1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1262 was composed of three other solid samples designated under SAF No. B00-073 with a Project Designation of: 100-D & 100-H Rx Waste Sampling – Other Solids.

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 21, 23, and 30, 2001.

RECEIVED
OCT 23 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

Tritium analysis was requested by BHI on March 23, 2001. No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 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 Thorium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.7 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.8 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.9 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.10 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

3/30/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

SAMPLE SUMMARY

SDG 7644
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11CP5	100 H Reactor	SOLID		R102160-02	B00-073	B00-073-019	02/14/01 10:15
B11CP7	100 H Reactor	SOLID		R102160-01	B00-073	B00-073-019	02/14/01 08:30
B11CR3	100 H Reactor	SOLID		R102160-03	B00-073	B00-073-019	02/14/01 10:15
Method Blank		SOLID		R102160-05	B00-073		
Method Blank		SOLID		R102160-09	B00-073		
Lab Control Sample		SOLID		R102160-04	B00-073		
Lab Control Sample		SOLID		R102160-08	B00-073		
Duplicate (R102160-02)	100 H Reactor	SOLID		R102160-06	B00-073		02/14/01 10:15
Duplicate (R102160-02)	100 H Reactor	SOLID		R102160-10	B00-073		02/14/01 10:15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

QC SUMMARY

SDG 7644
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

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
7644	B00-073-019	B11CP5	SOLID	100.0			02/28/01	14	R102160-02	7644-002
		B11CP7	SOLID	100.0			02/28/01	14	R102160-01	7644-001
		B11CR3	SOLID	100.0			02/28/01	14	R102160-03	7644-003
		Method Blank	SOLID						R102160-05	7644-005
		Method Blank	SOLID						R102160-09	7644-009
		Lab Control Sample	SOLID						R102160-04	7644-004
		Lab Control Sample	SOLID						R102160-08	7644-008
		Duplicate (R102160-02)	SOLID	100.0			02/28/01	14	R102160-06	7644-006
		Duplicate (R102160-02)	SOLID	100.0			02/28/01	14	R102160-10	7644-010

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

PREP BATCH SUMMARY

SDG 7644
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6963-202	5.0	3			1	1	1/1		
NP	SOLID	Neptunium in Soil	6963-202	5.0	3			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6963-202	5.0	3			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6963-202	5.0	3			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6963-202	5.0	3			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6963-202	10.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6963-202	15.0	3			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6963-202	10.0	3			1	1	1/1		
H	SOLID	Tritium in Soil	6963-202	10.0	3			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6963-202	10.0	3			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

WORK SUMMARY

SDG 7644
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11CP5			R102160-02	7644-002	AM	R1	03/09/01	03/21/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/14/01	7644-002	C		03/14/01	03/21/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/28/01	7644-002	GAM		03/07/01	03/21/01	MCM	Gamma Scan
				7644-002	H		03/26/01	03/30/01	MCM	Tritium in Soil
				7644-002	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-002	NP		03/14/01	03/21/01	MCM	Neptunium in Soil
				7644-002	PU		03/12/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-002	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-002	TH		03/09/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-002	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil
B11CP7			R102160-01	7644-001	AM		03/07/01	03/21/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/14/01	7644-001	C		03/14/01	03/21/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/28/01	7644-001	GAM		03/07/01	03/21/01	MCM	Gamma Scan
				7644-001	H		03/26/01	03/30/01	MCM	Tritium in Soil
				7644-001	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-001	NP		03/15/01	03/21/01	MCM	Neptunium in Soil
				7644-001	PU		03/12/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-001	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-001	TH		03/09/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-001	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil
B11CR3			R102160-03	7644-003	AM		03/07/01	03/21/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/14/01	7644-003	C		03/14/01	03/21/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/28/01	7644-003	GAM		03/07/01	03/21/01	MCM	Gamma Scan
				7644-003	H		03/26/01	03/30/01	MCM	Tritium in Soil
				7644-003	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-003	NP		03/14/01	03/21/01	MCM	Neptunium in Soil
				7644-003	PU		03/12/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-003	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-003	TH		03/09/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-003	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

SDG 7644
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R102160-05	7644-005	AM		03/07/01	03/21/01	MCM	Americium 241 in Soil
		SOLID		7644-005	C		03/14/01	03/21/01	MCM	Carbon 14 in Soil
	B00-073			7644-005	GAM		03/07/01	03/21/01	MCM	Gamma Scan
				7644-005	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-005	NP		03/15/01	03/21/01	MCM	Neptunium in Soil
				7644-005	PU		03/12/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-005	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-005	TH		03/09/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-005	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil
Method Blank			R102160-09	7644-009	H		03/26/01	03/30/01	MCM	Tritium in Soil
		SOLID								
	B00-073									
Lab Control Sample			R102160-04	7644-004	AM		03/07/01	03/21/01	MCM	Americium 241 in Soil
		SOLID		7644-004	C		03/15/01	03/21/01	MCM	Carbon 14 in Soil
	B00-073			7644-004	GAM		03/07/01	03/21/01	MCM	Gamma Scan
				7644-004	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-004	NP		03/22/01	03/23/01	MCM	Neptunium in Soil
				7644-004	PU		03/12/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-004	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-004	TH		03/15/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-004	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R102160-08	7644-008	H		03/27/01	03/30/01	MCM	Tritium in Soil
		SOLID								
	B00-073									
Duplicate (R102160-02)			R102160-06	7644-006	AM		03/07/01	03/21/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/14/01	7644-006	C		03/14/01	03/21/01	MCM	Carbon 14 in Soil
	B00-073		02/28/01	7644-006	GAM		03/09/01	03/21/01	MCM	Gamma Scan
				7644-006	NI_L		03/10/01	03/21/01	MCM	Nickel 63 in Soil
				7644-006	NP		03/14/01	03/21/01	MCM	Neptunium in Soil
				7644-006	PU		03/15/01	03/21/01	MCM	Plutonium, Isotopic in Solids
				7644-006	SR		03/08/01	03/21/01	MCM	Total Strontium in Soil
				7644-006	TH		03/14/01	03/21/01	MCM	Thorium, Isotopic in Soil
				7644-006	U		03/07/01	03/21/01	MCM	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

SDG 7644
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1262

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R102160-02)			R102160-10	7644-010	H		03/26/01	03/30/01	MCM	Tritium in Soil
100 H Reactor		SOLID	02/14/01							
	B00-073		02/28/01							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B00-073	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	3			1	1	1	6
C	B00-073	Carbon 14 in Soil	C14_COX_LSC	3			1	1	1	6
GAM	B00-073	Gamma Scan	GAMMA_GS	3			1	1	1	6
H	B00-073	Tritium in Soil	TRITIUM_COX_LSC	3			1	1	1	6
NI_L	B00-073	Nickel 63 in Soil	NI63_LSC	3			1	1	1	6
NP	B00-073	Neptunium in Soil	NP237_LLE_PLATE_AEA	3			1	1	1	6
PU	B00-073	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	3			1	1	1	6
SR	B00-073	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	3			1	1	1	6
TH	B00-073	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	3			1	1	1	6
U	B00-073	Uranium, Isotopic in Soil	UISO_PLATE_AEA	3			1	1	1	6
TOTALS				30			10	10	10	60

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/30/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1262

R102160-05 Method Blank

METHOD BLANK

SDG	7644	Client/Case no	Hanford	SDG H1262	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102160-05	Client sample id	Method Blank		
Dept sample id	7644-005	Material/Matrix		SOLID	
		SAF No	B00-073		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-2.01	3.1	5.3	50	U	C
Nickel 63	13981-37-8	0.758	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	-0.021	0.12	0.26	1.0	U	SR
Americium 241	14596-10-2	-0.121	0.24	0.58	1.0	U	AM
Thorium 228	14274-82-9	-0.098	0.20	0.47		U	TH
Thorium 230	14269-63-7	-0.065	0.26	0.44	1.0	U	TH
Thorium 232	TH-232	0.033	0.065	0.25	1.0	U	TH
Uranium 233	U-233/234	0	0.052	0.20	1.0	U	U
Uranium 235	15117-96-1	0	0.063	0.24	1.0	U	U
Uranium 238	U-238	0.026	0.052	0.20	1.0	U	U
Neptunium 237	13994-20-2	0	0.046	0.069	1.0	U	NP
Plutonium 238	13981-16-3	0.010	0.010	0.040	1.0	U	PU
Plutonium 239/240	PU-239/240	0.016	0.021	0.040	1.0	U	PU
Potassium 40	13966-00-2	U		0.75		U	GAM
Cobalt 60	10198-40-0	U		0.058	0.050	U	GAM
Barium 133	13981-41-4	U		0.059		U	GAM
Cesium 137	10045-97-3	U		0.059	0.10	U	GAM
Radium 226	13982-63-3	U		0.11	0.10	U	GAM
Radium 228	15262-20-1	U		0.26	0.20	U	GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	U		0.081		U	GAM
Thorium 232	TH-232	U		0.26		U	GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		7.0		U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

100-D & 100-H Rx Waste Smpl. -OS

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

BLANK, cont.

SDG	7644	Client/Case no	Hanford	SDG H1262	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102160-05	Client sample id	Method Blank		
Dept sample id	7644-005	Material/Matrix		SOLID	
		SAF No	B00-073		

QC-BLANK 37836

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1262
METHOD BLANK

SDG	7644	Client/Case no	Hanford SDG H1262
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102160-09	Client sample id	Method Blank
Dept sample id	7644-009	Material/Matrix	SOLID
		SAF No	B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.295	3.2	5.4	400	U	H

100-D & 100-H Rx Waste Smpl. -OS

QC-BLANK 38032

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

R102160-04

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7644
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1262
Case no TRC-SBB-207925

Lab sample id R102160-04
Dept sample id 7644-004

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-073

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	11000	220	35	50		C	11300	450	97	84-116	80-120
Nickel 63	252	5.3	2.6	30		NI_L	266	11	95	84-116	80-120
Total Strontium	24.1	0.86	0.23	1.0		SR	23.0	0.92	105	82-118	80-120
Americium 241	23.0	2.9	0.44	1.0		AM	21.0	0.84	110	77-123	80-120
Thorium 230	42.4	3.7	0.40	1.0		TH	42.8	1.7	99	84-116	80-120
Uranium 233	19.4	2.0	0.91	1.0		U	19.3	0.77	100	82-118	80-120
Uranium 235	13.9	1.6	0.24	1.0		U	15.7	0.63	89	82-118	80-120
Uranium 238	21.0	2.1	0.88	1.0		U	21.0	0.84	100	82-118	80-120
Neptunium 237	22.6	2.6	0.21	1.0		NP	23.8	0.95	95	81-119	80-120
Plutonium 238	27.2	0.96	0.090	1.0		PU	27.2	1.1	100	89-111	80-120
Plutonium 239/240	29.5	1.0	0.026	1.0		PU	29.0	1.2	102	89-111	80-120
Cobalt 60	5.99	0.37	0.22	0.050		GAM	5.86	0.23	102	74-126	80-120
Cesium 137	5.75	0.29	0.24	0.10		GAM	5.77	0.23	100	76-124	80-120

100-D & 100-H Rx Waste Smpl. -OS

QC-LCS 37835

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

R102160-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7644
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1262
Case no TRC-SBB-207925

Lab sample id R102160-08
Dept sample id 7644-008

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-073

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	1430	21	5.6	400		H	1460	58	98	84-116	80-120

100-D & 100-H Rx Waste Smpl. -OS

QC-LCS 38031

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

R102160-06 B11CP5

DUPLICATE

SDG	7644			Client/Case no	Hanford SDG H1262
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL			
Lab sample id	R102160-06	Lab sample id	R102160-02	Client sample id	B11CP5
Dept sample id	7644-006	Dept sample id	7644-002	Location/Matrix	100 H Reactor SOLID
		Received	02/28/01	Collected	02/14/01 10:15
% solids	100.0	% solids	100.0	Custody/SAF No	B00-073-019 B00-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Carbon 14	0	0	5.5	50	U	C	-0.895	3.0	5.0	U	-		
Nickel 63	0.289	1.3	2.2	30	U	NI_L	0.710	1.4	2.3	U	-		
Total Strontium	0.212	0.12	0.19	1.0	J	SR	0.318	0.13	0.19	J	40	102	
Americium 241	0	0.12	0.22	1.0	U	AM	-0.032	0.13	0.35	U	-		
Thorium 228	0.341	0.13	0.16			TH	0.425	0.39	0.66	U	22	161	
Thorium 230	0.733	0.21	0.28	1.0	J	TH	0.652	0.39	0.42	J	12	97	
Thorium 232	0.367	0.097	0.053	1.0	J	TH	0.268	0.23	0.29	U	31	118	
Uranium 233	0.830	0.30	0.19	1.0	J	U	0.962	0.33	0.20	J	15	75	
Uranium 235	0.089	0.12	0.23	1.0	U	U	0.097	0.13	0.25	U	-		
Uranium 238	0.830	0.30	0.19	1.0	J	U	0.454	0.22	0.20	J	59	88	
Neptunium 237	0.011	0.021	0.039	1.0	U	NP	0	0.083	0.12	U	-		
Plutonium 238	0	0.14	0.38	1.0	U	PU	0.005	0.040	0.072	U	-		
Plutonium 239/240	0	0.069	0.26	1.0	U	PU	0.030	0.030	0.048	U	-		
Potassium 40	17.1	2.0	1.1			GAM	13.3	2.0	1.6		25	43	
Cobalt 60	U		0.16	0.050	U	GAM	U		0.15	U	-		
Barium 133	U		0.10		U	GAM	U		0.13	U	-		
Cesium 137	0.244	0.14	0.15	0.10		GAM	0.204	0.11	0.13		18	123	
Radium 226	0.705	0.22	0.21	0.10		GAM	0.400	0.24	0.29		55	94	
Radium 228	U		0.58	0.20	U	GAM	1.06	0.54	0.52		59	149	
Europium 152	U		0.25	0.10	U	GAM	U		0.28	U	-		
Europium 154	U		0.44	0.10	U	GAM	U		0.39	U	-		
Europium 155	U		0.17	0.10	U	GAM	U		0.26	U	-		
Thorium 228	0.862	0.14	0.15			GAM	0.853	0.18	0.18		1	51	
Thorium 232	U		0.58		U	GAM	1.06	0.54	0.52		59	149	
Uranium 235	U		0.25		U	GAM	U		0.40	U	-		
Uranium 238	U		16		U	GAM	U		17	U	-		
Americium 241	U		0.098		U	GAM	U		0.29	U	-		

100-D & 100-H Rx Waste Smpl. -OS

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/30/01

DUPLICATE, cont.

SDG	7644		Client/Case no	Hanford	SDG H1262
Contact	Melissa C. Mannion		Case no	TRC-SBB-207925	
	DUPLICATE	ORIGINAL			
Lab sample id	R102160-06	Lab sample id R102160-02	Client sample id	B11CP5	
Dept sample id	7644-006	Dept sample id 7644-002	Location/Matrix	100 H Reactor	SOLID
		Received 02/28/01	Collected	02/14/01 10:15	
% solids	100.0	% solids 100.0	Custody/SAF No	B00-073-019	B00-073

QC-DUP#2 37837

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

R102160-10 B11CP5

DUPLICATE

SDG	7644			Client/Case no	Hanford SDG H1262
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R102160-10	Lab sample id	R102160-02	Client sample id	B11CP5
Dept sample id	7644-010	Dept sample id	7644-002	Location/Matrix	100 H Reactor SOLID
		Received	02/28/01	Collected	02/14/01 10:15
% solids	100.0	% solids	100.0	Custody/SAF No	B00-073-019 B00-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	0.762	3.0	5.1	400	U	H	4.12	3.2	5.2	U	-	

100-D & 100-H Rx Waste Smpl. -OS

QC-DUP#2 38033

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/30/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1262

R102160-02 B11CP5

DATA SHEET

SDG	7644	Client/Case no	Hanford SDG_H1262
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102160-02	Client sample id	B11CP5
Dept sample id	7644-002	Location/Matrix	100 H Reactor SOLID
Received	02/28/01	Collected	02/14/01 10:15
% solids	100.0	Custody/SAF No	B00-073-019 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	4.12	3.2	5.2	400	U	H
Carbon 14	14762-75-5	-0.895	3.0	5.0	50	U	C
Nickel 63	13981-37-8	0.710	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	0.318	0.13	0.19	1.0	J	SR
Americium 241	14596-10-2	-0.032	0.13	0.35	1.0	U	AM
Thorium 228	14274-82-9	0.425	0.39	0.66		U	TH
Thorium 230	14269-63-7	0.652	0.39	0.42	1.0	J	TH
Thorium 232	TH-232	0.268	0.23	0.29	1.0	U	TH
Uranium 233	U-233/234	0.962	0.33	0.20	1.0	J	U
Uranium 235	15117-96-1	0.097	0.13	0.25	1.0	U	U
Uranium 238	U-238	0.454	0.22	0.20	1.0	J	U
Neptunium 237	13994-20-2	0	0.083	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0.005	0.040	0.072	1.0	U	PU
Plutonium 239/240	PU-239/240	0.030	0.030	0.048	1.0	U	PU
Potassium 40	13966-00-2	13.3	2.0	1.6			GAM
Cobalt 60	10198-40-0	U		0.15	0.050	U	GAM
Barium 133	13981-41-4	U		0.13		U	GAM
Cesium 137	10045-97-3	0.204	0.11	0.13	0.10		GAM
Radium 226	13982-63-3	0.400	0.24	0.29	0.10		GAM
Radium 228	15262-20-1	1.06	0.54	0.52	0.20		GAM
Europium 152	14683-23-9	U		0.28	0.10	U	GAM
Europium 154	15585-10-1	U		0.39	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Thorium 228	14274-82-9	0.853	0.18	0.18			GAM
Thorium 232	TH-232	1.06	0.54	0.52			GAM
Uranium 235	15117-96-1	U		0.40		U	GAM
Uranium 238	U-238	U		17		U	GAM
Americium 241	14596-10-2	U		0.29		U	GAM

100-D & 100-H Rx Waste Smpl. -OS

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1262

R102160-01 B11CP7

DATA SHEET

SDG	7644	Client/Case no	Hanford SDG H1262
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102160-01	Client sample id	B11CP7
Dept sample id	7644-001	Location/Matrix	100 H Reactor SOLID
Received	02/28/01	Collected	02/14/01 08:30
% solids	100.0	Custody/SAF No	B00-073-019 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	12.9	14	23	400	U	H
Carbon 14	14762-75-5	-9.91	12	21	50	U	C
Nickel 63	13981-37-8	0.543	1.2	2.1	30	U	NI_L
Total Strontium	SR-RAD	0.253	0.14	0.22	1.0	J	SR
Americium 241	14596-10-2	0.089	0.18	0.34	1.0	U	AM
Thorium 228	14274-82-9	0.127	0.25	0.52		U	TH
Thorium 230	14269-63-7	-0.253	0.17	0.40	1.0	U	TH
Thorium 232	TH-232	-0.084	0.085	0.32	1.0	U	TH
Uranium 233	U-233/234	-0.025	0.050	0.19	1.0	U	U
Uranium 235	15117-96-1	0.030	0.060	0.23	1.0	U	U
Uranium 238	U-238	0.025	0.050	0.19	1.0	U	U
Neptunium 237	13994-20-2	0.031	0.062	0.093	1.0	U	NP
Plutonium 238	13981-16-3	-0.004	0.056	0.098	1.0	U	PU
Plutonium 239/240	PU-239/240	0.004	0.024	0.044	1.0	U	PU
Potassium 40	13966-00-2	U		0.66		U	GAM
Cobalt 60	10198-40-0	0.043	0.039	0.045	0.050	U	GAM
Barium 133	13981-41-4	U		0.060		U	GAM
Cesium 137	10045-97-3	0.569	0.078	0.067	0.10		GAM
Radium 226	13982-63-3	U		0.099	0.10	U	GAM
Radium 228	15262-20-1	U		0.24	0.20	U	GAM
Europium 152	14683-23-9	0.312	0.10	0.14	0.10		GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	U		0.075		U	GAM
Thorium 232	TH-232	U		0.24		U	GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		6.6		U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

100-D & 100-H Rx Waste Smpl. -OS

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1262

R102160-03 B11CR3

DATA SHEET

SDG	7644	Client/Case no	Hanford	SDG_H1262	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102160-03	Client sample id	B11CR3		
Dept sample id	7644-003	Location/Matrix	100 H Reactor	SOLID	
Received	02/28/01	Collected	02/14/01 10:15		
% solids	100.0	Custody/SAF No	B00-073-019	B00-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	2.27	3.1	5.1	400	U	H
Carbon 14	14762-75-5	-1.13	3.2	5.4	50	U	C
Nickel 63	13981-37-8	-0.370	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	0.222	0.13	0.21	1.0	J	SR
Americium 241	14596-10-2	-0.032	0.065	0.25	1.0	U	AM
Thorium 228	14274-82-9	0.418	0.32	0.46		U	TH
Thorium 230	14269-63-7	0.064	0.26	0.43	1.0	U	TH
Thorium 232	TH-232	0.257	0.19	0.25	1.0	J	TH
Uranium 233	U-233/234	0.640	0.23	0.17	1.0	J	U
Uranium 235	15117-96-1	0.028	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.571	0.23	0.17	1.0	J	U
Neptunium 237	13994-20-2	0	0.098	0.15	1.0	U	NP
Plutonium 238	13981-16-3	-0.018	0.027	0.070	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.014	0.018	0.051	1.0	U	PU
Potassium 40	13966-00-2	13.9	2.2	1.5			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Barium 133	13981-41-4	U		0.094		U	GAM
Cesium 137	10045-97-3	0.176	0.11	0.12	0.10		GAM
Radium 226	13982-63-3	0.505	0.21	0.21	0.10		GAM
Radium 228	15262-20-1	0.691	0.36	0.42	0.20		GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.42	0.10	U	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.536	0.088	0.094			GAM
Thorium 232	TH-232	0.691	0.36	0.42			GAM
Uranium 235	15117-96-1	U		0.22		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.084		U	GAM

100-D & 100-H Rx Waste Smpl. -OS

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test AM Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 6963-202						
B11CP5	R102160-02		R1	7644-002	U	
B11CP7	R102160-01			7644-001	U	
B11CR3	R102160-03			7644-003	U	
BLK (QC ID=37836)	R102160-05			7644-005	U	
LCS (QC ID=37835)	R102160-04			7644-004	ok	
Duplicate (R102160-02)	R102160-06			7644-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
100-D & 100-H Rx Waste Smpl. -OS						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 202											
B11CP5	R102160-02		R1	0.35	0.500			62		114			23	03/07/01	03/09	SS-028
B11CP7	R102160-01			0.34	0.500			53		100			21	03/07/01	03/07	SS-048
B11CR3	R102160-03			0.25	0.500			72		100			21	03/07/01	03/07	SS-050
BLK (QC ID=37836)	R102160-05			0.58	0.500			38		101				03/07/01	03/07	SS-034
LCS (QC ID=37835)	R102160-04			0.44	0.500			48		100				03/07/01	03/07	SS-028
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.22	0.500			81		101			21	03/07/01	03/07	SS-035
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES				
	MDA	0.36	±	0.26
	YIELD	59	±	32

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test NP Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6963-202						
B11CP5	R102160-02			7644-002	U	
B11CP7	R102160-01			7644-001	U	
B11CR3	R102160-03			7644-003	U	
BLK (QC ID=37836)	R102160-05			7644-005	U	
LCS (QC ID=37835)	R102160-04			7644-004	ok	
Duplicate (R102160-02)	R102160-06			7644-006	-	U
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl. -OS				RDLs (pCi/g)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 202											
B11CP5	R102160-02			0.12	0.500			55		102			28	03/14/01	03/14	SS-028
B11CP7	R102160-01			0.093	0.500			48		156			29	03/14/01	03/15	SS-028
B11CR3	R102160-03			0.15	0.500			46		102			28	03/14/01	03/14	SS-029
BLK (QC ID=37836)	R102160-05			0.069	0.500			65		156				03/14/01	03/15	SS-029
LCS (QC ID=37835)	R102160-04			0.21	0.500			34		100				03/14/01	03/22	SS-027
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.039	0.500			66		996			28	03/14/01	03/14	SS-029
Nominal values and limits from method				1.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 1

AVERAGES ± 2 SD FOR 6 SAMPLES				
	MDA	0.11	±	0.12
	YIELD	52	±	24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

Test PU Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6963-202								
B11CP5	R102160-02			7644-002	U		U	
B11CP7	R102160-01			7644-001	U		U	
B11CR3	R102160-03			7644-003	U		U	
BLK (QC ID=37836)	R102160-05			7644-005	U		U	
LCS (QC ID=37835)	R102160-04			7644-004	ok		ok	
Duplicate (R102160-02)	R102160-06			7644-006	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
100-D & 100-H Rx Waste Smpl. -OS								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 202												
B11CP5	R102160-02			0.072	0.500			53		890			26	03/12/01	03/12	SS-035
B11CP7	R102160-01			0.098	0.500			66		895			26	03/12/01	03/12	SS-028
B11CR3	R102160-03			0.070	0.500			57		890			26	03/12/01	03/12	SS-036
BLK (QC ID=37836)	R102160-05			0.040	0.500			50		895				03/12/01	03/12	SS-042
LCS (QC ID=37835)	R102160-04			0.090	0.500			75		895				03/12/01	03/12	SS-041
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.38	0.500			67		100			29	03/12/01	03/15	SS-041
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 2
	CP-940	Plutonium Separation and Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.12 ± 0.25
YIELD 61 ± 19

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test TH Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6963-202							
B11CP5	R102160-02			7644-002	U	0.652 J	U
B11CP7	R102160-01			7644-001	U	U	U
B11CR3	R102160-03			7644-003	U	U	0.257 J
BLK (QC ID=37836)	R102160-05			7644-005	U	U	U
LCS (QC ID=37835)	R102160-04			7644-004		ok	
Duplicate (R102160-02)	R102160-06			7644-006	ok	ok J	ok J
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl. -OS				RDLs (pCi/g)		1.0	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 202																
B11CP5	R102160-02			0.42	0.250			101		227			23	03/09/01	03/09	SS-018
B11CP7	R102160-01			0.40	0.250			85		171			23	03/09/01	03/09	SS-024
B11CR3	R102160-03			0.43	0.250			84		226			23	03/09/01	03/09	SS-019
BLK (QC ID=37836)	R102160-05			0.44	0.250			93		221				03/09/01	03/09	SS-022
LCS (QC ID=37835)	R102160-04			0.40	0.250			87		1273				03/09/01	03/15	SS-053
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.28	0.250			98		689			28	03/09/01	03/14	SS-028
Nominal values and limits from method				1.0	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-905	Thorium in Dissolved Solid Sample, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.40 ± 0.12
YIELD 91 ± 14

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test U	Matrix SOLID
SDG 7644	
Contact Melissa C. Mannion	

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1262	

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 6963-202											
B11CP5	R102160-02			7644-002	0.962 J	U	0.454 J	212	126	21	30
B11CP7	R102160-01			7644-001	U	U	U				
B11CR3	R102160-03			7644-003	0.640 J	U	0.571 J	112	61	5	10
BLK (QC ID=37836)	R102160-05			7644-005	U	U	U				
LCS (QC ID=37835)	R102160-04			7644-004	ok	ok	ok				
Duplicate (R102160-02)	R102160-06			7644-006	ok J	- U	ok J	100	51	11	15
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100-D & 100-H Rx Waste Smpl. -OS							Averages	141		12	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 202												
B11CP5	R102160-02			0.25	0.500			88		101			21	03/07/01	03/07	SS-042
B11CP7	R102160-01			0.23	0.500			97		101			21	03/07/01	03/07	SS-038
B11CR3	R102160-03			0.21	0.500			106		100			21	03/07/01	03/07	SS-043
BLK (QC ID=37836)	R102160-05			0.24	0.500			91		100				03/07/01	03/07	SS-045
LCS (QC ID=37835)	R102160-04			0.91	0.500			92		100				03/07/01	03/07	SS-044
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.23	0.500			96		100			21	03/07/01	03/07	SS-047
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES	MDA	0.34	± 0.55
	YIELD	95	± 13

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test SR	Matrix SOLID
SDG 7644	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1262	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6963-202						
B11CP5	R102160-02			7644-002	0.318	J
B11CP7	R102160-01			7644-001	0.253	J
B11CR3	R102160-03			7644-003	0.222	J
BLK (QC ID=37836)	R102160-05			7644-005	U	
LCS (QC ID=37835)	R102160-04			7644-004	ok	
Duplicate (R102160-02)	R102160-06			7644-006	ok	J
Nominal values and limits from method				RDLs (pCi/g)	1.0	
100-D & 100-H Rx Waste Smpl. -OS						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 202															
B11CP5	R102160-02			0.19	1.00			100		100			22	03/08/01	03/08	GRB-203
B11CP7	R102160-01			0.22	1.00			90		100			22	03/08/01	03/08	GRB-202
B11CR3	R102160-03			0.21	1.00			100		100			22	03/08/01	03/08	GRB-204
BLK (QC ID=37836)	R102160-05			0.26	1.00			88		100				03/08/01	03/08	GRB-223
LCS (QC ID=37835)	R102160-04			0.23	1.00			90		91				03/08/01	03/08	GRB-221
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.19	1.00			100		100			22	03/08/01	03/08	GRB-223
Nominal values and limits from method				1.0	1.00			30-105		100			180			

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

AVERAGES ± 2 SD	MDA	0.22	± 0.053
FOR 6 SAMPLES	YIELD	95	± 12

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test GAM Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137
Preparation batch 6963-202							
B11CP5	R102160-02			7644-002	U		0.204
B11CP7	R102160-01			7644-001	U		0.569
B11CR3	R102160-03			7644-003	U		0.176
BLK (QC ID=37836)	R102160-05			7644-005	U		U
LCS (QC ID=37835)	R102160-04			7644-004	ok		ok
Duplicate (R102160-02)	R102160-06			7644-006	-	U	ok
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl. -OS				RDLs (pCi/g)	0.050		0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202 2σ prep error 15.0 % Reference Lab Notebook 6963 pg. 202																
B11CP5	R102160-02			0.29	49.1					402			21	03/03/01	03/07	PD,03,00
B11CP7	R102160-01			0.13	65.2					402			21	03/03/01	03/07	JR,04,00
B11CR3	R102160-03			0.31	46.6					592			21	03/03/01	03/07	PD,01,00
BLK (QC ID=37836)	R102160-05			0.12	46.6					567				03/03/01	03/07	JR,04,00
LCS (QC ID=37835)	R102160-04			0.22	46.6					402				03/03/01	03/07	JR,07,00
Duplicate (R102160-02) (QC ID=37837)	R102160-06			0.32	49.1					848			23	03/03/01	03/09	JR,01,00
Nominal values and limits from method				0.050	46.6					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 2
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.23 ± 0.18
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

Test C Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-202						
B11CP5	R102160-02			7644-002	U	
B11CP7	R102160-01			7644-001	U	
B11CR3	R102160-03			7644-003	U	
BLK (QC ID=37836)	R102160-05			7644-005	U	
LCS (QC ID=37835)	R102160-04			7644-004	ok	
Duplicate (R102160-02)	R102160-06			7644-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
100-D & 100-H Rx Waste Smpl. -OS						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 202															
B11CP5	R102160-02			5.0	0.218			100		100			28	03/12/01	03/14	LSC-004
B11CP7	R102160-01			21	0.0528			100		100			28	03/12/01	03/14	LSC-004
B11CR3	R102160-03			5.4	0.205			100		100			28	03/12/01	03/14	LSC-004
BLK (QC ID=37836)	R102160-05			5.3	0.200			100		100				03/12/01	03/14	LSC-004
LCS (QC ID=37835)	R102160-04			35	0.200			100		2				03/12/01	03/15	LSC-004
Duplicate (R102160-02) (QC ID=37837)	R102160-06			5.5	0.205			100		100			28	03/12/01	03/14	LSC-004
Nominal values and limits from method				50	0.200					50			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-060	Soil Preparation, rev 2
	CP-251	Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 13 ± 25
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

Test H Matrix SOLID
SDG 7644
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-202						
B11CP5	R102160-02			7644-002	U	
B11CP7	R102160-01			7644-001	U	
B11CR3	R102160-03			7644-003	U	
BLK (QC ID=38032)	R102160-09			7644-009	U	
LCS (QC ID=38031)	R102160-08			7644-008	ok	
Duplicate (R102160-02)	R102160-10			7644-010	-	U
Nominal values and limits from method				RDLs (pCi/g)	400	
100-D & 100-H Rx Waste Smpl. -OS						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 202															
B11CP5	R102160-02			5.2	0.215			100		100			40	03/26/01	03/26	LSC-005
B11CP7	R102160-01			23	0.0508			100		100			40	03/26/01	03/26	LSC-005
B11CR3	R102160-03			5.1	0.216			100		100			40	03/26/01	03/26	LSC-005
BLK (QC ID=38032)	R102160-09			5.4	0.200			100		100				03/26/01	03/26	LSC-005
LCS (QC ID=38031)	R102160-08			5.6	0.200			100		100				03/26/01	03/27	LSC-005
Duplicate (R102160-02) (QC ID=38033)	R102160-10			5.1	0.215			100		100			40	03/26/01	03/26	LSC-005
Nominal values and limits from method				400	0.200					25			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 8.2 ± 14
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/30/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1262

Test	NI L
Matrix	SOLID
SDG	7644
Contact	Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1262

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6963-202						
B11CP5	R102160-02			7644-002	U	
B11CP7	R102160-01			7644-001	U	
B11CR3	R102160-03			7644-003	U	
BLK (QC ID=37836)	R102160-05			7644-005	U	
LCS (QC ID=37835)	R102160-04			7644-004	ok	
Duplicate (R102160-02)	R102160-06			7644-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
100-D & 100-H Rx Waste Smpl. -OS						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-202	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 202											
B11CP5	R102160-02			2.3	0.500			89		100			24	03/08/01	03/10	LSC-004
B11CP7	R102160-01			2.1	0.500			95		100			24	03/08/01	03/10	LSC-004
B11CR3	R102160-03			2.4	0.500			85		100			24	03/08/01	03/10	LSC-004
BLK (QC ID=37836)	R102160-05			2.1	0.500			95		100				03/08/01	03/10	LSC-004
LCS (QC ID=37835)	R102160-04			2.6	0.500			94		66				03/08/01	03/10	LSC-004
Duplicate (R102160-02) (QC ID=37837)	R102160-06			2.2	0.500			92		100			24	03/08/01	03/10	LSC-004
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 2
	RP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES				
MDA	2.3	±	0.39
YIELD	92	±	8

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/30/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor H1262 (7644)	SAF No.: B00-073	
Ice Chest No.: ~~2-26-01~~ 223-482154	Field Logbook No.: EFL 1133-9	COA 220 2-8-01 ~~R105DG280C~~ R105HT280	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA 2-14-01 EBERLING	Offsite Property No.: A010223		Bill of Lading/Air Bill No.: 4235 7954 - 26061

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	1	1	2	1							
Volume	60mL	125mL	2 - 125mL 1 - 250mL	125mL							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP7	other solid	2-14-01	0830			X			113C		B11CR2
B11CP5	other solid	2-14-01	1015			X			210		B11CR0
B11CR3	other solid	2-14-01	1015			X			210		B11CR0

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	STORED IN Ref 11 3728	2-15-01/1440
Removed from Ref 11A 3728	2.26.01 0900	R. Thorson	2.26.01 0900
R. Thorson	2.26.01 0900	FEDEX	2-26-01
FED EXPRESS	2/28/01 10:30	E Segura E. SEGURA	2/28/01 10:30 AM

SPECIAL INSTRUCTIONS

~~(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082~~
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 -- Total Sr; Neptunium-237; Carbon-14; Nickel-63
~~(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045~~

RT 2.20.01

Samples stored in Ref.# 11A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/26/01 for shipment.

RT 2.26.01

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

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

BHI-EE-011 (10/99)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 2-28-01 10:Am

CoC No. B00-073-019

Container I.D. No. 23-482154 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: 3
7. Number of containers per sample: (1 EACH) (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Segura Date: 2-28-01 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 B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7						
% SOLIDS	001	SO	01L%S027	02/14/01	03/01/01	03/02/01
% SOLIDS	001 REP	SO	01L%S027	02/14/01	03/01/01	03/02/01
CHLORIDE BY IC	001	SO	01LICE21	02/14/01	04/03/01	04/03/01
CHLORIDE BY IC	001 REP	SO	01LICE21	02/14/01	04/03/01	04/03/01
CHLORIDE BY IC	001 MS	SO	01LICE21	02/14/01	04/03/01	04/03/01
FLUORIDE BY IC	001	SO	01LICE21	02/14/01	04/03/01	04/03/01
FLUORIDE BY IC	001 REP	SO	01LICE21	02/14/01	04/03/01	04/03/01
FLUORIDE BY IC	001 MS	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRITE BY IC	001	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRITE BY IC	001 REP	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRITE BY IC	001 MS	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRATE BY IC	001	SO	01LICD21	02/14/01	04/03/01	04/03/01
NITRATE BY IC	001 REP	SO	01LICD21	02/14/01	04/03/01	04/03/01
NITRATE BY IC	001 MS	SO	01LICD21	02/14/01	04/03/01	04/03/01
TOTAL CYANIDE	001	SO	01LCA19	02/14/01	03/05/01	03/05/01
PHOSPHATE BY IC	001	SO	01LICD21	02/14/01	04/03/01	04/03/01
PHOSPHATE BY IC	001 REP	SO	01LICD21	02/14/01	04/03/01	04/03/01
PHOSPHATE BY IC	001 MS	SO	01LICD21	02/14/01	04/03/01	04/03/01
SULFATE BY IC	001	SO	01LICD21	02/14/01	04/03/01	04/03/01
SULFATE BY IC	001 REP	SO	01LICD21	02/14/01	04/03/01	04/03/01
SULFATE BY IC	001 MS	SO	01LICD21	02/14/01	04/03/01	04/03/01
IGNITABILITY	001	SO	01LFP004	02/14/01	03/02/01	03/02/01
PH	001	SO	01LPH017	02/14/01	03/01/01	03/01/01
PH	001 REP	SO	01LPH017	02/14/01	03/01/01	03/01/01
SULFIDE	001	SO	01LSD009	02/14/01	03/01/01	03/01/01
B11CP5						
% SOLIDS	002	SO	01L%S030	02/14/01	03/08/01	03/09/01
% SOLIDS	002 REP	SO	01L%S030	02/14/01	03/08/01	03/09/01
CHLORIDE BY IC	002	SO	01LICC23	02/14/01	04/06/01	04/06/01
FLUORIDE BY IC	002	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRITE BY IC	002	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRATE BY IC	002	SO	01LICD21	02/14/01	04/03/01	04/03/01
TOTAL CYANIDE	002	SO	01LCA19	02/14/01	03/05/01	03/05/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	002	SO	01LICD21	02/14/01	04/03/01	04/03/01
SULFATE BY IC	002	SO	01LICD21	02/14/01	04/03/01	04/03/01
IGNITABILITY	002	SO	01LFP004	02/14/01	03/02/01	03/02/01
PH	002	SO	01LPH017	02/14/01	03/01/01	03/01/01
SULFIDE	002	SO	01LSD009	02/14/01	03/01/01	03/01/01
B11CR3						
% SOLIDS	003	SO	01L%S027	02/14/01	03/01/01	03/02/01
CHLORIDE BY IC	003	SO	01LICC23	02/14/01	04/06/01	04/06/01
FLUORIDE BY IC	003	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRITE BY IC	003	SO	01LICE21	02/14/01	04/03/01	04/03/01
NITRATE BY IC	003	SO	01LICD21	02/14/01	04/03/01	04/03/01
TOTAL CYANIDE	003	SO	01LCA19	02/14/01	03/05/01	03/05/01
TOTAL CYANIDE	003 REP	SO	01LCA19	02/14/01	03/05/01	03/05/01
TOTAL CYANIDE	003 MS	SO	01LCA19	02/14/01	03/05/01	03/05/01
PHOSPHATE BY IC	003	SO	01LICD21	02/14/01	04/03/01	04/03/01
SULFATE BY IC	003	SO	01LICD21	02/14/01	04/03/01	04/03/01
IGNITABILITY	003	SO	01LFP004	02/14/01	03/02/01	03/02/01
PH	003	SO	01LPH017	02/14/01	03/01/01	03/01/01
SULFIDE	003	SO	01LSD009	02/14/01	03/01/01	03/01/01
SULFIDE	003 REP	SO	01LSD009	02/14/01	03/01/01	03/01/01
SULFIDE	003 MS	SO	01LSD009	02/14/01	03/01/01	03/01/01

LAB QC:

CHLORIDE BY IC	MB1	S	01LICE21	N/A	04/03/01	04/03/01
CHLORIDE BY IC	MB1 BS	S	01LICE21	N/A	04/03/01	04/03/01
FLUORIDE BY IC	MB1	S	01LICE21	N/A	04/03/01	04/03/01
FLUORIDE BY IC	MB1 BS	S	01LICE21	N/A	04/03/01	04/03/01
NITRITE BY IC	MB1	S	01LICE21	N/A	04/03/01	04/03/01
NITRITE BY IC	MB1 BS	S	01LICE21	N/A	04/03/01	04/03/01
NITRATE BY IC	MB1	S	01LICD21	N/A	04/03/01	04/03/01
NITRATE BY IC	MB1 BS	S	01LICD21	N/A	04/03/01	04/03/01
TOTAL CYANIDE	LCS L	S	01LCA19	N/A	03/05/01	03/05/01
TOTAL CYANIDE	LCS L	S	01LCA19	N/A	03/05/01	03/05/01
TOTAL CYANIDE	MB1	S	01LCA19	N/A	03/05/01	03/05/01
PHOSPHATE BY IC	MB1	S	01LICD21	N/A	04/03/01	04/03/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1 BS	S	01LICD21	N/A	04/03/01	04/03/01
SULFATE BY IC	MB1	S	01LICD21	N/A	04/03/01	04/03/01
SULFATE BY IC	MB1 BS	S	01LICD21	N/A	04/03/01	04/03/01
SULFIDE	MB1	S	01LSD009	N/A	03/01/01	03/01/01
SULFIDE	MB1 BS	S	01LSD009	N/A	03/01/01	03/01/01
SULFIDE	MB1 BSD	S	01LSD009	N/A	03/01/01	03/01/01
CHLORIDE BY IC	MB1	S	01LICC23	N/A	04/06/01	04/06/01
CHLORIDE BY IC	MB1 BS	S	01LICC23	N/A	04/06/01	04/06/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073 H1262
LVL#: 0102L115

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 solid samples.

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

3. Sample holding times as required by the method and/or contract were met with the exception of Total Cyanide that were analyzed past hold and Sulfide that were received past hold.

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. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.

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

8. The replicate analyses were within the 20% RPD control limit with the exception of Sulfate that may be attributed to sample inhomogeneity.

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

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

for Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

04-11-01
Date

njp\i02-115

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.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: Chloride, Fluoride, Nitrate, **Method:** EPA 300.0 (mod.)

Other: Nitrite, Phosphate & Sulfate **Method**

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11CP7	% Solids	98.9		%	0.01	1.0
		Chloride by IC	2.2		MG/KG	1.3	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.26	u	MG/KG	1.26	1.0
		Nitrate by IC	1.26	u	MG/KG	1.26	1.0
		Cyanide, Total	0.46	u	MG/KG	0.46	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Sulfate by IC	13.8		MG/KG	1.3	1.0
		pH	6.7		SOIL PH	0.01	1.0
		Sulfide	40.3	u	MG/KG	40.3	1.0
-002	B11CP5	% Solids	97.3		%	0.01	1.0
		Chloride by IC	3390		MG/KG	253	200
		Fluoride by IC	257	u	MG/KG	257	100
		Nitrite by IC	25.7	u	MG/KG	25.7	20.0
		Nitrate by IC	159		MG/KG	6.42	5.0
		Cyanide, Total	0.91		MG/KG	0.48	1.0
		Phosphate by IC	6.4	u	MG/KG	6.4	5.0
		Sulfate by IC	404		MG/KG	25.7	20.0
		pH	9.4		SOIL PH	0.01	1.0
		Sulfide	39.9	u	MG/KG	39.9	1.0
-003	B11CR3	% Solids	97.5		%	0.01	1.0
		Chloride by IC	3830		MG/KG	25.7	20.0
		Fluoride by IC	256	u	MG/KG	256	100
		Nitrite by IC	25.6	u	MG/KG	25.6	20.0
		Nitrate by IC	160		MG/KG	6.41	5.0
		Cyanide, Total	0.45	u	MG/KG	0.45	1.0
		Phosphate by IC	6.4	u	MG/KG	6.4	5.0
		Sulfate by IC	407		MG/KG	25.6	20.0
		pH	9.4		SOIL PH	0.01	1.0
		Sulfide	38.2		MG/KG	38.1	1.0

Inorganic Data Summary Report
Physical Testing Observation

Client: TNU-HANFORD B00-073 H1262
LVL#: 0102L115

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

Analyte:

Ignitability

Observation:

Samples B11CP7, B11CP5 and B11CR6 did 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\i02-115 .pt2

LVLI
LONVILLE LABORATORY INC.

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LICE21-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.25	u	MG/KG	1.25	1.0
BLANK10	01LICD21-MB1	Nitrate by IC	1.25	u	MG/KG	1.25	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK1	01LCA19-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	01LSD009-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0
BLANK10	01LICC23-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11CP7	Chloride by IC	31.4	2.2	25.3	115.8	1.0
		Fluoride by IC	54.9	0.0	50.6	108.6	1.0
		Nitrite by IC	24.9	1.26u	25.3	98.6	1.0
		Nitrate by IC	28.8	1.26u	25.3	113.8	1.0
		Phosphate by IC	26.9	1.3 u	25.3	106.3	1.0
		Sulfate by IC	75.2	13.8	50.6	121.3	2.0
-003	B11CR3	Cyanide, Total	4.35	0.45u	4.33	100.4	1.0
		Sulfide	392	38.2	414	85.6	1.0
BLANK10	01LICE21-MB1	Chloride by IC	25.2	1.2 u	25.0	100.6	1.0
		Fluoride by IC	54.6	2.5 u	50.0	109.2	1.0
		Nitrite by IC	24.1	1.25u	25.0	96.4	1.0
BLANK10	01LICD21-MB1	Nitrate by IC	26.0	1.25u	25.0	103.9	1.0
		Phosphate by IC	26.3	1.2 u	25.0	105.1	1.0
		Sulfate by IC	25.2	1.2 u	25.0	100.7	1.0
BLANK10	01LSD009-MB1	Sulfide	433	40.0 u	462	93.8	1.0
		Sulfide MSD	405	40.0 u	414	97.7	1.0
BLANK10	01LICC23-MB1	Chloride by IC	23.9	1.2 u	25.0	95.7	1.0

Lionville Lababoratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LSD009-MB1	Sulfide	93.8	97.7	4.1

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11CP7	% Solids	98.9	98.8	0.071	1.0
		Chloride by IC	2.2	1.3 u	NC	1.0
		Fluoride by IC	2.5 u	2.5 u	NC	1.0
		Nitrite by IC	1.26u	1.26u	NC	1.0
		Nitrate by IC	1.26u	1.26u	NC	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	13.8	5.8	81.7	1.0
		pH	6.7	6.4	4.4	1.0
-002REP	B11CP5	% Solids	97.3	97.4	0.14	1.0
-003REP	B11CR3	Cyanide, Total	0.45u	0.44u	NC	1.0
		Sulfide	38.2	39.1 u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/09/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LCA19-LCS1	Cyanide, Total LCS	1.89	2.0	MG/KG	94.4
LCSS2	01LCA19-LCS2	Cyanide, Total LCS	9.53	10.0	MG/KG	95.3

Lionville Laboratory Use Only
0102L115

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

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Client: TNU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-999900
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-27-01 Date Due: 3-20-01

		A						B		C				
Refrigerator #		2						2		2				
#/Type Container	Liquid													
	Solid	1AG						1AG		1AG				
Volume	Liquid													
	Solid	250g						100		250g				
Preservatives								-		-				
ANALYSES REQUESTED		ORGANIC						INORG						
		VOA	BNA	Pest/PCB	Herb			Metal	CN					
Lionville Laboratory Use Only		0L024H	0L025H	0L008H ORCB				MRCRATO		IC(1)	ICNTO ISFD	IIGC IPH		

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	0L024H	0L025H	0L008H ORCB					MRCRATO		IC(1)	ICNTO ISFD	IIGC IPH		
001	B11CP7			SO	2-14-01	0830	✓	✓	✓					✓		✓	✓	✓		
002	1 P5			1	1	1015	✓	✓	✓					✓		✓	✓	✓		
003	1 R3			1	1	1015	✓	✓	✓					✓		✓	✓	✓		

Special Instructions: Soil B00-073
Run Matrix QC

DATE/REVISIONS:
ICD 1. C1, F1, D03, D02, P04, S04
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	TBeppel	2-27-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
4235 7954 2694

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 2.4 °C

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor	SAF No.: B00-073	
Ice Chest No.: SM1-153	Field Logbook No.: EFL 1133-9	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA DJD 2-14-01	Offsite Property No.: A0102060	Bill of Lading/Air Bill No.: 4235 7454 -2694	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	60mL	2-125mL 1-250mL	125mL	2-125mL 1-250mL							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							
Sample No. / Matrix * / Sample Date / Sample Time											
B11CP7 / other solid / 2-14-01 / 0830	X	X		X		113c		B11CR2			
B11CP5 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			
B11CR3 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			

CHAIN OF POSSESSION — PT Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref 1A 3728	2-14-01/1440
Removed from Ref 1A 3728	2-26-01 0400	R. Thoren	2-26-01 0400
R. Thoren	2-26-01 0400	FED EX	
FedEx	22701 0935	Thepal	22701 0935

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 – Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~ RT 2-26-01
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/19/01.
Collector not available to relinquish samples on 2/26/01 for shipment. RT 2-26-01

Matrix *
S=Soil
SE=Sediment
SL=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.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7						
SILVER, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
ARSENIC, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
BARIUM, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
CADMIUM, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
CHROMIUM, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
MERCURY, TOTAL	001	SO	01C0067	02/14/01	03/05/01	03/06/01
MERCURY, TOTAL	001 REP	SO	01C0067	02/14/01	03/05/01	03/06/01
MERCURY, TOTAL	001 MS	SO	01C0067	02/14/01	03/05/01	03/06/01
LEAD, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
SELENIUM, TOTAL	001	SO	01L0092	02/14/01	03/05/01	03/05/01
B11CP5						
SILVER, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
SILVER, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
SILVER, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
ARSENIC, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
ARSENIC, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
ARSENIC, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
BARIUM, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
BARIUM, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
BARIUM, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
CADMIUM, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
CADMIUM, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
CADMIUM, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
CHROMIUM, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
CHROMIUM, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
CHROMIUM, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
MERCURY, TOTAL	002	SO	01C0067	02/14/01	03/05/01	03/06/01
LEAD, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
LEAD, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
LEAD, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01
SELENIUM, TOTAL	002	SO	01L0092	02/14/01	03/05/01	03/05/01
SELENIUM, TOTAL	002 REP	SO	01L0092	02/14/01	03/05/01	03/05/01
SELENIUM, TOTAL	002 MS	SO	01L0092	02/14/01	03/05/01	03/05/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CR3						
SILVER, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
ARSENIC, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
BARIUM, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
CADMIUM, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
CHROMIUM, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
MERCURY, TOTAL	003	SO	01C0067	02/14/01	03/05/01	03/06/01
LEAD, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01
SELENIUM, TOTAL	003	SO	01L0092	02/14/01	03/05/01	03/05/01

LAB QC:

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

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073
LVL#: 0102L115
SDG/SAF#: H1262/B00-073

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 3 solid samples.

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

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

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

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

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

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

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

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

10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury.

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision 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 14 pages.

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

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

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

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

for Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

03-15-01
Date

gmb/m02-115

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01024115

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	3/15/01 ✓ ☒7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/14/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11CP7	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Arsenic, Total	0.31 u	MG/KG	0.31	1.0
		Barium, Total	0.61	MG/KG	0.02	1.0
		Cadmium, Total	0.05	MG/KG	0.03	1.0
		Chromium, Total	0.27	MG/KG	0.07	1.0
		Mercury, Total	0.35	MG/KG	0.02	1.0
		Lead, Total	19.9	MG/KG	0.21	1.0
		Selenium, Total	0.30 u	MG/KG	0.30	1.0
-002	B11CP5	Silver, Total	0.31	MG/KG	0.06	1.0
		Arsenic, Total	6.5	MG/KG	0.32	1.0
		Barium, Total	329	MG/KG	0.02	1.0
		Cadmium, Total	1.1	MG/KG	0.03	1.0
		Chromium, Total	24.2	MG/KG	0.07	1.0
		Mercury, Total	0.45	MG/KG	0.02	1.0
		Lead, Total	11.7	MG/KG	0.22	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/14/01

CLIENT: TNUHANFORD B00-073 H1262

LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B11CR3	Silver, Total	0.38	MG/KG	0.06	1.0
		Arsenic, Total	7.5	MG/KG	0.33	1.0
		Barium, Total	338	MG/KG	0.02	1.0
		Cadmium, Total	0.99	MG/KG	0.03	1.0
		Chromium, Total	25.5	MG/KG	0.07	1.0
		Mercury, Total	0.47	MG/KG	0.02	1.0
		Lead, Total	12.6	MG/KG	0.23	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/14/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0092-MB1	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Arsenic, Total	0.32 u	MG/KG	0.32	1.0
		Barium, Total	0.03	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.07 u	MG/KG	0.07	1.0
		Lead, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0
BLANK1	01C0067-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/14/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11CP7	Mercury, Total	0.18	0.35	0.16	-110.	1.0
-002	B11CP5	Silver, Total	4.8	0.31	5.0	89.8	1.0
		Arsenic, Total	184	6.5	200	89.0	1.0
		Barium, Total	492	329	200	81.5	1.0
		Cadmium, Total	5.2	1.1	5.0	82.0	1.0
		Chromium, Total	41.4	24.2	20.0	86.0	1.0
		Lead, Total	54.1	11.7	50.0	84.8	1.0
		Selenium, Total	173	0.31u	200	86.7	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/14/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11CP7	Mercury, Total	0.35	0.02	178.6	1.0
-002REP	B11CP5	Silver, Total	0.31	0.42	30.5	1.0
		Arsenic, Total	6.5	6.7	3.0	1.0
		Barium, Total	329	321	2.2	1.0
		Cadmium, Total	1.1	0.97	12.7	1.0
		Chromium, Total	24.2	24.2	0.00	1.0
		Lead, Total	11.7	12.1	3.4	1.0
		Selenium, Total	0.31u	0.31u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/14/01

CLIENT: TNUHANFORD B00-073 H1262 LVL LOT #: 0102L115

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0092-LC1	Silver, LCS	51.0	50.0	MG/KG	102.0
		Arsenic, LCS	964	1000	MG/KG	96.4
		Barium, LCS	496	500	MG/KG	99.2
		Cadmium, LCS	24.8	25.0	MG/KG	99.2
		Chromium, LCS	50.1	50.0	MG/KG	100.2
		Lead, LCS	247	250	MG/KG	98.6
		Selenium, LCS	941	1000	MG/KG	94.1
LCS1	01C0067-LC1	Mercury, LCS	2.7	2.5	MG/KG	107.9

Lionville Laboratory Use Only
0102L115

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client: TNU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 113N3-C00C0-001-999900
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-27-01 Date Due: 3-20-01

		A							B		C					
Refrigerator #		2							2		2					
#/Type Container	Liquid															
	Solid	1AG							1AG		1AG					
Volume	Liquid															
	Solid	250g/kg							60g		250g/kg					
Preservatives									-		-					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

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

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24H	OC25H	OC08H OPCB					mRCRATO		IGO	ICNTO ISFD	IIGN IPH			
001	B11CP7			SO	2-14-01	0830	✓	✓	✓					✓		✓	✓	✓			
002	1 P5			1	1	1015	✓	✓	✓					✓		✓	✓	✓			
003	1 R3			1	1	1015	✓	✓	✓					✓		✓	✓	✓			

Special Instructions: Soil B00-073
Run Matrix QC

DATE/REVISIONS:
ICD 1. C1, F1, M03, M02, P04, S04
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	TBappel	2-27-01	0935

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		
COMPOSITE WASTE			

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
4235 7954 2694

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 2.4 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler — Telephone No.: 531-0703	Project Coordinator: TRENT, SJ	Price Code: 9L — Data Turnaround: 21 Days
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: SM1-153	Field Logbook No.: EFL 1133-9 — COA: R105DG280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA DJB 2-14-01	Offsite Property No.: A0102060	Bill of Lading/Air Bill No.: 4235 7954 -2694	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	sG	sG	~~sG~~ VOA	sG							
No. of Container(s)	1	1	~~1~~ 1	1							
Volume	60mL	2-125mL 1-250mL	~~125mL~~ 1	2-125mL 1-250mL							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
B11CP7	other solid	2-14-01	0830	X	X		X		113c		B11CR3		
B11CP5	other solid	2-14-01	1015	X	X		X		210		B11CR0		
B11CR3	other solid	2-14-01	1015	X	X		X		210		B11CR0		

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref. 1A 3728	2-14-01/1440
Removed from Ref. 1A 3728	2-26-01 0400	R. Thoran	2-26-01 0400
R. Thoran	2-26-01 0400	FEDEX	
FedEx	22701 0935	Thegal	22701 0935

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 = Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/19/01.
Collector not available to relinquish samples on 2/26/01 for shipment.
RT 2-26-01 Date/Time

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; Li=Liquid; Ve=Vegetation; X=Other

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7	001	SO	01LE0216	02/14/01	02/28/01	03/26/01
B11CP7	001 MS	SO	01LE0216	02/14/01	02/28/01	03/26/01
B11CP7	001 MSD	SO	01LE0216	02/14/01	02/28/01	03/26/01
B11CP5	002	SO	01LE0216	02/14/01	02/28/01	03/26/01
B11CR3	003	SO	01LE0216	02/14/01	02/28/01	03/26/01
LAB QC:						
PBLKQF	MB1	S	01LE0216	N/A	02/28/01	03/26/01
PBLKQF	MB1 BS	S	01LE0216	N/A	02/28/01	03/26/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0102L115
SDG/SAF#: H1262/B00-073

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

PCB

The set of samples consisted of three (3) solid samples collected on 02-14-01.

The samples and their associated QC samples were extracted on 02-28-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-26-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

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

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

3. The 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. Four (4) of eight (8) obtainable 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. Matrix spike recoveries were unobtainable due to the dilution required for analysis.

8. All samples required instrument dilutions due to the high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

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11. An initial weight of 5+ grams was used. Sample B11CP4 and its matrix QC had a final volume of 50 mLs instead of 10 mLs. The low surrogate and spike recoveries appear to be matrix related. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

12. Patterns for Aroclors 1254 and 1260 were identified in these samples. Sample B11CP7 and its matrix QC were not homogeneous (pieces of rubber) and therefore, exhibit chromatographic differences. These samples contain quantitable levels of both Aroclor 1254 and 1260, which are reported as "D" in the matrix QC for Aroclor 1254 due to the dilution factor.

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

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.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

4/16/01
Date

pef\r:\group\data\pest\02L-115.pcb

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01EX059

Initiator: Bernard Foley Batch: 0102L115 Parameter: OPCB/0608
Date: 3/20/01 Samples: 1,ms1,msd1,ms2,msd2 Matrix: S
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0216

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Elevated final Volume 50mls.

2. Known or Probable Causes(s)

Matrix effect

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: [signature] 3/20/01

__ 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] 4/13/01 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	X Project Mgr: Stone/Johnson	Z	X GC/LC: Pastor/Kiger
__	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

4

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01GC140

Initiator: M. Kokel Batch: 0102L115 Parameter: OPCB
Date: 4/5/01 Samples: 002, 003 Matrix: Solid
Client: TNU-Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0216

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)

high surrogates in the following:
002 → TCX @ 142% and DCB @ 130%
003 → TCX @ 140% and DCB @ 124%

2. Known or Probable Causes(s)

surrogates are diluted out due to 10-fold dilution for AR1254.

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] 4/5/01

__ 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: Mich Kokel 4/5/01 Other Explanation:

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

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

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

L-WI-006/E-01/01

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

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

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 04/12/01 17:57

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 1

	Cust ID:	B11CP7	B11CP7	B11CP7	B11CP5	B11CR3	PBLKQF
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	01LE0216-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOIL
	D.F.:	50.0	50.0	50.0	10.0	10.0	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG

Surrogate:													
Tetrachloro-m-xylene	D	%	D	%	D	%	142 *	%	140 *	%	70	%
Decachlorobiphenyl	D	%	D	%	D	%	130 *	%	124 *	%	75	%
Aroclor-1016	49000	U	48000	U	47000	U	330	U	340	U	33	U
Aroclor-1221	97000	U	95000	U	94000	U	660	U	670	U	67	U
Aroclor-1232	49000	U	48000	U	47000	U	330	U	340	U	33	U
Aroclor-1242	49000	U	48000	U	47000	U	330	U	340	U	33	U
Aroclor-1248	49000	U	48000	U	47000	U	330	U	340	U	33	U
Aroclor-1254	53000		D	%	D	%	890		840		33	U
Aroclor-1260	49000		6100	J	150000		330	U	340	U	33	U

	Cust ID:	PBLKQF BS
Sample Information	RFW#:	01LE0216-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG

Surrogate:		
Tetrachloro-m-xylene	90	%
Decachlorobiphenyl	92	%
Aroclor-1016	33	U
Aroclor-1221	67	U
Aroclor-1232	33	U
Aroclor-1242	33	U
Aroclor-1248	33	U
Aroclor-1254	82	%
Aroclor-1260	33	U

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

4/13/01

Lionville Laboratory Use Only
3102L11S

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory, Inc.

5

Client: TRU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-0000-001-999900
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-27-01 Date Due: 3-20-01

Refrigerator #		A							B		C					
		2							2		2					
#/Type Container	Liquid															
	Solid	1AG							1AG		1AG					
Volume	Liquid															
	Solid	250g							100g		250g					
Preservatives									-		-					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 24H	8260 5H	8081 8H OPCB					MRCPATO		IGD	ICPTO ISFA	IIGP IPH				
001	B11CP7			SO	2-14-01	0830	✓	✓	✓					✓		✓	✓	✓				
002	1 P5			1	1	1015	✓	✓	✓					✓		✓	✓	✓				
003	1 R3			1	1	1015	✓	✓	✓					✓		✓	✓	✓				

Special Instructions: SOS B00-073
Run Matrix QC

DATE/REVISIONS:
ICD 1. C1, F1, D03, D02, P04, S04
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 2.4 °C

Relinquished by	Received by	Date	Time
FedEx	TBoppel	2-27-01	0935

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2694

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor	SAF No.: B00-073	
Ice Chest No.: Sm1-153	Field Logbook No.: EFL 1133-9	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA DJB 2-14-01	Offsite Property No.: A0102060	Bill of Lading/Air Bill No.: 4235 7454 2694	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	60mL	2-125mL 1-250mL	125mL	2-125mL 1-250mL							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							
Sample No. / Matrix * / Sample Date / Sample Time											
B11CP7 / other solid / 2-14-01 / 0830	X	X		X		113c		B11CR2			
B11CP5 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			
B11CR3 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref 1A 3728	2-14-01/1440
Removed from Ref 1A 3728	2-26-01 0400	R. Thoren	2-26-01 0400
R. Thoren	2-26-01 0400	FED EX	
FedEx	2-27-01 0935	Thepal	2-27-01 0935

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 -- Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~ RT 2-26
(3) IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01.
Collector not available to relinquish samples on 2/26/01 for shipment.
RT 2.26.01

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; Va=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: 2-27-01 0935

SDG#: 0102L115

Work Order Number: — SAF# B00-073

Shipping Container ID: SML153 Chain of Custody # B00-073-019

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 2.4°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Tkappel / LWLI Date: 2-27-01

Telephoned to: _____ On _____ By _____

11

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7	001	SO	01LE0216	02/14/01	02/28/01	03/08/01
B11CP7	001 MS	SO	01LE0216	02/14/01	02/28/01	03/08/01
B11CP7	001 MS 01	SO		02/14/01	02/28/01	04/05/01
B11CP7	001 MSD	SO	01LE0216	02/14/01	02/28/01	03/08/01
B11CP5	002	SO	01LE0216	02/14/01	02/28/01	03/08/01
B11CP5	002 01	SO		02/14/01	02/28/01	04/05/01
B11CR3	003	SO	01LE0216	02/14/01	02/28/01	03/08/01
B11CR3	003 01	SO		02/14/01	02/28/01	04/06/01

LAB QC:

PBLKQF	MB1	S	01LE0216	N/A	02/28/01	03/08/01
PBLKQF	MB1 BS	S	01LE0216	N/A	02/28/01	03/08/01

7Sn-1/13/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0102L115
SDG/SAF#: H1262/B00-073

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

PESTICIDE

The set of samples consisted of three (3) solid samples collected on 02-14-01.

The samples and their associated QC samples were extracted on 02-28-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-08-01 and 04-05,06-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

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

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

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

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

4. Two (2) of eight (8) obtainable surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. All blank spike recoveries were within acceptance criteria.

6. Matrix spike recoveries were unobtainable due to the dilution required for analysis.

7. All samples required instrument dilutions due to the high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

8. An initial weight of 5^{+} grams was used. Sample B11CP4 and its matrix QC had a final volume of 50 mLs instead of 10 mLs. The low surrogate and spike recoveries appear to be matrix related. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

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10. Several continuing calibration standards analyzed prior to sample extracts were outside acceptance criteria:

Standards	Analysis Date	Analysis Time	Column
4,4'-DDD Methoxychlor 4,4'-DDE	03-07-01	22:03	Both
4,4'-DDE	03-07-01	22:52	Both
4,4'-DDD 4,4'-DDT Methoxychlor	03-08-01	09:21	Primay
All compounds	03-08-01	09:21	Secondary
4,4'-DDE	03-08-01	10:09	Both

The data reflected an increase in instrument response, so the ability to identify these compounds was not impaired. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

11. Sample B11CP7 and its matrix QC were not homogeneous (pieces of rubber) and therefore, exhibit chromatographic differences. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

4/16/01
Date

pef\r:\group\data\pest\02L-115.pcb

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01EX059

Initiator: Bernard Foley Batch: 0102L115 Parameter: OPCB/0608
Date: 3/20/01 Samples: L,ms1,msd1,ms2,msd2 Matrix: S
Client: FNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0216

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Elevated final Volume 50mls.

2. Known or Probable Causes(s)

Matrix effect

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: 3/20/01

✓ 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: 4/13/01 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: Pempne
X	X Project Mgr: Stone/Johnson	Z	X GC/LC: Pastor/Kiger
__	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

A

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 016C139

Initiator: M. Kokel Batch: 0102L115 Parameter: 0608H
Date: 4/5/01 Samples: all Matrix: Solid
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LEC016

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)

increased CCV's
① INDA on 03070107/08 (rep#34) DDD@17% methoxychlor@23% (primary side); DDD@30% meth@23% (confirm side)
② INDB on 03070107/08 (rep#35) DDE@17% (primary side); DDE@26% (confirm side)
③ INDA on 03070107/08 (rep#48) on primary side; DDD@31%, DDT@21%, meth@36%; confirm side all ↑20%

2. Known or Probable Causes(s)

④ INDB on 03070107/08 (rep# 49) on primary side ~~DDE@~~ mc 4/5/01 and confirm. side DDE increased
⑤ sample 002 (rep# 45) + 003 (rep# 46) calling DDD for these runs (see ① + ② above for appropriate CCVs)
⑥ sample 001 (rep#47) calling DDT (see ① + ② above for appropriate CCVs) DDT is ok both sides in these CCVs

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:
⑦ sample 001S (rep#52) calling heptachlor epoxide and gamma chlordane and endo. sulfate for this run (see ③ + ④ above for appropriate CCVs
⑧ sample 001T (rep#53) calling gamma chlordane, DDT, and endrin aldehyde (see ③ + ④ above for appropriate CCVs)
⑨ Sample 001, 001S, 001T are not homogenous (pieces of rubber hose) therefore, there are chromatic differences.

4. Project Manager Instructions...signature/date: [illegible] ~~4/4~~ 4/5/01

__ 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: [illegible] 4/13/01

Other Explanation:

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

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

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

L-WI-006/E-01/01

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

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

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

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 04/12/01 17:26

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 1

	Cust ID:	B11CP7	B11CP7	B11CP7	B11CP7	B11CP5	B11CP5
Sample Information	RFW#:	001	001 MS	001 MS	001 MSD	002	002 DL
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	20.0	20.0	100	20.0	5.00	20.0
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	D %	D %	D %	D %	68 %	D %
	Decachlorobiphenyl	D %	D %	D %	D %	34 * %	D %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		970 U	990 U	NA	990 U	8.5 U	NA
Beta-BHC		970 U	990 U	NA	990 U	8.5 U	NA
Delta-BHC		970 U	990 U	NA	990 U	8.5 U	NA
gamma-BHC (Lindane)		970 U	D %	D %	D %	8.5 U	NA
Heptachlor		970 U	D %	D %	D %	8.5 U	NA
Aldrin		970 U	D %	D %	D %	8.5 U	NA
Heptachlor epoxide		970 U	3100	NA	990 U	8.5 U	NA
Endosulfan I		970 U	990 U	NA	990 U	8.5 U	NA
Dieldrin		1900 U	D %	D %	D %	17 U	NA
4,4'-DDE		1900 U	2000 U	NA	2000 U	E	240
Endrin		1900 U	D %	D %	D %	17 U	NA
Endosulfan II		1900 U	2000 U	NA	2000 U	17 U	NA
4,4'-DDD		1900 U	2000 U	NA	2000 U	48	NA
Endosulfan sulfate		1900 U	6700	NA	2000 U	17 U	NA
4,4'-DDT		6200	D %	D %	D %	E	290
Methoxychlor		9700 U	9900 U	NA	9900 U	85 U	NA
Endrin ketone		1900 U	2000 U	NA	2000 U	17 U	NA
Endrin aldehyde		1900 U	E	34000	3100	17 U	NA
alpha-Chlordane		970 U	990 U	NA	990 U	8.5 U	NA
gamma-Chlordane		970 U	6200	NA	1100	8.5 U	NA
Toxaphene		97000 U	99000 U	NA	99000 U	850 U	NA

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, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 04/12/01 17:26

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 2

	Cust ID:	B11CR3	B11CR3	PBLKQF	PBLKQF BS
Sample Information	RFW#:	003	003 DL	01LE0216-MB1	01LE0216-MB1
	Matrix:	SOLID	SOLID	SOIL	SOIL
	D.F.:	5.00	20.0	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	65 %	D %	70 %	82 %
	Decachlorobiphenyl	34 * %	D %	68 %	87 %
Alpha-BHC		8.4 U	NA	1.7 U	1.7 U
Beta-BHC		8.4 U	NA	1.7 U	1.7 U
Delta-BHC		8.4 U	NA	1.7 U	1.7 U
gamma-BHC (Lindane)		8.4 U	NA	1.7 U	80 %
Heptachlor		8.4 U	NA	1.7 U	95 %
Aldrin		8.4 U	NA	1.7 U	75 %
Heptachlor epoxide		8.4 U	NA	1.7 U	1.7 U
Endosulfan I		8.4 U	NA	1.7 U	1.7 U
Dieldrin		17 U	NA	3.3 U	90 %
4,4'-DDE		E	230	3.3 U	3.3 U
Endrin		17 U	NA	3.3 U	98 %
Endosulfan II		17 U	NA	3.3 U	3.3 U
4,4'-DDD		45	NA	3.3 U	3.3 U
Endosulfan sulfate		17 U	NA	3.3 U	3.3 U
4,4'-DDT		E	290	3.3 U	110 %
Methoxychlor		84 U	NA	17 U	17 U
Endrin ketone		17 U	NA	3.3 U	3.3 U
Endrin aldehyde		17 U	NA	3.3 U	3.3 U
alpha-Chlordane		8.4 U	NA	1.7 U	1.7 U
gamma-Chlordane		8.4 U	NA	1.7 U	1.7 U
Toxaphene		840 U	NA	170 U	170 U

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

Lionville Laboratory Use Only
0102L115

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TRU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-6000-001-999900
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-27-01 Date Due: 3-20-01

		A		B		C	
Refrigerator #		2		2		2	
#/Type Container	Liquid						
	Solid	1PG		1PG		1PG	
Volume	Liquid						
	Solid	250g		100		250g	
Preservatives				-		-	

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OLC24H	OLC25H	OLC08H OPCB					MRCPATO		ICP	ICPTO ISFD	IGC IPH				
001	B11CP7			SO	2-14-01	0830	✓	✓	✓					✓		✓	✓	✓				
002	1 P5			1	1	1015	✓	✓	✓					✓		✓	✓	✓				
003	1 B3			1	1	1015	✓	✓	✓					✓		✓	✓	✓				

Special Instructions: Soil B00-073
Run Matrix QC

DATE/REVISIONS:
ICP 1. C1, F1, D03, D02, P04, S04
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 2.4 °C

Relinquished by	Received by	Date	Time
FedEx	TRappel	2-27-01	0935

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2694

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor		SAF No.: B00-073
Ice Chest No.: SM1-153	Field Logbook No.: EFL 1133-9	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA DJB 2-14-01	Offsite Property No.: A0102060		Bill of Lading/Air Bill No.: 4235 7454 -2694

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	60mL	2-125mL 1-250mL	125mL	2-125mL 1-250mL							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							
Sample No. / Matrix * / Sample Date / Sample Time											
B11CP7 / other solid / 2-14-01 / 0830	X	X		X		113c		B11CR2			
B11CP5 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			
B11CR3 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref 1A 3728	2-14-01/1440
Removed from Ref 1A 3728	2-26-01 0400	R Thoren	2-26-01 0400
R. Thoren	2-26-01 0400	FedEx	
FedEx	22701 0935	Thappal	22701 0935

RT Sign/Print Names

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium, Isotopic Uranium, Isotopic Thorium; Americium-241; Strontium-89,90 -- Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~ RT 2-26
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01.
Collector not available to relinquish samples on 2/26/01 for shipment.
RT 2-26-01

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: 2-27-01 0935

SDG#: 0102L11S

Work Order Number: — SAF# B00-073

Shipping Container ID: SML153 Chain of Custody # B00-073-019

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 2.4 °C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 9
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Tkappel / LWLI Date: 2-27-01

Telephoned to: _____ On _____ By _____

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7	001	SO	01LE0215	02/14/01	02/28/01	03/08/01
B11CP5	002	SO	01LE0215	02/14/01	02/28/01	03/06/01
B11CP5	002 MS	SO	01LE0215	02/14/01	02/28/01	03/06/01
B11CP5	002 MSD	SO	01LE0215	02/14/01	02/28/01	03/06/01
B11CR3	003	SO	01LE0215	02/14/01	02/28/01	03/07/01
LAB QC:						
SBLKRT	MB1	S	01LE0215	N/A	02/28/01	03/05/01
SBLKRT	MB1 BS	S	01LE0215	N/A	02/28/01	03/05/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B00-073
RFW #: 0102L115
SDG/SAF #: H1262/B00-073

W.O. #: 11343-606-001-9999-00
Date Received: 02-27-2001

SEMIVOLATILE

Three (3) solid samples were collected on 02-14-2001.

The samples and their associated QC samples were extracted on 02-28-2001 and analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 03-05,06,07,08-2001.

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

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

2. Samples were extracted and analyzed within required holding times.

3. Non-target compounds were detected in the samples.

4. All samples required 5 to 5000-fold dilution due to high levels of both target and non-target compounds.

5. All obtainable surrogate recoveries were within EPA QC limits.

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

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

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

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-0102-115.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 14 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, HSL List

Report Date: 03/09/01 10:29

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 1a

	Cust ID:	B11CP7		B11CP5		B11CP5		B11CP5		B11CR3		SBLKRT	
Sample Information	RFW#:	001		002		002 MS		002 MSD		003		01LE0215-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOIL	
	D.F.:	5000		5.00		5.00		5.00		5.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	D	%	77	%	70	%	78	%	78	%	94	%
	2-Fluorobiphenyl	D	%	85	%	75	%	82	%	87	%	99	%
	Terphenyl-d14	D	%	86	%	82	%	86	%	88	%	135	%
	Phenol-d5	D	%	72	%	66	%	74	%	72	%	88	%
	2-Fluorophenol	D	%	61	%	56	%	61	%	57	%	86	%
	2,4,6-Tribromophenol	D	%	71	%	72	%	73	%	77	%	93	%
Phenol		0.10E+08	U	1800	U	69	%	72	%	1700	U	330	U
bis(2-Chloroethyl)ether		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2-Chlorophenol		0.10E+08	U	1800	U	67	%	71	%	1700	U	330	U
1,3-Dichlorobenzene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
1,4-Dichlorobenzene		0.10E+08	U	1800	U	60	%	66	%	1700	U	330	U
1,2-Dichlorobenzene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2-Methylphenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,2'-oxybis(1-Chloropropane)		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
4-Methylphenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
N-Nitroso-di-n-propylamine		0.10E+08	U	1800	U	85	%	92	%	1700	U	330	U
Hexachloroethane		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Nitrobenzene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Isophorone		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2-Nitrophenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,4-Dimethylphenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
bis(2-Chloroethoxy)methane		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,4-Dichlorophenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
1,2,4-Trichlorobenzene		0.10E+08	U	1800	U	69	%	74	%	1700	U	330	U
Naphthalene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
4-Chloroaniline		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Hexachlorobutadiene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
4-Chloro-3-methylphenol		0.10E+08	U	1800	U	70	%	75	%	1700	U	330	U
2-Methylnaphthalene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Hexachlorocyclopentadiene		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,4,6-Trichlorophenol		0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,4,5-Trichlorophenol		0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B11CP7		B11CP5		B11CP5		B11CP5		B11CR3		SBLKRT	
RFW#:	001		002		002 MS		002 MSD		003		01LE0215-MB1	
2-Chloronaphthalene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2-Nitroaniline	0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U
Dimethylphthalate	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Acenaphthylene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,6-Dinitrotoluene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
3-Nitroaniline	0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U
Acenaphthene	0.10E+08	U	1800	U	76	%	79	%	1700	U	330	U
2,4-Dinitrophenol	0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U
4-Nitrophenol	0.26E+08	U	4400	U	71	%	67	%	4400	U	840	U
Dibenzofuran	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
2,4-Dinitrotoluene	0.10E+08	U	1800	U	65	%	66	%	1700	U	330	U
Diethylphthalate	0.10E+08	U	210	J	170	J	190	J	200	J	330	U
4-Chlorophenyl-phenylether	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Fluorene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
4-Nitroaniline	0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U
4,6-Dinitro-2-methylphenol	0.26E+08	U	4400	U	4400	U	4100	U	4400	U	840	U
N-Nitrosodiphenylamine (1)	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
4-Bromophenyl-phenylether	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Hexachlorobenzene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Pentachlorophenol	0.26E+08	U	4400	U	77	%	76	%	4400	U	840	U
Phenanthrene	0.10E+08	U	90	J	1800	U	92	J	1700	U	330	U
Anthracene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Carbazole	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Di-n-butylphthalate	0.10E+08	U	3400		3400		3700		3400		330	U
Fluoranthene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Pyrene	0.10E+08	U	1800	U	77	%	79	%	1700	U	330	U
Butylbenzylphthalate	0.10E+08	U	580	J	560	J	660	J	710	J	330	U
3,3'-Dichlorobenzidine	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Benzo(a)anthracene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Chrysene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
bis(2-Ethylhexyl)phthalate	0.10E+08	U	3100		2800		3100		3100		330	U
Di-n-octyl phthalate	0.10E+08	U	1800	U	100	J	1600	U	140	J	330	U
Benzo(b)fluoranthene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Benzo(k)fluoranthene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Benzo(a)pyrene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Indeno(1,2,3-cd)pyrene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Dibenz(a,h)anthracene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U
Benzo(g,h,i)perylene	0.10E+08	U	1800	U	1800	U	1600	U	1700	U	330	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 03/09/01 10:29

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 2a

Cust ID: **SBLKRT BS**

Sample Information		
RFW#:	**01LE0215-MB1**	
Matrix:	SOIL	
D.F.:	1.00	
Units:	UG/KG	

Surrogate Recovery			
	Nitrobenzene-d5	86	%
	2-Fluorobiphenyl	101	%
	Terphenyl-d14	127	%
	Phenol-d5	84	%
	2-Fluorophenol	75	%
	2,4,6-Tribromophenol	103	%

Phenol	85	%
bis(2-Chloroethyl)ether	330	U
2-Chlorophenol	87	%
1,3-Dichlorobenzene	330	U
1,4-Dichlorobenzene	79	%
1,2-Dichlorobenzene	330	U
2-Methylphenol	330	U
2,2'-oxybis(1-Chloropropane)	330	U
4-Methylphenol	330	U
N-Nitroso-di-n-propylamine	94	%
Hexachloroethane	330	U
Nitrobenzene	330	U
Isophorone	330	U
2-Nitrophenol	330	U
2,4-Dimethylphenol	330	U
bis(2-Chloroethoxy)methane	330	U
2,4-Dichlorophenol	330	U
1,2,4-Trichlorobenzene	87	%
Naphthalene	330	U
4-Chloroaniline	330	U
Hexachlorobutadiene	330	U
4-Chloro-3-methylphenol	78	%
2-Methylnaphthalene	330	U
Hexachlorocyclopentadiene	330	U
2,4,6-Trichlorophenol	330	U
2,4,5-Trichlorophenol	840	U

*= Outside of EPA CLP QC limits.

Cust ID: **SBLKRT BS**

RFW#: **01LE0215-MB1**

2-Chloronaphthalene	330	U
2-Nitroaniline	840	U
Dimethylphthalate	330	U
Acenaphthylene	330	U
2,6-Dinitrotoluene	330	U
3-Nitroaniline	840	U
Acenaphthene	93	%
2,4-Dinitrophenol	840	U
4-Nitrophenol	82	%
Dibenzofuran	330	U
2,4-Dinitrotoluene	83	%
Diethylphthalate	330	U
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	840	U
4,6-Dinitro-2-methylphenol	840	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	104	%
Phenanthrene	330	U
Anthracene	330	U
Carbazole	330	U
Di-n-butylphthalate	330	U
Fluoranthene	330	U
Pyrene	116	%
Butylbenzylphthalate	330	U
3,3'-Dichlorobenzidine	330	U
Benzo(a)anthracene	330	U
Chrysene	330	U
bis(2-Ethylhexyl)phthalate	330	U
Di-n-octyl phthalate	330	U
Benzo(b)fluoranthene	330	U
Benzo(k)fluoranthene	330	U
Benzo(a)pyrene	330	U
Indeno(1,2,3-cd)pyrene	330	U
Dibenz(a,h)anthracene	330	U
Benzo(g,h,i)perylene	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP7

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

Client: TNUHANFORD B00-073 H1262

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L115-001

Sample wt/vol: 4.95 (g/mL) G

Lab File ID: D030807

Level: (low/med) LOW

Date Received: 02/27/01

% Moisture: 1 decanted: (Y/N)__

Date Extracted: 02/28/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/08/01

Injection Volume: 2.0(uL)

Dilution Factor: 5000

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 0

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP5

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

Client: TNUHANFORD B00-073 H1262

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L115-002

Sample wt/vol: 29.4 (g/mL) G

Lab File ID: D030615

Level: (low/med) LOW

Date Received: 02/27/01

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 02/28/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

Injection Volume: 2.0(uL)

Dilution Factor: 5.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	23.369	7000	J
2.	ALKANE	23.986	8000	J
3.	ALKANE	24.708	8000	J
4.	ALKANE	25.551	7000	J
5.	ALKANE	26.559	6000	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CR3

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

Client: TNUHANFORD B00-073 H1262

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L115-003

Sample wt/vol: 29.5 (g/mL) G

Lab File ID: D030717

Level: (low/med) LOW

Date Received: 02/27/01

% Moisture: 2 decanted: (Y/N)__

Date Extracted: 02/28/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/07/01

Injection Volume: 2.0(uL)

Dilution Factor: 5.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	DDE	22.118	700	J
2.	ALKANE	22.805	6000	J
3.	ALKANE	23.353	6000	J
4.	ALKANE	23.970	7000	J
5.	ALKANE	24.691	7000	J
6.	ALKANE	25.526	5000	J

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKRT

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

Client: TNUHANFORD B00-073 H1262

Matrix: (soil/water) SOIL

Lab Sample ID: 01LE0215-MB1

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

Lab File ID: A030503

Level: (low/med) LOW

Date Received: 02/28/01

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

Date Extracted: 02/28/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/05/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.666	500	J

Lionville Laboratory Use Only: 0102L115

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TRU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-0000-001-999900
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-27-01 Date Due: 3-20-01

		A					B		C					
Refrigerator #		2					2		2					
#/Type Container	Liquid													
	Solid	1AG					1AG		1AG					
Volume	Liquid													
	Solid	250g					100		250g					
Preservatives							-		-					
ANALYSES REQUESTED		ORGANIC					INORG							
		VOA	BNA	Pest/PCB	Herb		Metal	CN						
		Lionville Laboratory Use Only												
		0L024H	0L025H	0L008H OPCB			MXCPATO		IGO	ICNTO ISFD	IIGC IPH			

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	0L024H	0L025H	0L008H OPCB					MXCPATO		IGO	ICNTO ISFD	IIGC IPH			
001	B11CP7			So	2-14-01	0830	✓	✓	✓					✓		✓	✓	✓			
002	1 P5			1	1	1015	✓	✓	✓					✓		✓	✓	✓			
003	1 R3			1	1	1015	✓	✓	✓					✓		✓	✓	✓			

Special Instructions: Soil B00-073
Run Matrix QC

DATE/REVISIONS:
ICD 1. C1, F1, D03, D02, P04, S04
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 2.4 °C

Relinquished by	Received by	Date	Time
FedEx	TBappel	2-27-01	0935

COMPOSITE WASTE

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2694

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor	SAF No.: B00-073	
Ice Chest No.: SM1-153	Field Logbook No.: EFL 1133-9	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA DJD 2-14-01	Offsite Property No.: A0102060		Bill of Lading/Air Bill No.: 4235 7454 -2694

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	~~aG~~ X/O	aG							
No. of Container(s)	1	1	~~1~~ 1	1							
Volume	60mL	2-125mL & 1-250ml	~~125mL~~ 1	2-125mL & 1-250ml							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							
Sample No. / Matrix * / Sample Date / Sample Time											
B11CP7 / other solid / 2-14-01 / 0830	X	X		X		113c		B11CR2			
B11CP5 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			
B11CR3 / other solid / 2-14-01 / 1015	X	X		X		210		B11CR0			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref 1A 3728	2-14-01/1440
Removed from Ref 1A 3728	2-26-01 0900	R Thoren	2-26-01 0900
R. Thoren	2-26-01 0900		
FedEx	22701 0935	Theppel	22701 0935

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 -- Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~ RT 2-26
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/14/01.
Collector not available to relinquish samples on 2/26/01 for shipment.
RT 2-26-01

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

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1262

DATE RECEIVED: 02/27/01 LVL LOT # :0102L115

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP7	001	SO	01LVH065	02/14/01	N/A	02/28/01
B11CP7	001 R1	SO	01LVH065	02/14/01	N/A	02/28/01
B11CP5	002	SO	01LVH065	02/14/01	N/A	02/28/01
B11CP5	002 R1	SO	01LVH065	02/14/01	N/A	02/28/01
B11CR3	003	SO	01LVH065	02/14/01	N/A	02/28/01
B11CR3	003 R1	SO	01LVH065	02/14/01	N/A	02/28/01
B11CR3	003 MS	SO	01LVH065	02/14/01	N/A	02/28/01
B11CR3	003 MSD	SO	01LVH065	02/14/01	N/A	02/28/01

LAB QC:

VBLKQG	MB1	S	01LVH065	N/A	N/A	02/28/01
VBLKQG	MB1	S	01LVH065	N/A	N/A	02/28/01
VBLKQG	MB1 BS	S	01LVH065	N/A	N/A	02/28/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B00-073
RFW #: 0102L115
SDG/SAF #: H1262/B00-073

W.O. #: 11343-606-001-9999-00
Date Received: 02-27-2001

GC/MS VOLATILE

Three (3) solid samples were collected on 02-14-2001.

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 02-28-2001.

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 detected in the samples.
4. Four (4) of thirty-three (33) surrogate recoveries were outside EPA QC limits. The out of criteria sample B11CP7 was reanalyzed on 02-28-2001 and reported.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 4x the CRQL.
8. Internal standard area criteria were not met for sample B11CP7. The out of criteria sample B11CP7 was reanalyzed on 02-28-2001 and reported.
9. The initial sample analysis contained high amount of Methylene Chloride; consequently, all samples with the exception of the matrix spike samples were reanalyzed to confirm. The matrix spike samples were not reanalyzed due to insufficient sample volume. Both analyses were reported. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."
11. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-19-01
Date

som\group\data\voa\tnu-hanford-0102-115.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 9 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: [illegible]

Initiator: [illegible] Batch: [illegible] Parameter: [illegible]
Date: 3/1/01 Samples: [illegible] Matrix: SOLID
Client: [illegible] Method: SW846/MCAWW/CLP/ ____ Prep Batch: ____

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) Samples Received 2/27 OUT OF HOLD 2/25. Samples were run within HOLD, the 1st time Dem levels were high to contain samples were rerun except for MS/MSD because only one jar was sent and extraction took after a portion had been pulled off for VOAs. Unfortunately NOT enough to cover 003 being run 6 times. Will report both analysis for samples and the 1st set of MS/MSD (MS/MSD will have high levels of Dem)

2. Known or Probable Causes(s) LAB contaminant - Ran a second Blk for Dem levels after 1st analysis of samples. Dem was higher but still met Method requirement for Blk. Will also report both Blanks.

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)

[illegible] Johnson 3/1/01

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

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

5. Final Action...signature/date: [illegible] 3/16/01 Other Explanation:

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

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: ____

L-WI-006/E-01/01

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.

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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 15:11

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 1a

	Cust ID:	B11CP7		B11CP7		B11CP5		B11CP5		B11CR3		B11CR3	
Sample Information	RFW#:	001		001		002		002		003		003	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	D.F.:	1.09		1.14		1.06		1.09		1.11		1.16	
	Units:	UG/KG		UG/KG REPREP		UG/KG		UG/KG REPREP		UG/KG		UG/KG REPREP	
Surrogate Recovery	Toluene-d8	144 *	%	162 *	%	95	%	101	%	101	%	111	%
	Bromofluorobenzene	57 *	%	64 *	%	87	%	88	%	87	%	85	%
	1,2-Dichloroethane-d4	98	%	136	%	84	%	89	%	91	%	94	%
			fl		fl		fl		fl		fl		fl
Chloromethane		11	U	11	U	11	U	11	U	11	U	12	U
Bromomethane		11	U	11	U	11	U	11	U	11	U	12	U
Vinyl Chloride		11	U	11	U	11	U	11	U	11	U	12	U
Chloroethane		11	U	11	U	11	U	11	U	11	U	12	U
Methylene Chloride		96	B	38	B	120	B	31	B	130	B	30	B
Acetone		64		140		16		19		21		26	
Carbon Disulfide		6	U	6	U	6	U	6	U	6	U	6	U
1,1-Dichloroethene		6	U	6	U	6	U	6	U	6	U	6	U
1,1-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	6	U	6	U	6	U
Chloroform		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
2-Butanone		27		69		7	J	6	J	9	J	10	J
1,1,1-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	6	U	6	U
Bromodichloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	6	U	6	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Trichloroethene		6	U	6	U	6	U	6	U	6	U	6	U
Dibromochloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Benzene		3	J	10		6	U	6	U	6	U	6	U
Trans-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Bromoform		6	U	6	U	6	U	6	U	6	U	6	U
4-Methyl-2-pentanone		17		44		11	U	11	U	11	U	12	U
2-Hexanone		6	J	26		2	J	3	J	4	J	8	J
Tetrachloroethene		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Toluene		14		44		1	J	6	U	1	J	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 1b

Cust ID:	B11CP7	B11CP7	B11CP5	B11CP5	B11CR3	B11CR3
RFW#:	001	001 REPREP	002	002 REPREP	003	003 REPREP
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	2 J	5 J	6 U	6 U	6 U	6 U
Styrene	6 U	6 U	2 J	2 J	3 J	5 J
Xylene (total)	10	29	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 03/16/01 15:11

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 2a

	Cust ID:	B11CR3		B11CR3		VBLKQG		VBLKQG		VBLKQG BS	
Sample Information	RFW#:	003 MS		003 MSD		01LVH065-MB1		01LVH065-MB1		01LVH065-MB1	
	Matrix:	SOLID		SOLID		SOIL		SOIL		SOIL	
	D.F.:	1.02		1.06		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG REPREP		UG/KG	
Surrogate Recovery	Toluene-d8	102	%	105	%	98	%	97	%	96	%
	Bromofluorobenzene	84	%	84	%	94	%	93	%	94	%
	1,2-Dichloroethane-d4	91	%	92	%	84	%	84	%	82	%
Chloromethane		10	U	11	U	10	U	10	U	10	U
Bromomethane		10	U	11	U	10	U	10	U	10	U
Vinyl Chloride		10	U	11	U	10	U	10	U	10	U
Chloroethane		10	U	11	U	10	U	10	U	10	U
Methylene Chloride		130	B	140	B	3	J	16	B	3	JB
Acetone		27		31		10	U	10	U	10	U
Carbon Disulfide		5	U	6	U	5	U	5	U	5	U
1,1-Dichloroethene		86	%	84	%	5	U	5	U	90	%
1,1-Dichloroethane		5	U	6	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	5	U
Chloroform		5	U	6	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	5	U
2-Butanone		11		13		10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	5	U
Bromodichloromethane		5	U	6	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U
Trichloroethene		88	%	85	%	5	U	5	U	97	%
Dibromochloromethane		5	U	6	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	5	U
Benzene		112	%	110	%	5	U	5	U	109	%
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U
Bromoform		5	U	6	U	5	U	5	U	5	U
4-Methyl-2-pentanone		3	J	4	J	10	U	10	U	10	U
2-Hexanone		6	J	8	J	10	U	10	U	10	U
Tetrachloroethene		5	U	6	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	5	U
Toluene		113	%	112	%	5	U	5	U	105	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0102L115** Client: **TNUHANFORD B00-073 H1262** Work Order: 11343606001 Page: 2b

Cust ID:	B11CR3		B11CR3		VBLKQG		VBLKQG		VBLKQG BS	
RFW#:	003 MS		003 MSD		01LVH065-MB1		01LVH065-MB1 REPREP		01LVH065-MB1	
Chlorobenzene	105	%	103	%	5	U	5	U	104	%
Ethylbenzene	5	U	6	U	5	U	5	U	5	U
Styrene	4	J	5	J	5	U	5	U	5	U
Xylene (total)	5	U	6	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CP7

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-001

Sample wt/vol: 4.60 (g/mL) G Lab File ID: h022806

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 1 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.09

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.946	6	J
2.	UNKNOWN	18.242	10	J
3.	UNKNOWN	19.091	10	J
4.	UNKNOWN	21.450	6	J
5.	SILOXANE	22.300	50	J
6.	UNKNOWN	22.931	8	J
7.	UNKNOWN	23.257	9	J
8.	UNKNOWN	25.567	20	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CP7RE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-001

Sample wt/vol: 4.40 (g/mL) G Lab File ID: h022812

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 1 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.14

Number TICs found: 18

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	6.593	9	J
2.	ALKANE	7.698	8	J
3.	UNKNOWN	10.482	10	J
4.	ALKANE	11.657	8	J
5.	UNKNOWN	14.036	10	J
6.	UNKNOWN	14.984	20	J
7.	UNKNOWN	15.853	8	J
8.	UNKNOWN	16.268	9	J
9.	UNKNOWN	16.900	20	J
10.	UNKNOWN	17.966	20	J
11.	UNKNOWN	18.252	30	J
12.	UNKNOWN	19.101	40	J
13.	UNKNOWN	19.387	30	J
14.	UNKNOWN	19.654	30	J
15.	UNKNOWN	21.441	20	J
16.	UNKNOWN	22.675	20	J
17.	UNKNOWN	22.942	30	J
18.	UNKNOWN	23.257	30	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CP5

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-002

Sample wt/vol: 4.70 (g/mL) G Lab File ID: h022807

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 3 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.06

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	25.567	6	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CP5RE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-002

Sample wt/vol: 4.60 (g/mL) G Lab File ID: h022814

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 3 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.09

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CR3

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-003

Sample wt/vol: 4.50 (g/mL) G Lab File ID: h022808

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 2 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.11

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.293	10	J
2.	UNKNOWN	22.925	6	J
3.	UNKNOWN	25.571	10	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B11CR3RE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0102L115-003

Sample wt/vol: 4.30 (g/mL) G Lab File ID: h022815

Level: (low/med) LOW Date Received: 02/27/01

% Moisture: not dec. 2 Date Analyzed: 02/28/01

Column: (pack/cap) CAP Dilution Factor: 1.16

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.943	10	J

15

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKQG

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOIL Lab Sample ID: 01LVH065-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h022804

Level: (low/med) LOW Date Received: 02/28/01

% Moisture: not dec. 0 Date Analyzed: 02/28/01

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

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKQGRE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

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

Matrix: (soil/water) SOIL Lab Sample ID: 01LVH065-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h022811

Level: (low/med) LOW Date Received: 02/28/01

% Moisture: not dec. 0 Date Analyzed: 02/28/01

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

Number TICs found: 0

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

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

Lionville Laboratory Use Only: 0102L115

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TRU-Hanford B00-073

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-999900

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 2-27-01 Date Due: 3-20-01

		A						B		C				
Refrigerator #		2						2		2				
#/Type Container	Liquid													
	Solid	1AG						1AG		1AG				
Volume	Liquid													
	Solid	250g						60g		250g				
Preservatives								-		-				
ANALYSES REQUESTED		ORGANIC						INORG						
		VOA	BNA	Pest/PCB	Herb			Metal	CN					

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OLC24H	OLC25H	OLC08H OPCB				MRCAATO		ICP	ICMTO ISFD	ICP IPH			
001	B11CP7			SO	2-14-01	0830	✓	✓	✓				✓		✓	✓	✓			
002	1 P5			1	1	1015	✓	✓	✓				✓		✓	✓	✓			
003	1 R3			1	1	1015	✓	✓	✓				✓		✓	✓	✓			

Special Instructions: Saf B00-073
Run Matrix QC

DATE/REVISIONS:
ICP 1. C1, F1, D03, D02, P04, S04
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 2.4 °C

Relinquished by	Received by	Date	Time
FedEx	TBappel	2-27-01	0935

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		
COMPOSITE WASTE			

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 2694

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-019	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor	SAF No.: B00-073	
Ice Chest No.: Sm1-153	Field Logbook No.: EFL 1133-9	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA DJD 2-14-01	Offsite Property No.: A0102060	Bill of Lading/Air Bill No.: 4235 7954 -2694	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	~~aG~~ X01	aG							
No. of Container(s)	1	1	~~1~~ V0	1							
Volume	60mL	2-125mL & 1-250ml	~~125mL~~ V	2-125mL & 1-250ml							
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
B11CP7	other solid	2-14-01	0830	X	X		X		113c		B11CR2		
B11CP5	other solid	2-14-01	1015	X	X		X		210		B11CR0		
B11CR3	other solid	2-14-01	1015	X	X		X		210		B11CR0		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-14-01/1440	Stored in Ref 1A 3728	2-14-01/1440
Removed from Ref 1A 3728	0900 2-26-01	R. Thoren	0900 2-26-01
R. Thoren	0900 2-26-01	FedEx	
FedEx	22701 0935	Thepul	22701 0935

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241; Strontium-89,90 -- Total Sr; Neptunium-237; Carbon-14; Nickel-63.~~
(3) IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

RT 2-20

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/19/01.
Collector not available to relinquish samples on 2/26/01 for shipment.
RT 2-26-01

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)