/01	MCM	Uranium, Isotopic in Water
Spike (R102121-02)			R102121-06	7639-006	C		03/11/01	03/19/01	MCM	Carbon 14 in Water
200 West		WATER	02/21/01	7639-006	H		03/08/01	03/19/01	MCM	Tritium in Water
	B01-053		02/23/01							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	B01-053	Carbon 14 in Water	C14_CHEM_LSC	2			1	1	1	1	6
GAM	B01-053	Gamma Emitters	GAMMA_GS	2			1	1	1		5
H	B01-053	Tritium in Water	906.0_H3_LSC	2			1	1	1	1	6
PU	B01-053	Plutonium, Isotopic in Water	PUISO_PLATE_AEA	2			1	1	1		5
SR	B01-053	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	2			1	1	1		5
TC	B01-053	Technetium 99 in Water	TC99_TR_SEP_LSC	2			1	1	1		5
TP	B01-053	Americium 241/Curium in Water	AMCMISO_IE_PLATE_AEA	2			1	1	1		5
U	B01-053	Uranium, Isotopic in Water	UISO_PLATE_AEA	2			1	1	1		5
TOTALS				16			8	8	8	2	42

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/21/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1252

R102121-04

Method Blank

METHOD BLANK

SDG	7639	Client/Case no	Hanford	SDG H1252	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102121-04	Client sample id	Method Blank		
Dept sample id	7639-004	Material/Matrix		WATER	
		SAF No	B01-053		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	4.76	9.8	16	400	U	H
Carbon 14	14762-75-5	11.6	28	47	200	U	C
Total Strontium	SR-RAD	-0.196	0.19	0.43	2.0	U	SR
Technetium 99	14133-76-7	2.29	3.9	11	15	U	TC
Uranium 233	U-233/234	-0.013	0.016	0.032	1.0	U	U
Uranium 235	15117-96-1	0.006	0.013	0.024	1.0	U	U
Uranium 238	U-238	0.005	0.011	0.020	1.0	U	U
Plutonium 238	13981-16-3	0	0.074	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.074	0.28	1.0	U	PU
Americium 241	14596-10-2	0.030	0.060	0.23	1.0	U	TP
Curium 244	13981-15-2	0.030	0.060	0.23	1.0	U	TP
Potassium 40	13966-00-2	U		450		U	GAM
Cobalt 60	10198-40-0	U		18	25	U	GAM
Cesium 137	10045-97-3	U		16	15	U	GAM
Radium 226	13982-63-3	U		33		U	GAM
Radium 228	15262-20-1	U		71		U	GAM
Europium 152	14683-23-9	U		38	50	U	GAM
Europium 154	15585-10-1	U		50	50	U	GAM
Europium 155	14391-16-3	U		33	50	U	GAM
Thorium 228	14274-82-9	U		22		U	GAM
Thorium 232	TH-232	U		71		U	GAM
Uranium 235	15117-96-1	U		53		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		17		U	GAM

276-S Hexone Tank - QC Sampling

QC-BLANK 37767

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

R102121-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7639
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1252
Case no TRC-SBB-207925

Lab sample id R102121-03
Dept sample id 7639-003

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No B01-053

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	449	21	16	400		H	490	20	92	84-116	80-120
Carbon 14	14800	150	57	200		C	17000	680	87	86-114	80-120
Total Strontium	46.6	1.6	0.43	2.0		SR	43.8	1.8	106	82-118	80-120
Technetium 99	2490	50	12	15		TC	2360	94	106	83-117	80-120
Uranium 233	19.0	0.60	0.27	1.0		U	18.6	0.74	102	89-111	80-120
Uranium 235	15.1	0.51	0.021	1.0		U	15.1	0.60	100	89-111	80-120
Uranium 238	20.5	0.63	0.26	1.0		U	20.2	0.81	102	89-111	80-120
Plutonium 238	27.4	2.7	0.21	1.0		PU	24.8	0.99	110	81-119	80-120
Plutonium 239/240	27.5	2.8	0.21	1.0		PU	26.4	1.1	104	81-119	80-120
Americium 241	17.8	1.8	0.20	1.0		TP	19.1	0.76	93	83-117	80-120
Curium 244	20.5	2.0	0.20	1.0		TP	20.2	0.81	102	82-118	80-120
Cobalt 60	505	38	21	25		GAM	492	20	103	73-127	80-120
Cesium 137	509	33	25	15		GAM	488	20	104	74-126	80-120

276-S Hexone Tank - QC Sampling

QC-LCS 37766

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

R102121-05 B11CX2

DUPLICATE

SDG	7639	Client/Case no	Hanford SDG H1252
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R102121-05	Lab sample id	R102121-02
Dept sample id	7639-005	Dept sample id	7639-002
		Received	02/23/01
Client sample id	B11CX2		
Location/Matrix	200 West WATER		
Collected	02/21/01 13:15		
Custody/SAF No	B01-053-01 B01-053		

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	-13.1	94	160	400	U	H	-1.86	94	160	U	-	
Carbon 14	17.5	28	47	200	U	C	34.6	27	44	U	-	
Total Strontium	-0.022	0.22	0.46	2.0	U	SR	0.013	0.24	0.50	U	-	
Technetium 99	-0.201	3.6	12	15	U	TC	-2.74	3.2	12	U	-	
Uranium 233	-0.011	0.016	0.025	1.0	U	U	-0.012	0.014	0.023	U	-	
Uranium 235	-0.006	0.006	0.024	1.0	U	U	-0.006	0.012	0.022	U	-	
Uranium 238	0.011	0.011	0.020	1.0	U	U	0.012	0.014	0.018	U	-	
Plutonium 238	0	0.048	0.18	1.0	U	PU	-0.025	0.050	0.19	U	-	
Plutonium 239/240	0.024	0.048	0.18	1.0	U	PU	0.025	0.050	0.19	U	-	
Americium 241	0	0.060	0.23	1.0	U	TP	-0.053	0.11	0.29	U	-	
Curium 244	0.090	0.12	0.23	1.0	U	TP	-0.026	0.11	0.29	U	-	
Potassium 40	U		240		U	GAM	U		91	U	-	
Cobalt 60	U		15	25	U	GAM	U		8.1	U	-	
Cesium 137	U		14	15	U	GAM	U		7.6	U	-	
Radium 226	U		24		U	GAM	U		16	U	-	
Radium 228	U		62		U	GAM	U		37	U	-	
Europium 152	U		37	50	U	GAM	U		22	U	-	
Europium 154	U		44	50	U	GAM	U		28	U	-	
Europium 155	U		45	50	U	GAM	U		21	U	-	
Thorium 228	U		20		U	GAM	U		11	U	-	
Thorium 232	U		62		U	GAM	U		37	U	-	
Uranium 235	U		53		U	GAM	U		30	U	-	
Uranium 238	U		1700		U	GAM	U		900	U	-	
Americium 241	U		99		U	GAM	U		30	U	-	

276-S Hexone Tank - QC Sampling

QC-DUP#2 37768

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

R102121-06 B11CX2

MATRIX SPIKE

SDG	7639			Client/Case no	Hanford SDG H1252
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R102121-06	Lab sample id	R102121-02	Client sample id	B11CX2
Dept sample id	7639-006	Dept sample id	7639-002	Location/Matrix	200 West WATER
		Received	02/23/01	Collected	02/21/01 13:15
				Custody/SAF No	B01-053-01 B01-053

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	19100	390	160	400	X	H	19600	780	-1.86	94	97	84-116	60-140
Carbon 14	31000	310	86	200	X	C	34600	1400	34.6	27	90	85-115	60-140

276-S Hexone Tank - QC Sampling

QC-MS#2 37769

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	03/21/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1252

R102121-01 B11CX1

DATA SHEET

SDG	7639	Client/Case no	Hanford SDG H1252
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102121-01	Client sample id	B11CX1
Dept sample id	7639-001	Location/Matrix	200 West WATER
Received	02/23/01	Collected	02/21/01 11:20
		Custody/SAF No	B01-053-01 B01-053

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-39.8	94	160	400	U	H
Carbon 14	14762-75-5	26.2	28	46	200	U	C
Total Strontium	SR-RAD	0.008	0.24	0.50	2.0	U	SR
Technetium 99	14133-76-7	-0.225	3.5	11	15	U	TC
Uranium 233	U-233/234	-0.014	0.011	0.026	1.0	U	U
Uranium 235	15117-96-1	-0.003	0.013	0.025	1.0	U	U
Uranium 238	U-238	0.005	0.011	0.021	1.0	U	U
Plutonium 238	13981-16-3	0.064	0.064	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.064	0.24	1.0	U	PU
Americium 241	14596-10-2	0.031	0.12	0.24	1.0	U	TP
Curium 244	13981-15-2	0.031	0.12	0.30	1.0	U	TP
Potassium 40	13966-00-2	U		180		U	GAM
Cobalt 60	10198-40-0	U		16	25	U	GAM
Cesium 137	10045-97-3	U		15	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		60		U	GAM
Europium 152	14683-23-9	U		38	50	U	GAM
Europium 154	15585-10-1	U		52	50	U	GAM
Europium 155	14391-16-3	U		21	50	U	GAM
Thorium 228	14274-82-9	U		16		U	GAM
Thorium 232	TH-232	U		60		U	GAM
Uranium 235	15117-96-1	U		38		U	GAM
Uranium 238	U-238	U		2100		U	GAM
Americium 241	14596-10-2	U		13		U	GAM

276-S Hexone Tank - QC Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1252

R102121-02 B11CX2

DATA SHEET

SDG	7639	Client/Case no	Hanford SDG H1252
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102121-02	Client sample id	B11CX2
Dept sample id	7639-002	Location/Matrix	200 West WATER
Received	02/23/01	Collected	02/21/01 13:15
		Custody/SAF No	B01-053-01 B01-053

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-1.86	94	160	400	U	H
Carbon 14	14762-75-5	34.6	27	44	200	U	C
Total Strontium	SR-RAD	0.013	0.24	0.50	2.0	U	SR
Technetium 99	14133-76-7	-2.74	3.2	12	15	U	TC
Uranium 233	U-233/234	-0.012	0.014	0.023	1.0	U	U
Uranium 235	15117-96-1	-0.006	0.012	0.022	1.0	U	U
Uranium 238	U-238	0.012	0.014	0.018	1.0	U	U
Plutonium 238	13981-16-3	-0.025	0.050	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.025	0.050	0.19	1.0	U	PU
Americium 241	14596-10-2	-0.053	0.11	0.29	1.0	U	TP
Curium 244	13981-15-2	-0.026	0.11	0.29	1.0	U	TP
Potassium 40	13966-00-2	U		91		U	GAM
Cobalt 60	10198-40-0	U		8.1	25	U	GAM
Cesium 137	10045-97-3	U		7.6	15	U	GAM
Radium 226	13982-63-3	U		16		U	GAM
Radium 228	15262-20-1	U		37		U	GAM
Europium 152	14683-23-9	U		22	50	U	GAM
Europium 154	15585-10-1	U		28	50	U	GAM
Europium 155	14391-16-3	U		21	50	U	GAM
Thorium 228	14274-82-9	U		11		U	GAM
Thorium 232	TH-232	U		37		U	GAM
Uranium 235	15117-96-1	U		30		U	GAM
Uranium 238	U-238	U		900		U	GAM
Americium 241	14596-10-2	U		30		U	GAM

276-S Hexone Tank - QC Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/21/01

Test PU Matrix WATER
SDG 7639
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6963-180								
B11CX1	R102121-01			7639-001	U		U	
B11CX2	R102121-02			7639-002	U		U	
BLK (QC ID=37767)	R102121-04			7639-004	U		U	
LCS (QC ID=37766)	R102121-03			7639-003	ok		ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	1.0		1.0	

276-S Hexone Tank - QC Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 180												
B11CX1	R102121-01			0.24	0.500			67		109			15	03/08/01	03/08	SS-045
B11CX2	R102121-02			0.19	0.500			86		110			15	03/08/01	03/08	SS-047
BLK (QC ID=37767)	R102121-04			0.28	0.500			56		110				03/08/01	03/08	SS-049
LCS (QC ID=37766)	R102121-03			0.21	0.500			80		110				03/08/01	03/08	SS-048
Duplicate (R102121-02) (QC ID=37768)	R102121-05			0.18	0.500			88		110			15	03/08/01	03/08	SS-050
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 3
	CP-940	Plutonium Separation and Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.22 ± 0.081
YIELD 75 ± 27

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

Test TP Matrix WATER
SDG 7639
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

AMERICIUM 241/CURIUM IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241		Curium 244	
Preparation batch 6963-180								
B11CX1	R102121-01			7639-001	U		U	
B11CX2	R102121-02			7639-002	U		U	
BLK (QC ID=37767)	R102121-04			7639-004	U		U	
LCS (QC ID=37766)	R102121-03			7639-003	ok		ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	1.0		1.0	
276-S Hexone Tank - QC Sampling								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 180												
B11CX1	R102121-01			0.30	0.500			71		109			15	03/08/01	03/08	SS-035
B11CX2	R102121-02			0.29	0.500			79		110			15	03/08/01	03/08	SS-041
BLK (QC ID=37767)	R102121-04			0.23	0.500			74		109				03/08/01	03/08	SS-043
LCS (QC ID=37766)	R102121-03			0.20	0.500			84		110				03/08/01	03/08	SS-042
Duplicate (R102121-02) (QC ID=37768)	R102121-05			0.23	0.500			72		109			15	03/08/01	03/08	SS-044
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-940	Plutonium Separation and Purification, rev 2
	CP-961	Am-Cu Purification, Large Aliquot by Oxalate Precipitation, rev 1
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.25 ± 0.086
YIELD 76 ± 11

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER

ALPHA SPECTROSCOPY

Test U Matrix WATER
SDG 7639
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233		2: Uranium 235		3: Uranium 238		RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 6963-180														
B11CX1	R102121-01			7639-001	U		U		U					
B11CX2	R102121-02			7639-002	U		U		U					
BLK (QC ID=37767)	R102121-04			7639-004	U		U		U					
LCS (QC ID=37766)	R102121-03			7639-003	ok		ok		ok					
Duplicate (R102121-02)	R102121-05			7639-005	-	U	-	U	-	U				
Nominal values and limits from method				RDLs (pCi/L)	1.0		1.0		1.0		100		4	
276-S Hexone Tank - QC Sampling											Averages			

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 180												
B11CX1	R102121-01			0.026	0.500			90		997			13	03/03/01	03/06	SS-043
B11CX2	R102121-02			0.023	0.500			100		997			13	03/03/01	03/06	SS-044
BLK (QC ID=37767)	R102121-04			0.032	0.500			90		997				03/03/01	03/06	SS-047
LCS (QC ID=37766)	R102121-03			0.27	0.500			102		997				03/03/01	03/06	SS-045
Duplicate (R102121-02) (QC ID=37768)	R102121-05			0.025	0.500			92		997			13	03/03/01	03/06	SS-048
Nominal values and limits from method				1.0	0.500			30-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 3
	CP-910	Uranium Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.075 ± 0.22
YIELD 95 ± 12

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

Test SR Matrix WATER
SDG 7639
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN WATER
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6963-180						
B11CX1	R102121-01			7639-001	U	
B11CX2	R102121-02			7639-002	U	
BLK (QC ID=37767)	R102121-04			7639-004	U	
LCS (QC ID=37766)	R102121-03			7639-003	ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U
Nominal values and limits from method				RDLs (pCi/L)	2.0	
276-S Hexone Tank - QC Sampling						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 180																
B11CX1	R102121-01			0.50	0.500			87		100			9	03/02/01	03/02	GRB-202
B11CX2	R102121-02			0.50	0.500			85		100			9	03/02/01	03/02	GRB-203
BLK (QC ID=37767)	R102121-04			0.43	0.500			85		100				03/02/01	03/02	GRB-204
LCS (QC ID=37766)	R102121-03			0.43	0.500			87		100				03/02/01	03/02	GRB-220
Duplicate (R102121-02) (QC ID=37768)	R102121-05			0.46	0.500			84		100			9	03/02/01	03/02	GRB-219
Nominal values and limits from method				2.0	0.500					100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-501	Strontium in Water Samples, rev 1

AVERAGES ± 2 SD	MDA	0.46	± 0.070
FOR 5 SAMPLES	YIELD	86	± 3

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

Test TC Matrix WATER
SDG 7639
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6963-180						
B11CX1	R102121-01			7639-001	U	
B11CX2	R102121-02			7639-002	U	
BLK (QC ID=37767)	R102121-04			7639-004	U	
LCS (QC ID=37766)	R102121-03			7639-003	ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U

Nominal values and limits from method RDLs (pCi/L) 15
276-S Hexone Tank - QC Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 180																
B11CX1	R102121-01			11	0.0500			89		50			13	03/01/01	03/06	GRB-222
B11CX2	R102121-02			12	0.0500			85		50			13	03/01/01	03/06	GRB-223
BLK (QC ID=37767)	R102121-04			11	0.0500			89		50				03/01/01	03/06	GRB-224
LCS (QC ID=37766)	R102121-03			12	0.0500			88		50				03/01/01	03/05	GRB-203
Duplicate (R102121-02) (QC ID=37768)	R102121-05			12	0.0500			88		50			12	03/01/01	03/05	GRB-217
Nominal values and limits from method				15	0.0500			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-021	Preparation of Tc-99m Tracer, rev 0
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-541	Technetium-99 Purification (Water) by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 12 ± 1.1
YIELD 88 ± 3

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

Test GAM Matrix WATER
SDG 7639
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

GAMMA EMITTERS

GAMMA SCAN

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6963-180								
B11CX1	R102121-01			7639-001	U		U	
B11CX2	R102121-02			7639-002	U		U	
BLK (QC ID=37767)	R102121-04			7639-004	U		U	
LCS (QC ID=37766)	R102121-03			7639-003	ok		ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	25		15	

276-S Hexone Tank - QC Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 15.0 %				Reference Lab Notebook 6963 pg. 180											
B11CX1	R102121-01			15	0.500					336			9	03/01/01	03/02	01,01,00
B11CX2	R102121-02			7.6	0.500					315			9	03/01/01	03/02	01,04,00
BLK (QC ID=37767)	R102121-04			16	0.500					312				03/01/01	03/02	MB,07,00
LCS (QC ID=37766)	R102121-03			25	0.500					314				03/01/01	03/02	MB,05,00
Duplicate (R102121-02) (QC ID=37768)	R102121-05			14	0.500					324			9	03/01/01	03/02	MB,05,00
Nominal values and limits from method				15	0.500					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 16 ± 12
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

Test C Matrix WATER
SDG 7639
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-180						
B11CX1	R102121-01			7639-001	U	
B11CX2	R102121-02			7639-002	U	
BLK (QC ID=37767)	R102121-04			7639-004	U	
LCS (QC ID=37766)	R102121-03			7639-003	ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U
Spike (R102121-02)	R102121-06			7639-006	ok	X
Nominal values and limits from method				RDLs (pCi/L)	200	
276-S Hexone Tank - QC Sampling						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 180											
B11CX1	R102121-01			46	0.0300			100		100			17	03/09/01	03/10	LSC-004
B11CX2	R102121-02			44	0.0300			100		100			17	03/09/01	03/10	LSC-004
BLK (QC ID=37767)	R102121-04			47	0.0300			100		100				03/09/01	03/11	LSC-004
LCS (QC ID=37766)	R102121-03			57	0.0300			100		61				03/09/01	03/11	LSC-004
Duplicate (R102121-02) (QC ID=37768)	R102121-05			47	0.0300			100		100			18	03/09/01	03/11	LSC-004
Spike (R102121-02) (QC ID=37769)	R102121-06			86	0.0295			100		32			18	03/09/01	03/11	LSC-004
Nominal values and limits from method				200	0.0300					50			180			

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 54 ± 32
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1252

Test H Matrix WATER
SDG 7639
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1252

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-180						
B11CX1	R102121-01			7639-001	U	
B11CX2	R102121-02			7639-002	U	
BLK (QC ID=37767)	R102121-04			7639-004	U	
LCS (QC ID=37766)	R102121-03			7639-003	ok	
Duplicate (R102121-02)	R102121-05			7639-005	-	U
Spike (R102121-02)	R102121-06			7639-006	ok	X
Nominal values and limits from method				RDLs (pCi/L)	400	
276-S Hexone Tank - QC Sampling						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-180	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 180											
B11CX1	R102121-01			160	0.0100			100		100			15	03/06/01	03/08	LSC-007
B11CX2	R102121-02			160	0.0100			100		100			15	03/06/01	03/08	LSC-007
BLK (QC ID=37767)	R102121-04			16	1.00			10		100				03/06/01	03/08	LSC-007
LCS (QC ID=37766)	R102121-03			16	1.00			10		100				03/06/01	03/08	LSC-007
Duplicate (R102121-02) (QC ID=37768)	R102121-05			160	0.0100			100		100			15	03/06/01	03/08	LSC-007
Spike (R102121-02) (QC ID=37769)	R102121-06			160	0.0500			20		100			15	03/06/01	03/08	LSC-007
Nominal values and limits from method				400	0.0100					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-210 Tritium in Water Samples by Distillation, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 110 ± 150
YIELD 57 ± 95

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/21/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West H1252 (7639)	SAF No.: B01-053	Air Quality ☐
Ice Chest No.: ERC99-046 (1of1)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: TMA ~~ERCRA~~ EBERline	Offsite Property No.: A01 0224	Bill of Lading/Air Bill No.: 4235 7454 2628	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500mL	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Technetium-99	See item (3) in Special Instructions.	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120				X				X	X	
B11CX2	WATER	2-21-01	1315				X				X	X	
~~B11CX3~~	~~WATER~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
SJ GALE	2.21.01 1415	R.Thoren	2.21.01 1415
R.Thoren	2.21.01 1415	RT 2.21.01 Stored in Ref 2A 3728	2.21.01 1415
Removed from Ref 2A 3728	2.22.01 1130	R.Thoren	2.22.01 1130
R.Thoren	2.22.01 1130	FEDEX	2-22-01
FED EXPRESS	2-23-01 10 AM	E. Aguiro	2/23-01 10 AM

SPECIAL INSTRUCTIONS

~~(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)~~ RT 2.21.01
~~(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)~~ RT 2.21.01
(3) Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Strontium-89,90 -- Total Sr

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West H1252 (7639)	SAF No.: B01-053	
Ice Chest No.: ERC99-046 (1 of 1)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: TMA/~~RECRA~~ EBERline	Offsite Property No.: A010224	Bill of Lading/Air Bill No.: 42357954-2628	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C				
Type of Container	P	P	aG	aG	P	aGs*	aG				
No. of Container(s)	1	1	2	2	2	3	1				
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL				
SAMPLE ANALYSIS	Carbon-14	Metals by ICP (TCLP) 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol)	PCBs - 8082				
Sample No.	Matrix *	Sample Date	Sample Time								
B11CX1	WATER	2-21-01	1120	X				X	2x (EACH)		
B11CX2	WATER	2-21-01	1315	X				X	2x (EACH)		
~~B11CX3~~	~~WATER~~										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: SJGALE	Date/Time: 22101 1415	Received By: R.Thoren	Date/Time: 1415 2.21.01
Relinquished By: R.Thoren	Date/Time: 1445 2.21.01	Received By: STORED IN Ref 2A 3728	Date/Time: 1445 2.21.01
Relinquished By: Removed from R.Thoren	Date/Time: 1130 2.22.01	Received By: RT 2.22.01	Date/Time:
Relinquished By: Removed from Ref 2A 3728	Date/Time: 1130 2.22.01	Received By: R.Thoren	Date/Time: 1130 2.22.01
Relinquished By: R.Thoren	Date/Time: 1130 2.22.01	Received By: FED EX	Date/Time: 2-22-01
Relinquished By: FED. EXPRESS	Date/Time: 10 AM 2-23-01	Received By: E. Segura	Date/Time: 10 AM 2-23-01

SPECIAL INSTRUCTIONS

~~(1) Semi-VOA - 8270A (TCL); Semi-VOA - 8270A (Add-On) (Tributyl phosphate)~~ RT 2.21.01

(2) Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)

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

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

BHI-EE-011 (10/99)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BECHTEL HANFORD INC. Date/Time received 2-23-01 10: AM

CoC No. B01-053-01

Container I.D. No. ERC99-046 Requested TAT (Days) 21 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 2
7. Number of containers per sample: CHECK ON (Or see CoC ✓)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Reguro Date: 2-23-01 Time: 10: AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1						
CHLORIDE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
CHLORIDE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
CHLORIDE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
FLUORIDE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
FLUORIDE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
FLUORIDE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRITE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRITE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRITE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRATE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRATE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRATE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
TOTAL CYANIDE	001	W	01LCB17	02/21/01	02/27/01	02/27/01
PHOSPHATE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
PHOSPHATE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
PHOSPHATE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
SULFATE BY IC	001	W	01LBC013	02/21/01	02/27/01	02/27/01
SULFATE BY IC	001 REP	W	01LBC013	02/21/01	02/27/01	02/27/01
SULFATE BY IC	001 MS	W	01LBC013	02/21/01	02/27/01	02/27/01
IGNITABILITY	001	W	01LFP003	02/21/01	03/02/01	03/02/01
TOTAL ORGANIC CARBON	001	W	01LTC014	02/21/01	03/21/01	03/21/01
TOTAL ORGANIC CARBON	001 REP	W	01LTC014	02/21/01	03/21/01	03/21/01
TOTAL ORGANIC CARBON	001 MS	W	01LTC014	02/21/01	03/21/01	03/21/01
PH	001	W	01LPH017	02/21/01	03/01/01	03/01/01
PH	001 REP	W	01LPH017	02/21/01	03/01/01	03/01/01
TCLP	001	W	01LTF021	02/21/01	03/05/01	03/05/01
B11CX2						
CHLORIDE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
FLUORIDE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRITE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
NITRATE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
TOTAL CYANIDE	002	W	01LC018	02/21/01	02/28/01	02/28/01
TOTAL CYANIDE	002 MS	W	01LC018	02/21/01	02/28/01	02/28/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
SULFATE BY IC	002	W	01LBC013	02/21/01	02/27/01	02/27/01
IGNITABILITY	002	W	01LFP003	02/21/01	03/02/01	03/02/01
TOTAL ORGANIC CARBON	002	W	01LTC014	02/21/01	03/21/01	03/21/01
PH	002	W	01LPH017	02/21/01	03/01/01	03/01/01
TCLP	002	W	01LTF021	02/21/01	03/05/01	03/05/01

LAB QC:

CHLORIDE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
CHLORIDE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
FLUORIDE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
FLUORIDE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
NITRITE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
NITRITE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
NITRATE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
NITRATE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
TOTAL CYANIDE	LCS L	W	01LCB17	N/A	02/27/01	02/27/01
TOTAL CYANIDE	LCS L	W	01LCB17	N/A	02/27/01	02/27/01
TOTAL CYANIDE	MB1	W	01LCB17	N/A	02/27/01	02/27/01
PHOSPHATE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
PHOSPHATE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
SULFATE BY IC	MB1	W	01LBC013	N/A	02/27/01	02/27/01
SULFATE BY IC	MB1 BS	W	01LBC013	N/A	02/27/01	02/27/01
TOTAL ORGANIC CARBON	MB1	W	01LTC014	N/A	03/21/01	03/21/01
TOTAL ORGANIC CARBON	MB1 BS	W	01LTC014	N/A	03/21/01	03/21/01
TOTAL CYANIDE	LCS L	W	01LC018	N/A	02/28/01	02/28/01
TOTAL CYANIDE	LCS L	W	01LC018	N/A	02/28/01	02/28/01
TOTAL CYANIDE	MB1	W	01LC018	N/A	02/28/01	02/28/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-053 H1252
LVL#: 0102L085

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

INORGANIC NARRATIVE

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

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

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

3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrate, Nitrite and Phosphate.

4. The cooler temperatures were 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.

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

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

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

for Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

04-01-01
Date

njp\i02- 085

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 WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
___Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	✓ 9010B ✓ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b)
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total ___Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total ✓ Organic ___ Inorganic Carbon	___ 415.1	✓ 9060	
Oil & Grease	___ 413.1	___ 9070	
✓ pH ___ pH; paper	___ 150.1	✓ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (___9014___9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved ___Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
___Total ___Dissolved ___Suspended	___ 160.4		

Other: Ignitability **Method:** SW1010

04

L-WI-034/A-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Inorganic Data Summary Report
Physical Testing Observation

Client: TNU-HANFORD B01-053 H1252
LVL#: 0102L085

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

Analyte:	**Observation:**
Ignitability	Samples B11CX1 and B11CX2 not ignite. The samples were heated to 220°F. p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 81°F.

njp\i02-085 .pt2

LVLI
LIONVILLE LABORATORY INC.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/30/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11CX1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Cyanide, Total	5.00 u	UG/L	5.00	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Total Organic Carbon	0.50 u	MG/L	0.50	1.0
		pH	7.9	PH UNIT	0.01	1.0
-002	B11CX2	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Cyanide, Total	5.00 u	UG/L	5.00	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Total Organic Carbon	0.50 u	MG/L	0.50	1.0
		pH	6.5	PH UNIT	0.01	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/30/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LBC013-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK1	01LCB17-MB1	Cyanide, Total	5.00 u	UG/L	5.00	1.0
BLANK10	01LTC014-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK1	01LC018-MB1	Cyanide, Total	5.00 u	UG/L	5.00	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/30/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11CX1	Chloride by IC	5.4	0.22	5.0	103.1	1.0
		Fluoride by IC	11.0	0.00	10.0	110.5	1.0
		Nitrite by IC	5.36	0.25u	5.00	107.2	1.0
		Nitrate by IC	5.22	0.25u	5.00	104.5	1.0
		Phosphate by IC	5.4	0.25u	5.0	107.4	1.0
		Sulfate by IC	5.4	0.25u	5.0	108.1	1.0
		Total Organic Carbon	5.2	0.10	5.0	102.1	1.0
-002	B11CX2	Cyanide, Total	47.3	5.00u	50.0	94.6	1.0
BLANK10	01LBC013-MB1	Chloride by IC	5.1	0.25u	5.0	102.8	1.0
		Fluoride by IC	11.4	0.50u	10.0	114.4	1.0
		Nitrite by IC	4.84	0.25u	5.00	96.8	1.0
		Nitrate by IC	5.26	0.25u	5.00	105.2	1.0
		Phosphate by IC	5.3	0.25u	5.0	106.7	1.0
		Sulfate by IC	5.2	0.25u	5.0	103.4	1.0
BLANK10	01LTC014-MB1	Total Organic Carbon	5.1	0.50u	5.0	102.0	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/30/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11CX1	Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Total Organic Carbon	0.50u	0.50u	NC	1.0
		pH	7.9	7.7	2.6	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/30/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LCB17-LCS1	Cyanide, Total LCS	18.4	20.0	UG/L	91.8
LCSS2	01LCB17-LCS2	Cyanide, Total LCS	102	100	UG/L	102.3
LCSS1	01LC018-LCS1	Cyanide, Total LCS	17.6	20.0	UG/L	88.0
LCSS2	01LC018-LCS2	Cyanide, Total LCS	100	100	UG/L	100.2

Lionville Laboratory Use Only: 01021085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL 12

Client: TPU- Hanford B01-053

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 2-23-01 Date Due: 3-16-01

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Refrigerator #		1	2	2							2	2	2		2	2	1	2	2	2	
#/Type Container	Liquid	3V	2AG	4AG							2AG	1P	1P		1P	1P	1AG	1AG	1AG	1P	
	Solid																				
Volume	Liquid	40	1L	1L							1L	1L	125		500	1L	500	250	500	500	
	Solid																				
Preservatives		HCl	–	–							H2SO4	–	–		HNO3	NaOH	H2SO4	–	HNO3	–	
ANALYSES REQUESTED		ORGANIC													INORG						
		VOA	BNA	Pest/PCB	Herb						TPH & Diesel	TCLP Met.			Metal	CN	TOC		Hg		

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	OA24X	OA25X	OPCB		ODRO	TTCLP	TPH	Met①	ICNTO	IOCT	IIGN	MHGTO	IC①	Met②	
001	B11CX1			W	2-23-01	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
003	B11CX1 tclp of 001			L	*	–														✓	
004	1 2 1 002			1	1	1														✓	

Lionville Laboratory Use Only

Special Instructions: Saf B01-053
Run matrix QC

DATE/REVISIONS:
* 1. See labchron
IC① 2. Cl, Fl, NO3, NO2, PO4, SO4
Met① 3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1 4. Mg, Mn, Na, Ni, Sb, V, Zn
Met② 5. Pb PA TCLP
6.

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___
Airbill # [illegible]
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 (PH)

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

4235 7954 2591 9 0

4235 7954 2617 7

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days — Air Quality ☐
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-054 (204)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA 2/22/01 — 8ML-467 (404)	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 (454) - 2591	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500 ml	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Technetium-99	See item (3) in Special Instructions.	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 2/22/01	~~WATER~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
SGALE	2/21/01 1415	R Thoren	2.21.01 1415
R Thoren	2.21.01 1445	Stored in Ref 2A 3728	2.21.01 1445
Remove from Ref 2A 3728	2.22.01 1130	R Thoren	2.22.01 1130
R Thoren	2.22.01 1130	FEDEX	
Fed Ex	2/23/01 0935	Nick Henning	2/23/01 0935

RT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
(3) ~~Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Strontium-89,90 = Total Sr~~

RT 2.21.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days — Air Quality ☐
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-057 (1 of 4)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~FMA~~/RECRA 2/22/01	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 7954 - 2580	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. LT 2-21-01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	2	3	4 2/22/01			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			
SAMPLE ANALYSIS	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol]	PCBs - 8082			

Sample No.	Matrix *	Sample Date	Sample Time										
B11CX1	WATER	2·21·01	1120		X	X	X		X	X			
B11CX2	WATER	2-21-01	1315		X	X	X		X	X			
~~B11CX3~~ 2/22/01	~~WATER~~								✓				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
J Jones	22101 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	Stored in RT 2-21-01 Ref 2A 3728	1445 2.21.01
Removed from Ref 2A 3728 (RT 2-21)	1130 2.22.01	R. Thoren	1130 2.22.01
R Thoren	1130 2.22.01	FEDEX	
Fed Ex	2/23/01 0935	V. Thomas	2.23.01 0935

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) [Tributyl phosphate]
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 2/23/01 0935

SDG#: 01021085

Work Order Number: — SAF# B01-053

Shipping Container ID: _____ Chain of Custody # B01-053-01

1. Custody Seals on shipping container intact? Yes [✓] No [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 2°, 2°, 3°
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: ~~22~~ 42 2/23/01
7. Sample holding times exceeded? PH Yes [✓] No [ ]

8. Samples have:
   - ____ tape
   - ____ hazard labels
   - ✓ custody seals
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ leaking
   - ____ broken
   - ____ have air bubbles

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

Sample Custodian/Laboratory: [signature] Date: 2/23/01

Telephoned to: _____ On _____ By _____

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1						
TCLP	001	W	01LTF021	02/21/01	03/05/01	03/05/01
SILVER, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
SILVER, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
SILVER, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
ALUMINUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
ALUMINUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
ALUMINUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
ARSENIC, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
ARSENIC, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
ARSENIC, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
BARIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
BARIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
BARIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
BERYLLIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
BERYLLIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
BERYLLIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
CALCIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
CALCIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
CALCIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
CADMIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
CADMIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
CADMIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
COBALT, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
COBALT, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
COBALT, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
CHROMIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
CHROMIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
CHROMIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
COPPER, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
COPPER, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
COPPER, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
IRON, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
IRON, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
IRON, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
MERCURY, TOTAL	001	W	01C0073	02/21/01	03/07/01	03/08/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 REP	W	01C0073	02/21/01	03/07/01	03/08/01
MERCURY, TOTAL	001 MS	W	01C0073	02/21/01	03/07/01	03/08/01
POTASSIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
POTASSIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
POTASSIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
MAGNESIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
MAGNESIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
MAGNESIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
MANGANESE, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
MANGANESE, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
MANGANESE, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
SODIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
SODIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
SODIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
NICKEL, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
NICKEL, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
NICKEL, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
LEAD, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
LEAD, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
LEAD, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
ANTIMONY, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
ANTIMONY, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
ANTIMONY, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
SELENIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
SELENIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
SELENIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
VANADIUM, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
VANADIUM, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
VANADIUM, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
ZINC, TOTAL	001	W	01L0108	02/21/01	03/14/01	03/16/01
ZINC, TOTAL	001 REP	W	01L0108	02/21/01	03/14/01	03/16/01
ZINC, TOTAL	001 MS	W	01L0108	02/21/01	03/14/01	03/16/01
B11CX2						
TCLP	002	W	01LTF021	02/21/01	03/05/01	03/05/01
SILVER, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
ALUMINUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
BARIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
BERYLLIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
CALCIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
CADMIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
COBALT, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
CHROMIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
COPPER, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
IRON, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
MERCURY, TOTAL	002	W	01C0073	02/21/01	03/07/01	03/08/01
POTASSIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
MAGNESIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
MANGANESE, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
SODIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
NICKEL, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
LEAD, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
ANTIMONY, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
SELENIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
VANADIUM, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
ZINC, TOTAL	002	W	01L0108	02/21/01	03/14/01	03/16/01
B11CX1						
SILVER, TCLP LEACHAT	003	W	01L0095	03/05/01	03/07/01	03/09/01
SILVER, TCLP LEACHAT	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
SILVER, TCLP LEACHAT	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	003	W	01L0095	03/05/01	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	003	W	01L0095	03/05/01	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	003	W	01L0095	03/05/01	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	003	W	01L0095	03/05/01	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TCLP LEACHA	003	W	01C0073	03/05/01	03/07/01	03/08/01
LEAD, TCLP LEACHATE	003	W	01L0095	03/05/01	03/07/01	03/09/01
LEAD, TCLP LEACHATE	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
LEAD, TCLP LEACHATE	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
SELENIUM, TCLP LEACH	003	W	01L0095	03/05/01	03/07/01	03/09/01
SELENIUM, TCLP LEACH	003 REP	W	01L0095	03/05/01	03/07/01	03/09/01
SELENIUM, TCLP LEACH	003 MS	W	01L0095	03/05/01	03/07/01	03/09/01
B11CX2						
SILVER, TCLP LEACHAT	004	W	01L0095	03/05/01	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	004	W	01L0095	03/05/01	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	004	W	01L0095	03/05/01	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	004	W	01L0095	03/05/01	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	004	W	01L0095	03/05/01	03/07/01	03/09/01
MERCURY, TCLP LEACHA	004	W	01C0073	03/05/01	03/07/01	03/08/01
MERCURY, TCLP LEACHA	004 REP	W	01C0073	03/05/01	03/07/01	03/08/01
MERCURY, TCLP LEACHA	004 MS	W	01C0073	03/05/01	03/07/01	03/08/01
LEAD, TCLP LEACHATE	004	W	01L0095	03/05/01	03/07/01	03/09/01
SELENIUM, TCLP LEACH	004	W	01L0095	03/05/01	03/07/01	03/09/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
SILVER, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
ALUMINUM LABORTORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
ALUMINUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
ARSENIC LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
ARSENIC, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
BARIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
BARIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
BERYLLIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
BERYLLIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
CALCIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
CALCIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
CADMIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
CADMIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
COBALT LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
CHROMIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
CHROMIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
COPPER LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
COPPER, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
IRON LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
IRON, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
MERCURY LABORATORY	LC1 BS	W	01C0073	N/A	03/07/01	03/08/01
MERCURY, TOTAL	MB1	W	01C0073	N/A	03/07/01	03/08/01
MERCURY, TCLP LEACHA	MB2	W	01C0073	N/A	03/07/01	03/08/01
MERCURY, TCLP LEACHA	MB3	W	01C0073	N/A	03/07/01	03/08/01
MERCURY, TCLP LEACHA	MB4	W	01C0073	N/A	03/07/01	03/08/01
POTASSIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
POTASSIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
MAGNESIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
MAGNESIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
MANGANESE LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
MANGANESE, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
SODIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
SODIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
NICKEL LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
NICKEL, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
LEAD LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
LEAD, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
ANTIMONY LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
ANTIMONY, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
SELENIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
SELENIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
VANADIUM LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
VANADIUM, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
ZINC LABORATORY	LC1 BS	W	01L0108	N/A	03/14/01	03/16/01
ZINC, TOTAL	MB1	W	01L0108	N/A	03/14/01	03/16/01
SILVER LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
SILVER, TCLP LEACHAT	MB1	W	01L0095	N/A	03/07/01	03/09/01
SILVER, TCLP LEACHAT	MB2	W	01L0095	N/A	03/07/01	03/09/01
ARSENIC LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	MB1	W	01L0095	N/A	03/07/01	03/09/01
ARSENIC, TCLP LEACHA	MB2	W	01L0095	N/A	03/07/01	03/09/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	MB1	W	01L0095	N/A	03/07/01	03/09/01
BARIUM, TCLP LEACHAT	MB2	W	01L0095	N/A	03/07/01	03/09/01
CADMIUM LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	MB1	W	01L0095	N/A	03/07/01	03/09/01
CADMIUM, TCLP LEACHA	MB2	W	01L0095	N/A	03/07/01	03/09/01
CHROMIUM LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	MB1	W	01L0095	N/A	03/07/01	03/09/01
CHROMIUM, TCLP LEACH	MB2	W	01L0095	N/A	03/07/01	03/09/01
LEAD LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
LEAD, TCLP LEACHATE	MB1	W	01L0095	N/A	03/07/01	03/09/01
LEAD, TCLP LEACHATE	MB2	W	01L0095	N/A	03/07/01	03/09/01
SELENIUM LABORATORY	LC1 BS	W	01L0095	N/A	03/07/01	03/09/01
SELENIUM, TCLP LEACH	MB1	W	01L0095	N/A	03/07/01	03/09/01
SELENIUM, TCLP LEACH	MB2	W	01L0095	N/A	03/07/01	03/09/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-053
LVL#: 0102L085
SDG/SAF#: H1252/B01-053

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

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 water samples and 2 TCLP leachates.

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

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

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

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

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

7. The preparation/method blank 01L0108-MB1 for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3 x the {IDL} Instrument Detection Level), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a.) The MB result for Sodium was greater than the Practical Quantitation Limit (PQL) and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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 26 pages.

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11. The duplicate analyses for 8 analytes on sample B11CX1 (total) and 1 analyte on B11CX1 (TCLP leachate) were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from samples B11CX1 for metals and B11CX2 for Mercury were selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

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

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated
jjw/m02-085

04-05-01
Date

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 01021085

Leaching Procedure: __1310 X 1311 __1312 __Other:_____

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

Metals Digestion Methods: X 3005A X 3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

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

Other:_____ **Method:**_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11CX1	Silver, Total	0.60	u	UG/L	0.60	1.0
		Aluminum, Total	39.1		UG/L	12.4	1.0
		Arsenic, Total	3.2	u	UG/L	3.2	1.0
		Barium, Total	0.96		UG/L	0.20	1.0
		Beryllium, Total	0.21		UG/L	0.10	1.0
		Calcium, Total	91.5		UG/L	11.4	1.0
		Cadmium, Total	0.30	u	UG/L	0.30	1.0
		Cobalt, Total	0.70	u	UG/L	0.70	1.0
		Chromium, Total	0.70	u	UG/L	0.70	1.0
		Copper, Total	0.60	u	UG/L	0.60	1.0
		Iron, Total	17.4	u	UG/L	17.4	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	20.9	u	UG/L	20.9	1.0
		Magnesium, Total	79.1		UG/L	5.9	1.0
		Manganese, Total	0.20		UG/L	0.20	1.0
		Sodium, Total	142		UG/L	2.6	1.0
		Nickel, Total	1.1	u	UG/L	1.1	1.0
		Lead, Total	2.2	u	UG/L	2.2	1.0
		Antimony, Total	1.9		UG/L	1.7	1.0
		Selenium, Total	3.1	u	UG/L	3.1	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	1.2		UG/L	0.50	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B11CX2	Silver, Total	0.60	u	UG/L	0.60	1.0
		Aluminum, Total	50.2		UG/L	12.4	1.0
		Arsenic, Total	3.2	u	UG/L	3.2	1.0
		Barium, Total	0.59		UG/L	0.20	1.0
		Beryllium, Total	0.35		UG/L	0.10	1.0
		Calcium, Total	41.5		UG/L	11.4	1.0
		Cadmium, Total	0.30	u	UG/L	0.30	1.0
		Cobalt, Total	0.70	u	UG/L	0.70	1.0
		Chromium, Total	0.70	u	UG/L	0.70	1.0
		Copper, Total	0.60	u	UG/L	0.60	1.0
		Iron, Total	17.4	u	UG/L	17.4	1.0
		Mercury, Total	0.10	u	UG/L	0.10	1.0
		Potassium, Total	20.9	u	UG/L	20.9	1.0
		Magnesium, Total	33.2		UG/L	5.9	1.0
		Manganese, Total	0.20	u	UG/L	0.20	1.0
		Sodium, Total	85.0		UG/L	2.6	1.0
		Nickel, Total	1.1	u	UG/L	1.1	1.0
		Lead, Total	2.2	u	UG/L	2.2	1.0
		Antimony, Total	1.7	u	UG/L	1.7	1.0
		Selenium, Total	3.1	u	UG/L	3.1	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	1.8		UG/L	0.50	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B11CX1	Silver, TCLP Leachate	3.0	u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	16.0	u	UG/L	16.0	5.0
		Barium, TCLP Leachate	6.5		UG/L	1.0	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	3.5	u	UG/L	3.5	5.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Lead, TCLP Leachate	11.0	u	UG/L	11.0	5.0
		Selenium, TCLP Leachate	15.5	u	UG/L	15.5	5.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B11CX2	Silver, TCLP Leachate	3.0	u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	16.0	u	UG/L	16.0	5.0
		Barium, TCLP Leachate	8.4		UG/L	1.0	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	3.5	u	UG/L	3.5	5.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Lead, TCLP Leachate	11.0	u	UG/L	11.0	5.0
		Selenium, TCLP Leachate	15.5	u	UG/L	15.5	5.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0108-MB1	Silver, Total	0.60 u	UG/L	0.60	1.0
		Aluminum, Total	20.5	UG/L	12.4	1.0
		Arsenic, Total	3.2 u	UG/L	3.2	1.0
		Barium, Total	0.20	UG/L	0.20	1.0
		Beryllium, Total	0.16	UG/L	0.10	1.0
		Calcium, Total	15.4	UG/L	11.4	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	0.70 u	UG/L	0.70	1.0
		Copper, Total	0.60 u	UG/L	0.60	1.0
		Iron, Total	17.4 u	UG/L	17.4	1.0
		Potassium, Total	20.9 u	UG/L	20.9	1.0
		Magnesium, Total	5.9 u	UG/L	5.9	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	27.8	UG/L	2.6	1.0
		Nickel, Total	1.1 u	UG/L	1.1	1.0
		Lead, Total	2.2 u	UG/L	2.2	1.0
		Antimony, Total	1.7 u	UG/L	1.7	1.0
		Selenium, Total	3.1 u	UG/L	3.1	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	0.50 u	UG/L	0.50	1.0
BLANK1	01C0073-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	01C0073-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK3	01C0073-MB3	Mercury, TCLP Leachate	10.0 u	UG/L	10.0	100
BLANK4	01C0073-MB4	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK1	01L0095-MB1	Silver, TCLP Leachate	0.60 u	UG/L	0.60	1.0
		Arsenic, TCLP Leachate	3.2 u	UG/L	3.2	1.0
		Barium, TCLP Leachate	0.45	UG/L	0.20	1.0
		Cadmium, TCLP Leachate	0.30 u	UG/L	0.30	1.0
		Chromium, TCLP Leachate	0.70 u	UG/L	0.70	1.0
		Lead, TCLP Leachate	2.2 u	UG/L	2.2	1.0
		Selenium, TCLP Leachate	3.1 u	UG/L	3.1	1.0
BLANK2	01L0095-MB2	Silver, TCLP Leachate	3.0 u	UG/L	3.0	5.0
		Arsenic, TCLP Leachate	16.0 u	UG/L	16.0	5.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	RESULT*		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK2	01L0095-MB2	Barium, TCLP Leachate	2.3		UG/L	1.0	5.0
		Cadmium, TCLP Leachate	1.5	u	UG/L	1.5	5.0
		Chromium, TCLP Leachate	4.1		UG/L	3.5	5.0
		Lead, TCLP Leachate	11.0	u	UG/L	11.0	5.0
		Selenium, TCLP Leachate	15.5	u	UG/L	15.5	5.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252

LVL LOT #: 0102L08S

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11CX1	Silver, Total	48.5	0.60u	50.0	97.0	1.0
		Aluminum, Total	2010	39.1	2000	98.4	1.0
		Arsenic, Total	1890	3.2 u	2000	94.6	1.0
		Barium, Total	1930	0.96	2000	96.5	1.0
		Beryllium, Total	48.2	0.21	50.0	96.0	1.0
		Calcium, Total	24500	91.5	25000	97.6	1.0
		Cadmium, Total	47.7	0.30u	50.0	95.4	1.0
		Cobalt, Total	480	0.70u	500	96.1	1.0
		Chromium, Total	192	0.70u	200	95.8	1.0
		Copper, Total	239	0.60u	250	95.6	1.0
		Iron, Total	941	17.4 u	1000	94.1	1.0
		Mercury, Total	0.77	0.10u	1.0	76.9	1.0
		Potassium, Total	25400	20.9 u	25000	101.5	1.0
		Magnesium, Total	24600	79.1	25000	98.2	1.0
		Manganese, Total	493	0.20	500	98.6	1.0
		Sodium, Total	23700	142	25000	94.1	1.0
		Nickel, Total	478	1.1 u	500	95.6	1.0
		Lead, Total	476	2.2 u	500	95.3	1.0
		Antimony, Total	496	1.9	500	98.8	1.0
		Selenium, Total	1930	3.1 u	2000	96.4	1.0
		Vanadium, Total	483	0.60u	500	96.6	1.0
		Zinc, Total	480	1.2	500	95.8	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252

LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B11CX1	Silver, TCLP Leachate	4070	3.0 u	5000	81.3	5.0
		Arsenic, TCLP Leachate	4830	16.0 u	5000	96.6	5.0
		Barium, TCLP Leachate	96800	6.5	100000	96.8	5.0
		Cadmium, TCLP Leachate	994	1.5 u	1000	99.4	5.0
		Chromium, TCLP Leachat	4910	3.5 u	5000	98.3	5.0
		Lead, TCLP Leachate	4940	11.0 u	5000	98.7	5.0
		Selenium, TCLP Leachat	976	15.5 u	1000	97.6	5.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B11CX2	Mercury, TCLP Leachate	193	0.10u	200	96.5	50.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11CX1	Silver, Total	0.60u	0.60u	NC	1.0
		Aluminum, Total	39.1	43.0	9.5	1.0
		Arsenic, Total	3.2 u	3.2 u	NC	1.0
		Barium, Total	0.96	1.2	22.2	1.0
		Beryllium, Total	0.21	0.27	25.0	1.0
		Calcium, Total	91.5	46.3	65.6	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Cobalt, Total	0.70u	0.70u	NC	1.0
		Chromium, Total	0.70u	0.70u	NC	1.0
		Copper, Total	0.60u	0.60u	NC	1.0
		Iron, Total	17.4 u	17.4 u	NC	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	20.9 u	20.9 u	NC	1.0
		Magnesium, Total	79.1	22.7	110.8	1.0
		Manganese, Total	0.20	1.7	157.9	1.0
		Sodium, Total	142	96.7	37.9	1.0
		Nickel, Total	1.1 u	1.1 u	NC	1.0
		Lead, Total	2.2 u	2.2 u	NC	1.0
		Antimony, Total	1.9	1.7 u	~~NC~~ 200	1.0
		Selenium, Total	3.1 u	3.1 u	NC	1.0
		Vanadium, Total	0.60u	0.60u	NC	1.0
		Zinc, Total	1.2	7.3	143.5	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	B11CX1	Silver, TCLP Leachate	3.0 u	3.0 u	NC	5.0
		Arsenic, TCLP Leachate	16.0 u	16.0 u	NC	5.0
		Barium, TCLP Leachate	6.5	9.7	39.5	5.0
		Cadmium, TCLP Leachate	1.5 u	1.5 u	NC	5.0
		Chromium, TCLP Leachate	3.5 u	3.5 u	NC	5.0
		Lead, TCLP Leachate	11.0 u	11.0 u	NC	5.0
		Selenium, TCLP Leachate	15.5 u	15.5 u	NC	5.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B11CX2	Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/19/01

CLIENT: TNUHANFORD B01-053 H1252 LVL LOT #: 0102L085

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0108-LC1	Silver, LCS	502	500	UG/L	100.4
		Aluminum, LCS	5140	5000	UG/L	102.9
		Arsenic, LCS	9890	10000	UG/L	98.9
		Barium, LCS	4920	5000	UG/L	98.3
		Beryllium, LCS	247	250	UG/L	98.7
		Calcium, LCS	24500	25000	UG/L	97.9
		Cadmium, LCS	249	250	UG/L	99.5
		Cobalt, LCS	2480	2500	UG/L	99.2
		Chromium, LCS	491	500	UG/L	98.2
		Copper, LCS	1240	1250	UG/L	98.9
		Iron, LCS	4860	5000	UG/L	97.1
		Potassium, LCS	26200	25000	UG/L	104.6
		Magnesium, LCS	25400	25000	UG/L	101.8
		Manganese, LCS	762	750	UG/L	101.6
		Sodium, LCS	24700	25000	UG/L	98.6
		Nickel, LCS	1970	2000	UG/L	98.5
		Lead, LCS	2460	2500	UG/L	98.4
		Antimony, LCS	3050	3000	UG/L	101.7
		Selenium, LCS	10200	10000	UG/L	101.9
		Vanadium, LCS	2510	2500	UG/L	100.2
		Zinc, LCS	999	1000	UG/L	99.9
LCS1	01C0073-LC1	Mercury, LCS	4.8	5.0	UG/L	96.6
LCS1	01L0095-LC1	Silver, LCS	490	500	UG/L	98.0
		Arsenic, LCS	9570	10000	UG/L	95.7
		Barium, LCS	5010	5000	UG/L	100.3
		Cadmium, LCS	247	250	UG/L	98.7
		Chromium, LCS	497	500	UG/L	99.4
		Lead, LCS	2450	2500	UG/L	97.9
		Selenium, LCS	9440	10000	UG/L	94.4

Lionville Laboratory Use Only: 0102L085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(9) mrt Dig

LVLI Lionville Laboratories, Inc.

Client: TMU- Hanford B01-053
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2 23 01 Date Due: 3-16-01

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Refrigerator #		1	2	2							2	2	2		2	2	1	2	2	2	
#/Type Container	Liquid	3V	2AG	4AG							2AG	1P	1P		1P	1P	1AG	1AG	1AG	1P	
	Solid																				
Volume	Liquid	40	1L	1L							1L	1L	125		500	1L	500	250	500	500	
	Solid																				
Preservatives		HCl	–	–							H2SO4	–	–		HNO3	NaOH	H2SO4	–	HNO3	–	
ANALYSES REQUESTED		ORGANIC													INORG						
		VOA	BNA	Pest/PCB	Herb						TPH & DRO	TCLP Met.			Metal	CN	TOC		Hg		1-Dechlorination

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OL624X	OL625X	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)	
S - Soil	001	B11CX1			W	22101	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
SE - Sediment	002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
SO - Solid	003	B11CX1 tclp of 001			L	*	–														✓	
SL - Sludge	004	1 2 1 002			1	1	1														✓	
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 B01-053
Run matrix QC

DATE/REVISIONS:
* 1. See lab chron
IC(1) 2. Cl, F, NO3, NO2, PO4, SO4
Met(1) 3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1 4. Mg, Mn, Na, Ni, Sb, V, Zn, As, Pb, Se
Met(2) 5. Be BATCH
3-7-01 6. As, Pb, Se added

Lionville Laboratory Use Only

Samples were: 1) Shipped ... or Hand Delivered ...
Airbill # 3U Bela
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) PH

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. 2° C

Relinquished by	Received by	Date	Time
[signature]	[signature]	3/23/01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

4235 7954 2591 90

4235 7954 2617 -2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	Air Quality ☐
Ice Chest No.: ERC 99-054 (2 of 4) 8ML-467 (4 of 4)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 7454 - 2591	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions	See item (2) in Special Instructions	Technetium-99	See item (3) in Special Instructions	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 2/22/01	~~WATER~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GALE 2/21/01	1415	R Thoren	2.21.01 1415
R Thoren	2.21.01 1415	Stored in Ref 2A 3728	2.21.01 1415
Removed from Ref 2A 3728	2.22.01 1130	R Thoren	2.22.01 1130
R Thoren	2.22.01 1130	FEDEX	
Fed Ex	2/23/01 0935	Nick Hennig	2/23/01 0935

RT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
~~(3) Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155), Isotopic Uranium, Strontium-89,90 = Total Sr~~

RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days — Air Quality ☐
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-057 1 of 4	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235795 4 - 2580	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. LT 2/21/01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	2	3	4 2/22/01			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions.	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol)	PCBs - 8082			
B11CX1	WATER	2·21·01	1120		X	X	X		X	X			
B11CX2	WATER	2·21·01	1315		X	X	X		X	X			
~~B11CX3~~ 2/22/01	~~WATER~~								✓				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
S JONES	22101 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	RT 2.21.01 STORED IN Ref 2A 3728	1445 2.21.01
RT 2.21 Removed from Ref 2A 3728	1130 2.22.01	R. Thoren	1130 2.22.01
R. Thoren	1130 2.22.01	FED EX	
Fed Ex	2/23/01 0935	V. Hennig	2.23.01 0935

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) (Tributyl phosphate)
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

APR 2001
RECEIVED

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1	001	W	01LE0208	02/21/01	02/27/01	03/02/01
B11CX1	001 R1	W	01LE0277	02/21/01	03/13/01	04/05/01
B11CX1	001 MS	W	01LE0208	02/21/01	02/27/01	03/02/01
B11CX1	001 MSD	W	01LE0208	02/21/01	02/27/01	03/02/01
B11CX2	002	W	01LE0208	02/21/01	02/27/01	03/02/01
B11CX2	002 R1	W	01LE0277	02/21/01	03/13/01	04/05/01
B11CX2	002 MS R1	W	01LE0277	02/21/01	03/13/01	04/05/01
B11CX2	002 MSD R1	W	01LE0277	02/21/01	03/13/01	04/05/01

LAB QC:

BLK	MB1	W	01LE0208	N/A	02/27/01	03/02/01
BLK	MB1 BS	W	01LE0208	N/A	02/27/01	03/02/01
BLK	MB1	W	01LE0277	N/A	03/13/01	04/05/01
BLK	MB1 BS	W	01LE0277	N/A	03/13/01	04/05/01

4/12/01

LIONVILLE LABORATORY INC.

Analytical Report

Client : TNU-HANFORD B01-053
LVL# : 0102L085
SDG/SAF#: H1252/B01-053

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

DIESEL RANGE ORGANICS

The set of samples consisted of two (2) water samples collected on 02-21-01.

The samples and their associated QC samples were prepared on 02-27-01, re-prepared on 02-13-01, and analyzed according to Lionville Laboratory OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 03-02-01 and 04-05-01. The analysis met the intent of method WTPH-D.

1. All cooler temperatures have been recorded on the chain-of-custody.

2. All required holding times for analysis were met. These samples were originally extracted within their required holding time. Due to poor spike recoveries, the samples were re-extracted outside of hold time. Both the original and the re-extracted results have been reported. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

4. All diesel continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.

5. All surrogate recoveries were within acceptance criteria.

6. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. All blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

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

4/12/01
Date

R:\SHARE\GCPEST\NARRTEMP\01-085tnu.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 10 pages.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01LC021

Initiator: L. Kauffman Batch: 01021085 Parameter: DRO
Date: 3-9-01 Samples: 001, 002 Matrix: Water
Client: TNU Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0208

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code X Other QC Out of Spec

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)

001-S - 10% recovery
001-T - 18% "
MB1-S - 1% "

2. Known or Probable Causes(s) Original DRO fractions had initial pH of <2-3

why were the DRO fractions preserved?

Recommend NOT preserving these samples with acid in future samplings

3. Discussion and Proposed Action

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
X Re-extract → Before 3/13/01
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Other Description: Use extra PCB fractions for re extraction due to limited sample volume available, No MS/MSD on Sample 1 Can do on 002.

4. Project Manager Instructions...signature/date: Helen Johnson 3/9/01

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

5. Final Action...signature/date: Bernadette 3/13/01

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

Other Explanation: Batch 01LE0277

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

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01CC148.

Initiator: J. LACH Batch: 0102L085 Parameter: ODRO.
Date: 4/9/01 Samples: All. Matrix: Water.
Client: TNV Method: SW846/MCAWW/CLP/ Prep Batch: 01ACC277

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) 1ST Batch. Surrogates high on CCV. All spike recoveries. 10% otvalue.
(2) Samples reextracted out of hold.
(3) re extract BS. Diesel spike 200%

2. Known or Probable Causes(s)

(1) missspiked.
(2) reextraction was performed not needed until hold time exceeded.
(3) Double spiked.

3. Discussion and Proposed Action

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

Other Description:
reextracted on. 3/13/01

4. Project Manager Instructions...signature/date: [signature] 4/9/01

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

5. Final Action...signature/date: [signature] 5/2/01

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

Other Explanation:

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

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

L-WI-006/E-01/01

GLOSSARY OF DIESEL RANGE ORGANICS 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 10ug/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 a compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike reagent grade water spiked with the matrix spiking solution. Spike recoveries are reported.

BSD = Indicates a blank spike duplicate.

MS = Indicates a matrix spike.

MSD = Indicates a matrix spike duplicate.

NA = Not Applicable.

NS = Not spiked.

DF = Dilution factor.

NR = Not required.

SP = Indicates a spiked compound.

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 04/12/01 11:59

RFW Batch Number: **0102L085** Client: **TNUHANFORD B01-053 H1252** Work Order: 11343606001 Page: 1

	Cust ID:	B11CX1	B11CX1	B11CX1	B11CX1	B11CX2	B11CX2
Sample Information	RFW#:	001	001	001 MS	001 MSD	002	002
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L REPREP	ug/L	ug/L	ug/L	ug/L REPREP
	p-Terphenyl	117 %	82 %	83 %	99 %	110 %	76 %
Diesel Range Organics		0.10 U	0.10 U	7 * %	10 * %	0.10 U	0.11 U

	Cust ID:	B11CX2	B11CX2	BLK	BLK BS	BLK	BLK BS
Sample Information	RFW#:	002 MS	002 MSD	01LE0208-MB1	01LE0208-MB1	01LE0277-MB1	01LE0277-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L REPREP	ug/L REPREP	ug/L	ug/L	ug/L	ug/L
	p-Terphenyl	71 %	62 %	117 %	100 %	102 %	126 %
Diesel Range Organics		88 %	77 %	0.10 U	9 * %	0.10 U	202 * %

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

4/12/01

Lionville Laboratory Use Only: 0102L085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(9) mrt Dry

Client: TMU- Hanford B01-053

Est. Final Proj. Sampling Date:

Project #: 11343-0006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 2 23 01 Date Due: 3-16-01

		ABC	DE	FGHI	JK	L	M	N	O	P	Q	R	S	
Refrigerator #		1	2	2	2	2	2	2	2	1	2	2	2	1 cooler
#/Type Container	Liquid	3V	2AG	4AG	2AG	1P	1P	1P	1P	1AG	1AG	1AG	1P	
	Solid													
Volume	Liquid	40	1L	1L	1L	1L	125	500	1L	500	250	500	500	
	Solid													
Preservatives		HCl	-	-	H2SO4	-	-	HNO3	NaOH	H2SO4	-	HNO3	-	
ANALYSES REQUESTED		ORGANIC						INORG						
		VOA	BNA	Pest/ PCB	Herb	TPH by DRO	TCLP Met.		Metal	CN	TOC		Hg	
		Lionville Laboratory Use Only												
		OL524X	OL625X	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)

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

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	OL524X	OL625X	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)
001	B11CX1			W	22101	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
003	B11CX1 tclp of 001			L	*	-														✓
004	1 2 1 002			1	1	1														✓

Special Instructions: Sat B01-053
Run matrix QC

DATE/REVISIONS:
* 1. See lab chron
IC(1) 2. Cl, Fl, NO3, NO2, PO4, SO4
Met(1) 3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1 4. Mg, Mn, Na, Ni, Sb, V, Zn, As, Pb, Se
Met(2) 5. PCB TCLP
3-7-01 6. As, Pb, Se added

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

Lionville Laboratory Use Only

Samples were: 1) Shipped or Hand Delivered
Airbill # [illegible]
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 (pH)

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 2° C

4235 7954 2591 2

4235 7954 2611 3

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-054 (204)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: ~~TMA~~ RECRA 22101 ; 6ML-462 (404)	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 4954 - 2591

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. FT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions	See item (2) in Special Instructions	Technetium-99	See item (3) in Special Instructions	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 22101	~~WATER~~												

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

Relinquished By	Date/Time	Received By	Date/Time
S Gale 22101	1415	R Thoren	1415 2.21.01
R Thoren	1445 2.21.01	Stored in Ref 2A 3728	1445 2.21.01
Ref 2A 3728	1130 2.22.01	R Thoren	1130 2.22.01
R Thoren	1130 2.22.01		
Fed Ex	2/23/01 0935	Nick Kennedy	2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time

RT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
~~(3) Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Strontium-89,90 = Total Sr~~

RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West		SAF No.: B01-053
Ice Chest No.: ERC 99-057 (10 of 4)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7954 - 2580

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. LT 2-21-01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	2	3	4			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			
SAMPLE ANALYSIS	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol]	PCBs - 8082			

Sample No.	Matrix *	Sample Date	Sample Time	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Butanol]	PCBs - 8082			
B11CX1	WATER	2·21·01	1120		X	X	X		X	X			
B11CX2	WATER	2·21·01	1315		X	X	X		X	X			
~~B11CX3~~ 2/22/01	~~WATER~~								✓				

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

Relinquished By	Date/Time	Received By	Date/Time
S. Gale	22101 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	Stored in RTZ-2A 3728	1445 2.21.01
Removed from RTZ 2A 3728	1130 2.22.01	R. Thoren	1130 2.22.01
R. Thoren	1130 2.22.01	FEDEX	
Fed Ex	2/23/01 0935	V. Thomas	2.23.01 0935

RT 2/21

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) [Tributyl phosphate]
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 2/23/01 0935

SDG#: 01021085

Work Order Number: — SAF# B01-053

Shipping Container ID: _____ Chain of Custody # B01-053-01

1. Custody Seals on shipping container intact? Yes [✓] No [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 2°, 2°, 3°
5. Vermiculite/packing materials is Wet [ ] Dry [✓] vm 2/23/01
6. Number of samples in shipping container: ~~22~~ 42
7. Sample holding times exceeded? PH Yes [✓] No [ ]

8. Samples have:
   - ____ tape
   - ____ hazard labels
   - ✓ custody seals
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ leaking
   - ____ broken
   - ____ have air bubbles

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

Sample Custodian/Laboratory: [signature] Date: 2/23/01

Telephoned to: _____ On _____ By _____

010

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

APR 2001
RECEIVED

DATE RECEIVED: 02/23/01 LVL LOT # :0102D083

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1	001	W	01LE0199	02/21/01	02/26/01	03/08/01
B11CX1	001 MS	W	01LE0199	02/21/01	02/26/01	03/08/01
B11CX1	001 MSD	W	01LE0199	02/21/01	02/26/01	03/09/01
B11CX2	002	W	01LE0199	02/21/01	02/26/01	03/09/01

LAB QC:

PBLKQA	MB1	W	01LE0199	N/A	02/26/01	03/10/01
PBLKQA	MB1 BS	W	01LE0199	N/A	02/26/01	03/10/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-053
LVL#: 0102L085
SDG/SAF#: H1252/B01-053

W.O.#: 11343-606-001-9999-00
Date Received: 02-23-2001

PCB

Two (2) water samples were collected on 02-21-2001.

The samples and their associated QC samples were extracted on 02-26-2001 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-08,09,10-2001. The extraction procedure was based on method 3520 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 samples and their associated QC samples received a sulfuric acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. Two (2) of twelve (12) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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, with the exception of target compounds Aroclor 1016 analyzed on 03-08-2001 at 18:45 on both columns. The data reflected a decrease in the instrument response. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
10. Retention time criteria were exceeded for continuing calibration verifications associated with method blank. Larger retention time windows were used to evaluate the associated data; however, PCBs were identified using pattern recognition. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
11. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.
12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-23-01
Date

som\r:\group\data\pest\02L-085.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 11 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 a pesticide/Aroclor 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.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 016C098

Initiator: Drychak Batch: 0102V25 Parameter: PCB
Date: 3/14/01 Samples: all Matrix: Water
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: PCB-01LE0199

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) Continuing calibration standard prior to samples was decreased slightly on both columns (-18, -22%) (criteria 15%). Should not significantly impact data would like to narrate. Also slight retention time shift for CGY's associated with ESC (Basic). No significant impact since analyzed more so using pattern recognition.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: [signature] 3/14/01

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

5. Final Action...signature/date: Drychak 3/20/01 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: Doughty
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson	__	__ GC/LC: Pastor
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

5

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 03/21/01 14:53

RFW Batch Number: **0102L085** Client: **TNUHANFORD B01-053 H1252** Work Order: 11343606001 Page: 1

	Cust ID:	B11CX1	B11CX1	B11CX1	B11CX2	PBLKQA	PBLKQA BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	01LE0199-MB1	01LE0199-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	85 %	82 %	82 %	70 %	72 %	68 %
	Decachlorobiphenyl	25 %	28 %	31 %	22 %	9 * %	21 * %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221		2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254		1.0 U	99 %	103 %	1.0 U	1.0 U	94 %
Aroclor-1260		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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

Lionville Laboratory Use Only: 0102L085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL

Client: TPU-Hanford B01-053
Est. Final Proj. Sampling Date:
Project #: 113413-L006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spc Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
Refrigerator #		1	2	2							2	2	2		2	2	1	2	2	2	1
#/Type Container	Liquid	3V	2AG	4AG							2AG	1P	1P		1P	1P	1AG	1AG	1AG	1P	
	Solid																				
Volume	Liquid	40	1L	1L							1L	1L	125		500	1L	500	250	500	500	
	Solid																				
Preservatives		HCl	–	–							H2SO4	–	–		HNO3	NaOH	H2SO4	–	HNO3	–	
ANALYSES REQUESTED		ORGANIC													INORG						
		VOA	BNA	Pest/PCB	Herb						TPH by DRO	TCLP Met.			Metal	CN	TOC		Hg		1 Lochgate

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OLC24X	OLC25X	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)
	001	B11CX1			W	2-23-01	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
	002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
	003	B11CX1 trip of 001			L	*	–														✓
	004	1 2 1 002			1	1	1														✓

ODRO A, OPCB A

Special Instructions: SAP B01-053
Run matrix QC

DATE/REVISIONS:
* 1. See labchron
IC(1) 2. Cl, F, NO3, NO2, PO4, SO4
Met(1) 3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1 4. Mg, Mn, Na, Ni, Sb, V, Zn
Met(2) 5. Be BA TCLP
6.

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___
Airbill # [illegible]
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 (pH)

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. 2° °C

4235 7954 2591 1°
4235 7954 2617 7
4235 7954 2580

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days — Air Quality ☐
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-054 (2 of 4)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA 2/22/01 — OML-462 (4 of 4)	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 4954 - 2591	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. FT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	2	1	1	1	1	2	1
Volume	125mL	250mL 500 10% HCl	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Technetium-99	See item (3) in Special Instructions.	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 2/22/01	~~WATER~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
GALE Watson	2/21/01 1415	R Thoren	2.21.01 1415
R Thoren	2.21.01 1445	Stored in Ref 2A 3728	2.21.01 1445
Removed from Ref 2A 3728	2.22.01 1130	R Thoren	2.22.01 1130
R Thoren	2.22.01 1130	FED EX	
Fed Ex	2/23/01 0935	Vicki Hennig	2/23/01 0935

FT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
(3) ~~Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Strontium-89,90 = Total Sr~~

RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	Air Quality ☐
Ice Chest No.: ERC 99-057 (1 of 4)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~FMA~~/RECRA 2/22/01	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235795 4 - 2580	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. TT 2-21-01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	1	3	4			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			

SAMPLE ANALYSIS	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions.	7591-Diesel Range - WTPH-D	See item (2) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol)	PCBs - 8082			

Sample No.	Matrix *	Sample Date	Sample Time									
B11CX1	WATER	2·21·01	1120		X	X	X		X	X		
B11CX2	WATER	2·21·01	1315		X	X	X		X	X		
~~B11CX3~~ 2/22/01	~~WATER~~								✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
S JONES	22101 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	STORED IN RT 2.21.01 Ref ZA 3728	1445 2.21.01
Removed from Ref ZA 3728	1130 2.22.01	R. Thoren	1130 2.22.01
R. Thoren	1130 2.22.01	FED EX	
Fed Ex	2/23/01 0935	V. Neenan	2.23.01 0935

RT 2.21

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) (Tributyl phosphate)
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

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

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

PHLSF 011 (10/99)

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B01-053 H1252

APR 2001
RECEIVED

DATE RECEIVED: 02/23/01 LVL LOT # :01L085

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1	001	W	01LE0207	02/21/01	02/27/01	03/06/01
B11CX1	001 MS	W	01LE0207	02/21/01	02/27/01	03/06/01
B11CX1	001 MSD	W	01LE0207	02/21/01	02/27/01	03/06/01
B11CX2	002	W	01LE0207	02/21/01	02/27/01	03/06/01

LAB QC:

SBLKRU	MB1	W	01LE0207	N/A	02/27/01	03/06/01
SBLKRU	MB1 BS	W	01LE0207	N/A	02/27/01	03/06/01

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-053
RFW #: 0102L085
SDG/SAF #: H1252/B01-053

W.O. #: 11343-606-001-9999-00
Date Received: 02-23-2001

SEMIVOLATILE

Two (2) water samples were collected on 02-21-2001.

The samples and their associated QC samples were extracted on 02-27-2001 and analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8270C for TCL and Tributylphosphate Semivolatile target compounds on 03-06-2001.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was extracted and analyzed within required holding times.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All blank spike recoveries were within EPA QC limits.
6. All matrix spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Bis(2-Ethylhexyl)phthalate at a level less than 3x the CRQL.
8. Internal standard area criteria were not met for the method blank (01LE0207-MB1). The GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate recoveries were within QC limits; consequently, the sample was not reanalyzed.
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."
10. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-23-01
Date

som\gorup\data\bna\tnu-hanford-0102-085.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 BNA DATA

DATA QUALIFIERS

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

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.bna

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 03/07/01 13:38

RFW Batch Number: **0102L085** Client: ***TNU-HANFORD B01-053*** Work Order: 11343606001 Page: 1a

	Cust ID:	B11CX1		B11CX1		B11CX1		B11CX2		SBLKRU		SBLKRU BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		01LE0207-MB1		01LE0207-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	76	%	81	%	84	%	83	%	52	%	84	%
	2-Fluorobiphenyl	70	%	76	%	78	%	85	%	73	%	71	%
	p-Terphenyl-d14	108	%	103	%	100	%	101	%	71	%	103	%
	Phenol-d5	75	%	82	%	83	%	69	%	10	%	84	%
	2-Fluorophenol	71	%	81	%	80	%	81	%	49	%	80	%
	2,4,6-Tribromophenol	70	%	75	%	87	%	83	%	65	%	82	%
			fl		fl		fl		fl		fl		fl
Phenol		10	U	85	%	87	%	10	U	10	U	85	%
bis(2-Chloroethyl)ether		10	U	22	U	22	U	10	U	10	U	10	U
2-Chlorophenol		10	U	87	%	89	%	10	U	10	U	85	%
1,3-Dichlorobenzene		10	U	22	U	22	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	57	%	65	%	10	U	10	U	49	%
1,2-Dichlorobenzene		10	U	22	U	22	U	10	U	10	U	10	U
2-Methylphenol		10	U	22	U	22	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)		10	U	22	U	22	U	10	U	10	U	10	U
4-Methylphenol		10	U	22	U	22	U	10	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	85	%	98	%	10	U	10	U	93	%
Hexachloroethane		10	U	22	U	22	U	10	U	10	U	10	U
Nitrobenzene		10	U	22	U	22	U	10	U	10	U	10	U
Isophorone		10	U	22	U	22	U	10	U	10	U	10	U
2-Nitrophenol		10	U	22	U	22	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	22	U	22	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	22	U	22	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	22	U	22	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	61	%	70	%	10	U	10	U	53	%
Naphthalene		10	U	22	U	22	U	10	U	10	U	10	U
4-Chloroaniline		10	U	22	U	22	U	10	U	10	U	10	U
Hexachlorobutadiene		10	U	22	U	22	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	81	%	90	%	10	U	10	U	83	%
2-Methylnaphthalene		10	U	22	U	22	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	22	U	22	U	10	U	10	U	10	U
2,4,6-Trichlorophenol		10	U	22	U	22	U	10	U	10	U	10	U
2,4,5-Trichlorophenol		25	U	54	U	54	U	25	U	25	U	25	U

*= *Outside of EPA CLP QC limits.*

RFW Batch Number: **0102L085** Client: **TNU-HANFORD B01-053** Work Order: 11343606001 Page: 1b

Cust ID:	B11CX1		B11CX1		B11CX1		B11CX2		SBLKRU		SBLKRU BS	
RFW#:	001		001 MS		001 MSD		002		01LE0207-MB1		01LE0207-MB1	
2-Chloronaphthalene	10	U	22	U	22	U	10	U	10	U	10	U
2-Nitroaniline	25	U	54	U	54	U	25	U	25	U	25	U
Dimethylphthalate	10	U	22	U	22	U	10	U	10	U	10	U
Acenaphthylene	10	U	22	U	22	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	22	U	22	U	10	U	10	U	10	U
3-Nitroaniline	25	U	54	U	54	U	25	U	25	U	25	U
Acenaphthene	10	U	78	%	83	%	10	U	10	U	75	%
2,4-Dinitrophenol	25	U	54	U	54	U	25	U	25	U	25	U
4-Nitrophenol	25	U	66	%	76	%	25	U	25	U	67	%
Dibenzofuran	10	U	22	U	22	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	82	%	92	%	10	U	10	U	83	%
Diethylphthalate	10	U	22	U	22	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	22	U	22	U	10	U	10	U	10	U
Fluorene	10	U	22	U	22	U	10	U	10	U	10	U
4-Nitroaniline	25	U	54	U	54	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	54	U	54	U	25	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	22	U	22	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	22	U	22	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	22	U	22	U	10	U	10	U	10	U
Pentachlorophenol	25	U	33	%	40	%	25	U	25	U	40	%
Phenanthrene	10	U	22	U	22	U	10	U	10	U	10	U
Anthracene	10	U	22	U	22	U	10	U	10	U	10	U
Carbazole	10	U	22	U	22	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	22	U	22	U	10	U	10	U	10	U
Fluoranthene	10	U	22	U	22	U	10	U	10	U	10	U
Pyrene	10	U	106	%	97	%	10	U	10	U	99	%
Butylbenzylphthalate	10	U	22	U	22	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	22	U	22	U	10	U	10	U	10	U
Benzo(a)anthracene	10	U	22	U	22	U	10	U	10	U	10	U
Chrysene	10	U	22	U	22	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	13	B	11	JB	18	JB	8	JB	24		14	B
Di-n-Octyl phthalate	10	U	22	U	22	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	22	U	22	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	22	U	22	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	22	U	22	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	22	U	22	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	22	U	22	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	22	U	22	U	10	U	10	U	10	U
Tributylphosphate	10	U	22	U	22	U	10	U	10	U	10	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.

B11CX1

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

Client: TNUHANFORD B01-053 H1252

Matrix: (soil/water) WATER

Lab Sample ID: 0102L085-001

Sample wt/vol: 990 (g/mL) ML

Lab File ID: D030611

Level: (low/med) LOW

Date Received: 02/23/01

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

Date Extracted: 02/27/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 0

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CX2

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

Client: TNUHANFORD B01-053 H1252

Matrix: (soil/water) WATER

Lab Sample ID: 0102L085-002

Sample wt/vol: 990 (g/mL) ML

Lab File ID: D030614

Level: (low/med) LOW

Date Received: 02/23/01

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

Date Extracted: 02/27/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.184	2	JB

8

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKRU

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

Client: TNUHANFORD B01-053 H1252

Matrix: (soil/water) WATER

Lab Sample ID: 01LE0207-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: D030609

Level: (low/med) LOW

Date Received: 02/27/01

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

Date Extracted: 02/27/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.974	2	J
2.	UNKNOWN	8.200	10	J

Lionville Laboratory Use Only

01021085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(9) TPH Dig GCMS

LVLI

Client: TPU-Hanford B01-053

Est. Final Proj. Sampling Date:

Project #: 113413-C006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 2-23-01 Date Due: 3-16-01

Refrigerator #		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
		1	2	2							2	2	2	2	2	2
#/Type Container	Liquid	3V	2AG	4AG							2AG	1P	1P	1P	1P	1AG
	Solid															
Volume	Liquid	40	1L	1L							1L	1L	125	500	1L	500
	Solid															
Preservatives		HCl	–	–							H2SO4	–	–	HNO3	NaOH	H2SO4
ANALYSES REQUESTED		ORGANIC												INORG		
		VOA	BNA	Pest/PCB	Herb						TPH by Diesel	TCLP Met.		Metal	CN	TOC

Refrigerator #	P	Q	R	S	T											
	1	2	2	2	2											
#/Type Container	1AG	1AG	1AG	1P	1											
Volume	1L	250	500	500	1											
Preservatives	H2SO4	–	HNO3	–	–											
ANALYSES REQUESTED																
	TOC		Hg		1											

Lionville Laboratory Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OCA24X*	OCASX	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)	
	001	B11CX1			W	2-23-01	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
	002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		
	003	B11CX1 tclp of 001			1	*	–														✓	
	004	1 2 1 002			1	1	1														✓	

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

Special Instructions: SAF B01-053
Run matrix QC
3-12-01: OCA24X changed to OCA24H

DATE/REVISIONS:

*	1. Sec Idochron
IC(1)	2. Cl, Fl, NO3, NO2, PO4, SO4
Met(1)	3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1	4. Mg, Mn, Na, Ni, Sb, V, Zn, As, Pb, Se
Met(2)	5. Be, Ba, Tl, V
3-7-01	6. As, Pb, Se added

Lionville Laboratory Use Only

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

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. 2° °C

Relinquished by	Received by	Date	Time
		3/23/01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

4235 7954 2591 10

4235 7954 2617 7

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-054 (2 of 4) 8ML-462 (4 of 4)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7454 - 2591

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Technetium-99	See item (3) in Special Instructions.	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 2/22/01	~~WATER~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Gale [illegible] 22101	1415	R Thoren	1415 2.21.01
R Thoren	1445 2.21.01	Stored in Ref 2A 3728	1445 2.21.01
Ken Johnston	1130 2.22.01	R Thoren	1130 2.22.01
R Thoren	1130 2.22.01	FEDEX	
Fed Ex	2/23/01 0935	Neil Kennedy	2/23/01 0935

RT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
~~(3) Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Strontium-89,90 = Total Sr~~

RT 2.21.01

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

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

BHI-EE-011 (10/99)

12

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West		SAF No.: B01-053
Ice Chest No.: ERC 99-057 (1 of 4)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA 2/21/01	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235795 4 - 2580

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. LT 2-21-01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	2	3	2 4			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol)	PCBs - 8082			
B11CX1	WATER	2·21·01	1120		X	X	X		X	X			
B11CX2	WATER	2-21-01	1315		X	X	X		X	X			
~~B11CX3~~ 2/22/01	~~WATER~~								✓				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
S J Gale	22101 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	Stored in Ref 2A 3728	1445 2.21.01
Removed from Ref 2A 3728	1130 2.22.01	R. Thoren	1130 2.22.01
R Thoren	1130 2.22.01	FED EX	
Fed Ex	2/23/01 0935	V. Thomas	2.23.01 0935

RT 2.21

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

APR 2001
RECEIVED

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-053 H1252

DATE RECEIVED: 02/23/01 LVL LOT # :0102L085

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CX1	001	W	01LVX076	02/21/01	N/A	03/01/01
B11CX2	002	W	01LVX076	02/21/01	N/A	03/01/01
B11CX2	002 MS	W	01LVX076	02/21/01	N/A	03/01/01
B11CX2	002 MSD	W	01LVX076	02/21/01	N/A	03/01/01

LAB QC:

VBLKQA	MB1	W	01LVX076	N/A	N/A	03/01/01
VBLKQA	MB1 BS	W	01LVX076	N/A	N/A	03/01/01

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-053
RFW #: 0102L085
SDG/SAF #: H1252/B01-053

W.O. #: 11343-606-001-9999-00
Date Received: 02-23-2001

GC/MS VOLATILE

Two (2) water samples were collected on 02-21-2001.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 03-01-2001.

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

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

2. Samples were analyzed within required holding time.

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

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 contaminants Methylene Chloride and Acetone at levels less than 4x the CRQL.

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

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

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-19-01
Date

som\group\data\voa\tnu-hanford-0102-085.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

mmz\10-94\gloss.voa

GLOSSARY OF VOA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.voa

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 03/16/01 05:40

RFW Batch Number: **0102L085** Client: **TNUHANFORD B01-053 H1252** Work Order: 11343606001 Page: 1a

	Cust ID:	B11CX1		B11CX2		B11CX2		B11CX2		VBLKQA		VBLKQA BS	
Sample Information	RFW#:	001		002		002 MS		002 MSD		01LVX076-MB1		01LVX076-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	111	%	108	%	104	%	109	%	104	%	109	%
	Bromofluorobenzene	106	%	108	%	104	%	104	%	105	%	102	%
	1,2-Dichloroethane-d4	106	%	102	%	99	%	107	%	102	%	104	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		11	B	9	B	10	B	10	B	15		10	B
Acetone		10	U	10	U	10	U	10	U	7	J	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	106	%	95	%	5	U	112	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	100	%	92	%	5	U	106	%
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	98	%	90	%	5	U	102	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Toluene		5	U	5	U	105	%	94	%	5	U	111	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0102L085** Client: **TNUHANFORD B01-053 H1252** Work Order: 11343606001 Page: 1b

Cust ID:	B11CX1		B11CX2		B11CX2		B11CX2		VBLKQA		VBLKQA BS	
RFW#:	001		002		002 MS		002 MSD		01LVX076-MB1		01LVX076-MB1	
Chlorobenzene	5	U	5	U	103	%	88	%	5	U	108	%
Ethylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U	5	U	5	U
Xylene (total)	5	U	5	U	5	U	5	U	5	U	5	U
N-Butanol	250	U	250	U	250	U	250	U	250	U	250	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only: 01021085

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(9) MTA Dig GCMS

LVLI

Client: TPU - Hanford B01-053
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Refrigerator #		1	2	2							2	2	2	2	2	2	1	2	2	2
#/Type Container	Liquid	3V	2AG	4AG							2AG		1P	1P	1P	1P	1AG	1AG	1AG	1P
	Solid																			
Volume	Liquid	40	1L	1L							1L	1L	125	500	1L	500	250	500	500	
	Solid																			
Preservatives		HCl	-	-							H_2SO_4	-	-	HNO_3	$NaOH$	H_2SO_4	-	HNO_3	-	

ANALYSES REQUESTED →

ORGANIC							INORG					
VOA	BNA	Pest/PCB	Herb	TPH & Diesel	TCLP Met.		Metal	CN	TOC		Hg	

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	TCLP OA24H* II	OA25X	OPCB		ODRO	ITCLP	IPH	Met(1)	ICNTO	IOCT	IIGN	MHGTO	IC(1)	Met(2)
001	B11CX1			W	2-23-01	1120	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
002	1 2			1	1	1315	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
003	B11CX1 tclp of 001			L	*	-														✓
004	1 2 1 002			1	1	1														✓

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

Special Instructions: SAF B01-053
Run matrix QC
3-12-01: OA24x changed to OA24H

DATE/REVISIONS:
* 1. See lab chron
IC(1) 2. Cl, Fl, NO3, NO2, PO4, SO4
Met(1) 3. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
1 4. Mg, Mn, Na, Ni, Sb, V, Zn, As, Pb, Se
Met(2) 5. Be BA TCLP
3-7-01 6. As, Pb, Se added

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # [signature]
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) PH

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. 2° °C

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

4235 7954 2591 2°

4235 7954 2617 3

4235 7954 2580

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 1 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 7L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	
Ice Chest No.: ERC 99-054 (2 of 4) OML-462 (4 of 4)	Field Logbook No.: EL-1519	COA: B276SX130C	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7454 - 2591

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 2.21.01

Special Handling and/or Storage

Preservation	None	HCl or H2SO4 to pH <2 Coo	None	None	HNO3 to pH <2	Cool 4C	HNO3 to pH <2	HCl to pH <2	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C
Type of Container	P	aG	aG	P	aG	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	~~250mL~~ 500	250mL	250mL	500mL	500mL	500mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Ignitability - 1010	Tritium - H3	Mercury - 7470 - (CV)	See item (1) in Special Instructions	See item (2) in Special Instructions	Technetium-99	See item (3) in Special Instructions	Total Cyanide - 9010
B11CX1	WATER	2-21-01	1120	X	X	X		X	X	X			X
B11CX2	WATER	2-21-01	1315	X	X	X		X	X	X			X
~~B11CX3~~ 2/22/01	~~WATER~~												

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

Relinquished By	Date/Time	Received By	Date/Time
S GALE	2 22 01 1415	R Thoren	2.21.01 1415
R Thoren	2.21.01 1445	STORED IN Ref 2A 3728	2.21.01 1415
Remington	2.22.01 1130	R Thoren	2.22.01 1130
R Thoren	2.22.01 1130	FED EX	
Fed Ex	2/23/01 0935	Neil Hennig	2/23/01 0935

RT 2.21.01

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium)
~~(3) Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Strontium-89/90 = Total Sr~~

RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)

5

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-053-01	Page 2 of 2

Collector: Gale/Watson	Company Contact: Jacques, ID — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 7L — Data Turnaround: 21 Days
Project Designation: 276-S Hexone Tank - QC Sampling	Sampling Location: 200 West	SAF No.: B01-053	Air Quality ☐
Ice Chest No.: ERC 99-057 (1 of 4)	Field Logbook No.: EL-1519 — COA: B276SX130C	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA 2/22/01	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235795 4 — 2580	

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples did not originate in radiological controlled area. No total activity associated with sample/samples. LT 2-21-01

Special Handling and/or Storage

Preservation	None	None	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl or H2SO4 to pH <2 Coo	Cooled to 4C			
Type of Container	P	P	aG	aG	P	aGs*	aG			
No. of Container(s)	1	1	2	2	2	3	2 4 2/22/01			
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	40mL	1000mL			
SAMPLE ANALYSIS	Carbon-14	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D	See item (2) in Special Instructions	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol)	PCBs - 8082			

Sample No.	Matrix *	Sample Date	Sample Time										
B11CX1	WATER	2-21-01	1120		X	X	X		X	X			
B11CX2	WATER	2-21-01	1315		X	X	X		X	X			
~~B11CX3~~ 2/22/01	~~WATER~~								✓				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
S J Gale	2 21 01 1415	R. Thoren	1415 2.21.01
R. Thoren	1445 2.21.01	~~Received By~~ STORED IN Ref 2A 3728	1445 2.21.01
Removed from Ref 2A 3728	1130 2.22.01	R. Thoren	1130 2.22.01
R. Thoren	1130 2.22.01	FEDEX	
Fed Ex	2/23/01 0935	V. Hennessy	2.23.01 0935
Relinquished By	Date/Time	Received By	Date/Time

RT 2.21

SPECIAL INSTRUCTIONS

(1) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)
(2) ~~Isotopic Plutonium; Americium-241/Curium-244 (Americium-241, Curium-244)~~ RT 2.21.01

Matrix *

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

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

BHI-EE-011 (10/99)