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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1253 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 16, 20, and 26, 2001.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

Tritium analysis was requested by BHI on March 19, 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

3/27/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

SDG 7640
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1253

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B11CP3	100 H Reactor	SOLID		R102122-01	B00-073	B00-073-019	02/13/01 13:30
B11CP4	100 H Reactor	SOLID		R102122-02	B00-073	B00-073-019	02/12/01 13:30
B11CP6	100 H Reactor	SOLID		R102122-03	B00-073	B00-073-019	02/12/01 12:45
Method Blank		SOLID		R102122-05	B00-073		
Method Blank		SOLID		R102122-09	B00-073		
Lab Control Sample		SOLID		R102122-04	B00-073		
Lab Control Sample		SOLID		R102122-07	B00-073		
Lab Control Sample		SOLID		R102122-08	B00-073		
Duplicate (R102122-01)	100 H Reactor	SOLID		R102122-06	B00-073		02/13/01 13:30
Duplicate (R102122-01)	100 H Reactor	SOLID		R102122-10	B00-073		02/13/01 13:30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

QC SUMMARY

SDG 7640
Contact Melissa C. Mannion

Client Hanford
Contract IRC-SBB-207925
Case no SDG H1253

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
7640	B00-073-019	B11CP3	SOLID	100.0			02/23/01	10	R102122-01	7640-001
		B11CP4	SOLID	100.0			02/23/01	11	R102122-02	7640-002
		B11CP6	SOLID	100.0			02/23/01	11	R102122-03	7640-003
		Method Blank	SOLID						R102122-05	7640-005
		Method Blank	SOLID						R102122-09	7640-009
		Lab Control Sample	SOLID						R102122-04	7640-004
		Lab Control Sample	SOLID						R102122-07	7640-007
		Lab Control Sample	SOLID						R102122-08	7640-008
		Duplicate (R102122-01)	SOLID	100.0			02/23/01	10	R102122-06	7640-006
		Duplicate (R102122-01)	SOLID	100.0			02/23/01	10	R102122-10	7640-010

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SAMPLE DELIVERY GROUP H1253

SDG 7640
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1253

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6963-183	5.0	3			1	1	1/1		
NP	SOLID	Neptunium in Soil	6963-183	5.0	3			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6963-183	5.0	3			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6963-183	5.0	3			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6963-183	5.0	3			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6963-183	10.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6963-183	15.0	3			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6963-183	10.0	3			1	1	1/1		
H	SOLID	Tritium in Soil	6963-183	10.0	3			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6963-183	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
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Version 3.06
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

WORK SUMMARY

SDG 7640
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1253

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B11CP3			R102122-01	7640-001	AM		03/06/01	03/16/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/13/01	7640-001	C		03/11/01	03/16/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/23/01	7640-001	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7640-001	H		03/21/01	03/26/01	MCM	Tritium in Soil
				7640-001	NI_L		03/08/01	03/16/01	MCM	Nickel 63 in Soil
				7640-001	NP		03/07/01	03/16/01	MCM	Neptunium in Soil
				7640-001	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-001	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-001	TH		03/12/01	03/16/01	MCM	Thorium, Isotopic in Soil
				7640-001	U		03/03/01	03/16/01	MCM	Uranium, Isotopic in Soil
B11CP4			R102122-02	7640-002	AM		03/06/01	03/16/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/12/01	7640-002	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/23/01	7640-002	GAM		03/07/01	03/16/01	MCM	Gamma Scan
				7640-002	H		03/22/01	03/26/01	MCM	Tritium in Soil
				7640-002	NI_L		03/09/01	03/16/01	MCM	Nickel 63 in Soil
				7640-002	NP		03/07/01	03/16/01	MCM	Neptunium in Soil
				7640-002	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-002	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-002	TH		03/07/01	03/16/01	MCM	Thorium, Isotopic in Soil
				7640-002	U		03/06/01	03/16/01	MCM	Uranium, Isotopic in Soil
B11CP6			R102122-03	7640-003	AM		03/06/01	03/16/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/12/01	7640-003	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
B00-073-019	B00-073		02/23/01	7640-003	GAM		03/06/01	03/16/01	MCM	Gamma Scan
				7640-003	H		03/22/01	03/26/01	MCM	Tritium in Soil
				7640-003	NI_L		03/09/01	03/16/01	MCM	Nickel 63 in Soil
				7640-003	NP		03/10/01	03/16/01	MCM	Neptunium in Soil
				7640-003	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-003	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-003	TH		03/07/01	03/16/01	MCM	Thorium, Isotopic in Soil
				7640-003	U		03/06/01	03/16/01	MCM	Uranium, Isotopic in Soil

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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

SDG 7640
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract IRC-SBB-207925
Case no SDG H1253

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R102122-05	7640-005	AM		03/06/01	03/16/01	MCM	Americium 241 in Soil
		SOLID		7640-005	C		03/11/01	03/16/01	MCM	Carbon 14 in Soil
	B00-073			7640-005	GAM		03/07/01	03/16/01	MCM	Gamma Scan
				7640-005	NI_L		03/09/01	03/16/01	MCM	Nickel 63 in Soil
				7640-005	NP		03/07/01	03/16/01	MCM	Neptunium in Soil
				7640-005	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-005	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-005	TH		03/07/01	03/16/01	MCM	Thorium, Isotopic in Soil
				7640-005	U		03/06/01	03/16/01	MCM	Uranium, Isotopic in Soil
Method Blank			R102122-09	7640-009	H		03/21/01	03/26/01	MCM	Tritium in Soil
		SOLID								
	B00-073									
Lab Control Sample			R102122-04	7640-004	AM		03/06/01	03/16/01	MCM	Americium 241 in Soil
		SOLID		7640-004	GAM		03/07/01	03/16/01	MCM	Gamma Scan
	B00-073			7640-004	NI_L		03/09/01	03/16/01	MCM	Nickel 63 in Soil
				7640-004	NP		03/07/01	03/16/01	MCM	Neptunium in Soil
				7640-004	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-004	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-004	TH		03/07/01	03/16/01	MCM	Thorium, Isotopic in Soil
				7640-004	U		03/06/01	03/16/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R102122-07	7640-007	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
		SOLID								
	B00-073									
Lab Control Sample			R102122-08	7640-008	H		03/22/01	03/26/01	MCM	Tritium in Soil
		SOLID								
	B00-073									

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

SDG 7640
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1253

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R102122-01)			R102122-06	7640-006	AM		03/07/01	03/16/01	MCM	Americium 241 in Soil
100 H Reactor		SOLID	02/13/01	7640-006	C		03/12/01	03/16/01	MCM	Carbon 14 in Soil
	B00-073		02/23/01	7640-006	GAM		03/07/01	03/16/01	MCM	Gamma Scan
				7640-006	NI_L		03/09/01	03/16/01	MCM	Nickel 63 in Soil
				7640-006	NP		03/07/01	03/16/01	MCM	Neptunium in Soil
				7640-006	PU		03/09/01	03/16/01	MCM	Plutonium, Isotopic in Solids
				7640-006	SR		03/05/01	03/16/01	MCM	Total Strontium in Soil
				7640-006	TH		03/16/01	03/20/01	MCM	Thorium, Isotopic in Soil
				7640-006	U		03/06/01	03/16/01	MCM	Uranium, Isotopic in Soil
Duplicate (R102122-01)			R102122-10	7640-010	H		03/21/01	03/26/01	MCM	Tritium in Soil
100 H Reactor		SOLID	02/13/01							
	B00-073		02/23/01							

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
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TMA / RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-05 Method Blank

METHOD BLANK

SDG	7640	Client/Case no	Hanford		SDG H1253
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102122-05	Client sample id	Method Blank		
Dept sample id	7640-005	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	1.98	6.7	11	50	U	C
Nickel 63	13981-37-8	0.051	1.1	1.9	30	U	NI_L
Total Strontium	SR-RAD	0.043	0.17	0.35	1.0	U	SR
Americium 241	14596-10-2	0	0.12	0.44	1.0	U	AM
Thorium 228	14274-82-9	0	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	0.084	0.32	1.0	U	TH
Uranium 233	U-233/234	0.007	0.019	0.027	1.0	U	U
Uranium 235	15117-96-1	0	0.012	0.022	1.0	U	U
Uranium 238	U-238	0.002	0.010	0.019	1.0	U	U
Neptunium 237	13994-20-2	0	0.10	0.15	1.0	U	NP
Plutonium 238	13981-16-3	0.025	0.050	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.050	0.19	1.0	U	PU
Potassium 40	13966-00-2	U		5.5		U	GAM
Cobalt 60	10198-40-0	U		0.17	0.050	U	GAM
Barium 133	13981-41-4	U		0.18		U	GAM
Cesium 137	10045-97-3	U		0.18	0.10	U	GAM
Radium 226	13982-63-3	U		0.38	0.10	U	GAM
Radium 228	15262-20-1	U		0.86	0.20	U	GAM
Europium 152	14683-23-9	U		0.43	0.10	U	GAM
Europium 154	15585-10-1	U		0.56	0.10	U	GAM
Europium 155	14391-16-3	U		0.31	0.10	U	GAM
Thorium 228	14274-82-9	U		0.25		U	GAM
Thorium 232	TH-232	U		0.86		U	GAM
Uranium 235	15117-96-1	U		0.58		U	GAM
Uranium 238	U-238	U		20		U	GAM
Americium 241	14596-10-2	U		0.15		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	03/26/01

R102122-05 Method Blank

BLANK, cont.

SDG	7640	Client/Case no	Hanford		SDG H1253
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102122-05	Client sample id	Method Blank		
Dept sample id	7640-005	Material/Matrix			SOLID
		SAF No	B00-073		

QC-BLANK 37804

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/26/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-09 Method Blank

METHOD BLANK

SDG	7640	Client/Case no	Hanford		SDG H1253
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102122-09	Client sample id	Method Blank		
Dept sample id	7640-009	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	-4.96	6.7	12	400	U	H

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

QC-BLANK 37978

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-04 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7640 Client/Case no Hanford SDG H1253

Contact Melissa C. Mannion Case no TRC-SBB-207925

Lab sample id R102122-04 Client sample id Lab Control Sample

Dept sample id 7640-004 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
Nickel 63	250	4.3	1.9	30		NI_L	266	11	94	84-116	80-120
Total Strontium	24.6	0.97	0.30	1.0		SR	23.0	0.92	107	82-118	80-120
Americium 241	21.2	2.4	0.26	1.0		AM	21.0	0.84	101	80-120	80-120
Thorium 230	37.8	3.5	0.34	1.0		TH	42.8	1.7	88	85-115	80-120
Uranium 233	19.0	0.61	0.28	1.0		U	18.6	0.74	102	89-111	80-120
Uranium 235	15.4	0.54	0.023	1.0		U	15.1	0.60	102	89-111	80-120
Uranium 238	20.9	0.65	0.27	1.0		U	20.2	0.81	104	89-111	80-120
Neptunium 237	24.6	2.1	0.13	1.0		NP	23.8	0.95	103	84-116	80-120
Plutonium 238	26.1	2.5	0.18	1.0		PU	27.2	1.1	96	83-117	80-120
Plutonium 239/240	30.4	2.8	0.18	1.0		PU	29.0	1.2	105	82-118	80-120
Cobalt 60	6.03	0.27	0.12	0.050		GAM	6.26	0.25	96	77-123	80-120
Cesium 137	5.94	0.24	0.15	0.10		GAM	6.17	0.25	96	77-123	80-120

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

QC-LCS 37803

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7640

Contact Melissa C. Mannion

Client/Case no Hanford SDG H1253

Case no TRC-SBB-207925

Lab sample id R102122-07

Dept sample id 7640-007

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	19400	390	61	50		C	22500	900	86	86-114	80-120

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

QC-LCS 37806

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-08 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7640
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1253
Case no TRC-SBB-207925

Lab sample id R102122-08
Dept sample id 7640-008

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	2770	41	11	400		H	2930	120	95	84-116	80-120

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

QC-LCS 37977

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-06 B11CP3

DUPLICATE

SDG 7640 Client/Case no Hanford SDG H1253

Contact Melissa C. Mannion Case no TRC-SBB-207925

DUPLICATE	ORIGINAL	
Lab sample id R102122-06	Lab sample id R102122-01	Client sample id B11CP3
Dept sample id 7640-006	Dept sample id 7640-001	Location/Matrix 100 H Reactor SOLID
	Received 02/23/01	Collected 02/13/01 13:30
% 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
Carbon 14	-1.26	3.0	5.1	50	U	C	0.153	2.9	4.8	U	-	
Nickel 63	-0.756	1.2	2.0	30	U	NI_L	-0.124	1.2	2.0	U	-	
Total Strontium	-0.047	0.13	0.28	1.0	U	SR	-0.039	0.11	0.23	U	-	
Americium 241	0.041	0.082	0.31	1.0	U	AM	-0.044	0.088	0.34	U	-	
Thorium 228	0.428	0.31	0.47		U	TH	0.283	0.32	0.54	U	-	
Thorium 230	0.640	0.37	0.38	1.0	J	TH	0.522	0.40	0.31	J	20	141
Thorium 232	0.305	0.18	0.23	1.0	J	TH	0.241	0.24	0.31	U	23	165
Uranium 233	0.492	0.074	0.029	1.0	J	U	0.442	0.22	0.17	J	11	75
Uranium 235	0.029	0.019	0.024	1.0	J	U	0	0.053	0.20	U	200	583
Uranium 238	0.489	0.074	0.020	1.0	J	U	0.331	0.18	0.17	J	39	72
Neptunium 237	0.022	0.027	0.043	1.0	U	NP	0.022	0.045	0.067	U	-	
Plutonium 238	0	0.054	0.21	1.0	U	PU	0.076	0.15	0.58	U	-	
Plutonium 239/240	0	0.054	0.21	1.0	U	PU	0.076	0.15	0.58	U	-	
Potassium 40	12.0	2.5	1.6			GAM	11.4	2.0	1.5		5	52
Cobalt 60	U		0.17	0.050	U	GAM	U		0.14	U	-	
Barium 133	U		0.12		U	GAM	U		0.12	U	-	
Cesium 137	U		0.15	0.10	U	GAM	U		0.12	U	-	
Radium 226	0.397	0.23	0.23	0.10		GAM	0.347	0.20	0.23		13	127
Radium 228	0.632	0.56	0.56	0.20		GAM	U		0.76	U	18	206
Europium 152	U		0.27	0.10	U	GAM	U		0.27	U	-	
Europium 154	U		0.49	0.10	U	GAM	U		0.35	U	-	
Europium 155	U		0.18	0.10	U	GAM	U		0.24	U	-	
Thorium 228	0.586	0.17	0.18			GAM	0.589	0.12	0.12		1	62
Thorium 232	0.632	0.56	0.56			GAM	U		0.76	U	18	206
Uranium 235	U		0.27		U	GAM	U		0.36	U	-	
Uranium 238	U		16		U	GAM	U		15	U	-	
Americium 241	U		0.10		U	GAM	U		0.28	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 03/26/01

DUPLICATE, cont.

SDG	7640		Client/Case no	Hanford	SDG H1253
Contact	Melissa C. Mannion		Case no	TRC-SBB-207925	
DUPLICATE		ORIGINAL			
Lab sample id	R102122-06	Lab sample id	R102122-01	Client sample id	B11CP3
Dept sample id	7640-006	Dept sample id	7640-001	Location/Matrix	100 H Reactor SOLID
		Received	02/23/01	Collected	02/13/01 13:30
% solids	100.0	% solids	100.0	Custody/SAF No	B00-073-019 B00-073

QC-DUP#1 37805

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-10 B11CP3

DUPLICATE

SDG	7640	Client/Case no	Hanford SDG H1253
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R102122-10	Lab sample id	R102122-01
Dept sample id	7640-010	Dept sample id	7640-001
		Received	02/23/01
% solids	100.0	% solids	100.0
Client sample id	B11CP3		
Location/Matrix	100-H Reactor SOLID		
Collected	02/13/01 13:30		
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
Tritium	1.15	3.1	5.2	400	U	H	0.143	3.4	5.8	U	-		

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

QC-DUP#1 37979

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/26/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-01 B11CP3

DATA SHEET

SDG	7640	Client/Case no	Hanford		SDG_H1253
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102122-01	Client sample id	B11CP3		
Dept sample id	7640-001	Location/Matrix	100 H Reactor		SOLID
Received	02/23/01	Collected	02/13/01 13:30		
% 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	0.143	3.4	5.8	400	U	H
Carbon 14	14762-75-5	0.153	2.9	4.8	50	U	C
Nickel 63	13981-37-8	-0.124	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.039	0.11	0.23	1.0	U	SR
Americium 241	14596-10-2	-0.044	0.088	0.34	1.0	U	AM
Thorium 228	14274-82-9	0.283	0.32	0.54		U	TH
Thorium 230	14269-63-7	0.522	0.40	0.31	1.0	J	TH
Thorium 232	TH-232	0.241	0.24	0.31	1.0	U	TH
Uranium 233	U-233/234	0.442	0.22	0.17	1.0	J	U
Uranium 235	15117-96-1	0	0.053	0.20	1.0	U	U
Uranium 238	U-238	0.331	0.18	0.17	1.0	J	U
Neptunium 237	13994-20-2	0.022	0.045	0.067	1.0	U	NP
Plutonium 238	13981-16-3	0.076	0.15	0.58	1.0	U	PU
Plutonium 239/240	PU-239/240	0.076	0.15	0.58	1.0	U	PU
Potassium 40	13966-00-2	11.4	2.0	1.5			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	U	GAM
Barium 133	13981-41-4	U		0.12		U	GAM
Cesium 137	10045-97-3	U		0.12	0.10	U	GAM
Radium 226	13982-63-3	0.347	0.20	0.23	0.10		GAM
Radium 228	15262-20-1	U		0.76	0.20	U	GAM
Europium 152	14683-23-9	U		0.27	0.10	U	GAM
Europium 154	15585-10-1	U		0.35	0.10	U	GAM
Europium 155	14391-16-3	U		0.24	0.10	U	GAM
Thorium 228	14274-82-9	0.589	0.12	0.12			GAM
Thorium 232	TH-232	U		0.76		U	GAM
Uranium 235	15117-96-1	U		0.36		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.28		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	03/26/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1253

R102122-02 B11CP4

DATA SHEET

SDG	7640	Client/Case no	Hanford	SDG_H1253	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R102122-02	Client sample id	B11CP4		
Dept sample id	7640 002	Location/Matrix	100 H Reactor	SOLID	
Received	02/23/01	Collected	02/12/01 13:30		
% 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	-1.14	6.7	12	400	U	H
Carbon 14	14762-75-5	6.30	6.1	10	50	U	C
Nickel 63	13981-37-8	2.51	1.4	2.2	30	J	NI_L
Total Strontium	SR-RAD	0.969	0.26	0.33	1.0	J	SR
Americium 241	14596-10-2	0.122	0.098	0.19	1.0	U	AM
Thorium 228	14274-82-9	0.044	0.27	0.55		U	TH
Thorium 230	14269-63-7	-0.311	0.18	0.42	1.0	U	TH
Thorium 232	TH-232	0.044	0.089	0.34	1.0	U	TH
Uranium 233	U-233/234	-0.005	0.029	0.053	1.0	U	U
Uranium 235	15117-96-1	0	0.012	0.045	1.0	U	U
Uranium 238	U-238	0.014	0.019	0.037	1.0	U	U
Neptunium 237	13994-20-2	0.049	0.098	0.15	1.0	U	NP
Plutonium 238	13981-16-3	0.041	0.082	0.32	1.0	U	PU
Plutonium 239/240	PU-239/240	0.082	0.083	0.31	1.0	U	PU
Potassium 40	13966-00 2	U		1.8		U	GAM
Cobalt 60	10198-40-0	0.399	0.14	0.14	0.050		GAM
Barium 133	13981-41-4	U		0.12		U	GAM
Cesium 137	10045-97-3	1.26	0.13	0.10	0.10		GAM
Radium 226	13982-63-3	U		0.22	0.10	U	GAM
Radium 228	15262-20-1	U		0.54	0.20	U	GAM
Europium 152	14683-23-9	1.04	0.29	0.34	0.10		GAM
Europium 154	15585-10-1	U		0.39	0.10	U	GAM
Europium 155	14391-16-3	U		0.24	0.10	U	GAM
Thorium 228	14274-82-9	U		0.19		U	GAM
Thorium 232	TH-232	U		0.54		U	GAM
Uranium 235	15117-96-1	U		0.35		U	GAM
Uranium 238	U-238	U		14		U	GAM
Americium 241	14596-10-2	U		0.25		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	03/26/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1253

R102122-03 B11CP6

DATA SHEET

SDG	7640	Client/Case no	Hanford SDG H1253
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R102122-03	Client sample id	B11CP6
Dept sample id	7640-003	Location/Matrix	100 H Reactor SOLID
Received	02/23/01	Collected	02/12/01 12:45
% 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	-0.441	3.5	6.0	400	U	H
Carbon 14	14762-75-5	13.6	3.2	5.0	50	J	C
Nickel 63	13981-37-8	25.4	1.8	2.0	30	J	NI_L
Total Strontium	SR-RAD	0.821	0.20	0.25	1.0	J	SR
Americium 241	14596-10-2	0.050	0.10	0.19	1.0	U	AM
Thorium 228	14274-82-9	0.619	0.44	0.59			TH
Thorium 230	14269-63-7	0.265	0.35	0.42	1.0	U	TH
Thorium 232	TH-232	0.530	0.35	0.34	1.0	J	TH
Uranium 233	U-233/234	0.567	0.078	0.037	1.0	J	U
Uranium 235	15117-96-1	0.043	0.023	0.022	1.0	J	U
Uranium 238	U-238	0.517	0.073	0.026	1.0	J	U
Neptunium 237	13994-20-2	0	0.068	0.10	1.0	U	NP
Plutonium 238	13981-16-3	0.041	0.082	0.31	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.082	0.31	1.0	U	PU
Potassium 40	13966-00-2	10.5	0.99	0.63			GAM
Cobalt 60	10198-40-0	4.52	0.18	0.085	0.050		GAM
Barium 133	13981-41-4	U		0.071		U	GAM
Cesium 137	10045-97-3	2.62	0.14	0.11	0.10		GAM
Radium 226	13982-63-3	0.399	0.14	0.16	0.10		GAM
Radium 228	15262-20-1	0.682	0.41	0.46	0.20		GAM
Europium 152	14683-23-9	0.395	0.13	0.17	0.10		GAM
Europium 154	15585-10-1	U		0.20	0.10	U	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.462	0.062	0.069			GAM
Thorium 232	TH-232	0.682	0.41	0.46			GAM
Uranium 235	15117-96-1	U		0.22		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.18		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	03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test AM	Matrix SOLID
SDG 7640	
Contact Melissa C. Mannion	

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1253	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	
B11CP4	R102122-02			7640-002	U	
B11CP6	R102122-03			7640-003	U	
BLK (QC ID=37804)	R102122-05			7640-005	U	
LCS (QC ID=37803)	R102122-04			7640-004	ok	
Duplicate (R102122-01)	R102122-06			7640-006	-	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 6963-183	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 183											
B11CP3	R102122-01			0.34	0.500			46		116			21	03/06/01	03/06	SS-044
B11CP4	R102122-02			0.19	0.500			83		116			22	03/06/01	03/06	SS-045
B11CP6	R102122-03			0.19	0.500			80		117			22	03/06/01	03/06	SS-047
BLK (QC ID=37804)	R102122-05			0.44	0.500			34		117				03/06/01	03/06	SS-049
LCS (QC ID=37803)	R102122-04			0.26	0.500			60		117				03/06/01	03/06	SS-048
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.31	0.500			56		105			22	03/06/01	03/07	SS-038
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	0.29	±	0.19
	YIELD	60	±	38

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/26/01

Test NP Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	
B11CP4	R102122-02			7640-002	U	
B11CP6	R102122-03			7640-003	U	
BLK (QC ID=37804)	R102122-05			7640-005	U	
LCS (QC ID=37803)	R102122-04			7640-004	ok	
Duplicate (R102122-01)	R102122-06			7640-006	-	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 6963-183	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 183											
B11CP3	R102122-01			0.067	0.500			86		120			22	03/06/01	03/07	SS-033
B11CP4	R102122-02			0.15	0.500			41		117			23	03/06/01	03/07	SS-050
B11CP6	R102122-03			0.10	0.500			60		115			26	03/06/01	03/10	SS-029
BLK (QC ID=37804)	R102122-05			0.15	0.500			40		117				03/06/01	03/07	SS-042
LCS (QC ID=37803)	R102122-04			0.13	0.500			48		118				03/06/01	03/07	SS-035
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.043	0.500			51		993			22	03/06/01	03/07	SS-028
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	±	0.089
YIELD	54	±	34

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test PU Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6963-183								
B11CP3	R102122-01			7640-001	U		U	
B11CP4	R102122-02			7640-002	U		U	
B11CP6	R102122-03			7640-003	U		U	
BLK (QC ID=37804)	R102122-05			7640-005	U		U	
LCS (QC ID=37803)	R102122-04			7640-004	ok		ok	
Duplicate (R102122-01)	R102122-06			7640-006	-	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 6963-183	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 183												
B11CP3	R102122-01			0.58	0.500			28		115			24	03/09/01	03/09	SS-043
B11CP4	R102122-02			0.32	0.500			50		115			25	03/09/01	03/09	SS-044
B11CP6	R102122-03			0.31	0.500			50		115			25	03/09/01	03/09	SS-045
BLK (QC ID=37804)	R102122-05			0.19	0.500			83		116				03/09/01	03/09	SS-048
LCS (QC ID=37803)	R102122-04			0.18	0.500			85		116				03/09/01	03/09	SS-047
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.21	0.500			74		116			24	03/09/01	03/09	SS-049
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 0.30 ± 0.30
YIELD 62 ± 45

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test TH Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6963-183							
B11CP3	R102122-01			7640-001	U	0.522 J	U
B11CP4	R102122-02			7640-002	U	U	U
B11CP6	R102122-03			7640-003	0.619	U	0.530 J
BLK (QC ID=37804)	R102122-05			7640-005	U	U	U
LCS (QC ID=37803)	R102122-04			7640-004		ok	
Duplicate (R102122-01)	R102122-06			7640-006	- U	ok J	ok J
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 6963-183	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 183												
B11CP3	R102122-01			0.31	0.250			61		190			27	03/07/01	03/12	SS-028
B11CP4	R102122-02			0.42	0.250			90		152			23	03/07/01	03/07	SS-019
B11CP6	R102122-03			0.42	0.250			92		152			23	03/07/01	03/07	SS-021
BLK (QC ID=37804)	R102122-05			0.40	0.250			96		152				03/07/01	03/07	SS-024
LCS (QC ID=37803)	R102122-04			0.34	0.250			101		148				03/07/01	03/07	SS-022
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.38	0.250			97		151			31	03/07/01	03/16	SS-038
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	0.38	±	0.090
	YIELD	90	±	29

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

Test U Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

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 6963-183											
B11CP3	R102122-01			7640-001	0.442 J	U	0.331 J	134	98	0	16
B11CP4	R102122-02			7640-002	U	U	U				
B11CP6	R102122-03			7640-003	0.567 J	0.043 J	0.517 J	110	22	8	5
BLK (QC ID=37804)	R102122-05			7640-005	U	U	U				
LCS (QC ID=37803)	R102122-04			7640-004	ok	ok	ok				
Duplicate (R102122-01)	R102122-06			7640-006	ok J	ok J	ok J	101	21	6	4
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	115		5	

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 6963-183 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 183																
B11CP3	R102122-01			0.20	0.500			101		105			18	03/03/01	03/03	SS-050
B11CP4	R102122-02			0.053	0.500			50		994			22	03/03/01	03/06	SS-036
B11CP6	R102122-03			0.037	0.500			99		994			22	03/03/01	03/06	SS-037
BLK (QC ID=37804)	R102122-05			0.027	0.500			95		995				03/03/01	03/06	SS-041
LCS (QC ID=37803)	R102122-04			0.28	0.500			100		994				03/03/01	03/06	SS-038
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.029	0.500			92		995			21	03/03/01	03/06	SS-042
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 0.10 ± 0.22
YIELD 90 ± 39

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test SR Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6963-183					
B11CP3	R102122-01			7640-001	U
B11CP4	R102122-02			7640-002	0.969 J
B11CP6	R102122-03			7640-003	0.821 J
BLK (QC ID=37804)	R102122-05			7640-005	U
LCS (QC ID=37803)	R102122-04			7640-004	ok
Duplicate (R102122-01)	R102122-06			7640-006	- 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 6963-183 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 183																
B11CP3	R102122-01			0.23	1.00			99		100			20	03/05/01	03/05	GRB-202
B11CP4	R102122-02			0.33	1.00			67		100			21	03/05/01	03/05	GRB-203
B11CP6	R102122-03			0.25	1.00			96		100			21	03/05/01	03/05	GRB-204
BLK (QC ID=37804)	R102122-05			0.35	1.00			76		100				03/05/01	03/05	GRB-220
LCS (QC ID=37803)	R102122-04			0.30	1.00			78		100				03/05/01	03/05	GRB-204
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.28	1.00			102		100			20	03/05/01	03/05	GRB-221
Nominal values and limits from method				1.0	1.00			30-105		100			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES				
	MDA	0.29	±	0.092
	YIELD	86	±	29

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test GAM Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	U
B11CP4	R102122-02			7640-002	0.399	1.26
B11CP6	R102122-03			7640-003	4.52	2.62
BLK (QC ID=37804)	R102122-05			7640-005	U	U
LCS (QC ID=37803)	R102122-04			7640-004	ok	ok
Duplicate (R102122-01)	R102122-06			7640-006	- U	- U
Nominal values and limits from method				*RDLs (pCi/g)*	0.050	0.10
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 6963-183	2σ prep error 15.0 % Reference Lab Notebook 6963 pg. 183															
B11CP3	R102122-01			0.26	43.6					534			21	03/02/01	03/06	PD,03,00
B11CP4	R102122-02			0.30	69.5					430			23	03/02/01	03/07	JR,03,00
B11CP6	R102122-03			0.24	49.5					534			22	03/02/01	03/06	PD,04,00
BLK (QC ID=37804)	R102122-05			0.38	43.6					429				03/02/01	03/07	JR,07,00
LCS (QC ID=37803)	R102122-04			0.12	43.6					429				03/02/01	03/07	JR,04,00
Duplicate (R102122-01) (QC ID=37805)	R102122-06			0.38	43.6					421			22	03/02/01	03/07	PD,01,00
Nominal values and limits from method				0.050	43.6					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	MDA 0.28 ± 0.20
FOR 6 SAMPLES	YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test C	Matrix SOLID
SDG 7640	
Contact Melissa C. Mannion	

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1253	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	
B11CP4	R102122-02			7640-002	U	
B11CP6	R102122-03			7640-003	13.6	J
BLK (QC ID=37804)	R102122-05			7640-005	U	
LCS (QC ID=37806)	R102122-07			7640-007	ok	
Duplicate (R102122-01)	R102122-06			7640-006	-	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 6963-183	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 183											
B11CP3	R102122-01			4.8	0.222			100		100			26	03/09/01	03/11	LSC-004
B11CP4	R102122-02			10	0.103			100		100			28	03/09/01	03/12	LSC-004
B11CP6	R102122-03			5.0	0.226			100		100			28	03/09/01	03/12	LSC-004
BLK (QC ID=37804)	R102122-05			11	0.100			100		100				03/09/01	03/11	LSC-004
LCS (QC ID=37806)	R102122-07			61	0.100			100		3				03/09/01	03/12	LSC-004
Duplicate (R102122-01) (QC ID=37805)	R102122-06			5.1	0.216			100		100			27	03/09/01	03/12	LSC-004
Nominal values and limits from method				50	0.100					50			180			

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

AVERAGES ± 2 SD	MDA	16	± 44
FOR 6 SAMPLES	YIELD	100	± 0

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/26/01

Test H Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	
B11CP4	R102122-02			7640-002	U	
B11CP6	R102122-03			7640-003	U	
BLK (QC ID=37978)	R102122-09			7640-009	U	
LCS (QC ID=37977)	R102122-08			7640-008	ok	
Duplicate (R102122-01)	R102122-10			7640-010	-	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 6963-183 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 183																
B11CP3	R102122-01			5.8	0.209			100		100			36	03/21/01	03/21	LSC-005
B11CP4	R102122-02			12	0.105			100		100			38	03/21/01	03/22	LSC-005
B11CP6	R102122-03			6.0	0.202			100		100			38	03/21/01	03/22	LSC-005
BLK (QC ID=37978)	R102122-09			12	0.100			100		100				03/21/01	03/21	LSC-005
LCS (QC ID=37977)	R102122-08			11	0.100			100		100				03/21/01	03/22	LSC-005
Duplicate (R102122-01) (QC ID=37979)	R102122-10			5.2	0.234			100		100			36	03/21/01	03/21	LSC-005
Nominal values and limits from method				400	0.100					25			180			

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

AVERAGES ± 2 SD MDA 8.7 ± 6.6
FOR 6 SAMPLES YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1253

Test NI L Matrix SOLID
SDG 7640
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1253

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6963-183						
B11CP3	R102122-01			7640-001	U	
B11CP4	R102122-02			7640-002	2.51	J
B11CP6	R102122-03			7640-003	25.4	J
BLK (QC ID=37804)	R102122-05			7640-005	U	
LCS (QC ID=37803)	R102122-04			7640-004	ok	
Duplicate (R102122-01)	R102122-06			7640-006	-	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 6963-183	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 183															
B11CP3	R102122-01			2.0	0.500			92		100			23	03/07/01	03/08	LSC-007
B11CP4	R102122-02			2.2	0.500			85		100			25	03/07/01	03/09	LSC-007
B11CP6	R102122-03			2.0	0.500			93		100			25	03/07/01	03/09	LSC-007
BLK (QC ID=37804)	R102122-05			1.9	0.500			97		100				03/07/01	03/09	LSC-007
LCS (QC ID=37803)	R102122-04			1.9	0.500			95		100				03/07/01	03/09	LSC-007
Duplicate (R102122-01) (QC ID=37805)	R102122-06			2.0	0.500			90		100			24	03/07/01	03/09	LSC-007
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 2.0 ± 0.22
YIELD 92 ± 8

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/26/01

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
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor H1253 (7640)	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC99-046 (1 of 1)	Field Logbook No.: EFL 1133-9 — COA 620 2-8-01 ~~R105DG280C~~ R105H5280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA EBERline	Offsite Property No.: A010224	Bill of Lading/Air Bill No.: 4235 7954 2628	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	RTE 2-8-01							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	60mL	125mL	125mL	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								
B1JCP3	other solid	2-13-01	1330	X	X	X	X	316 e oppi gallery	B1JCP8		

CHAIN OF POSSESSION — RT 2-20-01 Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1330	STORED IN Ref IA 3728	2-13-01 1330
Remove Dfrom Ref IA 3728	1130 2.22.01	R Thoren	1130 2.22.01
R Thoren	1130 2.22.01	FED EX	2-22-01
FED. Express	10 Am 2/23/01	E. Segura	10 Am 2/23/01

SPECIAL INSTRUCTIONS

~~(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081; PCBs - 8082~~ RT 2.20.01

(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.# IA at the 3728 Shipping Facility on 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment. RT 2.22.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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 H6253 (7640)	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC 99046	Field Logbook No.: EFL 1133-9 — COA: D 20 2-8-01 ~~R105DG280C~~ R105TT280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA EBERLINE	Offsite Property No.: A010224	Bill of Lading/Air Bill No.: ~~4235795~~ 4235795 4-2628	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm β γ

B11CP4 560 cpm β γ

Special Handling and/or Storage

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

Sample No.	Matrix *	Sample Date	Sample Time									
B11CP6	other solid	2-12-01	1245	X	X	X	X					B11CR1
B11CP4	other solid	2-12-01	1330	X				X	X	X		B11CP9

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-12-01 1540	Ref 14 3728	2-12-01 1540
Removed from Ref 14 3728	2-22-01 1130	R Thorne	2-22-01 1130
R Thorne	2-22-01 1130	FED EX	02-22-01
FED. EXPRESS	2/23/01 10:AM	E. Aguirre	2/23/01 10 AM

Sign/Print Names: RT

SPECIAL INSTRUCTIONS

(1) ~~VOA - 8260A (TCL), Semi-VOA - 8270A (TCL), Pesticides - 8081, PCBs - 8082~~ RT 2.20.01

(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.# 14 at the 3728 Shipping Facility on 2/12/01. Collector not available to relinquish samples on 2/22/01 for shipment. RT 2.22.01

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)

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 2-23-01 10:Am

CoC No. B00-073-019

Container I.D. No. ERC 99-046 Requested TAT (Days) 21 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 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. Aguro Date: 2/23/01 Time: 10:Am

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP1						
% SOLIDS	001	SO	01L%S026	02/14/01	02/26/01	02/27/01
% SOLIDS	001 REP	SO	01L%S026	02/14/01	02/26/01	02/27/01
B11CP3						
% SOLIDS	002	SO	01L%S026	02/13/01	02/26/01	02/27/01
CHLORIDE BY IC	002	SO	01LIC017	02/13/01	03/20/01	03/20/01
CHLORIDE BY IC	002 REP	SO	01LIC017	02/13/01	03/20/01	03/20/01
CHLORIDE BY IC	002 MS	SO	01LIC017	02/13/01	03/20/01	03/20/01
FLUORIDE BY IC	002	SO	01LICE19	02/13/01	03/27/01	03/27/01
FLUORIDE BY IC	002 REP	SO	01LICE19	02/13/01	03/27/01	03/27/01
FLUORIDE BY IC	002 MS	SO	01LICE19	02/13/01	03/27/01	03/27/01
NITRITE BY IC	002	SO	01LIC017	02/13/01	03/20/01	03/20/01
NITRITE BY IC	002 REP	SO	01LIC017	02/13/01	03/20/01	03/20/01
NITRITE BY IC	002 MS	SO	01LIC017	02/13/01	03/20/01	03/20/01
NITRATE BY IC	002	SO	01LIC017	02/13/01	03/20/01	03/20/01
NITRATE BY IC	002 REP	SO	01LIC017	02/13/01	03/20/01	03/20/01
NITRATE BY IC	002 MS	SO	01LIC017	02/13/01	03/20/01	03/20/01
TOTAL CYANIDE	002	SO	01LCA17	02/13/01	02/27/01	02/27/01
PHOSPHATE BY IC	002	SO	01LIC017	02/13/01	03/20/01	03/20/01
PHOSPHATE BY IC	002 REP	SO	01LIC017	02/13/01	03/20/01	03/20/01
PHOSPHATE BY IC	002 MS	SO	01LIC017	02/13/01	03/20/01	03/20/01
SULFATE BY IC	002	SO	01LIC017	02/13/01	03/20/01	03/20/01
SULFATE BY IC	002 REP	SO	01LIC017	02/13/01	03/20/01	03/20/01
SULFATE BY IC	002 MS	SO	01LIC017	02/13/01	03/20/01	03/20/01
IGNITABILITY	002	SO	01LFP00	02/13/01	02/27/01	02/27/01
PH	002	SO	01LPH017	02/13/01	03/01/01	03/01/01
PH	002 REP	SO	01LPH017	02/13/01	03/01/01	03/01/01
SULFIDE	002	SO	01LSD008	02/13/01	02/26/01	02/26/01
B11CP6						
% SOLIDS	003	SO	01L%S026	02/12/01	02/26/01	02/27/01
CHLORIDE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01
FLUORIDE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :C102L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01
NITRATE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01
TOTAL CYANIDE	003	SO	01LCA17	02/12/01	02/27/01	02/27/01
TOTAL CYANIDE	003 REP	SO	01LCA17	02/12/01	02/27/01	02/27/01
TOTAL CYANIDE	003 MS	SO	01LCA17	02/12/01	02/27/01	02/27/01
PHOSPHATE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01
SULFATE BY IC	003	SO	01LICE19	02/12/01	03/27/01	03/27/01
IGNITABILITY	003	SO	01LFP00	02/12/01	02/27/01	02/27/01
PH	003	SO	01LPH017	02/12/01	03/01/01	03/01/01
SULFIDE	003	SO	01LSD008	02/12/01	02/26/01	02/26/01
B11CP4						
% SOLIDS	004	SO	01L%S026	02/12/01	02/26/01	02/27/01
CHLORIDE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
FLUORIDE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
NITRITE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
NITRATE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
TOTAL CYANIDE	004	SO	01LCA17	02/12/01	02/27/01	02/27/01
PHOSPHATE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
SULFATE BY IC	004	SO	01LICE19	02/12/01	03/27/01	03/27/01
IGNITABILITY	004	SO	01LFP003	02/12/01	02/27/01	02/27/01
PH	004	SO	01LPH017	02/12/01	03/01/01	03/01/01
SULFIDE	004	SO	01LSD008	02/12/01	02/26/01	02/26/01
SULFIDE	004 REP	SO	01LSD008	02/12/01	02/26/01	02/26/01
SULFIDE	004 MS	SO	01LSD008	02/12/01	02/26/01	02/26/01

LAB QC:

CHLORIDE BY IC	MB1	S	01LIC017	N/A	03/20/01	03/20/01
CHLORIDE BY IC	MB1 BS	S	01LIC017	N/A	03/20/01	03/20/01
FLUORIDE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
FLUORIDE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
NITRITE BY IC	MB1	S	01LIC017	N/A	03/20/01	03/20/01
NITRITE BY IC	MB1 BS	S	01LIC017	N/A	03/20/01	03/20/01
NITRATE BY IC	MB1	S	01LIC017	N/A	03/20/01	03/20/01
NITRATE BY IC	MB1 BS	S	01LIC017	N/A	03/20/01	03/20/01
TOTAL CYANIDE	LCS L	S	01LCA17	N/A	02/27/01	02/27/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :01L02L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL CYANIDE	LCS L	S	01LCA17	N/A	02/27/01	02/27/01
TOTAL CYANIDE	MB1	S	01LCA17	N/A	02/27/01	02/27/01
PHOSPHATE BY IC	MB1	S	01LIC017	N/A	03/20/01	03/20/01
PHOSPHATE BY IC	MB1 BS	S	01LIC017	N/A	03/20/01	03/20/01
SULFATE BY IC	MB1	S	01LIC017	N/A	03/20/01	03/20/01
SULFATE BY IC	MB1 BS	S	01LIC017	N/A	03/20/01	03/20/01
SULFIDE	MB1	S	01LSD008	N/A	02/26/01	02/26/01
SULFIDE	MB1 BS	S	01LSD008	N/A	02/26/01	02/26/01
SULFIDE	MB1 BSD	S	01LSD008	N/A	02/26/01	02/26/01
CHLORIDE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
CHLORIDE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
NITRITE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
NITRITE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
NITRATE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
NITRATE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
PHOSPHATE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
PHOSPHATE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
SULFATE BY IC	MB1	S	01LICE19	N/A	03/27/01	03/27/01
SULFATE BY IC	MB1 BS	S	01LICE19	N/A	03/27/01	03/27/01
IGNITABILITY	MB1 BS	S	01LFP003	N/A	02/27/01	02/27/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073 H1253
LVL#: 0102L080

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

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 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 Sulfide that were received past hold.

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS 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 Chloride, Nitrate and Nitrite.

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

04-03-01
Date

njp\02-080

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 ~~18~~ 17 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	__ 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: Fluoride, Chloride, Nitrate, **Method:** EPA 300.0 (mod.)

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

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Inorganic Data Summary Report
Physical Testing Observation

Client: TNU-HANFORD B00-073 H1253
LVL#: 0102L080

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

Analyte:

Ignitability

Observation:

Samples B11CP3 and B11CP6 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\i02-080 .pt2

LVLI
LIONVILLE LABORATORY INC.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11CP1	% Solids	73.7		%	0.01	1.0
-002	B11CP3	% Solids	96.4		%	0.01	1.0
		Chloride by IC	400		MG/KG	17.0	10.0
		Fluoride by IC	130	u	MG/KG	130	50.0
		Nitrite by IC	8.48	u	MG/KG	8.48	5.0
		Nitrate by IC	36.7		MG/KG	3.39	2.0
		Cyanide, Total	0.50	u	MG/KG	0.50	1.0
		Phosphate by IC	3.4	u	MG/KG	3.4	2.0
		Sulfate by IC	69.6		MG/KG	3.4	2.0
		pH	12.3		SOIL PH	0.01	1.0
		Sulfide	40.9	u	MG/KG	40.9	1.0
-003	B11CP6	% Solids	94.5		%	0.01	1.0
		Chloride by IC	263		MG/KG	13.2	10.0
		Fluoride by IC	132	u	MG/KG	132	50.0
		Nitrite by IC	16.7		MG/KG	6.61	5.0
		Nitrate by IC	38.9		MG/KG	6.61	5.0
		Cyanide, Total	0.51	u	MG/KG	0.51	1.0
		Phosphate by IC	6.6	u	MG/KG	6.6	5.0
		Sulfate by IC	18.5		MG/KG	6.6	5.0
		pH	12.3		SOIL PH	0.01	1.0
		Sulfide	41.3	u	MG/KG	41.3	1.0
-004	B11CP4	% Solids	99.2		%	0.01	1.0
		Chloride by IC	240		MG/KG	25.2	20.0
		Fluoride by IC	126	u	MG/KG	126	50.0
		Nitrite by IC	16.5		MG/KG	6.30	5.0
		Nitrate by IC	38.6		MG/KG	6.30	5.0
		Cyanide, Total	0.47	u	MG/KG	0.47	1.0
		Phosphate by IC	6.3	u	MG/KG	6.3	5.0
		Sulfate by IC	16.9		MG/KG	6.3	5.0
		Ignitability	160.000		DEG F	40.0	1.0
		pH	7.5		SOIL PH	0.01	1.0
		Sulfide	40.1	u	MG/KG	40.1	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LIC017-MB1	Chloride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		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
BLANK10	01LICE19-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
		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	01LCA17-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	01LSD008-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 *LVL LOT #: 0102L080*

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B11CP3	Chloride by IC	1050	400	678	96.4	20.0
		Fluoride by IC	2800	0.0	2590	107.9	50.0
		Nitrite by IC	194	8.48u	170	114.6	5.0
		Nitrate by IC	203	36.7	170	97.9	5.0
		Phosphate by IC	166	3.4 u	170	98.0	5.0
		Sulfate by IC	257	69.6	170	110.4	5.0
-003	B11CP6	Cyanide, Total	4.64	0.51u	5.02	92.5	1.0
-004	B11CP4	Sulfide	458	-8.	481	96.9	1.0
BLANK10	01LIC017-MB1	Chloride by IC	25.0	1.2 u	25.0	100.1	1.0
		Nitrite by IC	23.8	1.25u	25.0	95.4	1.0
		Nitrate by IC	25.7	1.25u	25.0	102.8	1.0
		Phosphate by IC	26.7	1.2 u	25.0	106.8	1.0
		Sulfate by IC	24.6	1.2 u	25.0	98.6	1.0
BLANK10	01LICE19-MB1	Chloride by IC	24.2	1.2 u	25.0	97.0	1.0
		Fluoride by IC	53.7	2.5 u	50.0	107.5	1.0
		Nitrite by IC	23.7	1.25u	25.0	94.8	1.0
		Nitrate by IC	24.9	1.25u	25.0	99.7	1.0
		Phosphate by IC	24.8	1.2 u	25.0	99.3	1.0
		Sulfate by IC	24.1	1.2 u	25.0	96.4	1.0
BLANK10	01LSD008-MB1	Sulfide	477	40.0 u	501	95.2	1.0
		Sulfide MSD	537	40.0 u	538	99.7	1.0

Lionville Lababoratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LSD008-MB1	Sulfide	95.2	99.7	4.6

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11CP1	% Solids	73.7	71.7	2.8	1.0
-002REP	B11CP3	Chloride by IC	400	492	20.7	10.0
		Fluoride by IC	130 u	130 u	NC	50.0
		Nitrite by IC	8.48u	8.48u	NC	5.0
		Nitrate by IC	36.7	46.2	23.0	2.0
		Phosphate by IC	3.4 u	3.4 u	NC	2.0
		Sulfate by IC	69.6	55.5	22.7	2.0
		pH	12.3	12.3	0.0	1.0
-003REP	B11CP6	Cyanide, Total	0.51u	0.52u	NC	1.0
-004REP	B11CP4	Sulfide	40.1 u	39.3 u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/02/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LCA17-LCS1	Cyanide, Total LCS	1.84	2.0	MG/KG	91.8
LCSS2	01LCA17-LCS2	Cyanide, Total LCS	10.2	10.0	MG/KG	102.3

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Lionville Laboratory Use Only: 0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratories, Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford 800-073
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		C						A	B	D					
Refrigerator #		2						2	2	2					
#/Type Container	Liquid														
	Solid	1PG						1PG	1PG	1PG					
Volume	Liquid														
	Solid	125						60	60	125					
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	OL24H	OL25H	OL08H OPCB				MCRTO	MRCPATO	ICnTO	IC①	ISFD	IIGn	IPH		
001	B11CP1			SO	2-14-01	1300							✓								
002	3				2-13-01	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		
003	6				2-12-01	1245	✓	✓	✓					✓	✓	✓	✓	✓	✓		
004	4				1	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		

Special Instructions: SO & B00-073
Run Matrix QC

DATE/REVISIONS:
IC① 1. Cl, F1, NO2, NO3, PO4, SO4
004-C, D 2. Recd in 250ml AG JARS.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped / or Hand Delivered ___
Airbill # Del Retail
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 3° C

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

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: 11735 7954 2606

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-018	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 west water tunnel	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC96-004 (3 of 4) 44 MJ 2-22-01	Field Logbook No.: EFL 1133-9 — COA BXB 2-8-01 ~~R105DG280C~~ R105HT280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-2606	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										

SAMPLE ANALYSIS: ICP Metals - 6010A (Supertrace); ~~Mercury - 7471 - (CV)~~ BXB 2-14-01 — TCLP

Sample No.	Matrix *	Sample Date	Sample Time									
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel			B11CP1		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers / Doug Bowers	2-14-01/1440	~~Received By~~ STORED IN Ref 1A 3728	2-15-01/1440
~~Relinquished By~~ Removed from Ref 1A 3728	Date/Time 1430 2-22-01	~~Received By~~ R. Thoren	Date/Time 1130 2-22-01
~~Relinquished By~~ R. Thoren	Date/Time 1130 2-22-01	~~Received By~~ FEDEX	Date/Time
~~Relinquished By~~ FedEx	Date/Time 2/23/01 0935	~~Received By~~	Date/Time 2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.
RT 2-22-01

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

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.: ERC96-044 (3044)	Field Logbook No.: EFL 1133-9	COA: 020 2-8-01 ~~R105DG280C~~ R105HS280C	Method of Shipment: Fed Ex JMO 2-22-01
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7454-0 2606

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	~~aG~~ aG	aG							
No. of Container(s)	1	1	1	1							
Volume	60mL	125mL	~~125mL~~ 125mL	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				TICTO:			
Sample No.	Matrix *	Sample Date	Sample Time								
B1JCP3	other solid	2-13-01	1330	X	X	X	X	116e opps gallery	B1JCP8		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1445	~~Received By~~ Stored in Ref IA 3728	2-13-01 1545
Removed from Ref IA 3728	2.22.01 1130	R Thoren	2-22-01 1130
R Thoren	2.22.01 1130	FEDEX	
Fed Ex	2/23/01 0935	Ultmendez	2/23/01 0935
		Trans. by Turpin	

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 2.22.01
(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 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment.
RT 2.22.01

Matrix *: S=Soil; SE=Sediment; SL=Sludge; 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

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.: ERC96-044 (3of4)	Field Logbook No.: EFL 1133-9 — COA D 20 2-8-01 ~~R105DG280C~~ R105N52 80C	Method of Shipment: Fed Ex	
Shipped To: TMA (RECRA)	Offsite Property No.: A010207	Bill of Lading/Airbill No.: 4235 7954 — 26006	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm BY
B11CP4 560 cpm BY

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	Cool 4C	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	125mL	125mL	125mL	250ml	250ml	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	See item (1) below	See item (2) below	See item (3) below			TIETO

Sample No.	Matrix *	Sample Date	Sample Time									
B11CP6	other solid	2-12-01	1245	X	X	X	X					B11CR1
B11CP4	other solid	2-12-01	1330	X				X	X	X		B11CP9

CHAIN OF POSSESSION — RT Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2/12/1540	Stored in Ref 1A 3728	2/12/01 1540
Removed from Ref 1A 3728 (RT 2.22.01)	2.22.01 1130	R Thoren	2.22.01 1130
R Thoren	2.22.01 1130	FED EX	
Fed Ex	2/23/01 0935		2/23/01 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, Americium-241, Strontium-89/90 - Total Sr, Neptunium-237, Carbon-14, Nickel-63~~ Gamma Spec - Add-on (Barium-133), Isotopic Plutonium, Isotopic Uranium, Isotopic Thorium) RT 2.22.01
(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 2/12/01.
Collector not available to relinquish samples on 2/12/01 for shipment. RT 2.22.01

Matrix *
SoSoil
SESediment
SOSolid
SLSludge
WaWater
OiOil
AsAir
DSDrum Solids
DLDrum Liquids
TiTissue
WIWipe
LLiquid
VVegetation
XOther

LABORATORY SECTION — Received By: ____ Title: ____ Date/Time: ____

FINAL SAMPLE DISPOSITION — Disposal Method: ____ Disposed By: ____ Date/Time: ____

APR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # : 1021080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP1						
CHROMIUM, TOTAL	001	SO	01L0074	02/14/01	02/16/01	02/27/01
B11CP3						
SILVER, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
SILVER, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
SILVER, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
ARSENIC, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
ARSENIC, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
ARSENIC, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
BARIUM, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
BARIUM, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
BARIUM, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
CADMIUM, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
CADMIUM, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
CADMIUM, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
CHROMIUM, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
CHROMIUM, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
CHROMIUM, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
MERCURY, TOTAL	002	SO	01C0057	02/13/01	02/26/01	02/27/01
MERCURY, TOTAL	002 REP	SO	01C0057	02/13/01	02/26/01	02/27/01
MERCURY, TOTAL	002 MS	SO	01C0057	02/13/01	02/26/01	02/27/01
LEAD, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
LEAD, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
LEAD, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
SELENIUM, TOTAL	002	SO	01L0074	02/13/01	02/16/01	02/27/01
SELENIUM, TOTAL	002 REP	SO	01L0074	02/13/01	02/16/01	02/27/01
SELENIUM, TOTAL	002 MS	SO	01L0074	02/13/01	02/16/01	02/27/01
B11CP6						
SILVER, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
ARSENIC, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
BARIUM, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
CADMIUM, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
MERCURY, TOTAL	003	SO	01C0057	02/12/01	02/26/01	02/27/01
LEAD, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
SELENIUM, TOTAL	003	SO	01L0074	02/12/01	02/16/01	02/27/01
B11CP4						
SILVER, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
ARSENIC, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
BARIUM, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
CADMIUM, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
CHROMIUM, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
MERCURY, TOTAL	004	SO	01C0057	02/12/01	02/26/01	02/27/01
LEAD, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01
SELENIUM, TOTAL	004	SO	01L0074	02/12/01	02/16/01	02/27/01

LAB QC:

CHROMIUM LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
CHROMIUM, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
SILVER LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
SILVER, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
ARSENIC LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
ARSENIC, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
BARIUM LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
BARIUM, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
CADMIUM LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
CADMIUM, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
MERCURY LABORATORY	LC1 BS	S	01C0057	N/A	02/26/01	02/27/01
MERCURY, TOTAL	MB1	S	01C0057	N/A	02/26/01	02/27/01
LEAD LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
LEAD, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01
SELENIUM LABORATORY	LC1 BS	S	01L0074	N/A	02/16/01	02/26/01
SELENIUM, TOTAL	MB1	S	01L0074	N/A	02/16/01	02/26/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073
LVL#: 01021L080
SDG/SAF#: H1253/B00-073

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

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 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) recoveries for 2 analytes were 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. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
BP11CP3	Lead	200	100.5

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 16 pages.

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

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

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

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

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

03-15-0

Date

gnb/m02-080

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0102L080

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/13/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
001	B11CP1	Chromium, Total	28.1	MG/KG	0.08	1.0
-002	B11CP3	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	112	MG/KG	0.24	1.0
		Barium, Total	124	MG/KG	0.02	1.0
		Cadmium, Total	1.5	MG/KG	0.03	1.0
		Chromium, Total	22.1	MG/KG	0.06	1.0
		Mercury, Total	0.04	MG/KG	0.02	1.0
		Lead, Total	50.6	MG/KG	0.21	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/23/01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	H11CP6	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	78.1	MG/KG	0.25	1.0
		Barium, Total	137	MG/KG	0.02	1.0
		Cadmium, Total	0.59	MG/KG	0.03	1.0
		Chromium, Total	21.6	MG/KG	0.06	1.0
		Mercury, Total	0.34	MG/KG	0.02	1.0
		Lead, Total	51.2	MG/KG	0.22	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
-004	B11CP4	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.23 u	MG/KG	0.23	1.0
		Barium, Total	5.6	MG/KG	0.02	1.0
		Cadmium, Total	0.50	MG/KG	0.03	1.0
		Chromium, Total	2.4	MG/KG	0.06	1.0
		Mercury, Total	0.03	MG/KG	0.02	1.0
		Lead, Total	62.5	MG/KG	0.20	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09 12/91

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

WORK ORDER: 11343-606-001 9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0074-MB1	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.24 u	MG/KG	0.24	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0
BLANK1	01C0057-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc

INORGANICS ACCURACY REPORT 01-13-01

CLIENT: TNUHANFORD B00-073 H1353

LVL LCT #: 01021080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKE AMOUNT	%RECV	DILUTION FACTOR-SIZE
-002	H11CP7	Silver, Total	4.5	0.11u	3.9	91.8	1.0
		Arsenic, Total	283	112	198	86.6	1.0
		Barium, Total	295	124	198	86.9	1.0
		Cadmium, Total	5.3	1.5	4.0	90.4	1.0
		Chromium, Total	40.5	22.1	19.8	92.9	1.0
		Mercury, Total	0.57	0.04	1.16	447.1	1.0
		Lead, Total	112	50.6	49.4	124.2	1.0
		Selenium, Total	170	0.31u	198	86.0	1.0

Lionville Lababoratory, Inc

INORGANICS PRECISION REPORT 03 1: 01

CLIENT: TNUHANFORD B00 073 H1253 LVL LOT #: 0103L080

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RES	RPD	DILUTI N FACTOR
-002REP	B11CF3	Silver, Total	0.11u	0.11u	NC	1.0
		Arsenic, Total	112	108	3.6	1.0
		Barium, Total	124	121	2.0	1.0
		Cadmium, Total	1.5	1.9	23.5	1.0
		Chromium, Total	22.1	21.9	0.91	1.0
		Mercury, Total	0.04	0.02	14.1	1.0
		Lead, Total	50.6	73.5	36.9	1.0
		Selenium, Total	0.33u	0.33u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02-13-01

CLIENT: TNUHANFORD B00-073 H1253 LVL LOT #: 0102L080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0074-LC1	Silver, LCS	49.6	50.0	MG/KG	99.2
		Arsenic, LCS	930	1000	MG/KG	93.0
		Barium, LCS	489	500	MG/KG	97.8
		Cadmium, LCS	24.2	25.0	MG/KG	96.8
		Chromium, LCS	49.5	50.0	MG/KG	99.0
		Lead, LCS	241	250	MG/KG	96.4
		Selenium, LCS	907	1000	MG/KG	90.7
LCS1	01C0057-LC1	Mercury, LCS	2.5	2.5	MG/KG	102.3

Lionville Laboratory Use Only: 0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-6000-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		C						A	B	D					
Refrigerator #		2						2	2	2					
#/Type Container	Liquid														
	Solid	1AG						1AG	1AG	1AG					
Volume	Liquid														
	Solid	125						60	60	125					
Preservatives		-						-	-	-					
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
		Lionville Laboratory Use Only													
		OC24H	OC25H	OC08H OPCB				MCRTO	MRCRTO	ICnTO	IC①	ISFD	IIGn	IPH	

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24H	OC25H	OC08H OPCB				MCRTO	MRCRTO	ICnTO	IC①	ISFD	IIGn	IPH	
S - Soil	001	B11CP1			So	2-14-01	1300							✓							
SE - Sediment	002	3				2-13-01	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓	
SO - Solid	003	6				2-12-01	1245	✓	✓	✓					✓	✓	✓	✓	✓	✓	
SL - Sludge	004	4				1	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓	
W - Water																					
O - Oil																					
A - Air																					
DS - Drum Solids																					
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

Special Instructions: Soil B00-073
Run Matrix QC

DATE/REVISIONS:
IC① : Cl, Fl, NO2, NO3, PO4, SO4
004-C, D 2. Recd in 250ml AG JARS.
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 on:
1) Present Y or N Cooler Package Y or N
2) Unbroken Cooler Package Y or N
3) Present Y or N
4) Unbroken Sample Y or N
Sample Preserved in Proper Container Y or N
Temp 3°

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
4235 7954 2606

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

13

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-073-018	Page 1 of 1
Collector Doug Bowers	Company Contact Jason Addler	Telephone No. 531-0703	Project Coordinator TRENT, SJ	Price Code 9L Air Quality ☐
Project Designation 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location 100 H reactor west water tunnel		SAF No. B00-073	Data Turnaround 21 Days
Ice Chest No. ERC 96-004 (3004) 44 MT 2-22-01	Field Logbook No. EFL 1133-9	COA 15 XB 2-8-01 ~~R105DG280C~~ R105HT280C	Method of Shipment Fed Ex	
Shipped To TMA/RECRA	Offsite Property No. A010207		Bill of Lading/Air Bill No. 42357954-26060	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace), ~~Mercury - 7471 - (CV)~~ BZB2-14-01								TPHTO		
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel		B11CP1		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By Doug Bowers	Date/Time 2-14-01/1440	Received By STORED IN Ref 1A 3728	Date/Time 2-15-01/1440
Relinquished By Removed from Ref 1A 3728	Date/Time 1130 2-22-01	Received By R. Thoren	Date/Time 1130 2-22-01
Relinquished By R. Thoren	Date/Time 1130 2-22-01	Received By FED EX	Date/Time
Relinquished By Fed Ex	Date/Time 2/23/01 0935	Received By V. Kennedy	Date/Time 2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.
RT 2 22 01

Matrix *

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3044)	Field Logbook No.: EFL 1133-9	COA 0 20 2-8-01 ~~R105DG280C~~ R105H5280C	Method of Shipment: Fed Ex JMS 2-22-01
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7954-0 26006

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	125mL	125mL	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						TICTO:	
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP3	other solid	2-13-01	1330	X	X	X	X	116a opp. gallery		B11CP8	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1515	Stored in A.F. 1A 3728	2-13-01 1515
Removed from A.F. 1A 3728	2.22.01 1130	R Thoren	2-22-01 1130
R Thoren	2.22.01 1130	FEDEX	
Fed Ex	2/23/01 0935	Ultimate 22301	0935
		Trans. by Tierra	

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, Americium 241, Strontium 89/90 - Total Sr, Neptunium 237, Carbon 14, Nickel 59~~
(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 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2.22.01

LABORATORY SECTION	Received By	Title
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By

BHI-EE-011 (10/99)

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.: ERC96-044 (3 of 4)	Field Logbook No.: EFL 1133-9; COA ~~B105D0280C~~ B105H1152 80C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954 - 2606	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm β γ

B11CP4 560 cpm β γ

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation	None	Cool 4C	None	None	Cool 4C	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	125mL	125mL	125mL	250mL	250mL	250mL			
	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	See item (1) below	See item (2) below	See item (3) below			TIETO
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP6	other solid	2-12-01	1245	X	X	X	X				B11CR1
B11CP4	other solid	2-12-01	1330	X				X	X	X	B11CR9

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-12-01 1540	Store DIN Ref 1A 3728	2-12-01 1540
Remaed from Ref 1A 3728	2-22-01 1130	R Thoren	2-22-01 1130
R Thoren	2-22-01 1130	FED EX	
FED EX	2/23/01 0935		2/23/01 0935

Print Sign/Print Names

SPECIAL INSTRUCTIONS

(1) VOA - 8260A (TCL); Semi VOA - 8270A (TCL); Pesticides - 8081 (TCL); PCBs - 8082
~~(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Gamma Spec - Add-on (Barium-133, Iodine-129, Iodine-131, Iodine-133, Thorium, Americium-241, Strontium-89/90 - Total Sr, Neptunium-237, Carbon-14, Ni-63)~~
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate), Total Cyanide - 9010, Sulfides - 9030, Ignitability - 1010, pH (25 °C) - 9045

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/12/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2-22-01

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP3	002	SO	01LE0203	02/13/01	02/26/01	03/08/01
B11CP6	003	SO	01LE0203	02/12/01	02/26/01	03/08/01
B11CP6	003 MS	SO	01LE0203	02/12/01	02/26/01	03/08/01
B11CP6	003 MSD	SO	01LE0203	02/12/01	02/26/01	03/08/01
B11CP4	004	SO	01LE0203	02/12/01	02/26/01	03/08/01

LAB QC:

PBLKQD	MB1	S	01LE0203	N/A	02/26/01	03/07/01
PBLKQD	MB1 BS	S	01LE0203	N/A	02/26/01	03/07/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0102L080
SDG/SAF#: H1253/B00-073

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

PESTICIDE

The set of samples consisted of three (3) solid samples collected on 02-12,13-01.

The samples and their associated QC samples were extracted on 02-26-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-07,08-01. 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 method blank was below the reporting limits for all target compounds.

4. All obtainable surrogate recoveries were within acceptance criteria.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. Sample B11CP4 required a twenty-fold instrument dilution due high concentrations of non-target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of target compounds Methoxychlor, 4,4'-DDD, and 4,4'-DDE analyzed on 03-07-01 at 22:03 and 22:52 on the primary column. 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.

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

10. An initial weight of 5' grams was utilized for extraction for all samples due to limited sample volume. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

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

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

04-06-4
Date

pcf\r\group\data\pest\021L-080.pcs

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 0160108

Initiator: MJB Batch: 0102L080 Parameter: 0608H
Date: 3/22/01 Samples: All, Blk, BS Matrix: Solids
Client: TWD-Hanford Method: (SW846)/MCAWW/CLP/ Prep Batch: 01LE0203

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)

CCV's prior to blank and BS were increased for DDT at 17%, DDD at 26%, Methoxychlor at 27% and DDE at 25%. CCV's prior to samples were increased at DDD at 17%, Methoxychlor at 23% and DDE at 17%.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: Annette Gibbs 3/23/01

__ 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] 3/27/01 Other Explanation:

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

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

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

L-WI-006/E-01/01

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: C1LX0039

Initiator: Clara Goodfield Batch: 01021080 | 01021081 | Parameter C625, ~~C625~~, CPCB
Date: 3/26/01 Samples: 2, 2ms 2msd, 3, 4 | 1, 1ms 1msd Matrix: S
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LEC201 / 0204

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)

for batch 01021080 used 10g; not enough sent
For batch 01021081 used 10g; not enough sent
Sample 01021080-4 very oily, sludge like matrix had a difficult time filtering # 4 for C625 tests

Used 5g of sample for ~~Rest~~ REW 01021080 for the C625 & CPCB tests due to lack of sample sent in.
01021081 - 50ml final vol.

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: _____

__ 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: CT Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative noted for 01021080 CT 3/23/01
__ Hard Copy COC Revised
__ Electronic COC Revised Noted for 01021080 REST 04/6/01
__ EDD Corrections Completed

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

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

L-WI-006/E-01/01

05

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

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

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

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 03/20/01 16:48

RFW Batch Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 1

	Cust ID:	B11CP3		B11CP6		B11CP6		B11CP6		B11CP4		PBLKQD	
Sample Information	RFW#:	002		003		003 MS		003 MSD		004		01LE0203-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		20.0		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	75	%	58	%	75	%	72	%	D	%	80	%
	Decachlorobiphenyl	74	%	58	%	73	%	71	%	D	%	83	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		10	U	11	U	11	U	11	U	1000	U	10	U
Beta-BHC		10	U	11	U	11	U	11	U	1000	U	10	U
Delta-BHC		10	U	11	U	11	U	11	U	1000	U	10	U
gamma-BHC (Lindane)		10	U	11	U	90	%	85	%	1000	U	10	U
Heptachlor		10	U	11	U	80	%	75	%	1000	U	10	U
Aldrin		10	U	11	U	65	%	60	%	1000	U	10	U
Heptachlor epoxide		10	U	11	U	11	U	11	U	1000	U	10	U
Endosulfan I		10	U	11	U	11	U	11	U	1000	U	10	U
Dieldrin		21	U	21	U	86	%	82	%	2000	U	20	U
4,4'-DDE		21	U	21	U	21	U	21	U	2000	U	20	U
Endrin		21	U	21	U	94	%	86	%	2000	U	20	U
Endosulfan II		21	U	21	U	21	U	21	U	2000	U	20	U
4,4'-DDD		21	U	21	U	21	U	21	U	2000	U	20	U
Endosulfan sulfate		21	U	21	U	21	U	21	U	2000	U	20	U
4,4'-DDT		23		66		90	%	82	%	2000	U	20	U
Methoxychlor		100	U	110	U	110	U	110	U	10000	U	100	U
Endrin ketone		21	U	21	U	21	U	21	U	2000	U	20	U
Endrin aldehyde		21	U	21	U	21	U	21	U	2000	U	20	U
alpha-Chlordane		10	U	11	U	11	U	11	U	1000	U	10	U
gamma-Chlordane		10	U	11	U	11	U	11	U	1000	U	10	U
Toxaphene		1000	U	1100	U	1100	U	1100	U	100000	U	1000	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

08

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 03/20/01 16:48

RFW Batch Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 2

GB

Cust ID: PBLKQD BS

Sample Information

RFW#: 01LE0203-MB1
Matrix: SOIL
D.F.: 1.00
Units: UG/KG

Surrogate:	Tetrachloro-m-xylene	75	%
	Decachlorobiphenyl	84	%

Alpha-BHC	10	U
Beta-BHC	10	U
Delta-BHC	10	U
gamma-BHC (Lindane)	80	%
Heptachlor	95	%
Aldrin	70	%
Heptachlor epoxide	10	U
Endosulfan I	10	U
Dieldrin	82	%
4,4'-DDE	20	U
Endrin	98	%
Endosulfan II	20	U
4,4'-DDD	20	U
Endosulfan sulfate	20	U
4,4'-DDT	108	%
Methoxychlor	100	U
Endrin ketone	20	U
Endrin aldehyde	20	U
alpha-Chlordane	10	U
gamma-Chlordane	10	U
Toxaphene	1000	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

3/22/01

Lionville Laboratory Use Only

0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford B00-073

Est. Final Proj. Sampling Date:

Project #: 11343-C000-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: Spec Del: Std TAT: 21 day

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

		C						A	B	D					
Refrigerator #		2						2	2	2					
#/Type Container	Liquid														
	Solid	1PG						1PG	1PG	1PG					
Volume	Liquid														
	Solid	125						60	60	125					
Preservatives		-						-	-	-					
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
Lionville Laboratory Use Only		OC24H	OC25H	OC26H	OCRP			MCRTO	MRCRATO	ICnTO	IC①	ISFD	IIGn	IPH	

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24H	OC25H	OC26H	OCRP			MCRTO	MRCRATO	ICnTO	IC①	ISFD	IIGn	IPH		
S - Soil	001	B11CP1			So	2-14-01	1300							✓								
SE - Sediment	002	3				2-13-01	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		
SO - Solid	003	6				2-12-01	1245	✓	✓	✓					✓	✓	✓	✓	✓	✓		
SL - Sludge	004	4					1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: Sa & B00-073

Run Matrix QC

DATE/REVISIONS:

IC① 1 Cl, Fl, NO2, NO3, PO4, SO4

004-C, D 2 Recd in 250ml AG JARS.

3

4

5

6

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

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

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

NOTES: 11775 7954 2/6 1/6

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___

Airbill # [illegible]

2) Ambient or (Chilled)

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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 3° C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-018	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 west water tunnel		SAF No.: B00-073
Ice Chest No.: ERC96-004 (3 of 4) 44 MJ 2-22-01	Field Logbook No.: EFL 1133-9	COA B2B2-8-01 ~~R105DG280C~~ R105HT280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7954-2606

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace), ~~Mercury - 7471 - (CV)~~ B2B2 2-14-01							TCLP			
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel	B11CP1			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names (Received By)	Date/Time
Relinquished By: Doug Bowers	2-14-01/1440	Received By: STORED IN Ref 1A 3728	2-15-01/1440
Relinquished By: Remaining from Ref 1A 3728	2-22-01 1130	Received By: R Thoren	2-22-01 1130
Relinquished By: R Thoren	2-22-01 1130	Received By: FED EX	
Relinquished By: Fed Ex	2/23/01 0935	Received By: [illegible]	2/23/01 0935
Relinquished By		Received By	
Relinquished By		Received By	

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.
RT 2-22-01

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=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

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.: ERC96-044 (3 of 4)	Field Logbook No.: EFL 1133-9 — COA B28 2-8-01 ~~R105DG280C~~ R105H5280C	Method of Shipment: Fed Ex JMO 2-22-01	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-02606	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None
Type of Container	aG	aG	~~pG~~ aG	aG
No. of Container(s)	1	1	1	1
Volume	60mL	125mL	125mL	125mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	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				
B1JCP3	other solid	2-13-01	1330	X	X	X	X	116 e oppo gallery	TIETO: B1JCP8		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1315	Stored in Ref 1A 3728	2-13-01 1315
Removed from Ref 1A 3728	2-22-01 1130	R Thoren	2-22-01 1130
R Thoren	2-22-01 1130	FEDEX	
Fed Ex	2/23/01 0935	Ultmandez	2/23/01 0935
		Trans by Tierra	

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)~~ RT 2.22.01
~~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 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2.22.01

Matrix *
S - Soil
SL - Sediment
SD - Sand
S - Sludge
W - Water
DW - Drinking Water
A - Air
DS - Drum Solid
DL - Drum Liquid
T - Tissue
WI - Wipe
L - Liquid
V - Vegetation
X - Other

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3of4)	Field Logbook No.: EFL 1133-9	COA D 20 2-8-01 ~~R105DO280C~~ B105M52 80C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7954 — 26006

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm BT

B11CP4 560 cpm BT

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	Cool 4C	None	None				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	60mL	125mL	250mL	125mL	250ml	250ml	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	See item (1) below	See item (2) below	See item (3) below			TIETO	
Sample No.	Matrix *	Sample Date	Sample Time								
B11CP6	other solid	2-12-01	1245	X	X	X	X			B11CR1	
B11CP4	other solid	2-12-01	1330	X				X	X	X	B11CP9

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers / Doug Bowers	2-12-01 1540	Stored in Ref 1A 3728	2-12-01 1540
~~Relinquished By~~ Removed from Ref 1A 3728	2-22-01 1130	~~Received By~~ R Thoren	2-22-01 1130
R Thoren	2-22-01 1130	FED EX	
Fed Ex	2/23/01 0935	V. Hearn	2/23/01 0935

RT 2-22-01

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~~
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045

RT 2-22-01

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/12/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2-22-01

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

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

Figure 1. Sample Check-in List

Date/Time Received: _____

SDG#: C1021080

Work Order Number: — SAF# B00-073

Shipping Container ID: _____ Chain of Custody # B00-073-018,019

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 3°
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 22
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: [signature] Date: 2/23/01

Telephoned to: _____ On _____ By _____

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP3	002	SO	01LE0204	02/13/01	02/26/01	03/08/01
B11CP6	003	SO	01LE0204	02/12/01	02/26/01	03/08/01
B11CP4	004	SO	01LE0204	02/12/01	02/26/01	03/08/01
B11CP4	004 MS	SO	01LE0204	02/12/01	02/26/01	03/08/01
B11CP4	004 MSD	SO	01LE0204	02/12/01	02/26/01	03/08/01

LAB QC:

PBLKPZ	MB1	S	01LE0204	N/A	02/26/01	03/10/01
PBLKPZ	MB1 BS	S	01LE0204	N/A	02/26/01	03/10/01

03-16-01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0102L080
SDG/SAF#: H1253/B00-073

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

PCB

The set of samples consisted of three (3) solid samples collected on 02-12,13-01.

The samples and their associated QC samples were extracted on 02-26-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 03-08,10-01. 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. Three (3) of four (4) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

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

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of target compounds Aroclor 1016 analyzed on 03-08-01 at 09:58 and 18:45 on both columns. The data reflected an slight decrease in instrument response, the ability to identify Aroclors was not significantly impacted.

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.

10. 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.

11. Patterns for Aroclors 1254 and 1260 were identified in these samples. The reported Aroclor was chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.

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

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-19-01
Date

pef\r:\group\data\pest\021L-080.pcb

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 016C097

Initiator: DRychak Batch: 0102L030 Parameter: OPCB
Date: 3/16/01 Samples: all Matrix: SOLID
Client: IMU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0204

1. Reason for SDR

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

b. General Discrepancy

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

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

c. Problem (Include all relevant specific results; attach data if necessary) ① For COC's associated with these samples AR1016 was decreased slightly on both columns, 22% or less. Should not significantly impact the ability to identify early PCB's. ② Final volume on IOMS not achieved for 2 samples taken to IOMS. Both recoveries low in MS and it appears that MS may have been double spiked. Narrate these issues.

2. Known or Probable Causes(s) Recovery issues may be effected 1st by the matrix ~~(I think the sample chosen for the MS was dirty)~~ and 2nd by the elevated final volume. 3/16/01

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)

insufficient sample for reextract

4. Project Manager Instructions...signature/date: [signature] 3/16/01

__ 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] 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/Laymnan
__	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 PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

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

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 03/16/01 16:29

RFW Batch Number: **0102L080** Client: **TNUHANFORD B00-073 H1253** Work Order: 11343606001 Page: 1

	Cust ID:	B11CP3	B11CP6	B11CP4	B11CP4	B11CP4	PBLKPZ
Sample Information	RFW#:	002	003	004	004 MS	004 MSD	01LE0204-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		75 %	65 %	38 %	38 %	12 * %	80 %
Decachlorobiphenyl		82 %	80 %	10 * %	40 %	10 * %	89 %
Aroclor-1016		180 U	190 U	850 U	900 U	970 U	33 U
Aroclor-1221		360 U	370 U	1700 U	1800 U	1900 U	67 U
Aroclor-1232		180 U	190 U	850 U	900 U	970 U	33 U
Aroclor-1242		180 U	190 U	850 U	900 U	970 U	33 U
Aroclor-1248		180 U	190 U	850 U	900 U	970 U	33 U
Aroclor-1254		180 U	660	850 U	183 * %	47 %	33 U
Aroclor-1260		180 U	190 U	850 U	900 U	970 U	33 U

	Cust ID:	PBLKPZ BS
Sample Information	RFW#:	01LE0204-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
Surrogate: Tetrachloro-m-xylene		75 %
Decachlorobiphenyl		85 %
Aroclor-1016		33 U
Aroclor-1221		67 U
Aroclor-1232		33 U
Aroclor-1242		33 U
Aroclor-1248		33 U
Aroclor-1254		98 %
Aroclor-1260		33 U

03-16-01

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
0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford 800-073
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		C					A	B	D						
Refrigerator #		2					2	2	2						
#/Type Container	Liquid														
	Solid	1PG					1PG	1PG	1PG						
Volume	Liquid														
	Solid	125					60	60	125						
Preservatives		-					-	-	-						
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN						
Lionville Laboratory Use Only		OC24H	OC25H	OC08H OPCB			MCRTO	MRCPATO	ICnTO	IC①	ISFD	IIGn	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	OC24H	OC25H	OC08H OPCB			MCRTO	MRCPATO	ICnTO	IC①	ISFD	IIGn	IPH		
001	B11CP1			So	2-14-01	1300						✓								
002	3				2-13-01	1330	✓	✓	✓				✓	✓	✓	✓	✓	✓		
003	6				2-12-01	1245	✓	✓	✓				✓	✓	✓	✓	✓	✓		
004	4				1	1330	✓	✓	✓				✓	✓	✓	✓	✓	✓		

Special Instructions: SOW 800-073
Run Matrix QC

DATE/REVISIONS:
IC① : Cl, F1, NOC, NO3, PO4, SO4
004-C, D 2. Rec'd in 250ml AG JARS.
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 3° C

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL DISTRIBUTION		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
4235 7954 2606

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-018	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 west water tunnel	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC 96-004 (3 of 4) 44 MJ 2-22-01	Field Logbook No.: EFL 1133-9 — COA: B2B 2-8-01 ~~R105DG280C~~ R105H7280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-26060	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); ~~Mercury - 7471 - (CV)~~ B2B 2-14-01								TCLP		

Sample No.	Matrix *	Sample Date	Sample Time									
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel		B11CP1			

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	2-15-01/1440
~~Relinquished By~~ Remained in Ref 1A 3728	Date/Time 1430 2-22-01	~~Received By~~ R Thoren	Date/Time 1130 2-22-01
~~Relinquished By~~ R Thoren	Date/Time 1130 2-22-01	Received By FED EX	Date/Time
Relinquished By Fed Ex	Date/Time 2/23/01 0935	Received By	Date/Time 2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

RT 2-22

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2-22-01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3064)	Field Logbook No.: EFL 1133-9	COA B20 2-8-01 ~~R105DG280C~~ R105HS280C	Method of Shipment: Fed Ex TMO 2-22-01
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 42357954-02006

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	125mL	~~125mL~~	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					TIETO:		
Sample No	Matrix *	Sample Date	Sample Time								
B1JCP3	other solid	2-13-01	1330	X	X	X	X	316 a opp. gallery	B1JCP8		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: Doug Bowers	2-13-01 1515	Received By: Stored in Ref 1A 3728	2-13-01 1515
Relinquished By: Removed from Ref 1A 3728	2.22.01 1130	Received By: R. Thoren	2-22-01 1130
Relinquished By: R. Thoren	2.22.01 1130	Received By: FEDEX	Date/Time
Relinquished By: Fed Ex	2/23/01 0935	Received By: Ultimate Z	2/23/01 0935
Relinquished By	Date/Time	Received By: Trans. by Tierra	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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 2.22.01
(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 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2.22.01

Matrix *
Se - Soil
SL - Sediment
O - Oil
S - Sludge
W - Water
O - Oil
A - Air
Excellent Soil
DI - Distilled Water
T - Tissue
WI - Wipe
L - Liquid
V - Vegetation
Swab

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3of4)	Field Logbook No.: EFL 1133-9 — COA D 20 2-8-01 ~~R105D0280C~~ B105H52 80C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 7954 — 26006	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm BT

B11CP4 560 cpm BT

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	Cool 4C	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	125mL	250mL	125mL	250ml	250ml	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	See item (1) below	See item (1) below	See item (3) below			TIETO
Sample No. / Matrix * / Sample Date / Sample Time										
B11CP6 / other solid / 2-12-01 / 1245	X	X	X	X						B11CR1
B11CP4 / other solid / 2-12-01 / 1330	X				X	X	X			B11CP9

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2/12/1540	RT Sign/Print Names: Storedin Ref 1A 3728	2/12/1540
~~Relinquished By~~ Removed from Ref 1A 3728	~~Date/Time~~ 1130 2.22.01	~~Received By~~ RTHoren	Date/Time 1130 2.22.01
~~Relinquished By~~ RTHoren	Date/Time 1136 2.22.01	Received By FED EX	Date/Time
~~Relinquished By~~ FED EX	Date/Time 2/23/01 0935	~~Received By~~	Date/Time 2/23/01 0935
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

RT 2.22.01

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 2.20.01

(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 2/12/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2.22.01

Matrix *: S=Soil, Sb=Sediment, DS=Solid, Sl=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, SQ=Solid Quantitation, C=Other

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

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP3	002	SO	01LE0201	02/13/01	02/26/01	03/06/01
B11CP3	002 MS	SO	01LE0201	02/13/01	02/26/01	03/06/01
B11CP3	002 MSD	SO	01LE0201	02/13/01	02/26/01	03/06/01
B11CP6	003	SO	01LE0201	02/12/01	02/26/01	03/06/01
B11CP4	004	SO	01LE0201	02/12/01	02/26/01	03/20/01

LAB QC:

SBLKRO	MB1	S	01LE0201	N/A	02/26/01	03/02/01
SBLKRO	MB1 BS	S	01LE0201	N/A	02/26/01	03/02/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B00-073
RFW #: 01021.080
SDG/SAF #: H1253/B00-073

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

SEMIVOLATILE

Three (3) solid samples were collected on 02-12,13-2001.

The samples and their associated QC samples were extracted on 02-26-2001 and analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 03-02,06,20-2001.

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. Due to the sample matrix, 10g instead of the method specified 30g was utilized for extraction. Sample B11CP4 required an additional 500-fold dilution prior to analysis. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. Thirteen (13) of thirty-six (36) obtainable surrogate recoveries were outside EPA QC limits. Low surrogate recoveries for samples B11CP3, B11CP3 MS, B11CP3 MSD and B11CP6 are probably due to a suspected matrix effect. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All blank spike recoveries were within EPA QC limits.
7. Ten (10) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.
8. All 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, Reera LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Reera LabNet Philadelphia.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-30-01
Date

som\group\data\bna\tnu-hanford-0102-080.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 6 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01MS112

Initiator: Robert Carden Batch: 0102060 Parameter: 0625H
Date: 3/7/01 Samples: 002, 002S, 002T, 003 Matrix: Soil
Client: TMV Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0201

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error or 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)

Multiple A-10 surrogates and A-10 spikes low B, BS OK

2. Known or Probable Causes(s) possible matrix effect

3. Discussion and Proposed Action Other Description: 002, 002S, 002T similar results confirm each other - report + narrate narrate 003 also

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
✓ ~~Re-extract 003~~ SC 3-16-01
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

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

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

5. Final Action...signature/date: GT 3/23/01 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
__	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	2	X MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
	__ Data Management: Feldman	__	__ Admin: Soos
3	X Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01LX0039

Initiator: Clara Gatfield Batch: 0102L080 | 0102L081 | Parameter: CL25, ~~CL~~, CP18
Date: 2/26/01 Samples: 2, 2MS, 2MSD, 3, 4 | 1, 1MS, 1MSD Matrix: S
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LEC201 / 0204

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)

For batch 0102L080 used 10g; not enough sent
For batch 0102L081 used 10g, not enough sent
Sample 0102L080-4 very oily, [illegible] had a difficult time filtering # 4 for [illegible]

Used 5.0 g sample for ~~[illegible]~~ 0102L080 for the CL25 & CP18 tests due to lack of sample sent in. RFW 4 08L004 - SDM1 final Vol.

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: _____

__ 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: CT Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative noted for 0102L080 CT 3/23/01
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

L-WI-005/E-01/01

4

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: 03/23/01 16:57

RFW Batch Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 1a

	Cust ID:	B11CP3	B11CP3	B11CP3	B11CP6	B11CP4	SBLKRO
Sample Information	RFW#:	002	002 MS	002 MSD	003	004	01LE0201-MB1
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOIL
	D.F.:	1.00	1.00	1.00	1.00	500	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	Nitrobenzene-d5	82 %	89 %	75 %	78 %	D %	82 %
	2-Fluorobiphenyl	101 %	116 * %	100 %	94 %	D %	81 %
	Terphenyl-d14	131 %	136 %	125 %	115 %	D %	106 %
	Phenol-d5	10 * %	15 * %	12 * %	21 * %	D %	78 %
	2-Fluorophenol	1 * %	1 * %	0 * %	2 * %	D %	77 %
	2,4,6-Tribromophenol	0 * %	0 * %	0 * %	0 * %	D %	71 %
		fl	fl	fl	fl	fl	fl
Phenol		1000 U	16 * %	13 * %	1000 U	540000 U	330 U
bis(2-Chloroethyl)ether		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2-Chlorophenol		1000 U	3 * %	2 * %	1000 U	540000 U	330 U
1,3-Dichlorobenzene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
1,4-Dichlorobenzene		1000 U	75 %	60 %	1000 U	540000 U	330 U
1,2-Dichlorobenzene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2-Methylphenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2,2'-oxybis(1-Chloropropane)		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
4-Methylphenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
N-Nitroso-di-n-propylamine		1000 U	104 %	83 %	1000 U	540000 U	330 U
Hexachloroethane		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
Nitrobenzene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
Isophorone		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2-Nitrophenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2,4-Dimethylphenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
bis(2-Chloroethoxy)methane		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2,4-Dichlorophenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
1,2,4-Trichlorobenzene		1000 U	86 %	70 %	1000 U	540000 U	330 U
Naphthalene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
4-Chloroaniline		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
Hexachlorobutadiene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
4-Chloro-3-methylphenol		1000 U	10 * %	7 * %	1000 U	540000 U	330 U
2-Methylnaphthalene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
Hexachlorocyclopentadiene		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2,4,6-Trichlorophenol		1000 U	1000 U	1000 U	1000 U	540000 U	330 U
2,4,5-Trichlorophenol		2500 U	2500 U	2600 U	2600 U	1400000 U	830 U

*= Outside of EPA CLP QC limits.

RPW Batch Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 1b

Cust ID:	B11CP3		B11CP3		B11CP3		B11CP6		B11CP4		SBLKRO	
RPW#:	002		002 MS		002 MSD		003		004		01LE0201-MB1	
2-Chloronaphthalene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
2-Nitroaniline	2500	U	2500	U	2600	U	2600	U	1400000	U	830	U
Dimethylphthalate	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Acenaphthylene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
2,6-Dinitrotoluene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
3-Nitroaniline	2500	U	2500	U	2600	U	2600	U	1400000	U	830	U
Acenaphthene	1000	U	100	%	83	%	1000	U	540000	U	330	U
2,4-Dinitrophenol	2500	U	2500	U	2600	U	2600	U	1400000	U	830	U
4-Nitrophenol	2500	U	0 *	%	0 *	%	2600	U	1400000	U	830	U
Dibenzofuran	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
2,4-Dinitrotoluene	1000	U	88	%	76	%	1000	U	540000	U	330	U
Diethylphthalate	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
4-Chlorophenyl-phenylether	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Fluorene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
4-Nitroaniline	2500	U	2500	U	2600	U	2600	U	1400000	U	830	U
4,6-Dinitro-2-methylphenol	2500	U	2500	U	2600	U	2600	U	1400000	U	830	U
N-Nitrosodiphenylamine (1)	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
4-Bromophenyl-phenylether	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Hexachlorobenzene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Pentachlorophenol	2500	U	0 *	%	0 *	%	2600	U	1400000	U	830	U
Phenanthrene	170	J	89	J	69	J	190	J	540000	U	330	U
Anthracene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Carbazole	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Di-n-butylphthalate	150	J	190	J	150	J	380	J	540000	U	330	U
Fluoranthene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Pyrene	130	J	121	%	109	%	1000	U	540000	U	330	U
Butylbenzylphthalate	190	J	210	J	200	J	300	J	540000	U	330	U
3,3'-Dichlorobenzidine	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Benzo(a)anthracene	52	J	1000	U	1000	U	1000	U	540000	U	330	U
Chrysene	64	J	1000	U	1000	U	1000	U	540000	U	330	U
bis(2-Ethylhexyl)phthalate	200	J	250	J	190	J	1200		540000	U	330	U
Di-n-octyl phthalate	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Benzo(b)fluoranthene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Benzo(k)fluoranthene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Benzo(a)pyrene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Indeno(1,2,3-cd)pyrene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Dibenz(a,h)anthracene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U
Benzo(g,h,i)perylene	1000	U	1000	U	1000	U	1000	U	540000	U	330	U

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

Cust ID: SBLKRO BS

Sample Information
RFW#: 01LE0201-MB1
Matrix: SOIL
D.F.: 1.00
Units: UG/KG

Surrogate Recovery	Nitrobenzene-d5	75	%
	2-Fluorobiphenyl	82	%
	Terphenyl-d14	93	%
	Phenol-d5	70	%
	2-Fluorophenol	70	%
	2,4,6-Tribromophenol	88	%

Phenol	69	%
bis(2-Chloroethyl)ether	330	U
2-Chlorophenol	72	%
1,3-Dichlorobenzene	330	U
1,4-Dichlorobenzene	67	%
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	77	%
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	71	%
Naphthalene	330	U
4-Chloroaniline	330	U
Hexachlorobutadiene	330	U
4-Chloro-3-methylphenol	70	%
2-Methylnaphthalene	330	U
Hexachlorocyclopentadiene	330	U
2,4,6-Trichlorophenol	330	U
2,4,5-Trichlorophenol	830	U

*= Outside of EPA CLP QC limits.

Cust ID: SBLKRO BS

RFW#: 01LE0201-MB1

2-Chloronaphthalene	330	U
2-Nitroaniline	830	U
Dimethylphthalate	330	U
Acenaphthylene	330	U
2,6-Dinitrotoluene	330	U
3-Nitroaniline	830	U
Acenaphthene	82	%
2,4-Dinitrophenol	830	U
4-Nitrophenol	81	%
Dibenzofuran	330	U
2,4-Dinitrotoluene	82	%
Diethylphthalate	330	U
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	830	U
4,6-Dinitro-2-methylphenol	830	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	83	%
Phenanthrene	330	U
Anthracene	330	U
Carbazole	330	U
Di-n-butylphthalate	330	U
Fluoranthene	330	U
Pyrene	85	%
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.

B11CP3

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

Client: TNUHANFORD B00-073 H1253

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L080-002

Sample wt/vol: 10.2 (g/mL) G

Lab File ID: A030611

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: 4 decanted: (Y/N)__

Date Extracted: 02/26/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.483	1000	JB
2.	ALKANE	21.383	700	J
3.	UNKNOWN	21.800	900	J
4.	ALKANE	22.306	1000	J
5.	DIETHYLENEGYCOL DIBENZOATE	22.441	2000	J

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 H1253

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L080-003

Sample wt/vol: 10.1 (g/mL) G

Lab File ID: A030614

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: 5 decanted: (Y/N)__

Date Extracted: 02/26/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/06/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.477	1000	JB
2.	UNKNOWN	9.630	800	J
3.	UNKNOWN	15.765	500	J
4.	DIPHENYL ETHER	13.465	600	J
5.	ALKANE	23.831	700	J
6.	ALKANE	24.504	1000	J
7.	ALKANE	25.303	800	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP1

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

Client: TNUHANFORD B00-073 H1253

Matrix: (soil/water) SOLID

Lab Sample ID: 0102L080-004

Sample wt/vol: 9.30 (g/mL) G

Lab File ID: D032016

Level: (low/med) LOW

Date Received: 02/23/01

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

Date Extracted: 02/26/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/20/01

Injection Volume: 2.0(uL)

Dilution Factor: 500

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.	UNRESOLVED HYDROCARBONS			
2.	22-33 MINUTES			
3.	ALKANE	25.716	400000	J
4.	ALKANE	28.010	400000	J
5.	ALKANE	29.497	300000	J
6.	ALKANE	31.313	300000	J
7.	ALKANE	33.512	400000	J

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKR

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

Client: TNUHANFORD B00-073 H1253

Matrix: (soil/water) SOIL

Lab Sample ID: 01LE0201-MB1

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

Lab File ID: A03[illegible]203

Level: (low/med) LOW

Date Received: 02/[illegible]6/01

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

Date Extracted: 02/[illegible]6/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 03/[illegible]2/01

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	5.659	400	J

Lionville Laboratory Use Only
0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford B00-073
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		C						A	B	D					
Refrigerator #		2						2	2	2					
#/Type Container	Liquid														
	Solid	1PG						1PG	1PG	1PG					
Volume	Liquid														
	Solid	125						60	60	125					
Preservatives		-						-	-	-					
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
		Lionville Laboratory Use Only													
		OC24H	OC25H	OC08H	ORCD			MCRTD	MRCRATO	ICnTD	IC①	ISFD	IIGn	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	OC24H	OC25H	OC08H	ORCD	MCRTD	MRCRATO	ICnTD	IC①	ISFD	IIGn	IPH
001	B11CP1			So	2-14-01	1300					✓						
002	3				2-13-01	1330	✓	✓	✓			✓	✓	✓	✓	✓	✓
003	6				2-12-01	1245	✓	✓	✓			✓	✓	✓	✓	✓	✓
004	4				1	1330	✓	✓	✓			✓	✓	✓	✓	✓	✓

Special Instructions: SOF B00-073
Run matrix QC

DATE/REVISIONS:
IC①: Cl, F1, NO2, NO3, PO4, SO4
004-C, D: Recd in 250ml AG JARS.

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 3° C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 4235 7954 2606

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

Relinquished by	Received by	Date	Time
COMPOSITE WHITE	ORIGINAL YELLOW		

14

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-018	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 west water tunnel	SAF No.: B00-073	Air Quality ☐
Ice Chest No. ERC 96-004 (3 of 4) 44 MJ 2-22-01	Field Logbook No.: EFL 1133-9 — COA B2B2-8-01 ~~R105DG280C~~ R107H728OC	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-26026	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None											
Type of Container	aG											
No. of Container(s)	1											
Volume	60mL											
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); ~~Mercury - 7471 - (CV)~~ B2B2-14-01								TPTO			
Sample No.	Matrix *	Sample Date	Sample Time									
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel		B11CP1			

CHAIN OF POSSESSION — RT 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
Remove from Ref 1A 3728	2-22-01 1130	R. Thoren	2-22-01 1130
R. Thoren	2-22-01 1130	FED EX	
FED EX	2/23/01 0935		2/23/01 0935

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2-22-01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3064)	Field Logbook No.: EFL 1133-9	COA 820 2-8-01 ~~R105DG280C~~ R105HS280C	Method of Shipment: Fed Ex TMO 2-22-01
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 42357954-02006

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	125mL	125mL	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							

TIE TO:

Sample No.	Matrix *	Sample Date	Sample Time								
B11CP3	other solid	2-13-01	1330	X	X	X	X	116a opos gallery	B11CP8		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1515	Stored in A of 1A 3728	2-13-01 1515
Removed from A of 1A 3728	2-22-01 1130	R Thoven	2-22-01 1130
R Thoven	2-22-01 1130	FEDEX	
Fed Ex	2/23/01 0935	Ultimate Z	2-23-01 0935
		Trans by Tierra	

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. Addon (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

ZT 2.22.01

Samples stored in Ref.# 1A at the 3728
Shipping Facility on 2/13/01.
Collector not available to relinquish samples
on 2/22/01 for shipment.

RT 2-22-01

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; C=Core

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

BHI-EE-011 (10/99)

16

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.: ERC 96-044 (3 of 4)	Field Logbook No.: EFL 1133-9 — COA: B20 2-8-01 ~~R105DG280C~~ R105M52820	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 4235 7954 — 26026	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm β γ

B11CP4 560 cpm β γ

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	Cool 4C	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	125mL	250mL	125mL	250mL	250mL	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	See item (1) below	See item (2) below	See item (3) below			TIETO
Sample No	Matrix *	Sample Date	Sample Time								
B11CP6	other solid	2-12-01	1245	X	X	X	X				B11CR1
B11CP4	other solid	2-12-01	1330	X				X	X	X	B11CP9

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2/12/1540	Stored in Ref 1A 3728	2-12-01/1540
~~Removed from~~ Ref 1A 3728	2-22-01 1130	RThoren	2-22-01 1130
RThoren	2-22-01 1130	FED EX	
FED EX	2/23/01 0935		2/23/01 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~~ ZT 2-22-01

(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 2/12/01.
Collector not available to relinquish samples on 2/22/01 for shipment. RT 2-22-01

Matrix *: S=Soil, SE=Sediment, O=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 H1253

DATE RECEIVED: 02/23/01 LVL LOT # :0102L080

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11CP3	002	SO	01LVH061	02/13/01	N/A	02/26/01
B11CP6	003	SO	01LVH061	02/12/01	N/A	02/26/01
B11CP6	003 MS	SO	01LVH061	02/12/01	N/A	02/26/01
B11CP6	003 MSD	SO	01LVH061	02/12/01	N/A	02/26/01
B11CP4	004	SO	01LVH061	02/12/01	N/A	02/26/01
B11CP4	004 R1	SO	01LVH064	02/12/01	N/A	02/27/01

LAB QC:

VBLKOP	MB1	S	01LVH061	N/A	N/A	02/26/01
VBLKOP	MB1 BS	S	01LVH061	N/A	N/A	02/26/01
VBLKPJ	MB1	S	01LVH064	N/A	N/A	02/27/01

APR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B00-073
RFW #: 0102L080
SDG/SAF #: H1253/B00-073

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

GC/MS VOLATILE

Three (3) solid samples were collected on 02-12,13-2001.

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 02-26,27-2001.

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

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

2. The sample was analyzed within required holding time with the exception of sample B11CP4 RE, which was reanalyzed outside the holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed. See item # 9.

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

4. Due to the sample matrix, sample B11CP4 was analyzed at approximately 2g instead of method specified 5g. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. All surrogate recoveries were within EPA QC limits.

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

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

8. The method blanks contained the common laboratory contaminants Methylene Chloride and/or Acetone at levels less than the CRQL.

9. Internal standard area criteria were not met for sample B11CP4. The sample was reanalyzed on 02-27-2001 and reported.

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, Reera LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Reera LabNet Philadelphia.

Stephen D. Wesson
Laboratory Manager
Lionville Laboratory Incorporated

03-12-01
Date

sonngroup\data\voa\tnu-hanford-0102-080.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 - 8 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: CIVTC 59

Initiator: DRYCHALK Batch: CIC2LC80 Parameter: CL2U
Date: 2/27/01 Samples: CC4 Matrix: Solid
Client: TMC 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) ① SAMPLE IS A TAR like ROCK ASPHALT PERHAPS. 5 GRAMS FILLS VOA PURGE TUBE, RAN at ≈ 2 gram NEED TO REANALYZE FOR LOW INTERNAL STD, WILL REANALYZE at 2 gr AGAIN due to matrix. ② Second Analysis will be out of HOLD 1 DAY SAMPLES WERE RECEIVED 11 DAYS INTO HOLD.
WILL MERGE BOTH ISSUES IF APPROVED ?

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: [signature] 02.27.01

(✓) 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: DRYCHALK 3/9/01 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: _____

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: 03/09/01 10:35

RFW Batch Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 1a

	Cust ID:	B11CP3		B11CP6		B11CP6		B11CP6		B11CP4		B11CP4	
Sample Information	RFW#:	002		003		003 MS		003 MSD		004		004	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	D.F.:	1.06		1.00		1.04		1.09		2.27		2.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG REPREP	
Surrogate Recovery	Toluene-d8	103	%	101	%	105	%	107	%	113	%	112	%
	Bromofluorobenzene	91	%	91	%	94	%	90	%	84	%	78	%
	1,2-Dichloroethane-d4	96	%	91	%	94	%	95	%	110	%	98	%
Chloromethane		11	U	11	U	11	U	11	U	23	U	20	U
Bromomethane		11	U	11	U	11	U	11	U	23	U	20	U
Vinyl Chloride		11	U	11	U	11	U	11	U	23	U	20	U
Chloroethane		11	U	11	U	11	U	11	U	23	U	20	U
Methylene Chloride		16	B	13	B	13	B	14	B	29	B	21	B
Acetone		41	B	30	B	35	B	40	B	29	B	21	
Carbon Disulfide		6	U	6	U	6	U	6	U	12	U	10	U
1,1-Dichloroethene		6	U	6	U	96	%	96	%	12	U	10	U
1,1-Dichloroethane		6	U	6	U	6	U	6	U	12	U	10	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	6	U	12	U	10	U
Chloroform		6	U	6	U	6	U	6	U	12	U	10	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	12	U	10	U
2-Butanone		10	J	11	U	11	U	11	U	23	U	20	U
1,1,1-Trichloroethane		6	U	6	U	6	U	6	U	12	U	10	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	12	U	10	U
Bromodichloromethane		6	U	6	U	6	U	6	U	12	U	10	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	12	U	10	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	12	U	10	U
Trichloroethene		6	U	6	U	93	%	93	%	12	U	10	U
Dibromochloromethane		6	U	6	U	6	U	6	U	12	U	10	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	12	U	10	U
Benzene		6	U	6	U	112	%	112	%	12	U	10	U
Trans-1,3-Dichloropropene		6	U	6	U	6	U	6	U	12	U	10	U
Bromoform		6	U	6	U	6	U	6	U	12	U	10	U
4-Methyl-2-pentanone		11	U	19		28		37		23	U	20	U
2-Hexanone		7	J	11	U	11	U	11	U	23	U	20	U
Tetrachloroethene		6	U	6	U	6	U	6	U	12	U	10	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	6	U	12	U	10	U
Toluene		6	U	6	U	115	%	117	%	12	U	10	U

*= Outside of EPA CLP QC limits.

Analytical Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 1b

Client ID:	B11CP3		B11CP6		B11CP6		B11CP6		B11CP4		B11CP4	
RPW#:	002		003		003 MS		003 MSD		004		004 REPREP	
Chlorobenzene	6	U	6	U	110	%	108	%	12	U	10	U
Ethylbenzene	6	U	1	J	1	J	2	J	12	U	10	U
Styrene	2	J	6		6		9		12	U	10	U
Xylene (total)	6	U	13		13		18		12	U	10	U

* = Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 03/09/01 10:35

RAW Part N. Number: 0102L080 Client: TNUHANFORD B00-073 H1253 Work Order: 11343606001 Page: 2a

	Quant ID:	VBLKOP		VBLKOP BS		VBLKPJ	
Sample Information	RFW#:	01LVH061-MB1		01LVH061-MB1		01LVH064-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	98	%	98	%	102	%
	Bromofluorobenzene	91	%	92	%	96	%
	1,2-Dichloroethane-d4	90	%	86	%	91	%
Chloromethane		10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U
Methylene Chloride		2	J	3	JB	3	J
Acetone		1	J	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U
1,1-Dichloroethene		5	U	85	%	5	U
1,1-Dichloroethane		5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U
Chloroform		5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U
Trichloroethene		5	U	89	%	5	U
Dibromochloromethane		5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U
Benzene		5	U	101	%	5	U
Trans-1,3 Dichloropropene		5	U	5	U	5	U
Bromoform		5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U
Toluene		5	U	101	%	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	VBLKOP		VBLKOP BS		VBLKPJ	
RFW#:	01LVH061-MB1		01LVH061-MB1		01LVH064-MB1	
Chlorobenzene	5	U	102	%	5	U
Ethylbenzene	5	U	5	U	5	U
Styrene	5	U	5	U	5	U
Xylene (total)	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP3

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

Client: TNUHANFORD B00-073 H1253

Matrix: SOLID

Lab Sample ID: 0102L080-002

Sample wt/vol: 4.70 (g/mL) G

Lab File ID: h022610

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: not dec. 4

Date Analyzed: 02/26/01

Column: (pack/cap) CAP

Dilution Factor: 1.06

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILANOL	13.535	20	J
2.	SILOXANE	22.292	10	J
3.	UNKNOWN	24.563	20	J
4.	SILOXANE	25.550	6	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP6

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

Client: TNUHANFORD B00-073 H1253

Matrix: SOLID

Lab Sample ID: 0102L080-003

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: h022608

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: not dec. 5

Date Analyzed: 02/26/01

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 12/88 Rev.

11

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP4

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

Client: TNUHANFORD B00-073 H1253

Matrix: SOLID

Lab Sample ID: 0102L080-004

Sample wt/vol: 2.20 (g/mL) G

Lab File ID: h022609

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: not dec. 1

Date Analyzed: 02/26/01

Column: (pack/cap) CAP

Dilution Factor: 2.27

Number TICs found: 0

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

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

FORM 1 VOA-TIC

12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B11CP4RE

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

Client: TNUHANFORD B00-073 H1253

Matrix: SOLID

Lab Sample ID: 0102L080-004

Sample wt/vol: 2.50 (g/mL) G

Lab File ID: h022707

Level: (low/med) LOW

Date Received: 02/23/01

% Moisture: not dec. 1

Date Analyzed: 02/27/01

Column: (pack/cap) CAP

Dilution Factor: 2.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKOP

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

Client: TNUHANFORD B00-073 H1253

Matrix: SOIL

Lab Sample ID: 01LVH061-MB1

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: h022605

Level: (low/med) LOW

Date Received: 02/26/01

% Moisture: not dec. 0

Date Analyzed: 02/26/01

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 12/88 Rev.

14

Lionville Laboratory Use Only
0102L080

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford 800-073
Est. Final Proj. Sampling Date:
Project #: 11343-6060-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 2-23-01 Date Due: 3-16-01

		C						A	B	D					
Refrigerator #		2						2	2	2					
#/Type Container	Liquid														
	Solid	1AG						1AG	1AG	1AG					
Volume	Liquid														
	Solid	125						60	60	125					
Preservatives		-						-	-	-					
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
Lionville Laboratory Use Only		OC24H	OC25H	OC26H	OPC8			MCRTO	MRCRATO	ICnTO	IC①	ISFD	IIGn	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	OC24H	OC25H	OC26H	OPC8			MCRTO	MRCRATO	ICnTO	IC①	ISFD	IIGn	IPH		
001	B11CP1			So	2-14-01	1300							✓								
002	3				2-13-01	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		
003	6				2-12-01	1245	✓	✓	✓					✓	✓	✓	✓	✓	✓		
004	4				↓	1330	✓	✓	✓					✓	✓	✓	✓	✓	✓		

Special Instructions: SOS B00 073
Run Matrix QC

DATE/REVISIONS:
IC① 1. Cl, Fl, NO2, NO3, PO4, SO4
004-C,D 2. Recd in 250mL AG JARS.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped / or
Hand Delivered
Airbill # Del Retrl
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 3° C

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

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL DOCUMENT		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
11235 7954 2606

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-018	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 west water tunnel	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC 96-004 (3of4) 44 MJ 2-22-01	Field Logbook No.: EFL 1133-9 — COA B XB 2-8-01 ~~R105DG200C~~ R105HF280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-26060	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None											
Type of Container	aG											
No. of Container(s)	1											
Volume	60mL											
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace); ~~Mercury - 7471 - (CV)~~ B XB 2-14-01								TCLP			

Sample No.	Matrix *	Sample Date	Sample Time									
B11CP1	OTHER SOLID	2-14-01	1300	X			west water tunnel		B11CP1			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: Doug Bowers	2-14-01/1440	Received By: STORED IN Ref 1A 3728	2-15-01/1440
Relinquished By: Removed from Ref 1A 3728 (RT 2-22-01)	2-22-01 1130	Received By: R. Thoren	2-22-01 1130
Relinquished By: R. Thoren	2-22-01 1130	Received By: FED EX	
Relinquished By: Fed Ex	2/23/01 0935	Received By: [illegible]	2/23/01 0935
Relinquished By		Received By	
Relinquished By		Received By	

SPECIAL INSTRUCTIONS

Total Cr only on ICP Metals

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/22/01 for shipment.
RT 2-22-01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	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.: ERC96-044 (3064)	Field Logbook No.: EFL 1133-9 — COA: 5 20 2-8-01 ~~R105DG280C~~ R105HS280C	Method of Shipment: Fed Ex JMO 2-22-01	
Shipped To: TMA RECRA	Offsite Property No.: A010207	Bill of Lading/Air Bill No.: 42357954-02606	

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	125mL	125mL	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								
B11CP3	other solid	2-13-01	1330	X	X	X	X	116 e opps gallery		TICTO: B11CP8	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-13-01 1515	Stored in Ref IA 3728	2-13-01 1515
Removed from Ref IA 3728	2.22.01 1130	R Thoven	2-22-01 1130
R Thoven	2.22.01 1130	FEDEX	
Fed Ex	2/23/01 0935	Utmendez	2/23/01 0935
		Trans. by Tierra	

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 2.22.01

Samples stored in Ref.# 1A at the 3728
Shipping Facility on 2/13/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2.22.01

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)

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; Air Quality ☐	Data Turnaround: 21 Days
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 H reactor		SAF No.: B00-073	
Ice Chest No.: ERC 96-044 (3of4)	Field Logbook No.: EFL 1133-9	COA B20 2-8-01 ~~R105DG280C~~ R105HS280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A010207		Bill of Lading/Air Bill No.: 4235 7954 - 2606	

POSSIBLE SAMPLE HAZARDS/REMARKS

B11CP6 830 cpm BY

B11CP4 560 cpm BY

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	Cool 4C	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	125mL	250mL	125mL	250ml	250ml	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	See item (1) below	See item (1) below	See item (3) below			TIETO
Sample No.	Matrix *	Sample Date	Sample Time							
B11CP6	other solid	2-12-01	1245	X	X	X	X			B11CR1
B11CP4	other solid	2-12-01	1330	X				X	X	X	B11CP9

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	2-12-01 1540	Storedin Ref 1A 3728	2-12-01 1540
Removed from Ref 1A 3728	2-22-01 1130	RTHoren	2-22-01 1130
RTHoren	2-22-01 1130	FED EX	
FED EX	2/23/01 0935	V. Hanny	2/23/01 0935

RT 2-22-01

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 2-22-01

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/12/01.
Collector not available to relinquish samples on 2/22/01 for shipment.

RT 2-22-01

Matrix *: S=Soil; SE=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solid; DL=Drum Liquid; 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)