1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1208 was composed of four 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 January 30, 2001 and February 1, 2001.

RECEIVED
JUN 11 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

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 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

There was contamination in the method blank from Th-230 (0.559 pCi/g). The activity is probably from degraded Th-229 tracer counts in the Th-230 region of interest (energy region) and not Th-230. The activity was below the RDL (1.0 pCi/g). No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.9 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.10 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.11 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

2/6/01

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

SAMPLE SUMMARY

SDG 7607
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B117V8	100 D Reator	SOLID		R101047-01	B00-073	B00-073-011	01/08/01 08:30
B117V9	100 D Reator	SOLID		R101047-02	B00-073	B00-073-011	01/08/01 12:25
B117W0	100 D Reator	SOLID		R101047-03	B00-073	B00-073-011	01/08/01 13:10
B117W1	100 D Reator	SOLID		R101047-04	B00-073	B00-073-011	01/08/01 13:10
Method Blank		SOLID		R101047-05	B00-073		
Lab Control Sample		SOLID		R101047-07	B00-073		
Lab Control Sample		SOLID		R101047-08	B00-073		
Duplicate (R101047-02)	100 D Reator	SOLID		R101047-06	B00-073		01/08/01 12:25

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

QC SUMMARY

SDG 7607
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

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
7607	B00-073-011	B117V8	SOLID	100.0			01/11/01	3	R101047-01	7607-001
		B117V9	SOLID	100.0			01/11/01	3	R101047-02	7607-002
		B117W0	SOLID	100.0			01/11/01	3	R101047-03	7607-003
		B117W1	SOLID	100.0			01/11/01	3	R101047-04	7607-004
		Method Blank	SOLID						R101047-05	7607-005
		Lab Control Sample	SOLID						R101047-07	7607-007
		Lab Control Sample	SOLID						R101047-08	7607-008
		Duplicate (R101047-02)	SOLID	100.0			01/11/01	3	R101047-06	7607-006

Lab id TMANC
Protocol Hanford
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

SDG 7607
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

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	6963-055	5.0	4			1	1	1/1		
NP	SOLID	Neptunium in Soil	6963-055	5.0	4			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6963-055	5.0	4			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6963-055	5.0	4			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6963-055	5.0	4			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6963-055	10.0	4			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6963-055	10.0	4			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6963-055	15.0	4			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6963-055	10.0	4			1	1	1/1		
H	SOLID	Tritium in Soil	6963-055	10.0	4			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6963-055	10.0	4			1	1	1/1		

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

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

WORK SUMMARY

SDG 7607
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B117V8			R101047-01	7607-001	AM		01/19/01	01/30/01	MCM	Americium 241 in Soil
100 D Reator		SOLID	01/08/01	7607-001	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
B00-073-011	B00-073		01/11/01	7607-001	GAM		01/18/01	01/30/01	MCM	Gamma Scan
				7607-001	H		01/16/01	01/30/01	MCM	Tritium in Soil
				7607-001	NI_L		01/17/01	01/30/01	MCM	Nickel 63 in Soil
				7607-001	NP		01/24/01	01/30/01	MCM	Neptunium in Soil
				7607-001	PU		01/20/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-001	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-001	TC		01/19/01	01/30/01	MCM	Technetium 99 in Soil
				7607-001	TH		01/24/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-001	U		01/20/01	01/30/01	MCM	Uranium, Isotopic in Soil
B117V9			R101047-02	7607-002	AM		01/19/01	01/30/01	MCM	Americium 241 in Soil
100 D Reator		SOLID	01/08/01	7607-002	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
B00-073-011	B00-073		01/11/01	7607-002	GAM		01/19/01	01/30/01	MCM	Gamma Scan
				7607-002	H		01/17/01	01/30/01	MCM	Tritium in Soil
				7607-002	NI_L		01/17/01	01/30/01	MCM	Nickel 63 in Soil
				7607-002	NP		01/25/01	01/30/01	MCM	Neptunium in Soil
				7607-002	PU		01/20/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-002	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-002	TC		01/22/01	01/30/01	MCM	Technetium 99 in Soil
				7607-002	TH		01/30/01	02/01/01	MCM	Thorium, Isotopic in Soil
				7607-002	U		01/24/01	01/30/01	MCM	Uranium, Isotopic in Soil
B117W0			R101047-03	7607-003	AM		01/24/01	01/30/01	MCM	Americium 241 in Soil
100 D Reator		SOLID	01/08/01	7607-003	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
B00-073-011	B00-073		01/11/01	7607-003	GAM		01/19/01	01/30/01	MCM	Gamma Scan
				7607-003	H		01/17/01	01/30/01	MCM	Tritium in Soil
				7607-003	NI_L		01/17/01	01/30/01	MCM	Nickel 63 in Soil
				7607-003	NP		01/25/01	01/30/01	MCM	Neptunium in Soil
				7607-003	PU		01/20/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-003	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-003	TC		01/19/01	01/30/01	MCM	Technetium 99 in Soil
				7607-003	TH		01/19/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-003	U		01/20/01	01/30/01	MCM	Uranium, Isotopic in Soil

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

SDG 7607
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B117W1			R101047-04	7607-004	AM		01/20/01	01/30/01	MCM	Americium 241 in Soil
100 D Reator		SOLID	01/08/01	7607-004	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
B00-073-011	B00-073		01/11/01	7607-004	GAM		01/19/01	01/30/01	MCM	Gamma Scan
				7607-004	H		01/17/01	01/30/01	MCM	Tritium in Soil
				7607-004	NI_L		01/17/01	01/30/01	MCM	Nickel 63 in Soil
				7607-004	NP		01/25/01	01/30/01	MCM	Neptunium in Soil
				7607-004	PU		01/23/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-004	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-004	TC		01/20/01	01/30/01	MCM	Technetium 99 in Soil
				7607-004	TH		01/24/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-004	U		01/20/01	01/30/01	MCM	Uranium, Isotopic in Soil
Method Blank			R101047-05	7607-005	AM		01/30/01	02/01/01	MCM	Americium 241 in Soil
		SOLID		7607-005	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
	B00-073			7607-005	GAM		01/19/01	01/30/01	MCM	Gamma Scan
				7607-005	H		01/16/01	01/30/01	MCM	Tritium in Soil
				7607-005	NI_L		01/18/01	01/30/01	MCM	Nickel 63 in Soil
				7607-005	NP		01/25/01	02/01/01	MCM	Neptunium in Soil
				7607-005	PU		01/23/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-005	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-005	TC		01/19/01	02/01/01	MCM	Technetium 99 in Soil
				7607-005	TH		01/19/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-005	U		01/20/01	01/30/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R101047-07	7607-007	AM		01/20/01	01/30/01	MCM	Americium 241 in Soil
		SOLID		7607-007	GAM		01/19/01	01/30/01	MCM	Gamma Scan
	B00-073			7607-007	H		01/17/01	01/30/01	MCM	Tritium in Soil
				7607-007	NI_L		01/18/01	01/30/01	MCM	Nickel 63 in Soil
				7607-007	NP		01/25/01	02/01/01	MCM	Neptunium in Soil
				7607-007	PU		01/20/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-007	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-007	TC		01/20/01	01/30/01	MCM	Technetium 99 in Soil
				7607-007	TH		01/23/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-007	U		01/20/01	01/30/01	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R101047-08	7607-008	C		01/19/01	01/30/01	MCM	Carbon 14 in Soil
		SOLID								
	B00-073									

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

SDG 7607
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1208

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R101047-02)			R101047-06	7607-006	AM		01/20/01	01/30/01	MCM	Americium 241 in Soil
100 D Reator		SOLID	01/08/01	7607-006	C		01/18/01	01/30/01	MCM	Carbon 14 in Soil
	B00-073		01/11/01	7607-006	GAM		01/19/01	01/30/01	MCM	Gamma Scan
				7607-006	H		01/17/01	01/30/01	MCM	Tritium in Soil
				7607-006	NI_L		01/18/01	01/30/01	MCM	Nickel 63 in Soil
				7607-006	NP		01/25/01	02/01/01	MCM	Neptunium in Soil
				7607-006	PU		01/20/01	01/30/01	MCM	Plutonium, Isotopic in Solids
				7607-006	SR		01/18/01	01/30/01	MCM	Total Strontium in Soil
				7607-006	TC		01/22/01	01/30/01	MCM	Technetium 99 in Soil
				7607-006	TH		01/24/01	01/30/01	MCM	Thorium, Isotopic in Soil
				7607-006	U		01/24/01	01/30/01	MCM	Uranium, Isotopic in Soil

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	4			1	1	1	7
C	B00-073	Carbon 14 in Soil	C14_COX_LSC	4			1	1	1	7
GAM	B00-073	Gamma Scan	GAMMA_GS	4			1	1	1	7
H	B00-073	Tritium in Soil	TRITIUM_COX_LSC	4			1	1	1	7
NI_L	B00-073	Nickel 63 in Soil	NI63_LSC	4			1	1	1	7
NP	B00-073	Neptunium in Soil	NP237_LLE_PLATE_AEA	4			1	1	1	7
PU	B00-073	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	4			1	1	1	7
SR	B00-073	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	4			1	1	1	7
TC	B00-073	Technetium 99 in Soil	TC99_TR_SEP_LSC	4			1	1	1	7
TH	B00-073	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	4			1	1	1	7
U	B00-073	Uranium, Isotopic in Soil	UISO_PLATE_AEA	4			1	1	1	7
TOTALS				44			11	11	11	77

Lab id TMANC
Protocol Hanford
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Version 3.06
Report date 02/01/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-05 **Method Blank**

METHOD BLANK

SDG	7607	Client/Case no	Hanford	SDG H1208	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101047-05	Client sample id	Method Blank		
Dept sample id	7607-005	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
Tritium	10028-17-8	-3.69	3.5	6.1	400	U	H
Carbon 14	14762-75-5	-0.534	2.4	4.0	50	U	C
Nickel 63	13981-37-8	0.635	1.1	1.8	30	U	NI_L
Total Strontium	SR-RAD	-0.016	0.14	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.050	0.26	0.79	15	U	TC
Thorium 228	14274-82-9	0.132	0.20	0.41		U	TH
Thorium 230	14269-63-7	0.559	0.40	0.40	1.0	J	TH
Thorium 232	TH-232	0	0.066	0.25	1.0	U	TH
Uranium 233	U-233/234	0.034	0.068	0.26	1.0	U	U
Uranium 235	15117-96-1	0	0.083	0.32	1.0	U	U
Uranium 238	U-238	0.034	0.068	0.26	1.0	U	U
Neptunium 237	13994-20-2	0.007	0.029	0.056	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	0.025	0.050	0.19	1.0	U	PU
Americium 241	14596-10-2	0	0.035	0.13	1.0	U	AM
Potassium 40	13966-00-2	U		0.81		U	GAM
Cobalt 60	10198-40-0	U		0.049	0.050	U	GAM
Barium 133	13981-41-4	U		0.047		U	GAM
Cesium 137	10045-97-3	U		0.041	0.10	U	GAM
Radium 226	13982-63-3	U		0.083	0.10	U	GAM
Radium 228	15262-20-1	U		0.19	0.20	U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	U		0.062		U	GAM
Thorium 232	TH-232	U		0.19		U	GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.5		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	02/01/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1208

R101047-05

Method Blank

BLANK, cont.

SDG	7607	Client/Case no	Hanford	SDG H1208	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101047-05	Client sample id	Method Blank		
Dept sample id	7607-005	Material/Matrix		SOLID	
		SAF No	B00-073		

QC-BLANK 37257

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7607
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1208
Case no TRC-SBB-207925

Lab sample id R101047-07
Dept sample id 7607-007

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
Tritium	1410	19	6.1	400		H	1480	59	95	84-116	80-120
Nickel 63	257	4.4	1.9	30		NI_L	266	11	97	84-116	80-120
Total Strontium	24.6	0.87	0.23	1.0		SR	23.0	0.92	107	82-118	80-120
Technetium 99	134	5.2	0.88	15		TC	131	5.2	102	82-118	80-120
Thorium 230	42.3	3.6	0.31	1.0	B	TH	42.8	1.7	99	84-116	80-120
Uranium 233	19.2	1.9	0.87	1.0		U	19.3	0.77	99	82-118	80-120
Uranium 235	15.2	1.6	0.20	1.0		U	15.7	0.63	97	82-118	80-120
Uranium 238	19.6	1.9	0.83	1.0		U	21.0	0.84	93	84-116	80-120
Neptunium 237	23.1	1.0	0.075	1.0		NP	23.8	0.95	97	89-111	80-120
Plutonium 238	29.9	3.6	0.32	1.0		PU	27.2	1.1	110	78-122	80-120
Plutonium 239/240	30.2	3.6	0.32	1.0		PU	29.2	1.2	103	79-121	80-120
Americium 241	20.4	2.0	0.21	1.0		AM	21.0	0.84	97	83-117	80-120
Cobalt 60	2.44	0.18	0.070	0.050		GAM	2.44	0.098	100	74-126	80-120
Cesium 137	2.48	0.15	0.10	0.10		GAM	2.42	0.097	102	74-126	80-120

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

QC-LCS 37259

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG	7607	Client/Case no	Hanford SDG H1208
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
Lab sample id	R101047-08	Client sample id	Lab Control Sample
Dept sample id	7607-008	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	11500	230	27	50		C	11300	450	102	83-117	80-120

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

QC-LCS 37260

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-06 B117V9

DUPLICATE

SDG	7607			Client/Case no	Hanford SDG H1208
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R101047-06	Lab sample id	R101047-02	Client sample id	B117V9
Dept sample id	7607-006	Dept sample id	7607-002	Location/Matrix	100 D Reator SOLID
		Received	01/11/01	Collected	01/08/01 12:25
% solids	100.0	% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	1.58	3.5	5.8	400	U	H	2.96	3.4	5.6	U	-	
Carbon 14	4.95	2.4	3.9	50	J	C	4.39	2.4	3.8	J	12	111
Nickel 63	1.45	1.3	2.1	30	U	NI_L	1.83	1.4	2.2	U	-	
Total Strontium	0.708	0.17	0.22	1.0	J	SR	0.850	0.19	0.22	J	18	54
Technetium 99	0.032	0.32	0.95	15	U	TC	0.440	0.43	0.98	U	-	
Thorium 228	0.314	0.22	0.31			TH	0.648	0.30	0.28		69	116
Thorium 230	0.386	0.26	0.35	1.0	JB	TH	1.05	0.41	0.39	B	92	102
Thorium 232	0.312	0.18	0.18	1.0	J	TH	0.291	0.18	0.22	J	7	127
Uranium 233	0.569	0.25	0.19	1.0	J	U	0.531	0.26	0.19	J	7	99
Uranium 235	0.060	0.060	0.23	1.0	U	U	0.031	0.061	0.23	U	-	
Uranium 238	0.470	0.20	0.19	1.0	J	U	0.455	0.20	0.19	J	3	92
Neptunium 237	0.020	0.040	0.064	1.0	U	NP	-0.021	0.063	0.16	U	-	
Plutonium 238	-0.036	0.073	0.28	1.0	U	PU	0.049	0.099	0.19	U	-	
Plutonium 239/240	0.036	0.073	0.28	1.0	U	PU	0.099	0.099	0.19	U	-	
Americium 241	0.152	0.18	0.23	1.0	U	AM	0.097	0.19	0.37	U	-	
Potassium 40	5.75	4.0	0.69			GAM	7.20	0.60	0.30		22	99
Cobalt 60	0.144	0.059	0.065	0.050		GAM	0.144	0.052	0.045		0	88
Barium 133	U		0.071		U	GAM	U		0.045	U	-	
Cesium 137	3.24	0.12	0.083	0.10		GAM	2.97	0.088	0.044		9	33
Radium 226	0.452	0.16	0.10	0.10		GAM	0.428	0.082	0.075		5	69
Radium 228	U		0.54	0.20	U	GAM	0.277	0.16	0.16		64	210
Europium 152	U		0.17	0.10	U	GAM	U		0.11	U	-	
Europium 154	U		0.22	0.10	U	GAM	U		0.12	U	-	
Europium 155	U		0.14	0.10	U	GAM	U		0.083	U	-	
Thorium 228	0.300	0.13	0.078			GAM	0.285	0.044	0.051		5	77
Thorium 232	U		0.54		U	GAM	0.277	0.16	0.16		64	210
Uranium 235	U		0.21		U	GAM	U		0.15	U	-	
Uranium 238	U		7.9		U	GAM	U		4.9	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	02/01/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-06 B117V9

DUPLICATE, cont.

SDG	7607			Client/Case no	Hanford SDG H1208
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R101047-06	Lab sample id	R101047-02	Client sample id	B117V9
Dept sample id	7607-006	Dept sample id	7607-002	Location/Matrix	100 D Reator SOLID
		Received	01/11/01	Collected	01/08/01 12:25
% solids	100.0	% solids	100.0	Custody/SAF No	B00-073-011 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
Americium 241	U		0.20		U	GAM	U		0.099	U	-	

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

QC-DUP#2 37258

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

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-01 **B117V8**

DATA SHEET

SDG	7607	Client/Case no	Hanford SDG_H1208
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101047-01	Client sample id	B117V8
Dept sample id	7607-001	Location/Matrix	100_D Reator SOLID
Received	01/11/01	Collected	01/08/01 08:30
% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	7.84	3.6	5.7	400	J	H
Carbon 14	14762-75-5	8.30	2.5	3.9	50	J	C
Nickel 63	13981-37-8	0.203	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.026	0.12	0.26	1.0	U	SR
Technetium 99	14133-76-7	0.396	0.44	1.2	15	U	TC
Thorium 228	14274-82-9	0.223	0.45	0.71		U	TH
Thorium 230	14269-63-7	0.074	0.44	0.71	1.0	U	TH
Thorium 232	TH-232	0.370	0.44	0.57	1.0	U	TH
Uranium 233	U-233/234	0.390	0.20	0.19	1.0	J	U
Uranium 235	15117-96-1	0.059	0.059	0.23	1.0	U	U
Uranium 238	U-238	0.244	0.15	0.19	1.0	J	U
Neptunium 237	13994-20-2	0.059	0.060	0.089	1.0	U	NP
Plutonium 238	13981-16-3	0	0.067	0.25	1.0	U	PU
Plutonium 239/240	PU-239/240	0.033	0.067	0.25	1.0	U	PU
Americium 241	14596-10-2	0	0.16	0.38	1.0	U	AM
Potassium 40	13966-00-2	8.47	0.60	0.29			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Barium 133	13981-41-4	U		0.030		U	GAM
Cesium 137	10045-97-3	0.154	0.030	0.031	0.10		GAM
Radium 226	13982-63-3	0.272	0.062	0.059	0.10		GAM
Radium 228	15262-20-1	0.526	0.13	0.12	0.20		GAM
Europium 152	14683-23-9	U		0.084	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.066	0.10	U	GAM
Thorium 228	14274-82-9	0.341	0.036	0.036			GAM
Thorium 232	TH-232	0.526	0.13	0.12			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		4.2		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	02/01/01

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SAMPLE DELIVERY GROUP H1208

R101047-01 **B117V8**

DATA SHEET, cont

SDG	7607	Client/Case no	Hanford SDG H1208
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101047-01	Client sample id	B117V8
Dept sample id	7607-001	Location/Matrix	100 D Reator SOLID
Received	01/11/01	Collected	01/08/01 08:30
% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	U		0.070		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	02/01/01

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SAMPLE DELIVERY GROUP H1208

R101047-02 **B117V9**

DATA SHEET

SDG	7607	Client/Case no	Hanford SDG H1208
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101047-02	Client sample id	B117V9
Dept sample id	7607-002	Location/Matrix	100 D Reator SOLID
Received	01/11/01	Collected	01/08/01 12:25
% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	2.96	3.4	5.6	400	U	H
Carbon 14	14762-75-5	4.39	2.4	3.8	50	J	C
Nickel 63	13981-37-8	1.83	1.4	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.850	0.19	0.22	1.0	J	SR
Technetium 99	14133-76-7	0.440	0.43	0.98	15	U	TC
Thorium 228	14274-82-9	0.648	0.30	0.28			TH
Thorium 230	14269-63-7	1.05	0.41	0.39	1.0	B	TH
Thorium 232	TH-232	0.291	0.18	0.22	1.0	J	TH
Uranium 233	U-233/234	0.531	0.26	0.19	1.0	J	U
Uranium 235	15117-96-1	0.031	0.061	0.23	1.0	U	U
Uranium 238	U-238	0.455	0.20	0.19	1.0	J	U
Neptunium 237	13994-20-2	-0.021	0.063	0.16	1.0	U	NP
Plutonium 238	13981-16-3	0.049	0.099	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.099	0.099	0.19	1.0	U	PU
Americium 241	14596-10-2	0.097	0.19	0.37	1.0	U	AM
Potassium 40	13966-00-2	7.20	0.60	0.30			GAM
Cobalt 60	10198-40-0	0.144	0.052	0.045	0.050		GAM
Barium 133	13981-41-4	U		0.045		U	GAM
Cesium 137	10045-97-3	2.97	0.088	0.044	0.10		GAM
Radium 226	13982-63-3	0.428	0.082	0.075	0.10		GAM
Radium 228	15262-20-1	0.277	0.16	0.16	0.20		GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.083	0.10	U	GAM
Thorium 228	14274-82-9	0.285	0.044	0.051			GAM
Thorium 232	TH-232	0.277	0.16	0.16			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		4.9		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	02/01/01

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SAMPLE DELIVERY GROUP H1208

R101047-02 B117V9

DATA SHEET, cont

SDG	7607	Client/Case no	Hanford	SDG_H1208	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101047-02	Client sample id	B117V9		
Dept sample id	7607-002	Location/Matrix	100 D Reator	SOLID	
Received	01/11/01	Collected	01/08/01 12:25		
% solids	100.0	Custody/SAF No	B00-073-011	B00-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	U		0.099		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	02/01/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-03 **B117W0**

DATA SHEET

SDG	7607	Client/Case no	Hanford SDG_H1208
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101047-03	Client sample id	B117W0
Dept sample id	7607-003	Location/Matrix	100 D Reator SOLID
Received	01/11/01	Collected	01/08/01 13:10
% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	11.5	3.9	5.9	400	J	H
Carbon 14	14762-75-5	55.2	3.6	4.0	50		C
Nickel 63	13981-37-8	0.881	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	1.13	0.20	0.21	1.0		SR
Technetium 99	14133-76-7	0.384	0.34	1.2	15	U	TC
Thorium 228	14274-82-9	0.303	0.40	0.77		U	TH
Thorium 230	14269-63-7	0.302	0.61	0.77	1.0	U	TH
Thorium 232	TH-232	0	0.20	0.77	1.0	U	TH
Uranium 233	U-233/234	0.715	0.30	0.23	1.0	J	U
Uranium 235	15117-96-1	0.036	0.072	0.28	1.0	U	U
Uranium 238	U-238	0.506	0.24	0.23	1.0	J	U
Neptunium 237	13994-20-2	0	0.029	0.080	1.0	U	NP
Plutonium 238	13981-16-3	0.030	0.12	0.29	1.0	U	PU
Plutonium 239/240	PU-239/240	0.179	0.12	0.23	1.0	U	PU
Americium 241	14596-10-2	0.403	0.30	0.28	1.0	J	AM
Potassium 40	13966-00-2	6.42	0.96	0.75			GAM
Cobalt 60	10198-40-0	0.243	0.088	0.080	0.050		GAM
Barium 133	13981-41-4	U		0.092		U	GAM
Cesium 137	10045-97-3	7.03	0.20	0.10	0.10		GAM
Radium 226	13982-63-3	0.551	0.15	0.16	0.10		GAM
Radium 228	15262-20-1	0.524	0.28	0.28	0.20		GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.23	0.10	U	GAM
Europium 155	14391-16-3	U		0.17	0.10	U	GAM
Thorium 228	14274-82-9	0.327	0.071	0.096			GAM
Thorium 232	TH-232	0.524	0.28	0.28			GAM
Uranium 235	15117-96-1	U		0.26		U	GAM
Uranium 238	U-238	U		8.8		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	02/01/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

R101047-03 **B117W0**

DATA SHEET, cont

SDG	7607	Client/Case no	Hanford	SDG H1208	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101047-03	Client sample id	B117W0		
Dept sample id	7607-003	Location/Matrix	100 D Reator	SOLID	
Received	01/11/01	Collected	01/08/01 13:10		
% solids	100.0	Custody/SAF No	B00-073-011	B00-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	0.188	0.14	0.20		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	02/01/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1208

R101047-04 B117W1

DATA SHEET

SDG	7607	Client/Case no	Hanford SDG_H1208
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101047-04	Client sample id	B117W1
Dept sample id	7607-004	Location/Matrix	100 D Reator SOLID
Received	01/11/01	Collected	01/08/01 13:10
% solids	100.0	Custody/SAF No	B00-073-011 B00-073

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	5.60	3.5	5.6	400	J	H
Carbon 14	14762-75-5	9.94	2.5	3.7	50	J	C
Nickel 63	13981-37-8	0.351	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	0.724	0.17	0.20	1.0	J	SR
Technetium 99	14133-76-7	0.141	0.33	1.0	15	U	TC
Thorium 228	14274-82-9	0.216	0.33	0.60		U	TH
Thorium 230	14269-63-7	0.430	0.43	0.52	1.0	U	TH
Thorium 232	TH-232	0.161	0.22	0.41	1.0	U	TH
Uranium 233	U-233/234	0.475	0.19	0.18	1.0	J	U
Uranium 235	15117-96-1	0.029	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.452	0.19	0.18	1.0	J	U
Neptunium 237	13994-20-2	0.040	0.064	0.11	1.0	U	NP
Plutonium 238	13981-16-3	0.024	0.095	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0.047	0.047	0.18	1.0	U	PU
Americium 241	14596-10-2	0.149	0.18	0.23	1.0	U	AM
Potassium 40	13966-00-2	6.80	0.58	0.35			GAM
Cobalt 60	10198-40-0	0.264	0.042	0.032	0.050		GAM
Barium 133	13981-41-4	U		0.050		U	GAM
Cesium 137	10045-97-3	5.36	0.11	0.042	0.10		GAM
Radium 226	13982-63-3	0.360	0.066	0.070	0.10		GAM
Radium 228	15262-20-1	0.421	0.14	0.15	0.20		GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.090	0.10	U	GAM
Thorium 228	14274-82-9	0.318	0.041	0.050			GAM
Thorium 232	TH-232	0.421	0.14	0.15			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		4.4		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	02/01/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1208

R101047-04 B117W1

DATA SHEET, cont

SDG	7607	Client/Case no	Hanford	SDG H1208	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101047-04	Client sample id	B117W1		
Dept sample id	7607-004	Location/Matrix	100 D Reator	SOLID	
Received	01/11/01	Collected	01/08/01 13:10		
% solids	100.0	Custody/SAF No	B00-073-011	B00-073	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
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	02/01/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test AM	Matrix SOLID
SDG 7607	
Contact Melissa C. Mannion	

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1208	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6963-055					
B117V8	R101047-01			7607-001	U
B117V9	R101047-02			7607-002	U
B117W0	R101047-03			7607-003	0.403 J
B117W1	R101047-04			7607-004	U
BLK (QC ID=37257)	R101047-05			7607-005	U
LCS (QC ID=37259)	R101047-07			7607-007	ok
Duplicate (R101047-02)	R101047-06			7607-006	- U
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl - OS				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-055	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 055											
B117V8	R101047-01			0.38	0.500			62		126			11	01/19/01	01/19	SS-021
B117V9	R101047-02			0.37	0.500			54		124			11	01/19/01	01/19	SS-022
B117W0	R101047-03			0.28	0.500			64		104			16	01/19/01	01/24	SS-036
B117W1	R101047-04			0.23	0.500			66		113			12	01/19/01	01/20	SS-031
BLK (QC ID=37257)	R101047-05			0.13	0.500			79		174				01/19/01	01/30	SS-038
LCS (QC ID=37259)	R101047-07			0.21	0.500			72		113				01/19/01	01/20	SS-035
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.23	0.500			65		113			12	01/19/01	01/20	SS-034
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test AM	Matrix SOLID
SDG 7607	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1208	

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	MDA	0.26	±	0.18
FOR 7 SAMPLES	YIELD	66	±	16

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test NP	Matrix SOLID
SDG 7607	
Contact Melissa C. Mannion	

METHOD SUMMARY

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1208	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	U	
B117V9	R101047-02			7607-002	U	
B117W0	R101047-03			7607-003	U	
B117W1	R101047-04			7607-004	U	
BLK (QC ID=37257)	R101047-05			7607-005	U	
LCS (QC ID=37259)	R101047-07			7607-007	ok	
Duplicate (R101047-02)	R101047-06			7607-006	-	U
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl - OS				RDLs (pCi/g)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-055	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 055											
B117V8	R101047-01			0.089	0.500			70		110			16	01/23/01	01/24	SS-029
B117V9	R101047-02			0.16	0.500			63		490			17	01/23/01	01/25	SS-017
B117W0	R101047-03			0.080	0.500			69		622			17	01/23/01	01/25	SS-018
B117W1	R101047-04			0.11	0.500			59		623			17	01/23/01	01/25	SS-019
BLK (QC ID=37257)	R101047-05			0.056	0.500			56		555				01/23/01	01/25	SS-005
LCS (QC ID=37259)	R101047-07			0.075	0.500			53		555				01/23/01	01/25	SS-037
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.064	0.500			66		555			17	01/23/01	01/25	SS-036
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	MDA	0.091	± 0.071
FOR 7 SAMPLES	YIELD	62	± 13

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	PU
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6963-055								
B117V8	R101047-01			7607-001	U		U	
B117V9	R101047-02			7607-002	U		U	
B117W0	R101047-03			7607-003	U		U	
B117W1	R101047-04			7607-004	U		U	
BLK (QC ID=37257)	R101047-05			7607-005	U		U	
LCS (QC ID=37259)	R101047-07			7607-007	ok		ok	
Duplicate (R101047-02)	R101047-06			7607-006	-	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 6963-055	2σ prep error 5.0 %				Reference Lab Notebook 6963 pg. 055											
B117V8	R101047-01			0.25	0.500			65		113			12	01/20/01	01/20	SS-036
B117V9	R101047-02			0.19	0.500			86		113			12	01/20/01	01/20	SS-038
B117W0	R101047-03			0.29	0.500			67		113			12	01/20/01	01/20	SS-041
B117W1	R101047-04			0.18	0.500			85		110			15	01/20/01	01/23	SS-031
BLK (QC ID=37257)	R101047-05			0.19	0.500			90		110				01/20/01	01/23	SS-036
LCS (QC ID=37259)	R101047-07			0.32	0.500			53		101				01/20/01	01/20	SS-035
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.28	0.500			61		100			12	01/20/01	01/20	SS-029
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 7 SAMPLES				
MDA	0.24	±	0.11
YIELD	72	±	29

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	TH
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6963-055							
B117V8	R101047-01			7607-001	U	U	U
B117V9	R101047-02			7607-002	0.648	1.05	0.291 J
B117W0	R101047-03			7607-003	U	U	U
B117W1	R101047-04			7607-004	U	U	U
BLK (QC ID=37257)	R101047-05			7607-005	U	0.559 J	U
LCS (QC ID=37259)	R101047-07			7607-007		ok	
Duplicate (R101047-02)	R101047-06			7607-006	ok	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 6963-055	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 055												
B117V8	R101047-01			0.71	0.250			53		161			16	01/19/01	01/24	SS-021
B117V9	R101047-02			0.39	0.250			88		173			22	01/19/01	01/30	SS-031
B117W0	R101047-03			0.77	0.250			31		156			11	01/19/01	01/19	SS-036
B117W1	R101047-04			0.52	0.250			77		158			16	01/19/01	01/24	SS-022
BLK (QC ID=37257)	R101047-05			0.40	0.250			88		156				01/19/01	01/19	SS-041
LCS (QC ID=37259)	R101047-07			0.31	0.250			74		156				01/19/01	01/23	SS-041
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.35	0.250			55		623			16	01/19/01	01/24	SS-021
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	MDA	0.49	±	0.36
FOR 7 SAMPLES	YIELD	67	±	42

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	U
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

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 6963-055											
B117V8	R101047-01			7607-001	0.390 J	U	0.244 J	160	128	24	28
B117V9	R101047-02			7607-002	0.531 J	U	0.455 J	117	77	7	14
B117W0	R101047-03			7607-003	0.715 J	U	0.506 J	141	89	7	15
B117W1	R101047-04			7607-004	0.475 J	U	0.452 J	105	61	6	13
BLK (QC ID=37257)	R101047-05			7607-005	U	U	U				
LCS (QC ID=37259)	R101047-07			7607-007	ok	ok	ok				
Duplicate (R101047-02)	R101047-06			7607-006	ok J	- U	ok J	121	74	13	14
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 129		11	

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 6963-055	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 055												
B117V8	R101047-01			0.23	0.500			89		101			12	01/20/01	01/20	SS-031
B117V9	R101047-02			0.23	0.500			84		104			16	01/20/01	01/24	SS-035
B117W0	R101047-03			0.28	0.500			74		101			12	01/20/01	01/20	SS-033
B117W1	R101047-04			0.22	0.500			93		101			12	01/20/01	01/20	SS-034
BLK (QC ID=37257)	R101047-05			0.32	0.500			70		101				01/20/01	01/20	SS-036
LCS (QC ID=37259)	R101047-07			0.87	0.500			95		109				01/20/01	01/20	SS-033
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.23	0.500			89		104			16	01/20/01	01/24	SS-041
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 7 SAMPLES				
MDA	0.34	±	0.47
YIELD	85	±	19

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test SR	Matrix SOLID
SDG 7607	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1208	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6963-055					
B117V8	R101047-01			7607-001	U
B117V9	R101047-02			7607-002	0.850 J
B117W0	R101047-03			7607-003	1.13
B117W1	R101047-04			7607-004	0.724 J
BLK (QC ID=37257)	R101047-05			7607-005	U
LCS (QC ID=37259)	R101047-07			7607-007	ok
Duplicate (R101047-02)	R101047-06			7607-006	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0
100-D & 100-H Rx Waste Smpl - OS					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-055	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 055															
B117V8	R101047-01			0.26	1.00			93		100			10	01/18/01	01/18	GRB-217
B117V9	R101047-02			0.22	1.00			89		100			10	01/18/01	01/18	GRB-218
B117W0	R101047-03			0.21	1.00			95		100			10	01/18/01	01/18	GRB-219
B117W1	R101047-04			0.20	1.00			94		100			10	01/18/01	01/18	GRB-220
BLK (QC ID=37257)	R101047-05			0.25	1.00			75		200				01/18/01	01/18	GRB-218
LCS (QC ID=37259)	R101047-07			0.23	1.00			82		100				01/18/01	01/18	GRB-222
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.22	1.00			93		100			10	01/18/01	01/18	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	MDA	0.23	± 0.043
FOR 7 SAMPLES	YIELD	89	± 15

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	TC
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	U	
B117V9	R101047-02			7607-002	U	
B117W0	R101047-03			7607-003	U	
B117W1	R101047-04			7607-004	U	
BLK (QC ID=37257)	R101047-05			7607-005	U	
LCS (QC ID=37259)	R101047-07			7607-007	ok	
Duplicate (R101047-02)	R101047-06			7607-006	-	U
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl - OS				RDLs (pCi/g)	15	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-055	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 055															
B117V8	R101047-01			1.2	1.04			39		52			11	01/16/01	01/19	GRB-230
B117V9	R101047-02			0.98	1.08			47		51			14	01/16/01	01/22	GRB-230
B117W0	R101047-03			1.2	1.03			42		52			11	01/16/01	01/19	GRB-232
B117W1	R101047-04			1.0	1.03			49		50			12	01/16/01	01/20	GRB-203
BLK (QC ID=37257)	R101047-05			0.79	1.00			63		50				01/16/01	01/19	GRB-230
LCS (QC ID=37259)	R101047-07			0.88	1.00			57		50				01/16/01	01/20	GRB-203
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.95	1.08			49		51			14	01/16/01	01/22	GRB-232
Nominal values and limits from method				15	1.00			20-105		50			180			

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	TC
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-060	Soil Preparation, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 0
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD				
FOR 7 SAMPLES	MDA	1.0	±	0.31
	YIELD	49	±	17

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test GAM Matrix SOLID
SDG 7607
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	U	0.154
B117V9	R101047-02			7607-002	0.144	2.97
B117W0	R101047-03			7607-003	0.243	7.03
B117W1	R101047-04			7607-004	0.264	5.36
BLK (QC ID=37257)	R101047-05			7607-005	U	U
LCS (QC ID=37259)	R101047-07			7607-007	ok	ok
Duplicate (R101047-02)	R101047-06			7607-006	ok	ok
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl - OS				RDLs (pCi/g)	0.050	0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-055 2σ prep error 15.0 % Reference Lab Notebook 6963 pg. 055																
B117V8	R101047-01			0.080	151					405			10	01/18/01	01/18	JR,04,00
B117V9	R101047-02			0.095	114					474			11	01/18/01	01/19	JR,04,00
B117W0	R101047-03			0.16	131					467			11	01/18/01	01/19	JR,03,00
B117W1	R101047-04			0.093	127					467			11	01/18/01	01/19	JR,04,00
BLK (QC ID=37257)	R101047-05			0.074	114					467				01/18/01	01/19	JR,05,00
LCS (QC ID=37259)	R101047-07			0.070	114					408				01/18/01	01/19	JR,01,00
Duplicate (R101047-02) (QC ID=37258)	R101047-06			0.16	114					467			11	01/18/01	01/19	JR,07,00
Nominal values and limits from method				0.050	114					100			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.10 ± 0.078
YIELD ____ ± ____

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	C
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	8.30	J
B117V9	R101047-02			7607-002	4.39	J
B117W0	R101047-03			7607-003	55.2	
B117W1	R101047-04			7607-004	9.94	J
BLK (QC ID=37257)	R101047-05			7607-005	U	
LCS (QC ID=37260)	R101047-08			7607-008	ok	
Duplicate (R101047-02)	R101047-06			7607-006	ok	J
Nominal values and limits from method 100-D & 100-H Rx Waste Smpl - OS				RDLs (pCi/g)	50	

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 6963-055	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 055											
B117V8	R101047-01			3.9	0.211			100		100			10	01/17/01	01/18	LSC-005
B117V9	R101047-02			3.8	0.216			100		100			10	01/17/01	01/18	LSC-005
B117W0	R101047-03			4.0	0.205			100		100			10	01/17/01	01/18	LSC-005
B117W1	R101047-04			3.7	0.218			100		100			10	01/17/01	01/18	LSC-005
BLK (QC ID=37257)	R101047-05			4.0	0.200			100		100				01/17/01	01/18	LSC-005
LCS (QC ID=37260)	R101047-08			27	0.200			100		3				01/17/01	01/19	LSC-005
Duplicate (R101047-02) (QC ID=37258)	R101047-06			3.9	0.208			100		100			10	01/17/01	01/18	LSC-005
Nominal values and limits from method				50	0.200					50			180			

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

AVERAGES ± 2 SD	MDA	7.2	± 17
FOR 7 SAMPLES	YIELD	100	± 0

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	H
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	7.84	J
B117V9	R101047-02			7607-002	U	
B117W0	R101047-03			7607-003	11.5	J
B117W1	R101047-04			7607-004	5.60	J
BLK (QC ID=37257)	R101047-05			7607-005	U	
LCS (QC ID=37259)	R101047-07			7607-007	ok	
Duplicate (R101047-02)	R101047-06			7607-006	-	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 6963-055	2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 055															
B117V8	R101047-01			5.7	0.211			100		100			8	01/16/01	01/16	LSC-006
B117V9	R101047-02			5.6	0.216			100		100			9	01/16/01	01/17	LSC-006
B117W0	R101047-03			5.9	0.205			100		100			9	01/16/01	01/17	LSC-006
B117W1	R101047-04			5.6	0.218			100		100			9	01/16/01	01/17	LSC-006
BLK (QC ID=37257)	R101047-05			6.1	0.200			100		100				01/16/01	01/16	LSC-006
LCS (QC ID=37259)	R101047-07			6.1	0.200			100		100				01/16/01	01/17	LSC-006
Duplicate (R101047-02) (QC ID=37258)	R101047-06			5.8	0.208			100		100			9	01/16/01	01/17	LSC-006
Nominal values and limits from method				400	0.200					25			180			

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

AVERAGES ± 2 SD	MDA	5.8	± 0.43
FOR 7 SAMPLES	YIELD	100	± 0

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1208

Test	NI_L
Matrix	SOLID
SDG	7607
Contact	Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1208

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6963-055						
B117V8	R101047-01			7607-001	U	
B117V9	R101047-02			7607-002	U	
B117W0	R101047-03			7607-003	U	
B117W1	R101047-04			7607-004	U	
BLK (QC ID=37257)	R101047-05			7607-005	U	
LCS (QC ID=37259)	R101047-07			7607-007	ok	
Duplicate (R101047-02)	R101047-06			7607-006	-	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 6963-055	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 055											
B117V8	R101047-01			2.0	0.500			93		100			9	01/17/01	01/17	LSC-007
B117V9	R101047-02			2.2	0.500			81		100			9	01/17/01	01/17	LSC-007
B117W0	R101047-03			2.1	0.500			88		100			9	01/17/01	01/17	LSC-007
B117W1	R101047-04			2.1	0.500			88		100			9	01/17/01	01/17	LSC-007
BLK (QC ID=37257)	R101047-05			1.8	0.500			96		100				01/17/01	01/18	LSC-007
LCS (QC ID=37259)	R101047-07			1.9	0.500			95		100				01/17/01	01/18	LSC-007
Duplicate (R101047-02) (QC ID=37258)	R101047-06			2.1	0.500			88		100			10	01/17/01	01/18	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 7 SAMPLES				
MDA	2.0	±	0.28
YIELD	90	±	10

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Addler	Telephone No.: 531-0703	Project Coordinator: TRENT, SJ
Project Designation: 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 D reactor H1208 (7607)		SAF No.: B00-073
Ice Chest No.: ERC99-063	Field Logbook No.: EFL 1133-8	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: EBERLINE TMA/RECRA RM 01-08-01	Offsite Property No.: AP0159		Bill of Lading/Air Bill No.: 42357953-1610

Price Code: 9L
Data Turnaround: 21 Days
Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Samples stored in Ref.# 117 at the 3728 Shipping Facility on 1/8/01. Collector not available to relinquish samples on 1/10/01 for shipment. RT 1/10/01

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 (Superfuace); 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										
B117V8	OTHER SOLID	01-08-01	0830			X			B117W3				
B117V9	OTHER SOLID	01-08-01	1225			X			B117W4				
B117W0	OTHER SOLID	01-08-01	1310			X			B117W5				
B117W1	OTHER SOLID	01-08-01	1310			X			B117W6				
~~B117W2~~	~~OTHER SOLID~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	STORCDIN / RT 1-8-01 / RT 1-8-01 / A.F. 3728	1-8-01 1630
Removed from Rel 1A 3728	1-10-01 1030	R Thorenson	1-10-01 1030
R Thorenson	1-10-01 1050	FEDEX	01-11-01
FED. EXPRESS	01-11-01 10:00 AM	E. Segura	01-11-01 10:00 AM
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

~~(1) VOA - 8260A (TCL); Semi-VOA - 8270A (TCL); Pesticides - 8081, PCBs - 8082~~ RT 1-9-01

(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium - H3

~~(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; Sulfides - 9030; Ignitability - 1010; pH (Soil) - 9045~~ RT 1-9-01

Also add on Isotopic thorium-228, Isotopic Thorium-232, Neptunium-237

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 01-11-01 10:AM

CoC No. B00-073-011

Container I.D. No. ERC99-063 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: 4
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. Noguro Date: 01-11-01 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 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01
IGNITABILITY	002	SO	01LFP001	01/08/01	01/22/01	01/22/01
PH	002	SO	01LPH003	01/08/01	01/12/01	01/12/01
SULFIDE	002	SO	01LSD002	01/08/01	01/15/01	01/15/01
B117W0						
% SOLIDS	003	SO	01L%S008	01/08/01	01/12/01	01/13/01
CHLORIDE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
TOTAL CYANIDE	003	SO	01LC006	01/08/01	01/16/01	01/16/01
PHOSPHATE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
SULFATE BY IC	003	SO	01LBC007	01/08/01	01/26/01	01/26/01
IGNITABILITY	003	SO	01LFP001	01/08/01	01/22/01	01/22/01
PH	003	SO	01LPH003	01/08/01	01/12/01	01/12/01
SULFIDE	003	SO	01LSD002	01/08/01	01/15/01	01/15/01
B117W1						
% SOLIDS	004	SO	01L%S008	01/08/01	01/12/01	01/13/01
CHLORIDE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
TOTAL CYANIDE	004	SO	01LC006	01/08/01	01/16/01	01/16/01
TOTAL CYANIDE	004 REP	SO	01LC006	01/08/01	01/16/01	01/16/01
TOTAL CYANIDE	004 MS	SO	01LC006	01/08/01	01/16/01	01/16/01
PHOSPHATE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
SULFATE BY IC	004	SO	01LBC007	01/08/01	01/26/01	01/26/01
IGNITABILITY	004	SO	01LFP001	01/08/01	01/22/01	01/22/01
IGNITABILITY	004 REP	SO	01LFP001	01/08/01	01/22/01	01/22/01
PH	004	SO	01LPH003	01/08/01	01/12/01	01/12/01
SULFIDE	004	SO	01LSD002	01/08/01	01/15/01	01/15/01
SULFIDE	004 REP	SO	01LSD002	01/08/01	01/15/01	01/15/01
SULFIDE	004 MS	SO	01LSD002	01/08/01	01/15/01	01/15/01

LAB QC:

CHLORIDE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
FLUORIDE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01
FLUORIDE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
NITRITE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01
NITRITE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
NITRATE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01
NITRATE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
TOTAL CYANIDE	LCS L	S	01LC006	N/A	01/16/01	01/16/01
TOTAL CYANIDE	LCS L	S	01LC006	N/A	01/16/01	01/16/01
TOTAL CYANIDE	MB1	S	01LC006	N/A	01/16/01	01/16/01
PHOSPHATE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01
PHOSPHATE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
SULFATE BY IC	MB1	S	01LBC007	N/A	01/26/01	01/26/01
SULFATE BY IC	MB1 BS	S	01LBC007	N/A	01/26/01	01/26/01
IGNITEABILITY	MB1 BS	W	01LFP001	N/A	01/22/01	01/22/01
SULFIDE	MB1	S	01LSD002	N/A	01/15/01	01/15/01
SULFIDE	MB1 BS	S	01LSD002	N/A	01/15/01	01/15/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073 H1208
LVL#: 0101L734

W.O.#: 01985-001-001-9999-00
Date Received: 01-11-01

INORGANIC NARRATIVE

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

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.

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.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Chloride that was above the control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit with the exception of Chloride that was outside the control limit.

9. The results for solid samples were reported on a dry weigh 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.

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-13-01
Date

njp\i01- 734

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 14 pages.

Lionville Laboratory, Inc.

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

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

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

L-WI-034/B-01/01

Lionville Laboratory, Inc.

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 H1208
LVL#: 0101L734

W.O.#: 01985-001-001-9999-00
Date Received: 01-11-01

Analyte:	**Observation:**
Ignitability	Samples B111V8 and B117V9 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\i01-734.pt2

LIONVILLE LABORATORY INC

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/01

CLIENT: TNUHANFORD B00-073 H1208 LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B117V8	% Solids	90.2	%	0.01	1.0
		Chloride by IC	184	MG/KG	6.9	5.0
		Fluoride by IC	98.7	MG/KG	55.4	20.0
		Nitrite by IC	6.93 u	MG/KG	6.93	5.0
		Nitrate by IC	33.2	MG/KG	1.39	1.0
		Cyanide, Total	0.58 u	MG/KG	0.58	1.0
		Phosphate by IC	6.9 u	MG/KG	6.9	5.0
		Sulfate by IC	729	MG/KG	27.7	20.0
		pH	11.6	SOIL PH	0.01	1.0
		Sulfide	41.7 u	MG/KG	41.7	1.0
-002	B117V9	% Solids	97.9	%	0.01	1.0
		Chloride by IC	15.1	MG/KG	12.8	10.0
		Fluoride by IC	78.7	MG/KG	25.5	10.0
		Nitrite by IC	12.8 u	MG/KG	12.8	10.0
		Nitrate by IC	11.6	MG/KG	6.38	5.0
		Cyanide, Total	0.47 u	MG/KG	0.47	1.0
		Phosphate by IC	12.8 u	MG/KG	12.8	10.0
		Sulfate by IC	292	MG/KG	25.5	20.0
		pH	12.3	SOIL PH	0.01	1.0
		Sulfide	39.7 u	MG/KG	39.7	1.0
-003	B117W0	% Solids	98.1	%	0.01	1.0
		Chloride by IC	13.9	MG/KG	12.7	10.0
		Fluoride by IC	82.8	MG/KG	25.5	10.0
		Nitrite by IC	6.37 u	MG/KG	6.37	5.0
		Nitrate by IC	13.4	MG/KG	6.37	5.0
		Cyanide, Total	0.47 u	MG/KG	0.47	1.0
		Phosphate by IC	12.7 u	MG/KG	12.7	10.0
		Sulfate by IC	478	MG/KG	12.7	10.0
		Ignitability	189.00	DEG F	40.0	1.0
		pH	11.9	SOIL PH	0.01	1.0
		Sulfide	35.6 u	MG/KG	35.6	1.0
-004	B117W1	% Solids	98.2	%	0.01	1.0
		Chloride by IC	8.5	MG/KG	6.4	5.0
		Fluoride by IC	77.3	MG/KG	12.7	5.0
		Nitrite by IC	6.37 u	MG/KG	6.37	5.0
		Nitrate by IC	13.4	MG/KG	6.37	5.0
		Cyanide, Total	0.43 u	MG/KG	0.43	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/01

CLIENT: TNUHANFORD B00-073 H1208

LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B117W1	Phosphate by IC	12.7	u	MG/KG	12.7	10.0
		Sulfate by IC	458		MG/KG	12.7	10.0
		Ignitability	184.00		DEG F	40.0	1.0
		pH	11.9		SOIL PH	0.01	1.0
		Sulfide	38.8		MG/KG	38.7	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/01/01

CLIENT: TNUHANFORD B00-073 H1208 LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LBC007-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	01LC006-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	01LSD002-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 02/01/01

CLIENT: TNUHANFORD B00-073 H1208

LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B117V8	Chloride by IC	592	184	277	147.3	10.0
		Fluoride by IC	3280	98.7	2770	114.7	50.0
		Nitrite by IC	137	6.93u	139	98.4	5.0
		Nitrate by IC	190	33.2	139	112.7	5.0
		Phosphate by IC	257	6.9 u	277	92.7	10.0
		Sulfate by IC	2180	729	1390	105.0	50.0
-004	B117W1	Cyanide, Total	4.71	0.43u	4.90	96.0	1.0
		Sulfide	372	38.8	346	96.5	1.0
BLANK10	01LBC007-MB1	Chloride by IC	23.6	1.2 u	25.0	94.3	1.0
		Fluoride by IC	53.3	2.5 u	50.0	106.6	1.0
		Nitrite by IC	25.0	1.25u	25.0	100	1.0
		Nitrate by IC	24.1	1.25u	25.0	96.3	1.0
		Phosphate by IC	24.6	1.2 u	25.0	98.6	1.0
		Sulfate by IC	24.4	1.2 u	25.0	97.5	1.0
BLANK10	01LFP001-MB1	Ignitability	81.0	0.0	81.0	100	1.0
BLANK10	01LSD002-MB1	Sulfide	417	40.0 u	438	95.2	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 02/01/01

CLIENT: TNUHANFORD B00-073 H1208 LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B117V8	% Solids	90.2	92.3	2.3	1.0
		Chloride by IC	184	229	21.9	20.0
		Fluoride by IC	98.7	55.4 u	NC	20.0
		Nitrite by IC	6.93u	6.93u	NC	5.0
		Nitrate by IC	33.2	31.0	7.0	1.0
		Phosphate by IC	6.9 u	6.9 u	NC	5.0
		Sulfate by IC	729	649	11.6	20.0
		pH	11.6	11.2	3.2	1.0
-004REP	B117W1	Cyanide, Total	0.43u	0.45u	NC	1.0
		Ignitability	184	182	1.1	1.0
		Sulfide	38.8	39.7 u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/01/01

CLIENT: TNUHANFORD B00-073 H1208 LVL LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LC006-LCS1	Cyanide, Total LCS	2.00	2.0	MG/KG	100.0
LCSS2	01LC006-LCS2	Cyanide, Total LCS	10.0	10.0	MG/KG	100.3

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8						
% SOLIDS	001	SO	01L%S008	01/08/01	01/12/01	01/13/01
% SOLIDS	001 REP	SO	01L%S008	01/08/01	01/12/01	01/13/01
CHLORIDE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
CHLORIDE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
CHLORIDE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
TOTAL CYANIDE	001	SO	01LC006	01/08/01	01/16/01	01/16/01
PHOSPHATE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
PHOSPHATE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
PHOSPHATE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
SULFATE BY IC	001	SO	01LBC007	01/08/01	01/26/01	01/26/01
SULFATE BY IC	001 REP	SO	01LBC007	01/08/01	01/26/01	01/26/01
SULFATE BY IC	001 MS	SO	01LBC007	01/08/01	01/26/01	01/26/01
IGNITABILITY	001	SO	01LFP001	01/08/01	01/22/01	01/22/01
PH	001	SO	01LPH003	01/08/01	01/12/01	01/12/01
PH	001 REP	SO	01LPH005	01/08/01	01/16/01	01/16/01
SULFIDE	001	SO	01LSD002	01/08/01	01/15/01	01/15/01
B117V9						
% SOLIDS	002	SO	01L%S008	01/08/01	01/12/01	01/13/01
CHLORIDE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01
FLUORIDE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRITE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01
NITRATE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01
TOTAL CYANIDE	002	SO	01LC006	01/08/01	01/16/01	01/16/01
PHOSPHATE BY IC	002	SO	01LBC007	01/08/01	01/26/01	01/26/01

RECRA LabNet Use Only
0101L734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A						B	C						
Refrigerator #		1						6	6						
#/Type Container	Liquid														
	Solid	1AG						1AG	1AG						
Volume	Liquid														
	Solid	125						60	125						
Preservatives		-						-	-						
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260H	8270H	8080H PCB				MACRATO	ICNTTO	IC(1)	ISFD	IIGN	IPH		
001	B117V8			SO	1-8-01	0830	✓	✓	✓				✓	✓	✓	✓	✓	✓		
002	V9					1225	✓	✓	✓				✓	✓	✓	✓	✓	✓		
003	W0					1310	✓	✓	✓				✓	✓	✓	✓	✓	✓		
004	W1						✓	✓	✓				✓	✓	✓	✓	✓	✓		

Special Instructions: Saf 300-073

Run Matrix QC

DATE/REVISIONS:
IC(1) 1. Cl, Fl, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795411621

Relinquished by	Received by	Date	Time
FedEx	TBeppel	1-11-01	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

.ntel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	Page 1 of 21

rs	Company Contact: Jason Addler Telephone No.: 531-0703	Project Coordinator: TRENT, SJ	Price Code: 9L Data Turnaround: 21 Days
gnation: 100-H Rx Waste Sampling - Other Solids	Sampling Location: 100 D reactor	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC99.038	Field Logbook No.: EFL 1133-8 COA: R105DG280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A40183	Bill of Lading/Air Bill No.: 42357953 1621	

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										
B117V8	OTHER SOLID	01-08-01	0830	X	X		X			B117W3			
B117V9	OTHER SOLID	01-08-01	1225	X	X		X			B117W4			
B117W0	OTHER SOLID	01-08-01	1310	X	X		X			B117W5			
B117W1	OTHER SOLID	01-08-01	1310	X	X		X			B117W6			
~~B117W2~~	OTHER SOLID												

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Tony Bowers	1-8-01 1630	Sign/Print Names: Received By: STOREDIN A.P.A 3728	1-8-01 1630
Relinquished By: Removed from	1030	Received By: R.T. Thorea	1030 1-10-01
Relinquished By: R.T. Thorea	1030 1-10-01	Received By: FEDEX	
Relinquished By: FEDEX	1-11-01 0945	Received By: Thoppel	1-11-01 0945
Relinquished By		Received By	
Relinquished By		Received By	

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, Americium-241; Strontium-89,90 - Total Sr, Technetium-99, Carbon-14, Nickel-63, Tritium - H3~~ RT 1-9-01
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment..
RT 1-10-01

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)

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 LVL LOT # :0101L734

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8						
SILVER, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
SILVER, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
SILVER, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
MERCURY, TOTAL	001	SO	01C0027	01/08/01	01/19/01	01/24/01
MERCURY, TOTAL	001 REP	SO	01C0027	01/08/01	01/19/01	01/24/01
MERCURY, TOTAL	001 MS	SO	01C0033	01/08/01	01/25/01	01/26/01
LEAD, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
LEAD, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
LEAD, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	001	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	001 REP	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	001 MS	SO	01L0013	01/08/01	01/16/01	01/17/01
B117V9						
SILVER, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
MERCURY, TOTAL	002	SO	01C0027	01/08/01	01/19/01	01/24/01
LEAD, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	002	SO	01L0013	01/08/01	01/16/01	01/17/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 LVL LOT # :0101L734

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117W0						
SILVER, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
MERCURY, TOTAL	003	SO	01C0027	01/08/01	01/19/01	01/24/01
LEAD, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	003	SO	01L0013	01/08/01	01/16/01	01/17/01
B117W1						
SILVER, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
ARSENIC, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
BARIUM, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
CADMIUM, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
CHROMIUM, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
MERCURY, TOTAL	004	SO	01C0027	01/08/01	01/19/01	01/24/01
LEAD, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01
SELENIUM, TOTAL	004	SO	01L0013	01/08/01	01/16/01	01/17/01

LAB QC:

SILVER LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
SILVER, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
ARSENIC LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
ARSENIC, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
BARIUM LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
BARIUM, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
CADMIUM LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
CADMIUM, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
CHROMIUM LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
CHROMIUM, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
MERCURY LABORATORY	LC1 BS	S	01C0027	N/A	01/19/01	01/24/01
MERCURY, TOTAL	MB1	S	01C0027	N/A	01/19/01	01/24/01
MERCURY LABORATORY	LC1 BS	S	01C0033	N/A	01/25/01	01/26/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 LVL LOT # :0101L734

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	MB1	S	01C0033	N/A	01/25/01	01/26/01
LEAD LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
LEAD, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01
SELENIUM LABORATORY	LC1 BS	S	01L0013	N/A	01/16/01	01/17/01
SELENIUM, TOTAL	MB1	S	01L0013	N/A	01/16/01	01/17/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073
LVL#: 0101L734
SDG/SAF#: H1208/B00-073

W.O.#: 10985-001-001-9999-00
Date Received: 01-11-01

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.

    In the initial digestion batch for Mercury, the matrix spike was inadvertantly not added to the sample. The matrix spike sample was then redigested in a separate digestion batch.

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.

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
B117V8	Lead	200	100.6

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.

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-16-01
Date

jjw/m01-734

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0101L734

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __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	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	X6010B	__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	X6010B	__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]	X7471A [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	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__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-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Laboratory

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD B00-073 H1208 RECRA LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B117V8	Silver, Total	0.47	MG/KG	0.12	1.0
		Arsenic, Total	14.6	MG/KG	0.25	1.0
		Barium, Total	185	MG/KG	0.02	1.0
		Cadmium, Total	0.44	MG/KG	0.03	1.0
		Chromium, Total	12.3	MG/KG	0.06	1.0
		Mercury, Total	1.0	MG/KG	0.02	1.0
		Lead, Total	55.1	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
-002	B117V9	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	2.8	MG/KG	0.23	1.0
		Barium, Total	264	MG/KG	0.02	1.0
		Cadmium, Total	0.52	MG/KG	0.03	1.0
		Chromium, Total	20.2	MG/KG	0.06	1.0
		Mercury, Total	0.04	MG/KG	0.02	1.0
		Lead, Total	11.8	MG/KG	0.20	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
-003	B117W0	Silver, Total	5.7	MG/KG	0.11	1.0
		Arsenic, Total	2.6	MG/KG	0.23	1.0
		Barium, Total	242	MG/KG	0.02	1.0
		Cadmium, Total	0.52	MG/KG	0.03	1.0
		Chromium, Total	18.3	MG/KG	0.06	1.0
		Mercury, Total	0.08	MG/KG	0.02	1.0
		Lead, Total	10.8	MG/KG	0.20	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
-004	B117W1	Silver, Total	7.7	MG/KG	0.11	1.0
		Arsenic, Total	2.6	MG/KG	0.23	1.0
		Barium, Total	260	MG/KG	0.02	1.0
		Cadmium, Total	1.2	MG/KG	0.03	1.0
		Chromium, Total	19.8	MG/KG	0.06	1.0
		Mercury, Total	0.04	MG/KG	0.02	1.0
		Lead, Total	11.8	MG/KG	0.20	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0

Lionville Laboratory

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/30/01

CLIENT: TNUHANFORD B00-073 H1208 RECRA LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0013-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 u	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	01C0027-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	01C0033-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory

INORGANICS ACCURACY REPORT 01/30/01

CLIENT: TNUHANFORD B00-073 H1208 RECRA LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B117V8	Silver, Total	5.3	0.47	5.2	92.9	1.0
		Arsenic, Total	199	14.6	209	88.3	1.0
		Barium, Total	348	185	209	77.9	1.0
		Cadmium, Total	5.1	0.44	5.2	89.6	1.0
		Chromium, Total	29.6	12.3	20.9	82.8	1.0
		Mercury, Total	1.5	1.0	0.17	271.1*	1.0
		Lead, Total	80.8	55.1	52.3	49.1	1.0
		Selenium, Total	188	0.35u	209	89.9	1.0

Lionville Laboratory

INORGANICS PRECISION REPORT 01/30/01

CLIENT: TNUHANFORD B00-073 H1208 RECRA LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B117V8	Silver, Total	0.47	0.93	65.3	1.0
		Arsenic, Total	14.6	9.7	40.3	1.0
		Barium, Total	185	193	4.2	1.0
		Cadmium, Total	0.44	0.43	1.7	1.0
		Chromium, Total	12.3	12.2	0.82	1.0
		Mercury, Total	1.0	0.94	6.0	1.0
		Lead, Total	55.1	61.1	10.3	1.0
		Selenium, Total	0.35u	0.35u	NC	1.0

Lionville Laboratory

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/30/01

CLIENT: TNUHANFORD B00-073 H1208 RECRA LOT #: 0101L734

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0013-LC1	Silver, LCS	49.5	50.0	MG/KG	99.0
		Arsenic, LCS	958	1000	MG/KG	95.8
		Barium, LCS	489	500	MG/KG	97.8
		Cadmium, LCS	24.7	25.0	MG/KG	98.8
		Chromium, LCS	50.2	50.0	MG/KG	100.4
		Lead, LCS	244	250	MG/KG	97.8
		Selenium, LCS	940	1000	MG/KG	94.0
LCS1	01C0027-LC1	Mercury, LCS	2.8	2.5	MG/KG	112.9
LCS1	01C0033-LC1	Mercury, LCS	2.6	2.5	MG/KG	103.3

RECRA LabNet Use Only: 0101L734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TRU-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A							B	C						
Refrigerator #		1							6	6						
#/Type Container	Liquid															
	Solid	1AG							1AG	1AG						
Volume	Liquid															
	Solid	125							60	125						
Preservatives		–							–	–						
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
		OLC24H	OLC25H	OLC08H GPCB					MRCPATO	ICNTO	IC(1)	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	OLC24H	OLC25H	OLC08H GPCB					MRCPATO	ICNTO	IC(1)	ISFD	IIGN	IPH		
001	B117V8			SO	1-8-01	0830	✓	✓	✓					✓	✓	✓	✓	✓	✓		
002	V9					1225	✓	✓	✓					✓	✓	✓	✓	✓	✓		
003	W0					1310	✓	✓	✓					✓	✓	✓	✓	✓	✓		
004	W1						✓	✓	✓					✓	✓	✓	✓	✓	✓		

Special Instructions: SAF 300-073

Run Matrix QC

DATE/REVISIONS:

IC(1) 1. Cl, Fl, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Relinquished by	Received by	Date	Time
FedEx	TRappel	1-11-01	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES: 4235795411621

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	Page 1 of 2

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 D reactor		SAF No.: B00-073
Air Quality ☐			
Ice Chest No.: ERC 99.038	Field Logbook No.: EFL 1133-8	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A#0183	Bill of Lading/Air Bill No.: 4235 7953 1621	

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									
B117V8	OTHER SOLID	01-08-01	0830	X	X		X			B117V3		
B117V9	OTHER SOLID	01-08-01	1225	X	X		X			B117W4		
B117W0	OTHER SOLID	01-08-01	1310	X	X		X			B117W5		
B117W1	OTHER SOLID	01-08-01	1310	X	X		X			B117W5T		
~~B117W2~~	OTHER SOLID											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	R.P. Storedin RPA 3728	1-8-01 1630
Relinquished By: Removed from RPA 3728	1-10-01 1030	Received By: R.L. Thoren	1-10-01 1030
R.L. Thoren	1-10-01 1030	FEDEX	
Relinquished By: FEDEX	1-11-01 0945	Received By: Theppul	1-11-01 0945
Relinquished By		Received By	
Relinquished By		Received By	

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; Americium-241; Strontium-89,90 — Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium-H3~~
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment.. RT 1-10-01

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

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

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8	001	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V9	002	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V9	002 MS	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V9	002 MSD	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117W0	003	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117W1	004	SO	01LE0043	01/08/01	01/12/01	01/30/01
LAB QC:						
PBLKMJ	MB1	S	01LE0037	N/A	01/11/01	01/30/01
PBLKMJ	MB1 BS	S	01LE0037	N/A	01/11/01	01/30/01
PBLKMO	MB1	S	01LE0043	N/A	01/12/01	01/30/01
PBLKMO	MB1 BS	S	01LE0043	N/A	01/12/01	01/30/01

02-09-01

MAR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0101L734
SDG/SAF#: H1208/B00-073

W.O.#: 10985-001-001-9999-00
Date Received: 01-11-01

PCB

The set of samples consisted of four (4) solid samples collected on 01-08-01.

The samples and their associated QC samples were extracted on 01-11,12-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 01-30-01. 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 and sulfur cleanup.

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

5. Five (5) of eighteen (18) obtainable surrogate recoveries were outside acceptance criteria. The matrix spike and matrix spike duplicate fulfills the re-extraction requirements for sample B117V9. Samples B117V9 and B117W0 had significant matrix interferences. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. All blank spike recoveries were within acceptance criteria.

7. One (1) of two (2) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

8. Sample B117V8 required a ten-fold instrument dilution due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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

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

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.

by _____ 02-13-01

J. Michael Taylor
President
Lionville Laboratory Incorporated

Date

pef\r:\group\data\pest\01L-734.pcb

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01GC053

Initiator: M. Kehel Batch: 0101L737 Parameter: OPCB
Date: 2/2/01 Samples: 002, MS, MSD, 003 Matrix: solid
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0037

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 low surrogates in samples 002 and 003 (see attached)

② high AR1254 recoveries in MS + MSD @ 206% and 149%, respectively. The BS was ok for the batch

2. Known or Probable Causes(s)

* low surr due to matrix effects

3. Discussion and Proposed Action Other Description:

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

report narrate

4. Project Manager Instructions...signature/date: [signature] 2/2/01

✓ 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] 2/2/01 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: Rycklak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

GLOSSARY OF HERBICIDE DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

SUFFIXES

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

ABBREVIATIONS

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Reported.

SP = Indicates spiked compound.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 02/12/01 08:28

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1

90

	Cust ID:	B117V8	B117V9	B117V9	B117V9	B117W0	B117W1
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	10.0	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	D %	0 * %	48 %	32 %	12 * %	50 %
	Decachlorobiphenyl	D %	0 * %	43 %	26 * %	7 * %	45 %
Aroclor-1016		360 U	34 U	33 U	34 U	34 U	67 U
Aroclor-1221		730 U	68 U	67 U	68 U	68 U	130 U
Aroclor-1232		360 U	34 U	33 U	34 U	34 U	67 U
Aroclor-1242		360 U	34 U	33 U	34 U	34 U	74
Aroclor-1248		360 U	34 U	33 U	34 U	34 U	67 U
Aroclor-1254		2600	18 J	192 * %	136 %	70	230
Aroclor-1260		360 U	34 U	33 U	34 U	34 U	67 U

	Cust ID:	PBLKMJ	PBLKMJ BS	PBLKMO	PBLKMO BS
Sample Information	RFW#:	01LE0037-MB1	01LE0037-MB1	01LE0043-MB1	01LE0043-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	75 %	82 %	90 %	75 %
	Decachlorobiphenyl	71 %	81 %	83 %	69 %
Aroclor-1016		33 U	33 U	33 U	33 U
Aroclor-1221		67 U	67 U	67 U	67 U
Aroclor-1232		33 U	33 U	33 U	33 U
Aroclor-1242		33 U	33 U	33 U	33 U
Aroclor-1248		33 U	33 U	33 U	33 U
Aroclor-1254		33 U	70 %	33 U	51 %
Aroclor-1260		33 U	33 U	33 U	33 U

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

2/12/01

RECRA LabNet Use Only: 0101L734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A							B	C						D
Refrigerator #		1							6	6						
#/Type Container	Liquid															
	Solid	1AG							1AG	1AG						
Volume	Liquid															
	Solid	125							60	125						
Preservatives		-							-	-						
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
		8240H	8270H	8080H SPCD					MACRAT0	ICMTO	IC(1)	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	8240H	8270H	8080H SPCD				MACRAT0	ICMTO	IC(1)	ISFD	IIGN	IPH		
001	B117V8			SO	1-8-01	0830	✓	✓	✓				✓	✓	✓	✓	✓	✓		
002	V9					1225	✓	✓	✓				✓	✓	✓	✓	✓	✓		
003	W0					1310	✓	✓	✓				✓	✓	✓	✓	✓	✓		
004	W1						✓	✓	✓				✓	✓	✓	✓	✓	✓		

Special Instructions: SAF 300-073

Run Matrix QC

DATE/REVISIONS:

IC(1) 1. Cl, Fl, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795411621

Relinquished by	Received by	Date	Time
FedEx	JBeppel	1-11-01	0945

Relinquished by	Received by	Date	Time

COMPOSITE

ORIGINAL

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	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 D reactor	SAF No.: B00-073	
Ice Chest No.: ERC99.038	Field Logbook No.: EFL 1133-8	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A#0183	Bill of Lading/Air Bill No.: 42357953 1621	

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								
B117V8	OTHER SOLID	01-08-01	0830	X	X		X			B117W3	
B117V9	OTHER SOLID	01-08-01	1225	X	X		X			B117W4	
B117W0	OTHER SOLID	01-08-01	1310	X	X		X			B117W5	
B117W1	OTHER SOLID	01-08-01	1310	X	X		X			B117W6	
~~B117W2~~	OTHER SOLID										

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	Storedin RFIA 3728	1-8-01 1630
Removed from RFIA 3728	1-10-01 1030	R.T. Thoren	1-10-01 1030
R.T. Thoren	1-10-01 1030	FEDEX	
FedEx	1-11-01 0945	Thoppil	1-11-01 0945

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; Americium-241; Strontium-89,90 - Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium - H3~~ RT 1-9-01
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment.. RT 1-10-01

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-11-01 / 0945

SDG#: B00-073

Work Order Number: — SAF# B00-073

Shipping Container ID: ERC99038 Chain of Custody # B00-073-011

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°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 12
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): n/A

Sample Custodian/Laboratory: Thippal Beera Date: 1-11-01

Telephoned to: ____ On ____ By ____

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8	001	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V8	001 MS	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V8	001 MSD	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117V9	002	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117W0	003	SO	01LE0037	01/08/01	01/11/01	01/30/01
B117W1	004	SO	01LE0043	01/08/01	01/12/01	01/31/01
LAB QC:						
PBLKMJ	MB1	S	01LE0037	N/A	01/11/01	01/30/01
PBLKMJ	MB1 BS	S	01LE0037	N/A	01/11/01	01/30/01
PBLKMO	MB1	S	01LE0043	N/A	01/12/01	01/31/01
PBLKMO	MB1 BS	S	01LE0043	N/A	01/12/01	01/31/01

02-0901

MAR 2001
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B00-073
LVL#: 0101L734
SDG/SAF#: H1208/B00-073

W.O.#: 10985-001-001-9999-00
Date Received: 01-11-01

PESTICIDE

The set of samples consisted of four (4) solid samples collected on 01-08-01.

The samples and their associated QC samples were extracted on 01-11,12-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 01-30,31-01. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081.

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

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

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

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

4. Eleven (11) of twenty (20) surrogate recoveries were outside acceptance criteria. QC results and sample chromatography indicated significant matrix effect adversely effecting surrogate recoveries. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. All blank spike recoveries were within acceptance criteria.

6. Six (6) of eight (8) obtainable matrix spike recoveries were outside acceptance criteria. QC results and sample chromatography indicated significant matrix effect adversely effecting matrix spike recoveries. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. All sample required instrument dilutions due to 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.

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

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

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

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

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-13-01
Date

pef\r:\group\data\pest\01L-734.pcb

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01GC054

Initiator: M. Kobel Batch: 01C1L734 Parameter: 0608H
Date: 2/2/01 Samples: all Matrix: solid
Client: TNU Method: (SW846)/MCAWW/CLP/ Prep Batch: 0PLE0037, 43

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 surrogates outside of QC Criteria. (see attached)
② high spike recoveries in MS + MSD (see attached) The BS in each prep batch is ok.

2. Known or Probable Causes(s)

* surrogates diluted out due to sample matrix. @ 5-fold or 10-fold dilutions.
* spikes in MS + MSD are interfered with by ARI= seen in sample 001

3. Discussion and Proposed Action Other Description:

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

report + narrate

4. Project Manager Instructions...signature/date: [signature] 2/2/01

✓ 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] 02/02/01 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: Rycklak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

GLOSSARY OF 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: 02/06/01 17:59

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1

	Cust ID:	B117V8	B117V8	B117V8	B117V9	B117W0	B117W1
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
	D.F.:	10.0	10.0	10.0	5.00	5.00	5.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	148 * %	168 * %	158 * %	1 * %	8 * %	55 %
	Decachlorobiphenyl	3 * %	7 * %	10 * %	1 * %	2 * %	22 * %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		18 U	18 U	18 U	8.5 U	8.4 U	17 U
Beta-BHC		18 U	18 U	18 U	8.5 U	8.4 U	17 U
Delta-BHC		18 U	18 U	18 U	8.5 U	8.4 U	17 U
gamma-BHC (Lindane)		18 U	205 * %	200 * %	8.5 U	8.4 U	17 U
Heptachlor		18 U	120 %	170 * %	8.5 U	8.4 U	17 U
Aldrin		18 U	140 * %	180 * %	8.5 U	8.4 U	17 U
Heptachlor epoxide		18 U	18 U	18 U	8.5 U	8.4 U	17 U
Endosulfan I		18 U	18 U	18 U	8.5 U	8.4 U	17 U
Dieldrin		36 U	I %	I %	17 U	17 U	34 U
4,4'-DDE		36 U	37 U	36 U	17 U	17 U	34 U
Endrin		36 U	I %	I %	17 U	17 U	34 U
Endosulfan II		36 U	37 U	36 U	17 U	17 U	34 U
4,4'-DDD		36 U	37 U	36 U	17 U	17 U	34 U
Endosulfan sulfate		36 U	37 U	36 U	17 U	17 U	34 U
4,4'-DDT		160	78 %	0 * %	17 U	17 U	34 U
Methoxychlor		180 U	180 U	180 U	85 U	84 U	170 U
Endrin ketone		36 U	37 U	36 U	17 U	17 U	34 U
Endrin aldehyde		36 U	37 U	36 U	17 U	17 U	34 U
alpha-Chlordane		18 U	18 U	18 U	8.5 U	8.4 U	17 U
gamma-Chlordane		19	22	24	8.5 U	8.4 U	17 U
Toxaphene		1800 U	1800 U	1800 U	850 U	840 U	1700 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

gd 02/09/01

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 02/06/01 17:59

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 2

	Cust ID:	**PBLKMJ**	**PBLKMJ BS**	**PBLKMO**	**PBLKMO BS**
Sample Information	RFW#:	**01LE0037-MB1**	**01LE0037-MB1**	**01LE0043-MB1**	**01LE0043-MB1**
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	80 %	75 %	95 %	70 %
	Decachlorobiphenyl	73 %	77 %	87 %	63 %
Alpha-BHC		1.7 U	1.7 U	1.7 U	1.7 U
Beta-BHC		1.7 U	1.7 U	1.7 U	1.7 U
Delta-BHC		1.7 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	70 %	1.7 U	65 %
Heptachlor		1.7 U	95 %	1.7 U	85 %
Aldrin		1.7 U	75 %	1.7 U	70 %
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	1.7 U
Endosulfan I		1.7 U	1.7 U	1.7 U	1.7 U
Dieldrin		3.3 U	78 %	3.3 U	68 %
4,4'-DDE		3.3 U	3.3 U	3.3 U	3.3 U
Endrin		3.3 U	92 %	3.3 U	80 %
Endosulfan II		3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDD		3.3 U	3.3 U	3.3 U	3.3 U
Endosulfan sulfate		3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDT		3.3 U	80 %	3.3 U	70 %
Methoxychlor		17 U	17 U	17 U	17 U
Endrin ketone		3.3 U	3.3 U	3.3 U	3.3 U
Endrin aldehyde		3.3 U	3.3 U	3.3 U	3.3 U
alpha-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U
Toxaphene		170 U	170 U	170 U	170 U

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

RECRA LabNet Use Only
01011734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A							B	C						
Refrigerator #		1							6	6						
#/Type Container	Liquid															
	Solid	1AG							1AG	1AG						
Volume	Liquid															
	Solid	125							60	125						
Preservatives		-							-	-						
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260H	8270H	8080B GPCB					MRCRA70	ICMTO	IC(1)	ISFD	IIGN	IPH
001	B117V8			So	1-8-01	0830	✓	✓	✓					✓	✓	✓	✓	✓	✓
002	V9					1225	✓	✓	✓					✓	✓	✓	✓	✓	✓
003	W0					1310	✓	✓	✓					✓	✓	✓	✓	✓	✓
004	W1						✓	✓	✓					✓	✓	✓	✓	✓	✓

Special Instructions: Saf 300-073

Run Matrix QC

DATE/REVISIONS:

IC(1) 1. Cl, Fl, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Relinquished by	Received by	Date	Time
FedEx	TRoppel	1-11-01	0945

Relinquished by	Received by	Date	Time

COMPOSITE

ORIGINAL

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

4235795411021

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	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 D reactor	SAF No.: B00-073	Air Quality ☐
Ice Chest No.: ERC99.038	Field Logbook No.: EFL 1133-8 — COA: R105DG280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: AP10183	Bill of Lading/Air Bill No.: 4235 7953 1621	

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											
B117V8 / OTHER SOLID / 01-08-01 / 0830	X	X		X			D117W3				
B117V9 / OTHER SOLID / 01-08-01 / 1225	X	X		X			D117W4				
B117W0 / OTHER SOLID / 01-08-01 / 1310	X	X		X			D117W5				
B117W1 / OTHER SOLID / 01-08-01 / 1310	X	X		X			D117W6				
~~B117W2~~ / OTHER SOLID / 1-8-01											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	R.A. Storedin TMA 3728	1-8-01 1630
Relinquished By: Removed from TMA 3728	1-10-01 1030	Received By: R.T. Thoven	1-10-01 1030
R.T. Thoven	1-10-01 1030	FEDEX	
FEDEX	1-11-01 0945	Theppel	1-11-01 0945
Relinquished By	Date/Time	Received By	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; Americium-241; Strontium-89,90 - Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium - H3~~ RT 1-9-01
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment.. RT 1-10-01

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-11-01 / 0945

SDG#: B00-073

Work Order Number: — SAF# B00-073

Shipping Container ID: EBC99038 Chain of Custody # B00-073-011

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°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 12
7. Sample holding times exceeded? Yes [ ] No [✓]

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

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

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

Sample Custodian/Laboratory: Thomas Barra Date: 1-11-01

Telephoned to: ____ On ____ By ____

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8	001	SO	01LE0041	01/08/01	01/12/01	01/25/01
B117V8	001 MS	SO	01LE0041	01/08/01	01/12/01	01/25/01
B117V8	001 MSD	SO	01LE0041	01/08/01	01/12/01	01/25/01
B117V9	002	SO	01LE0041	01/08/01	01/12/01	02/03/01
B117W0	003	SO	01LE0041	01/08/01	01/12/01	02/03/01
B117W1	004	SO	01LE0041	01/08/01	01/12/01	02/03/01
LAB QC:						
SBLKNE	MB1	S	01LE0041	N/A	01/12/01	01/18/01
SBLKNE	MB1 BS	S	01LE0041	N/A	01/12/01	01/18/01

MAR 2001 RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-073
LVL#: 0101L734
SDG/SAF#: H1208/B00-073

W.O.#: 10985-001-001-9999-00
Date Received: 01-11-01

SEMIVOLATILE

The set of samples consisted of four (4) solid samples collected on 01-08-01.

The samples and their associated QC samples were extracted on 01-12-01 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 01-18,25-01 and 02-03-01.

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

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

2. The samples were extracted and analyzed within required holding times.

3. Non-target compounds were identified in these samples.

4. Sample extracts required 5-200-fold dilutions because they contained high levels of target and non-target compounds.

   The sample extracts contained large amounts of non-target compounds and were difficult to concentrate. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. One (1) of thirty (30) obtainable surrogate recoveries was outside EPA QC limits. However, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).

6. All blank spike recoveries were within acceptance criteria.

7. One (1) of twenty-two (22) matrix spike recoveries was outside EPA QC limits. Four (4) of eleven (11) %RPD were outside EPA QC limits.

9. The method blank contained the common laboratory contaminant Bis(2-Ethylhexyl)phthalate at levels less than the CRQL.

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 196 pages.

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

10. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in Section III ("Technical Flags For Manual Integration"); hard copies of the integrations have been included with the quantitation data.

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.

by _____ 02-23-01

J. Michael Taylor
President
Lionville Laboratory Incorporated

Date

pef\gorup\data\bna\tnu-hanford-01-800.doc

RECRA **Sample Discrepancy Report (SDR)** SDR #: 01EX011

Initiator: M. KEOHANE Batch: 01016734 Parameter: 0625
Date: 1/18/01 Samples: 1-4 ms/msd Matrix: S
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0041

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

Sample were very dry & dusty. They formed two layers after extraction and could not be micro filtered. They samples were brought to a 5 mL F.V. and 1mL was taken out for analysis

2. Known or Probable Causes(s) (To be used for trend analysis)

___ Lack of Organization
___ Lack of Training
___ Lack of Discipline
___ Lack of Resources
___ Lack of Time
___ Lack of Management Support
___ Other (Please explain):

3. Discussion and Proposed Action Other Description: note in narrative DAC 2/7/01

__ 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] 2/7/01

✓ 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: DAC 2/7/01 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 for distribution and filing.

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

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

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 02/07/01 13:24

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1a

080

	Cust ID:	B117V8		B117V8		B117V8		B117V9		B117W0		B117W1	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	D.F.:	5.00		5.00		5.00		200		200		100	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	80	%	84	%	65	%	D	%	D	%	D	%
	2-Fluorobiphenyl	95	%	91	%	77	%	D	%	D	%	D	%
	Terphenyl-d14	102	%	100	%	88	%	D	%	D	%	D	%
	Phenol-d5	78	%	78	%	54	%	D	%	D	%	D	%
	2-Fluorophenol	53	%	64	%	36	%	D	%	D	%	D	%
	2,4,6-Tribromophenol	20	%	31	%	12 *	%	D	%	D	%	D	%
			fl		fl		fl		fl		fl		fl
Phenol		3600	U	78	%	54	%	69000	U	67000	U	34000	U
bis(2-Chloroethyl)ether		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2-Chlorophenol		3600	U	78	%	52	%	69000	U	67000	U	34000	U
1,3-Dichlorobenzene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
1,4-Dichlorobenzene		3600	U	74	%	50	%	69000	U	67000	U	34000	U
1,2-Dichlorobenzene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2-Methylphenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,2'-oxybis(1-Chloropropane)		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Methylphenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
N-Nitroso-di-n-propylamine		3600	U	90	%	74	%	69000	U	67000	U	34000	U
Hexachloroethane		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Nitrobenzene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Isophorone		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2-Nitrophenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,4-Dimethylphenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
bis(2-Chloroethoxy)methane		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,4-Dichlorophenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
1,2,4-Trichlorobenzene		3600	U	80	%	60	%	69000	U	67000	U	34000	U
Naphthalene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Chloroaniline		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Hexachlorobutadiene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Chloro-3-methylphenol		3600	U	82	%	64	%	69000	U	67000	U	34000	U
2-Methylnaphthalene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Hexachlorocyclopentadiene		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,4,6-Trichlorophenol		3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,4,5-Trichlorophenol		9100	U	9400	U	9200	U	170000	U	170000	U	84000	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1b

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Cust ID:	B117V8		B117V8		B117V8		B117V9		B117W0		B117W1	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2-Nitroaniline	9100	U	9400	U	9200	U	170000	U	170000	U	84000	U
Dimethylphthalate	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Acenaphthylene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,6-Dinitrotoluene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
3-Nitroaniline	9100	U	9400	U	9200	U	170000	U	170000	U	84000	U
Acenaphthene	3600	U	91	%	78	%	69000	U	67000	U	34000	U
2,4-Dinitrophenol	9100	U	9400	U	9200	U	170000	U	170000	U	84000	U
4-Nitrophenol	9100	U	29	%	27	%	170000	U	170000	U	84000	U
Dibenzofuran	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
2,4-Dinitrotoluene	3600	U	70	%	67	%	69000	U	67000	U	34000	U
Diethylphthalate	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Chlorophenyl-phenylether	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Fluorene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Nitroaniline	9100	U	9400	U	9200	U	170000	U	170000	U	84000	U
4,6-Dinitro-2-methylphenol	9100	U	9400	U	9200	U	170000	U	170000	U	84000	U
N-Nitrosodiphenylamine (1)	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
4-Bromophenyl-phenylether	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Hexachlorobenzene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Pentachlorophenol	9100	U	25	%	0 *	%	170000	U	170000	U	84000	U
Phenanthrene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Anthracene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Carbazole	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Di-n-butylphthalate	7800		5900		6600		69000	U	67000	U	34000	U
Fluoranthene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Pyrene	3600	U	94	%	81	%	69000	U	67000	U	34000	U
Butylbenzylphthalate	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
3,3'-Dichlorobenzidine	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Benzo(a)anthracene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Chrysene	270	J	210	J	220	J	69000	U	67000	U	34000	U
bis(2-Ethylhexyl)phthalate	1800	JB	1400	JB	1400	JB	8700	JB	67000	U	34000	U
Di-n-octyl phthalate	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Benzo(b)fluoranthene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Benzo(k)fluoranthene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Benzo(a)pyrene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Indeno(1,2,3-cd)pyrene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Dibenz(a,h)anthracene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U
Benzo(g,h,i)perylene	3600	U	3700	U	3700	U	69000	U	67000	U	34000	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 02/07/01 13:24

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 2a

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	Cust ID:	**SBLKNE**		**SBLKNE BS**	
Sample Information	RFW#:	**01LE0041-MB1**		**01LE0041-MB1**	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	73	%	64	%
	2-Fluorobiphenyl	73	%	68	%
	Terphenyl-d14	101	%	106	%
	Phenol-d5	77	%	68	%
	2-Fluorophenol	71	%	65	%
	2,4,6-Tribromophenol	67	%	73	%
Phenol		330	U	69	%
bis(2-Chloroethyl)ether		330	U	330	U
2-Chlorophenol		330	U	67	%
1,3-Dichlorobenzene		330	U	330	U
1,4-Dichlorobenzene		330	U	61	%
1,2-Dichlorobenzene		330	U	330	U
2-Methylphenol		330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U
4-Methylphenol		330	U	330	U
N-Nitroso-di-n-propylamine		330	U	77	%
Hexachloroethane		330	U	330	U
Nitrobenzene		330	U	330	U
Isophorone		330	U	330	U
2-Nitrophenol		330	U	330	U
2,4-Dimethylphenol		330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U
2,4-Dichlorophenol		330	U	330	U
1,2,4-Trichlorobenzene		330	U	64	%
Naphthalene		330	U	330	U
4-Chloroaniline		330	U	330	U
Hexachlorobutadiene		330	U	330	U
4-Chloro-3-methylphenol		330	U	67	%
2-Methylnaphthalene		330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U
2,4,5-Trichlorophenol		830	U	830	U

*= Outside of EPA CLP QC limits.

Cust ID:	**SBLKNE**		**SBLKNE BS**	
RFW#:	**01LE0041-MB1**		**01LE0041-MB1**	
2-Chloronaphthalene	330	U	330	U
2-Nitroaniline	830	U	830	U
Dimethylphthalate	330	U	330	U
Acenaphthylene	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U
3-Nitroaniline	830	U	830	U
Acenaphthene	330	U	64	%
2,4-Dinitrophenol	830	U	830	U
4-Nitrophenol	830	U	66	%
Dibenzofuran	330	U	330	U
2,4-Dinitrotoluene	330	U	72	%
Diethylphthalate	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U
Fluorene	330	U	330	U
4-Nitroaniline	830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U
Hexachlorobenzene	330	U	330	U
Pentachlorophenol	830	U	79	%
Phenanthrene	330	U	330	U
Anthracene	330	U	330	U
Carbazole	330	U	330	U
Di-n-butylphthalate	330	U	330	U
Fluoranthene	330	U	330	U
Pyrene	330	U	92	%
Butylbenzylphthalate	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U
Benzo(a)anthracene	330	U	330	U
Chrysene	330	U	330	U
bis(2-Ethylhexyl)phthalate	56	J	140	JB
Di-n-octyl phthalate	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U
Benzo(a)pyrene	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U

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

11

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B117V8

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B00-073 H1208

Matrix: (soil/water) SOLID

Lab Sample ID: 0101L734-001

Sample wt/vol: 15.3 (g/mL) G

Lab File ID: D012510

Level: (low/med) LOW

Date Received: 01/11/01

% Moisture: 10 decanted: (Y/N)__

Date Extracted: 01/12/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/25/01

Injection Volume: 2.0(uL)

Dilution Factor: 5.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	21.836	7000	J
2.	ALKANE	23.140	7000	J
3.	UNKNOWN	25.574	7000	J
4.	UNKNOWN	26.304	7000	J
5.	UNKNOWN	27.599	10000	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B117V9

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B00-073 H1208

Matrix: (soil/water) SOLID

Lab Sample ID: 0101L734-002

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

Lab File ID: D020313

Level: (low/med) LOW

Date Received: 01/11/01

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

Date Extracted: 01/12/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 02/03/01

Injection Volume: 2.0(uL)

Dilution Factor: 200

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	22.523	50000	J
2.	ALKANE	23.209	50000	J
3.	UNKNOWN	23.818	70000	J
4.	ALKANE	24.426	60000	J
5.	UNKNOWN	25.052	50000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B117W0

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B00-073 H1208

Matrix: (soil/water) SOLID

Lab Sample ID: 0101L734-003

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: D020314

Level: (low/med) LOW

Date Received: 01/11/01

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

Date Extracted: 01/12/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 02/03/01

Injection Volume: 2.0(uL)

Dilution Factor: 200

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	22.236	20000	J
2.	ALKANE	22.523	50000	J
3.	ALKANE	22.688	30000	J
4.	UNKNOWN	24.436	40000	J
5.	UNKNOWN	29.069	40000	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B117W1

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B00-073 H1208

Matrix: (soil/water) SOLID

Lab Sample ID: 0101L734-004

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: D020315

Level: (low/med) LOW

Date Received: 01/11/01

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

Date Extracted: 01/12/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 02/03/01

Injection Volume: 2.0(uL)

Dilution Factor: 100

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	22.524	40000	J
2.	ALKANE	23.810	50000	J
3.	UNKNOWN	25.427	40000	J
4.	ALKANE	28.600	60000	J
5.	UNKNOWN	29.087	50000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKNE

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B00-073 H1208

Matrix: (soil/water) SOIL

Lab Sample ID: 01LE0041-MB1

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

Lab File ID: A011811

Level: (low/med) LOW

Date Received: 01/12/01

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

Date Extracted: 01/12/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/18/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.81	600	J

RECRA LabNet Use Only
0101L734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A							B	C						
Refrigerator #		1							6	6						
#/Type Container	Liquid															
	Solid	1AG							1AG	1AG						
Volume	Liquid															
	Solid	125							60	125						
Preservatives		-							-	-						
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
		OLC24H	OLC25H	OLC08H GPCB					MRCRATO	ICNTTO	IC(1)	ISFD	IIGN	IPH		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OLC24H	OLC25H	OLC08H GPCB					MRCRATO	ICNTTO	IC(1)	ISFD	IIGN	IPH		
S - Soil	001	B117V8			So	1-8-01	0830	✓	✓	✓					✓	✓	✓	✓	✓	✓		
SE - Sediment	002	V9					1025	✓	✓	✓					✓	✓	✓	✓	✓	✓		
SO - Solid	003	W0					1310	✓	✓	✓					✓	✓	✓	✓	✓	✓		
SL - Sludge	004	W1						✓	✓	✓					✓	✓	✓	✓	✓	✓		
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: Saf 300-073

Run Matrix QC

DATE/REVISIONS:

IC(1) 1. Cl, Fl, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795411021

Relinquished by	Received by	Date	Time
FedEx	TKeppel	1-11-01	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL! REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	Page 1 of 21

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 D reactor	SAF No.: B00-073	
Ice Chest No.: ERC 99.038	Field Logbook No.: EFL 1133-8	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A#0183	Bill of Lading/Air Bill No.: 4235 7953 1621	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

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									
B117V8	OTHER SOLID	01-08-01	0830	X	X		X			B117W3		
B117V9	OTHER SOLID	01-08-01	1225	X	X		X			B117W4		
B117W0	OTHER SOLID	01-08-01	1310	X	X		X			B117W5		
B117W1	OTHER SOLID	01-08-01	1310	X	X		X			B117W5		
~~B117W2~~	OTHER SOLID											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	R.P. Storedin 3728	1-8-01 1630
Removed from R.P. 3728	1-10-01 1030	R.T. Thover	1-10-01 1030
R.T. Thover	1-10-01 1030	FEDEX	
FEDEX	1-11-01 0945	Thoppil	1-11-01 0945

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; Americium-241; Strontium-89,90 - Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium - H3~~ RT 1-9-01
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment..
RT 1-10-01

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-11-01 / 0945

SDG#: B00-073

Work Order Number: — SAF# B00-073

Shipping Container ID: EBC99038 Chain of Custody # B00-073-011

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°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 12
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): N/A

Sample Custodian/Laboratory: Thoppil Beera Date: 1-11-01

Telephoned to: _____ On _____ By _____

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-073 H1208

DATE RECEIVED: 01/11/01 RFW LOT # :0101L734

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B117V8	001	SO	01LVH013	01/08/01	N/A	01/18/01
B117V8	001 M2	SO	01LVH015	01/08/01	N/A	01/19/01
B117V8	001 MS	SO	01LVH017	01/08/01	N/A	01/22/01
B117V8	001 MSD	SO	01LVH017	01/08/01	N/A	01/22/01
B117V9	002	SO	01LVH013	01/08/01	N/A	01/18/01
B117V9	002 M2	SO	01LVH015	01/08/01	N/A	01/19/01
B117W0	003	SO	01LVH013	01/08/01	N/A	01/18/01
B117W0	003 M2	SO	01LVH015	01/08/01	N/A	01/19/01
B117W1	004	SO	01LVH013	01/08/01	N/A	01/18/01
B117W1	004 M2	SO	01LVH015	01/08/01	N/A	01/19/01

LAB QC:

VBLKLA	MB1	S	01LVH013	N/A	N/A	01/18/01
VBLKLB	MB1	S	01LVH015	N/A	N/A	01/19/01
VBLKLB	MB1 BS	S	01LVH015	N/A	N/A	01/19/01
VBLKLC	MB1	S	01LVH017	N/A	N/A	01/22/01
VBLKLC	MB1 BS	S	01LVH017	N/A	N/A	01/22/01

MAR 2001
RECEIVED

LIONVILLE LABORATORY INC.

MAR 2001 RECEIVED

Analytical Report

Client: TNU-HANFORD B00-073
LVL#: 0101L734
SDG/SAF #: H1208/B00-073

W.O. #: 10985-001-[illegible]
Date Received: 01-11-01

GC/MS VOLATILE

The set of samples consisted of four (4) solid samples collected on 01-08-01.

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 01-18,19,22-01.

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. All samples were analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All samples required medium level analysis because they contained high levels of target compound.
5. All surrogate recoveries were within EPA QC limits.
6. All matrix spike recoveries were within EPA QC limits. All RPDs were within EPA QC limits.
7. All blank spike recoveries were within EPA QC limits.
8. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 2x the CRQL, in addition method blank 01LVH017 contained Acetone at a level less than the CRQL.
9. Internal standard areas were outside QC limits for all samples. The samples were diluted, re-analyzed and reported.
10. Due to matrix effect, the Ketones were results from the original and dilution did not match. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
11. The levels of 2-Butanone in sample B117V8 and it's matrix spike duplicate (MSD) exceeded the calibration range. The sample B117V8 was diluted and reported, but the matrix spike was not. The out of range results for the MSD were flagged "E" and reported.
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."
13. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville laboratory Incorporated

02-26-01
Date

pef\group\data\voa\tnu-hanford-01-734.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 25 pages.

RECRA

Sample Discrepancy Report (SDR)

SDR #: [illegible]

Initiator: Drynak Batch: 010L734 Parameter: OC84
Date: 1/23/01 Samples: 1-4 Matrix: SOIL
Client: TNO 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. QC Problem (Include all relevant specific results; attach data if necessary) Samples were analyzed using 50 grams and were all over cal for acetone and several were over cal for the other ketones. Based on acetone levels in straight runs, medium analysis was performed but results don't match originals well. If a gram had been run they still would have been over cal. Reporting and narrating. See Attached.

2. Known or Probable Causes(s) (To be used for trend analysis)

__ Lack of Organization
__ Lack of Training
__ Lack of Discipline
__ Lack of Resources
__ Lack of Time
__ Lack of Management Support
X Other (Please explain): Soil Matrix - non-homogenity
Ketones poor performers.

3. Discussion and Proposed Action Other Description: Matrix effect report + narrate

__ 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] 1/23/01

X 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: Beth Pulzno 1/31/01 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 for distribution and filing.

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

L-WI-006/E-08/00

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.

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Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 01/31/01 13:55

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1a

	Cust ID:	B117V8		B117V8		B117V8		B117V8		B117V9		B117V9	
Sample Information	RFW#:	001		001 DL		001 MS		001 MSD		002		002 DL	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	D.F.:	1.06		1.95		1.04		1.06		1.06		1.95	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
	Level:	LOW		MED		LOW		LOW		LOW		MED	
Surrogate Recovery	Toluene-d8	125	%	95	%	127	%	127	%	137	%	94	%
	Bromofluorobenzene	77	%	86	%	71	%	70	%	80	%	87	%
	1,2-Dichloroethane-d4	114	%	84	%	108	%	107	%	132	%	86	%
Chloromethane		12	U	1400	U	12	U	12	U	11	U	1200	U
Bromomethane		12	U	1400	U	12	U	12	U	11	U	1200	U
Vinyl Chloride		12	U	1400	U	12	U	12	U	11	U	1200	U
Chloroethane		12	U	1400	U	12	U	12	U	11	U	1200	U
Methylene Chloride		19	B	740	BD	32	B	31	B	25	B	560	JBD
Acetone		1500	E	1900	D	1000	EB	1100	EB	9400	E	1200	JD
Carbon Disulfide		6	U	680	U	6	U	6	U	6	U	620	U
1,1-Dichloroethene		6	U	680	U	79	%	82	%	6	U	620	U
1,1-Dichloroethane		6	U	680	U	6	U	6	U	6	U	620	U
1,2-Dichloroethene (total)		6	U	680	U	6	U	6	U	6	U	620	U
Chloroform		6	U	680	U	6	U	6	U	4	J	620	U
1,2-Dichloroethane		6	U	680	U	6	U	6	U	6	U	620	U
2-Butanone		320	E	720	JD	220		240	E	2900	E	1400	D
1,1,1-Trichloroethane		6	U	680	U	6	U	6	U	6	U	620	U
Carbon Tetrachloride		6	U	680	U	6	U	6	U	6	U	620	U
Bromodichloromethane		6	U	680	U	6	U	6	U	6	U	620	U
1,2-Dichloropropane		6	U	680	U	6	U	6	U	6	U	620	U
cis-1,3-Dichloropropene		6	U	680	U	6	U	6	U	6	U	620	U
Trichloroethene		6	U	680	U	71	%	76	%	6	U	620	U
Dibromochloromethane		6	U	680	U	6	U	6	U	6	U	620	U
1,1,2-Trichloroethane		6	U	680	U	6	U	6	U	6	U	620	U
Benzene		6	U	680	U	96	%	100	%	4	J	620	U
Trans-1,3-Dichloropropene		6	U	680	U	6	U	6	U	6	U	620	U
Bromoform		6	U	680	U	6	U	6	U	6	U	620	U
4-Methyl-2-pentanone		210		1400	U	160		160		1000	E	1200	U
2-Hexanone		170		1400	U	160		160		4400	E	1200	JD
Tetrachloroethene		6	U	680	U	6	U	6	U	6	U	620	U
1,1,2,2-Tetrachloroethane		6	U	680	U	6	U	6	U	6	U	620	U
Toluene		6	U	680	U	124	%	127	%	11		620	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 1b

Cust ID:	B117V8		B117V8		B117V8		B117V8		B117V9		B117V9	
RFW#:	001		001 DL		001 MS		001 MSD		002		002 DL	
Level:	LOW		MED		LOW		LOW		LOW		MED	
Chlorobenzene	6	U	680	U	98	%	101	%	6	U	620	U
Ethylbenzene	6	U	680	U	6	U	6	U	6	U	620	U
Styrene	6	U	680	U	6	U	6	U	6	U	620	U
Xylene (total)	6		680	U	7		7		3	J	620	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 01/31/01 13:55

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 2a

	Cust ID:	B117W0		B117W0		B117W1		B117W1		VBLKLA		VBLKLB	
Sample Information	RFW#:	003		003 DL		004		004 DL		01LVH013-MB1		01LVH015-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.04		1.86		1.04		1.90		1.00		2.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
	Level:	LOW		MED		LOW		MED		LOW		MED	
Surrogate Recovery	Toluene-d8	138	%	97	%	135	%	94	%	99	%	101	%
	Bromofluorobenzene	71	%	89	%	73	%	84	%	98	%	97	%
	1,2-Dichloroethane-d4	129	%	88	%	129	%	87	%	91	%	94	%
			fl		fl		fl		fl		fl		fl
Chloromethane		11	U	1200	U	11	U	1200	U	10	U	1200	U
Bromomethane		11	U	1200	U	11	U	1200	U	10	U	1200	U
Vinyl Chloride		11	U	1200	U	11	U	1200	U	10	U	1200	U
Chloroethane		11	U	1200	U	11	U	1200	U	10	U	1200	U
Methylene Chloride		27	B	560	JBD	25	B	560	JBD	5	J	700	
Acetone		11000	E	770	JD	16000	E	670	JD	10	U	1200	U
Carbon Disulfide		6	U	590	U	6	U	610	U	5	U	620	U
1,1-Dichloroethene		6	U	590	U	6	U	610	U	5	U	620	U
1,1-Dichloroethane		6	U	590	U	6	U	610	U	5	U	620	U
1,2-Dichloroethene (total)		6	U	590	U	6	U	610	U	5	U	620	U
Chloroform		6	U	590	U	1	J	610	U	5	U	620	U
1,2-Dichloroethane		6	U	590	U	6	U	610	U	5	U	620	U
2-Butanone		2700	E	830	JD	3600	E	530	JD	10	U	1200	U
1,1,1-Trichloroethane		6	U	590	U	6	U	610	U	5	U	620	U
Carbon Tetrachloride		6	U	590	U	6	U	610	U	5	U	620	U
Bromodichloromethane		6	U	590	U	6	U	610	U	5	U	620	U
1,2-Dichloropropane		6	U	590	U	6	U	610	U	5	U	620	U
cis-1,3-Dichloropropene		6	U	590	U	6	U	610	U	5	U	620	U
Trichloroethene		6	U	590	U	6	U	610	U	5	U	620	U
Dibromochloromethane		6	U	590	U	6	U	610	U	5	U	620	U
1,1,2-Trichloroethane		6	U	590	U	6	U	610	U	5	U	620	U
Benzene		2	J	590	U	3	J	610	U	5	U	620	U
Trans-1,3-Dichloropropene		6	U	590	U	6	U	610	U	5	U	620	U
Bromoform		6	U	590	U	6	U	610	U	5	U	620	U
4-Methyl-2-pentanone		720	E	1200	U	890	E	1200	U	10	U	1200	U
2-Hexanone		3000	E	540	JD	3100	E	520	JD	10	U	1200	U
Tetrachloroethene		6	U	590	U	6	U	610	U	5	U	620	U
1,1,2,2-Tetrachloroethane		6	U	590	U	6	U	610	U	5	U	620	U
Toluene		13		590	U	12		610	U	5	U	620	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 2b

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Cust ID:	B117W0		B117W0		B117W1		B117W1		VBLKLA		VBLKLB	
RFW#:	003		003 DL		004		004 DL		01LVH013-MB1		01LVH015-MB1	
Level:	LOW		MED		LOW		MED		LOW		MED	
Chlorobenzene	6	U	590	U	6	U	610	U	5	U	620	U
Ethylbenzene	2	J	590	U	1	J	610	U	5	U	620	U
Styrene	2	J	590	U	1	J	610	U	5	U	620	U
Xylene (total)	4	J	590	U	5	J	610	U	5	U	620	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

Report Date: 01/31/01 13:55

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 3a

	Cust ID:	**VBLKLB BS**		**VBLKLC**		**VBLKLC BS**	
Sample Information	RFW#:	**01LVH015-MB1**		**01LVH017-MB1**		**01LVH017-MB1**	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	2.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
	Level:	MED		LOW		LOW	
Surrogate Recovery	Toluene-d8	99	%	102	%	102	%
	Bromofluorobenzene	95	%	96	%	96	%
	1,2-Dichloroethane-d4	92	%	92	%	93	%
Chloromethane		1200	U	10	U	10	U
Bromomethane		1200	U	10	U	10	U
Vinyl Chloride		1200	U	10	U	10	U
Chloroethane		1200	U	10	U	10	U
Methylene Chloride		580	JB	5	J	5	JB
Acetone		1200	U	5	J	10	U
Carbon Disulfide		620	U	5	U	5	U
1,1-Dichloroethene		82	%	5	U	89	%
1,1-Dichloroethane		620	U	5	U	5	U
1,2-Dichloroethene (total)		620	U	5	U	5	U
Chloroform		620	U	5	U	5	U
1,2-Dichloroethane		620	U	5	U	5	U
2-Butanone		1200	U	10	U	10	U
1,1,1-Trichloroethane		620	U	5	U	5	U
Carbon Tetrachloride		620	U	5	U	5	U
Bromodichloromethane		620	U	5	U	5	U
1,2-Dichloropropane		620	U	5	U	5	U
cis-1,3-Dichloropropene		620	U	5	U	5	U
Trichloroethene		88	%	5	U	91	%
Dibromochloromethane		620	U	5	U	5	U
1,1,2-Trichloroethane		620	U	5	U	5	U
Benzene		92	%	5	U	95	%
Trans-1,3-Dichloropropene		620	U	5	U	5	U
Bromoform		620	U	5	U	5	U
4-Methyl-2-pentanone		1200	U	10	U	10	U
2-Hexanone		1200	U	10	U	10	U
Tetrachloroethene		620	U	5	U	5	U
1,1,2,2-Tetrachloroethane		620	U	5	U	5	U
Toluene		97	%	5	U	102	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L734** Client: **TNUHANFORD B00-073 H1208** Work Order: 10985001001 Page: 3b

Cust ID:	**VBLKLB BS**		**VBLKLC**		**VBLKLC BS**	
RFW#:	**01LVH015-MB1**		**01LVH017-MB1**		**01LVH017-MB1**	
Level:	MED		LOW		LOW	
Chlorobenzene	99	%	5	U	103	%
Ethylbenzene	620	U	5	U	5	U
Styrene	620	U	5	U	5	U
Xylene (total)	620	U	5	U	5	U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117V8

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-001

Sample wt/vol: 4.70 (g/mL) G Lab File ID: h011816

Level: (low/med) LOW Date Received: 01/11/01

% Moisture: not dec. 10 Date Analyzed: 01/18/01

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	16.128	40	J
2.	KETONE	21.409	90	J
3.	KETONE	22.910	100	J
4.	KETONE	23.720	30	J
5.	KETONE	25.270	30	J

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117V8DL

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-001 DL

Sample wt/vol: 4.10 (g/mL) G Lab File ID: h011910

Level: (low/med) MED Date Received: 01/11/01

% Moisture: not dec. 10 Date Analyzed: 01/19/01

Column: (pack/cap) CAP Dilution Factor: 1.95

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117V9

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-002

Sample wt/vol: 4.70 (g/mL) G Lab File ID: h011817

Level: (low/med) LOW Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/18/01

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	21.426	700	J
2.	KETONE	22.927	2000	J
3.	KETONE	23.717	200	J
4.	UNKNOWN	25.049	200	J
5.	UNKNOWN	25.257	200	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117V9DL

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-002 DL

Sample wt/vol: 4.10 (g/mL) G Lab File ID: h011913

Level: (low/med) MED Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/19/01

Column: (pack/cap) CAP Dilution Factor: 1.95

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.917	5000	J
2.	UNKNOWN	25.050	2000	J
3.	UNKNOWN	25.267	2000	J
4.	UNKNOWN	26.382	2000	J
5.	KETONE	26.570	2000	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117W0

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-003

Sample wt/vol: 4.80 (g/mL) G Lab File ID: h011818

Level: (low/med) LOW Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/18/01

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	21.417	500	J
2.	KETONE	22.918	1000	J
3.	KETONE	23.717	100	J
4.	UNKNOWN	25.050	200	J
5.	UNKNOWN	25.257	200	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117W0DL

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-003 DL

Sample wt/vol: 4.30 (g/mL) G Lab File ID: h011914

Level: (low/med) MED Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/19/01

Column: (pack/cap) CAP Dilution Factor: 1.86

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	22.920	2000	J
2.	UNKNOWN	25.052	1000	J
3.	KETONE	25.260	1000	J
4.	UNKNOWN	26.385	1000	J
5.	KETONE	26.573	1000	J

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117W1

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-004

Sample wt/vol: 4.80 (g/mL) G Lab File ID: h011819

Level: (low/med) LOW Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/18/01

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	21.420	600	J
2.	KETONE	22.921	1000	J
3.	KETONE	23.721	100	J
4.	UNKNOWN	25.053	200	J
5.	UNKNOWN	25.261	200	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B117W1DL

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOLID Lab Sample ID: 0101L734-004 DL

Sample wt/vol: 4.20 (g/mL) G Lab File ID: h011915

Level: (low/med) MED Date Received: 01/11/01

% Moisture: not dec. 2 Date Analyzed: 01/19/01

Column: (pack/cap) CAP Dilution Factor: 1.90

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	KETONE	22.909	2000	J
2.	UNKNOWN	25.041	700	J
3.	KETONE	25.258	900	J
4.	UNKNOWN	26.384	700	J
5.	KETONE	26.571	800	J

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKLA

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 01LVH013-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h011811

Level: (low/med) LOW Date Received: 01/18/01

% Moisture: not dec. 0 Date Analyzed: 01/18/01

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	22.288	10	J
2.	UNKNOWN	25.556	8	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKLB

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 01LVH015-MB1

Sample wt/vol: 4.00 (g/mL) G Lab File ID: h011906

Level: (low/med) MED Date Received: 01/19/01

% Moisture: not dec. 0 Date Analyzed: 01/19/01

Column: (pack/cap) CAP Dilution Factor: 2.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	22.287	2000	J
2.	UNKNOWN	25.555	1000	J

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKLC

Lab Name: Lionville Labs, Inc. Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 01LVH017-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h012207

Level: (low/med) LOW Date Received: 01/22/01

% Moisture: not dec. 0 Date Analyzed: 01/22/01

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.				

RECRA LabNet Use Only
0101L734

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-Hanford 300-073
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-11-01 Date Due: 2-1-01
Account #:

		A							B	C						
Refrigerator #		1							6	6						
#/Type Container	Liquid															
	Solid	1AG							1AG	1AG						
Volume	Liquid															
	Solid	125							60	125						
Preservatives		–							–	–						
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
		OLC24H	OLC25H	OLC08H GPCB					MRCPATO	ICNTO	IC(1)	ISFD	IIGN	IPH		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OLC24H	OLC25H	OLC08H GPCB	MRCPATO	ICNTO	IC(1)	ISFD	IIGN	IPH
S - Soil	001	B117V8			So	1-8-01	0830	✓	✓	✓	✓	✓	✓	✓	✓	✓
SE - Sediment	002	V9					1825	✓	✓	✓	✓	✓	✓	✓	✓	✓
SO - Solid	003	W0					1310	✓	✓	✓	✓	✓	✓	✓	✓	✓
SL - Sludge	004	W1						✓	✓	✓	✓	✓	✓	✓	✓	✓
W - Water																
O - Oil																
A - Air																
DS - Drum Solids																
DL - Drum Liquids																
L - EP/TCLP Leachate																
Wi - Wipe																
X - Other																
F - Fish																

Special Instructions: Saf 300-073

Run Matrix QC

DATE/REVISIONS:

IC(1) 1. Cl, F1, NO2, NO3, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape 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. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795411021

Relinquished by	Received by	Date	Time
FedEx	TBeppel	1-11-01	0945

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-073-011	Page 1 of 21

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 D reactor	SAF No.: B00-073	
Ice Chest No.: ERC99.038	Field Logbook No.: EFL 1133-8	COA: R105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A0183	Bill of Lading/Air Bill No.: 4235 7953 1621	

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											
B117V8 / OTHER SOLID / 01-08-01 / 0830	X	X		X			B117V8				
B117V9 / OTHER SOLID / 01-08-01 / 1225	X	X		X			B117W4				
B117W0 / OTHER SOLID / 01-08-01 / 1310	X	X		X			B117W5				
B117W1 / OTHER SOLID / 01-08-01 / 1310	X	X		X			B117W5				
~~B117W2~~ / OTHER SOLID											

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-8-01 1630	Storedin A.F.1A 3728	1-8-01 1630
Remaved from A.F.1A 3728	1-10-01 1030	R.T. Thorell	1-10-01 1030
R.T. Thorell	1-10-01 1030	FEDEX	
FEDEX	1-11-01 0945	Thippal	1-11-01 0945

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; Americium-241; Strontium-89,90 - Total Sr; Technetium-99; Carbon-14; Nickel-63; Tritium - H3~~
(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 1/8/01.
Collector not available to relinquish samples on 1/10/01 for shipment..

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-11-01 / 0945

SDG#: B00-073

Work Order Number: — SAF# B00-073

Shipping Container ID: ERC99038 Chain of Custody # B00-073-011

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°C
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 12
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): N/A

Sample Custodian/Laboratory: T Kappel Beck Date: 1-11-01

Telephoned to: ___ On ___ By ___