H1404

0055914

RECEIVED
NOV 15 2001
EDMC

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1404 was composed of three solid (soil) samples designated under SAF No. B01-058 with a Project Designation of: 200-TW-1 & 2 – Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

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 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.5 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No 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 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 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

8/10/01

Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1404

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B125X3	T-26/200 W	SOLID		R107001-01	B01-058	B01-058-3	06/26/01 06:00
B125Y2	T-26/200 W	SOLID		R107001-02	B01-058	B01-058-12	06/26/01 04:00
B125Y3	T-26/200 W	SOLID		R107001-03	B01-058	B01-058-13	06/25/01 01:45
Method Blank		SOLID		R107001-05	B01-058		
Lab Control Sample		SOLID		R107001-04	B01-058		
Duplicate (R107001-02)	T-26/200 W	SOLID		R107001-06	B01-058		06/26/01 04:00
Spike (R107001-02)	T-26/200 W	SOLID		R107001-07	B01-058		06/26/01 04:00

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1404

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
7024	B01-058-12	B125Y2	SOLID	95.3	624.2 g		06/29/01	3	R107001-02	7024-002
	B01-058-13	B125Y3	SOLID	97.4	1430 g		06/29/01	4	R107001-03	7024-003
	B01-058-3	B125X3	SOLID	96.9	519.9 g		06/29/01	3	R107001-01	7024-001
		Method Blank	SOLID						R107001-05	7024-005
		Lab Control Sample	SOLID						R107001-04	7024-004
		Duplicate (R107001-02)	SOLID	95.3	624.2 g		06/29/01	3	R107001-06	7024-006
		Spike (R107001-02)	SOLID		624.2 g		06/29/01	3	R107001-07	7024-007

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1404

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	6994-069	5.0	3			1	1	1/1		
NP	SOLID	Neptunium in Soil	6994-069	5.0	3			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6994-069	5.0	3			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6994-069	5.0	3			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6994-069	5.0	3			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6994-069	10.0	3			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6994-069	10.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6994-069	15.0	3			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6994-069	9.0	3			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6994-069	10.0	3			1	1	1/1		
H	SOLID	Tritium in Soil	6994-069	10.0	3			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	6994-069	10.0	3			1	1	1/1		

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1404

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B125X3			R107001-01	7024-001	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
T-26/200 W		SOLID	06/26/01	7024-001	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
B01-058-3	B01-058		06/29/01	7024-001	GAM		07/10/01	08/10/01	MCM	Gamma Scan
				7024-001	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-001	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-001	NP		07/15/01	08/10/01	MCM	Neptunium in Soil
				7024-001	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-001	SR		07/12/01	08/10/01	MCM	Total Strontium in Soil
				7024-001	TC		07/25/01	08/10/01	MCM	Technetium 99 in Soil
				7024-001	TH		07/25/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-001	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-001	U_T		07/27/01	08/10/01	MCM	Uranium, Total in Soil
B125Y2			R107001-02	7024-002	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
T-26/200 W		SOLID	06/26/01	7024-002	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
B01-058-12	B01-058		06/29/01	7024-002	GAM		07/17/01	08/10/01	MCM	Gamma Scan
				7024-002	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-002	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-002	NP		07/15/01	08/10/01	MCM	Neptunium in Soil
				7024-002	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-002	SR		07/16/01	08/10/01	MCM	Total Strontium in Soil
				7024-002	TC		07/25/01	08/10/01	MCM	Technetium 99 in Soil
				7024-002	TH		07/17/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-002	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-002	U_T			08/10/01	MCM	Uranium, Total in Soil
B125Y3			R107001-03	7024-003	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
T-26/200 W		SOLID	06/25/01	7024-003	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
B01-058-13	B01-058		06/29/01	7024-003	GAM		07/13/01	08/10/01	MCM	Gamma Scan
				7024-003	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-003	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-003	NP		07/17/01	08/10/01	MCM	Neptunium in Soil
				7024-003	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-003	SR		07/12/01	08/10/01	MCM	Total Strontium in Soil
				7024-003	TC		07/23/01	08/10/01	MCM	Technetium 99 in Soil
				7024-003	TH		07/19/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-003	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-003	U_T		07/27/01	08/10/01	MCM	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1404

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R107001-05	7024-005	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
		SOLID		7024-005	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
	B01-058			7024-005	GAM		07/13/01	08/10/01	MCM	Gamma Scan
				7024-005	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-005	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-005	NP		07/15/01	08/10/01	MCM	Neptunium in Soil
				7024-005	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-005	SR		07/12/01	08/10/01	MCM	Total Strontium in Soil
				7024-005	TC		07/25/01	08/10/01	MCM	Technetium 99 in Soil
				7024-005	TH		07/19/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-005	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-005	U_T		07/27/01	08/10/01	MCM	Uranium, Total in Soil
Lab Control Sample			R107001-04	7024-004	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
		SOLID		7024-004	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
	B01-058			7024-004	GAM		07/13/01	08/10/01	MCM	Gamma Scan
				7024-004	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-004	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-004	NP		07/17/01	08/10/01	MCM	Neptunium in Soil
				7024-004	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-004	SR		07/12/01	08/10/01	MCM	Total Strontium in Soil
				7024-004	TC		07/25/01	08/10/01	MCM	Technetium 99 in Soil
				7024-004	TH		07/17/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-004	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-004	U_T		07/27/01	08/10/01	MCM	Uranium, Total in Soil
Duplicate (R107001-02)			R107001-06	7024-006	AM		07/20/01	08/10/01	MCM	Americium 241 in Soil
T-26/200 W		SOLID	06/26/01	7024-006	C		08/01/01	08/10/01	MCM	Carbon 14 in Soil
	B01-058		06/29/01	7024-006	GAM		07/17/01	08/10/01	MCM	Gamma Scan
				7024-006	H		07/25/01	08/10/01	MCM	Tritium in Soil
				7024-006	NI_L		07/13/01	08/10/01	MCM	Nickel 63 in Soil
				7024-006	NP		07/15/01	08/10/01	MCM	Neptunium in Soil
				7024-006	PU		07/19/01	08/10/01	MCM	Plutonium, Isotopic in Solids
				7024-006	SR		07/15/01	08/10/01	MCM	Total Strontium in Soil
				7024-006	TC		07/23/01	08/10/01	MCM	Technetium 99 in Soil
				7024-006	TH		07/17/01	08/10/01	MCM	Thorium, Isotopic in Soil
				7024-006	U		07/17/01	08/10/01	MCM	Uranium, Isotopic in Soil
				7024-006	U_T		07/27/01	08/10/01	MCM	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

SDG 7024
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1404

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Spike (R107001-02)			R107001-07	7024-007	H		07/25/01	08/10/01	MCM	Tritium in Soil
T-26/200 W		SOLID	06/26/01							
	B01-058		06/29/01							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B01-058	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	3			1	1	1		6
C	B01-058	Carbon 14 in Soil	C14_COX_LSC	3			1	1	1		6
GAM	B01-058	Gamma Scan	GAMMA_GS	3			1	1	1		6
H	B01-058	Tritium in Soil	906.0_H3_LSC	3			1	1	1	1	7
NI_L	B01-058	Nickel 63 in Soil	NI63_LSC	3			1	1	1		6
NP	B01-058	Neptunium in Soil	NP237_LLE_PLATE_AEA	3			1	1	1		6
PU	B01-058	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	3			1	1	1		6
SR	B01-058	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	3			1	1	1		6
TC	B01-058	Technetium 99 in Soil	TC99_TR_SEP_LSC	3			1	1	1		6
TH	B01-058	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	3			1	1	1		6
U	B01-058	Uranium, Isotopic in Soil	UISO_PLATE_AEA	3			1	1	1		6
U_T	B01-058	Uranium, Total in Soil	UTOT_KPA	3			1	1	1		6
TOTALS				36			12	12	12	1	73

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-05 Method Blank

METHOD BLANK

SDG	7024	Client/Case no	Hanford SDG_H1404
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R107001-05	Client sample id	Method Blank
Dept sample id	7024-005	Material/Matrix	SOLID
		SAF No	B01-058

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-6.47	4.0	7.1	400	U	H
Carbon 14	14762-75-5	-2.10	2.6	4.5	50	U	C
Nickel 63	13981-37-8	-8.87	11	19	30	U	NI_L
Total Strontium	SR-RAD	-2.57	3.0	7.1	1.0	U	SR
Americium 241	14596-10-2	0.242	0.48	1.9	1.0	U	AM
Technetium 99	14133-76-7	0.796	1.2	2.3	15	U	TC
Thorium 228	14274-82-9	0	1.4	2.8		U	TH
Thorium 230	14269-63-7	0	1.4	2.2	1.0	U	TH
Thorium 232	TH-232	0	0.46	1.8	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0	0.002	0.005	0.10	U	U_T
Uranium 233	U-233/234	-0.276	0.55	2.1	1.0	U	U
Uranium 235	15117-96-1	0	0.67	2.6	1.0	U	U
Uranium 238	U-238	0	0.55	2.1	1.0	U	U
Neptunium 237	13994-20-2	0	0.76	1.1	1.0	U	NP
Plutonium 238	13981-16-3	0	0.54	2.1	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.54	2.1	1.0	U	PU
Potassium 40	13966-00-2	U		1.9		U	GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	U		0.12	0.10	U	GAM
Radium 226	13982-63-3	U		0.20	0.10	U	GAM
Radium 228	15262-20-1	U		0.50	0.20	U	GAM
Europium 152	14683-23-9	U		0.29	0.10	U	GAM
Europium 154	15585-10-1	U		0.32	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Thorium 228	14274-82-9	U		0.35		U	GAM
Thorium 232	TH-232	U		0.50		U	GAM
Uranium 235	15117-96-1	U		0.40		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.27		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

B L A N K , c o n t .

SDG	7024	Client/Case no	Hanford SDG H1404
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R107001-05	Client sample id	Method Blank
Dept sample id	7024-005	Material/Matrix	SOLID
		SAF No	B01-058

QC-BLANK #39140

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-04 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7024
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1404
Case no No. 630

Lab sample id R107001-04
Dept sample id 7024-004

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B01-058

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	507	12	7.1	400		H	499	20	102	83-117	80-120
Carbon 14	10700	210	26	50		C	11300	450	95	84-116	80-120
Nickel 63	2560	44	19	30		NI_L	2640	110	97	84-116	80-120
Total Strontium	503	19	5.6	1.0		SR	462	18	109	82-118	80-120
Americium 241	188	19	2.0	1.0		AM	210	8.4	90	84-116	80-120
Technetium 99	675	17	2.1	15		TC	655	26	103	83-117	80-120
Thorium 230	213	19	1.8	1.0		TH	214	8.6	100	84-116	80-120
Total Uranium (ug/g)	33.8	3.9	0.052	0.10		U_T	33.0	1.3	102	77-123	80-120
Uranium 233	179	17	7.9	1.0		U	193	7.7	93	84-116	80-120
Uranium 235	135	14	1.8	1.0		U	157	6.3	86	84-116	80-120
Uranium 238	204	18	7.5	1.0		U	210	8.4	97	84-116	80-120
Neptunium 237	241	20	1.1	1.0		NP	238	9.5	101	84-116	80-120
Plutonium 238	263	24	2.3	1.0		PU	272	11	97	84-116	80-120
Plutonium 239/240	303	27	1.9	1.0		PU	290	12	104	83-117	80-120
Cobalt 60	6.66	0.32	0.14	0.050		GAM	6.83	0.27	98	76-124	80-120
Cesium 137	6.73	0.27	0.18	0.10		GAM	6.96	0.28	97	77-123	80-120

200-TW-1 & 2 - Soil Sampling

QC-LCS #39139

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-06 B125Y2

DUPLICATE

SDG	7024			Client/Case no	Hanford SDG H1404
Contact	Melissa C. Mannion			Case no	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R107001-06	Lab sample id	R107001-02	Client sample id	B125Y2
Dept sample id	7024-006	Dept sample id	7024-002	Location/Matrix	T-26/200 W SOLID
		Received	06/29/01	Collected/Weight	06/26/01 04:00 624.2 g
% solids	95.3	% solids	95.3	Custody/SAF No	B01-058-12 B01-058

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	-2.30	1.3	2.3	400	U	H	-2.41	1.3	2.3	U	-	
Carbon 14	-1.32	2.6	4.5	50	U	C	-1.79	2.6	4.5	U	-	
Nickel 63	-2.68	11	19	30	U	NI_L	-4.79	11	19	U	-	
Total Strontium	1530	55	11	1.0		SR	1500	54	9.9		2	23
Americium 241	0.979	0.98	1.9	1.0	U	AM	2.04	1.5	2.0		70	178
Technetium 99	0.463	0.87	3.1	15	U	TC	0.800	1.4	2.4	U	-	
Thorium 228	0.049	0.59	1.0		U	TH	2.18	1.9	2.7	U	-	
Thorium 230	-0.247	0.79	1.5	1.0	U	TH	0.725	1.5	1.8	U	-	
Thorium 232	0.494	0.30	0.38	1.0	J	TH	0.966	0.97	1.8	U	65	209
Total Uranium (ug/g)	8.93	1.0	0.052	0.10		U_T	8.78	1.0	0.052		2	31
Uranium 233	2.71	1.7	1.6	1.0		U	2.54	2.0	1.9		6	150
Uranium 235	0.252	0.50	1.9	1.0	U	U	0	0.62	2.4	U	-	
Uranium 238	2.08	1.3	1.6	1.0		U	4.58	2.1	1.9		75	112
Neptunium 237	0	0.98	3.8	1.0	U	NP	0	0.63	2.4	U	-	
Plutonium 238	0.543	0.54	2.1	1.0	U	PU	0.232	0.93	1.8	U	-	
Plutonium 239/240	42.1	7.2	2.1	1.0		PU	44.5	7.2	1.8		6	37
Potassium 40	11.6	2.4	2.0			GAM	10.4	2.1	1.8		11	54
Cobalt 60	U		0.28	0.050	U	GAM	U		0.22	U	-	
Cesium 137	47800	20	5.8	0.10		GAM	47900	20	5.0		0	32
Radium 226	U		7.2	0.10	U	GAM	U		6.3	U	-	
Radium 228	U		4.5	0.20	U	GAM	U		3.9	U	-	
Europium 152	U		19	0.10	U	GAM	U		17	U	-	
Europium 154	U		2.0	0.10	U	GAM	U		1.8	U	-	
Europium 155	U		8.2	0.10	U	GAM	U		7.2	U	-	
Thorium 228	U		7.8		U	GAM	U		6.8	U	-	
Thorium 232	U		4.5		U	GAM	U		3.9	U	-	
Uranium 235	U		16		U	GAM	U		14	U	-	
Uranium 238	U		120		U	GAM	U		110	U	-	

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/10/01

DUPLICATE, cont.

SDG	7024			Client/Case no	Hanford SDG H1404
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R107001-06	Lab sample id	R107001-02	Client sample id	B125Y2
Dept sample id	7024-006	Dept sample id	7024-002	Location/Matrix	T-26/200 W SOLID
		Received	06/29/01	Collected/Weight	06/26/01 04:00 624.2 g
% solids	95.3	% solids	95.3	Custody/SAF No	B01-058-12 B01-058

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Americium 241	U		4.1		U	GAM	U		3.6	U	-		

200-TW-1 & 2 - Soil Sampling

QC-DUP#2 39141

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-07 B125Y2

MATRIX SPIKE

SDG	7024			Client/Case no	Hanford SDG H1404
Contact	Melissa C. Mannion			Case no	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R107001-07	Lab sample id	R107001-02	Client sample id	B125Y2
Dept sample id	7024-007	Dept sample id	7024-002	Location/Matrix	T-26/200 W SOLID
		Received	06/29/01	Collected/Weight	06/26/01 04:00 624.2 g
		% solids	95.3	Custody/SAF No	B01-058-12 B01-058

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	974	9.9	2.5	400	X	H	1130	45	-2.41	1.3	86	86-114	60-140

200-TW-1 & 2 - Soil Sampling

QC-MS#2 39142

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-01 **B125X3**

DATA SHEET

SDG	7024	Client/Case no	Hanford	SDG_H1404	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R107001-01	Client sample id	B125X3		
Dept sample id	7024-001	Location/Matrix	T-26/200 W	SOLID	
Received	06/29/01	Collected/Weight	06/26/01 06:00	519.9 g	
% solids	96.9	Custody/SAF No	B01-058-3	B01-058	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.110	0.067	0.12	400	U	H
Carbon 14	14762-75-5	-1.64	2.7	4.5	50	U	C
Nickel 63	13981-37-8	-0.758	1.2	2.1	30	U	NI_L
Total Strontium	SR-RAD	43.2	1.4	0.28	1.0		SR
Americium 241	14596-10-2	0.065	0.13	0.50	1.0	U	AM
Technetium 99	14133-76-7	0.159	0.25	0.45	15	U	TC
Thorium 228	14274-82-9	0.564	0.24	0.27			TH
Thorium 230	14269-63-7	0.136	0.21	0.33	1.0	U	TH
Thorium 232	TH-232	0.634	0.21	0.12	1.0	J	TH
Total Uranium (ug/g)	7440-61-1	10.5	1.3	0.26	0.10		U_T
Uranium 233	U-233/234	3.11	0.54	0.16	1.0		U
Uranium 235	15117-96-1	0.256	0.15	0.20	1.0	J	U
Uranium 238	U-238	3.16	0.54	0.16	1.0		U
Neptunium 237	13994-20-2	0	0.070	0.10	1.0	U	NP
Plutonium 238	13981-16-3	-0.025	0.049	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.491	0.20	0.19	1.0	J	PU
Potassium 40	13966-00-2	8.93	0.99	0.74			GAM
Cobalt 60	10198-40-0	U		0.062	0.050	U	GAM
Cesium 137	10045-97-3	318	1.1	0.50	0.10		GAM
Radium 226	13982-63-3	U		0.87	0.10	U	GAM
Radium 228	15262-20-1	0.566	0.27	0.26	0.20		GAM
Europium 152	14683-23-9	U		0.99	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.60	0.10	U	GAM
Thorium 228	14274-82-9	U		0.44		U	GAM
Thorium 232	TH-232	0.566	0.27	0.26			GAM
Uranium 235	15117-96-1	U		0.97		U	GAM
Uranium 238	U-238	U		7.8		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

DATA SHEET, cont

SDG	7024	Client/Case no	Hanford	SDG H1404	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R107001-01	Client sample id	B125X3		
Dept sample id	7024-001	Location/Matrix	T-26/200 W	SOLID	
Received	06/29/01	Collected/Weight	06/26/01 06:00	519.9 g	
% solids	96.9	Custody/SAF No	B01-058-3	B01-058	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	U		0.63		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-02 **B125Y2**

DATA SHEET

SDG	7024	Client/Case no	Hanford SDG_H1404
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R107001-02	Client sample id	B125Y2
Dept sample id	7024-002	Location/Matrix	T-26/200 W SOLID
Received	06/29/01	Collected/Weight	06/26/01 04:00 624.2 g
% solids	95.3	Custody/SAF No	B01-058-12 B01-058

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-2.41	1.3	2.3	400	U	H
Carbon 14	14762-75-5	-1.79	2.6	4.5	50	U	C
Nickel 63	13981-37-8	-4.79	11	19	30	U	NI_L
Total Strontium	SR-RAD	1500	54	9.9	1.0		SR
Americium 241	14596-10-2	2.04	1.5	2.0	1.0		AM
Technetium 99	14133-76-7	0.800	1.4	2.4	15	U	TC
Thorium 228	14274-82-9	2.18	1.9	2.7		U	TH
Thorium 230	14269-63-7	0.725	1.5	1.8	1.0	U	TH
Thorium 232	TH-232	0.966	0.97	1.8	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	8.78	1.0	0.052	0.10		U_T
Uranium 233	U-233/234	2.54	2.0	1.9	1.0		U
Uranium 235	15117-96-1	0	0.62	2.4	1.0	U	U
Uranium 238	U-238	4.58	2.1	1.9	1.0		U
Neptunium 237	13994-20-2	0	0.63	2.4	1.0	U	NP
Plutonium 238	13981-16-3	0.232	0.93	1.8	1.0	U	PU
Plutonium 239/240	PU-239/240	44.5	7.2	1.8	1.0		PU
Potassium 40	13966-00-2	10.4	2.1	1.8			GAM
Cobalt 60	10198-40-0	U		0.22	0.050	U	GAM
Cesium 137	10045-97-3	47900	20	5.0	0.10		GAM
Radium 226	13982-63-3	U		6.3	0.10	U	GAM
Radium 228	15262-20-1	U		3.9	0.20	U	GAM
Europium 152	14683-23-9	U		17	0.10	U	GAM
Europium 154	15585-10-1	U		1.8	0.10	U	GAM
Europium 155	14391-16-3	U		7.2	0.10	U	GAM
Thorium 228	14274-82-9	U		6.8		U	GAM
Thorium 232	TH-232	U		3.9		U	GAM
Uranium 235	15117-96-1	U		14		U	GAM
Uranium 238	U-238	U		110		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-02 **B125Y2**

DATA SHEET, cont

SDG	7024	Client/Case no	Hanford	SDG_H1404	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R107001-02	Client sample id	B125Y2		
Dept sample id	7024-002	Location/Matrix	T-26/200 W	SOLID	
Received	06/29/01	Collected/Weight	06/26/01 04:00	624.2 g	
% solids	95.3	Custody/SAF No	B01-058-12	B01-058	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	U		3.6		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

R107001-03 B125Y3

DATA SHEET

SDG	7024	Client/Case no	Hanford	SDG_H1404	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R107001-03	Client sample id	B125Y3		
Dept sample id	7024-003	Location/Matrix	T-26/200 W	SOLID	
Received	06/29/01	Collected/Weight	06/25/01 01:45	1430 g	
% solids	97.4	Custody/SAF No	B01-058-13	B01-058	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.157	0.063	0.12	400	U	H
Carbon 14	14762-75-5	-1.02	2.4	4.1	50	U	C
Nickel 63	13981-37-8	0.216	1.2	2.1	30	U	NI_L
Total Strontium	SR-RAD	0.004	0.16	0.33	1.0	U	SR
Americium 241	14596-10-2	-0.027	0.054	0.21	1.0	U	AM
Technetium 99	14133-76-7	0.118	0.28	0.57	15	U	TC
Thorium 228	14274-82-9	0.935	0.50	0.54			TH
Thorium 230	14269-63-7	0.736	0.49	0.38	1.0	J	TH
Thorium 232	TH-232	0.736	0.40	0.38	1.0	J	TH
Total Uranium (ug/g)	7440-61-1	1.76	0.24	0.26	0.10		U_T
Uranium 233	U-233/234	0.459	0.20	0.18	1.0	J	U
Uranium 235	15117-96-1	0.088	0.12	0.22	1.0	U	U
Uranium 238	U-238	0.338	0.19	0.18	1.0	J	U
Neptunium 237	13994-20-2	0	0.049	0.073	1.0	U	NP
Plutonium 238	13981-16-3	0.026	0.052	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.026	0.052	0.20	1.0	U	PU
Potassium 40	13966-00-2	8.50	1.0	0.71			GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.088	0.10	U	GAM
Radium 226	13982-63-3	0.373	0.10	0.11	0.10		GAM
Radium 228	15262-20-1	0.338	0.18	0.20	0.20		GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.466	0.053	0.058			GAM
Thorium 232	TH-232	0.338	0.18	0.20			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.9		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

DATA SHEET, cont

SDG	7024	Client/Case no	Hanford	SDG H1404	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R107001-03	Client sample id	B125Y3		
Dept sample id	7024-003	Location/Matrix	T-26/200 W	SOLID	
Received	06/29/01	Collected/Weight	06/25/01 01:45	1430 g	
% solids	97.4	Custody/SAF No	B01-058-13	B01-058	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	U		0.11		U	GAM

200-TW-1 & 2 - Soil Sampling

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test AM Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	2.04	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	ok	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200-TW-1 & 2 - Soil Sampling						

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 6994-069	2σ prep error 5.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.50	0.500			33		104			24	07/20/01	07/20	SS-032
B125Y2	R107001-02			2.0	0.0500			85		104			24	07/20/01	07/20	SS-033
B125Y3	R107001-03			0.21	0.500			81		104			25	07/20/01	07/20	SS-034
BLK (QC ID=39140)	R107001-05			1.9	0.0500			87		110				07/20/01	07/20	SS-043
LCS (QC ID=39139)	R107001-04			2.0	0.0500			87		105				07/20/01	07/20	SS-042
Duplicate (R107001-02) (QC ID=39141)	R107001-06			1.9	0.0500			84		110			24	07/20/01	07/20	SS-044
Nominal values and limits from method				1.0	0.0500			20-105		100	100		180			

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

AVERAGES ± 2 SD	MDA	1.4	±	1.7
FOR 6 SAMPLES	YIELD	76	±	43

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test NP Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	U	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200-TW-1 & 2 - Soil Sampling						

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 6994-069	2σ prep error 5.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.10	0.500			62		108			19	07/13/01	07/15	SS-041
B125Y2	R107001-02			2.4	0.0500			68		108			19	07/13/01	07/15	SS-042
B125Y3	R107001-03			0.073	0.500			74		133			22	07/13/01	07/17	SS-064
BLK (QC ID=39140)	R107001-05			1.1	0.0500			56		108				07/13/01	07/15	SS-031
LCS (QC ID=39139)	R107001-04			1.1	0.0500			47		133				07/13/01	07/17	SS-065
Duplicate (R107001-02) (QC ID=39141)	R107001-06			3.8	0.0500			42		108			19	07/13/01	07/15	SS-032
Nominal values and limits from method				1.0	0.0500			20-105		100			180			

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

AVERAGES ± 2 SD	MDA 1.4 ± 2.9
FOR 6 SAMPLES	YIELD 58 ± 25

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test PU Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	0.491 J
B125Y2	R107001-02			7024-002	U	44.5
B125Y3	R107001-03			7024-003	U	U
BLK (QC ID=39140)	R107001-05			7024-005	U	U
LCS (QC ID=39139)	R107001-04			7024-004	ok	ok
Duplicate (R107001-02)	R107001-06			7024-006	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
200-TW-1 & 2 - Soil Sampling						

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 6994-069	2σ prep error 5.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.19	0.500			92		107			23	07/19/01	07/19	SS-029
B125Y2	R107001-02			1.8	0.0500			90		107			23	07/19/01	07/19	SS-031
B125Y3	R107001-03			0.20	0.500			78		107			24	07/19/01	07/19	SS-032
BLK (QC ID=39140)	R107001-05			2.1	0.0500			78		107				07/19/01	07/19	SS-034
LCS (QC ID=39139)	R107001-04			2.3	0.0500			87		107				07/19/01	07/19	SS-033
Duplicate (R107001-02) (QC ID=39141)	R107001-06			2.1	0.0500			80		107			23	07/19/01	07/19	SS-042
Nominal values and limits from method				1.0	0.0500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 1.4 ± 2.0
YIELD 84 ± 13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test TH Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6994-069							
B125X3	R107001-01			7024-001	0.564	U	0.634 J
B125Y2	R107001-02			7024-002	U	U	U
B125Y3	R107001-03			7024-003	0.935	0.736 J	0.736 J
BLK (QC ID=39140)	R107001-05			7024-005	U	U	U
LCS (QC ID=39139)	R107001-04			7024-004		ok	
Duplicate (R107001-02)	R107001-06			7024-006	- U	- U	ok J
Nominal values and limits from method				RDLs (pCi/g)		1.0	1.0
200-TW-1 & 2 - Soil Sampling							

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 6994-069	2σ prep error 5.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.33	0.250			100		431			29	07/17/01	07/25	SS-024
B125Y2	R107001-02			1.8	0.0500			89		152			21	07/17/01	07/17	SS-022
B125Y3	R107001-03			0.38	0.250			81		165			24	07/17/01	07/19	SS-022
BLK (QC ID=39140)	R107001-05			2.2	0.0500			82		165				07/17/01	07/19	SS-024
LCS (QC ID=39139)	R107001-04			1.8	0.0500			88		153				07/17/01	07/17	SS-024
Duplicate (R107001-02) (QC ID=39141)	R107001-06			1.5	0.0500			94		710			21	07/17/01	07/17	SS-022
Nominal values and limits from method				1.0	0.0500			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-905	Thorium in Water and Dissolved Solid Sample Using TRU and AG 1x8 Resin, rev 1
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD				
FOR 6 SAMPLES	MDA	1.3	±	1.6
	YIELD	89	±	14

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test U Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1404

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 6994-069											
B125X3	R107001-01			7024-001	3.11	0.256 J	3.16	98	24	8	5
B125Y2	R107001-02			7024-002	2.54	U	4.58	55	51	0	14
B125Y3	R107001-03			7024-003	0.459 J	U	0.338 J	136	97	26	38
BLK (QC ID=39140)	R107001-05			7024-005	U	U	U				
LCS (QC ID=39139)	R107001-04			7024-004	ok	ok	ok				
Duplicate (R107001-02)	R107001-06			7024-006	ok	- U	ok	130	115	12	25
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200-TW-1 & 2 - Soil Sampling							Averages	105		12	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6994-069	2σ prep error 5.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.20	0.500			102		114			21	07/11/01	07/17	SS-027
B125Y2	R107001-02			2.4	0.0500			81		114			21	07/11/01	07/17	SS-028
B125Y3	R107001-03			0.22	0.500			88		114			22	07/11/01	07/17	SS-029
BLK (QC ID=39140)	R107001-05			2.6	0.0500			70		114				07/11/01	07/17	SS-032
LCS (QC ID=39139)	R107001-04			7.9	0.0500			99		114				07/11/01	07/17	SS-031
Duplicate (R107001-02) (QC ID=39141)	R107001-06			1.9	0.0500			96		114			21	07/11/01	07/17	SS-033
Nominal values and limits from method				1.0	0.0500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 2.5 ± 5.7
YIELD 89 ± 24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test	SR
Matrix	SOLID
SDG	7024
Contact	Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6994-069					
B125X3	R107001-01			7024-001	43.2
B125Y2	R107001-02			7024-002	1500
B125Y3	R107001-03			7024-003	U
BLK (QC ID=39140)	R107001-05			7024-005	U
LCS (QC ID=39139)	R107001-04			7024-004	ok
Duplicate (R107001-02)	R107001-06			7024-006	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200-TW-1 & 2 - Soil Sampling					

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 6994-069	2σ prep error 10.0 % Reference Lab Notebook 6994 pg. 069															
B125X3	R107001-01			0.28	1.00			88		60			16	07/12/01	07/12	GRB-220
B125Y2	R107001-02			9.9	0.0500			79		60			20	07/12/01	07/16	GRB-220
B125Y3	R107001-03			0.33	1.00			90		100			17	07/12/01	07/12	GRB-201
BLK (QC ID=39140)	R107001-05			7.1	0.0500			77		100				07/12/01	07/12	GRB-203
LCS (QC ID=39139)	R107001-04			5.6	0.0500			77		100				07/12/01	07/12	GRB-203
Duplicate (R107001-02) (QC ID=39141)	R107001-06			11	0.0500			77		38			19	07/12/01	07/15	GRB-208
Nominal values and limits from method				1.0	0.0500			30-105		100			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES				
	MDA	5.7	±	9.2
	YIELD	81	±	12

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test TC Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	U	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	-	U

Nominal values and limits from method RDLs (pCi/g) 15
200-TW-1 & 2 - Soil Sampling

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 6994-069	2σ prep error 10.0 % Reference Lab Notebook 6994 pg. 069															
B125X3	R107001-01			0.45	1.02			88		82			29	07/20/01	07/25	GRB-205
B125Y2	R107001-02			2.4	0.210			85		82			29	07/20/01	07/25	GRB-206
B125Y3	R107001-03			0.57	1.01			92		50			28	07/20/01	07/23	GRB-207
BLK (QC ID=39140)	R107001-05			2.3	0.200			96		82				07/20/01	07/25	GRB-208
LCS (QC ID=39139)	R107001-04			2.1	0.200			95		82				07/20/01	07/25	GRB-207
Duplicate (R107001-02) (QC ID=39140)	R107001-06			3.1	0.210			86		50			27	07/20/01	07/23	GRB-206
Nominal values and limits from method				15	0.200			20-105		50			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test	TC
Matrix	SOLID
SDG	7024
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H1404

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

AVERAGES ± 2 SD	MDA	1.8	±	2.1
FOR 6 SAMPLES	YIELD	90	±	9

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test	GAM
Matrix	SOLID
SDG	7024
Contact	Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137
Preparation batch 6994-069							
B125X3	R107001-01			7024-001	U		318
B125Y2	R107001-02			7024-002	U		47900
B125Y3	R107001-03			7024-003	U		U
BLK (QC ID=39140)	R107001-05			7024-005	U		U
LCS (QC ID=39139)	R107001-04			7024-004	ok		ok
Duplicate (R107001-02)	R107001-06			7024-006	-	U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10
200-TW-1 & 2 - Soil Sampling							

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 6994-069	2σ prep error 15.0 % Reference Lab Notebook 6994 pg. 069															
B125X3	R107001-01			0.12	137					578			14	07/10/01	07/10	JR,03,00
B125Y2	R107001-02			1.7	38.2					652			21	07/10/01	07/17	PD,01,00
B125Y3	R107001-03			0.11	209					425			18	07/10/01	07/13	JR,03,00
BLK (QC ID=39140)	R107001-05			0.24	38.2					990				07/10/01	07/13	JR,03,00
LCS (QC ID=39139)	R107001-04			0.14	38.2					409				07/10/01	07/13	JR,04,00
Duplicate (R107001-02) (QC ID=39141)	R107001-06			2.0	38.2					499			21	07/10/01	07/17	PD,01,00
Nominal values and limits from method				0.050	38.2					100			180			

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

AVERAGES ± 2 SD	MDA	0.72	± 1.8
FOR 6 SAMPLES	YIELD		±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test U T Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium (ug/g)
Preparation batch 6994-069					
B125X3	R107001-01			7024-001	10.5
B125Y2	R107001-02			7024-002	8.78
B125Y3	R107001-03			7024-003	1.76
BLK (QC ID=39140)	R107001-05			7024-005	U
LCS (QC ID=39139)	R107001-04			7024-004	ok
Duplicate (R107001-02)	R107001-06			7024-006	ok
Nominal values and limits from method				RDLs (ug/g)	0.10
200-TW-1 & 2 - Soil Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6994-069	2σ prep error 9.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			0.26	0.100								31	07/27/01	07/27	KPA-001
B125Y2	R107001-02			0.052	0.0500								31	07/27/01		KPA-001
B125Y3	R107001-03			0.26	0.100								32	07/27/01	07/27	KPA-001
BLK (QC ID=39140)	R107001-05			0.005	0.0500									07/27/01	07/27	KPA-001
LCS (QC ID=39139)	R107001-04			0.052	0.0500									07/27/01	07/27	KPA-001
Duplicate (R107001-02) (QC ID=39141)	R107001-06			0.052	0.0500								31	07/27/01	07/27	KPA-001
Nominal values and limits from method				0.10	0.0500								180			

PROCEDURES	REFERENCE	UTOT_KPA
	CP-060	Soil Preparation, rev 3
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 3
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.11 ± 0.23
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test C Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	U	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
200-TW-1 & 2 - Soil Sampling						

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 6994-069	2σ prep error 10.0 %				Reference Lab Notebook 6994 pg. 069											
B125X3	R107001-01			4.5	0.199			100		100			36	07/31/01	08/01	LSC-005
B125Y2	R107001-02			4.5	0.200			100		100			36	07/31/01	08/01	LSC-005
B125Y3	R107001-03			4.1	0.205			100		100			37	07/31/01	08/01	LSC-005
BLK (QC ID=39140)	R107001-05			4.5	0.200			100		100				07/31/01	08/01	LSC-005
LCS (QC ID=39139)	R107001-04			26	0.200			100		3				07/31/01	08/01	LSC-005
Duplicate (R107001-02) (QC ID=39141)	R107001-06			4.5	0.197			100		100			36	07/31/01	08/01	LSC-005
Nominal values and limits from method				50	0.200					50			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-060	Soil Preparation, rev 3
	CP-251	Tritium/Carbon-14 Oxidation, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 8.0 ± 18
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test H Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	U	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	-	U
Spike (R107001-02)	R107001-07			7024-007	ok	X
Nominal values and limits from method 200-TW-1 & 2 - Soil Sampling				RDLs (pCi/g)	400	

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 6994-069 2σ prep error 10.0 % Reference Lab Notebook 6994 pg. 069																
B125X3	R107001-01			0.12	20.1			100		100			29	07/24/01	07/25	LSC-004
B125Y2	R107001-02			2.3	1.03			100		100			29	07/24/01	07/25	LSC-004
B125Y3	R107001-03			0.12	20.4			100		100			30	07/24/01	07/25	LSC-004
BLK (QC ID=39140)	R107001-05			7.1	1.00			33		100				07/24/01	07/25	LSC-004
LCS (QC ID=39139)	R107001-04			7.1	1.00			33		100				07/24/01	07/25	LSC-004
Duplicate (R107001-02) (QC ID=39141)	R107001-06			2.3	1.05			100		100			29	07/24/01	07/25	LSC-004
Spike (R107001-02) (QC ID=39142)	R107001-07			2.5	1.02			100		86			29	07/24/01	07/25	LSC-004
Nominal values and limits from method				400	1.00					25			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES				
	MDA	3.1	±	5.9
	YIELD	81	±	65

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1404

Test NI_L Matrix SOLID
SDG 7024
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1404

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6994-069						
B125X3	R107001-01			7024-001	U	
B125Y2	R107001-02			7024-002	U	
B125Y3	R107001-03			7024-003	U	
BLK (QC ID=39140)	R107001-05			7024-005	U	
LCS (QC ID=39139)	R107001-04			7024-004	ok	
Duplicate (R107001-02)	R107001-06			7024-006	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
200-TW-1 & 2 - Soil Sampling						

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 6994-069	2σ prep error 10.0 %			Reference Lab Notebook 6994 pg. 069												
B125X3	R107001-01			2.1	0.500			85		100			17	07/13/01	07/13	LSC-007
B125Y2	R107001-02			19	0.0500			96		100			17	07/13/01	07/13	LSC-007
B125Y3	R107001-03			2.1	0.500			88		100			18	07/13/01	07/13	LSC-007
BLK (QC ID=39140)	R107001-05			19	0.0500			97		100				07/13/01	07/13	LSC-007
LCS (QC ID=39139)	R107001-04			19	0.0500			97		100				07/13/01	07/13	LSC-007
Duplicate (R107001-02) (QC ID=39141)	R107001-06			19	0.0500			96		100			17	07/13/01	07/13	LSC-007
Nominal values and limits from method				30	0.0500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 3
	RP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 13 ± 17
YIELD 93 ± 11

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/10/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B01-058-3	Page 1 of 1
Director Thomas G./Watson D.	Company Contact Todd, M.E.	Telephone No. (509) 372-9631	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	Sampling Location T-26/200 W H14OH (7024)		SAF No. B01-058	Air Quality ☐
Ice Chest No. RT 6-28-01 NA ERC96.018 (1 of 1)	Field Logbook No. EL-1518	COA B20TW1A44C	Method of Shipment DSW 06-26-01 Government Vehicle/Fed EX	
Shipped To DSW 06-26-01 ~~Severn Trent Incorporated TMA/KEERA~~ TMA	Offsite Property No. RSR 106561		Bill of Lading/Air Bill No. NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SPLIT SPOON B/G <0.5mrem/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan		
Sample No. / Matrix * / Sample Date / Sample Time										
B125X3 / SOIL / 06/26/01 / 0600	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	TIE TO	B12629

RT 6-27-01

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From DJWATSON	Date/Time 06/26/01 0800	Received By/Stored In R. Thorer	Date/Time 6-26-01 0820
Relinquished By/Removed From R. Thorer	Date/Time 6/26/01 0900	Received By/Stored In Rod IA 3728	Date/Time 6/26/01 0900
Relinquished By/Removed From Rod IA 3728	Date/Time 6-28-01 0800	Received By/Stored In R Thorer	Date/Time 6-28-01 0900
Relinquished By/Removed From R Thorer	Date/Time 6-28-01 0800	Received By/Stored In FED EX	Date/Time 6-28-01
Relinquished By/Removed From FED. EXPRESS	Date/Time 6-29-01 10:00 AM	Received By/Stored In SC2 E. Aguirre	Date/Time 6-29-01 10:00 AM
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

~~(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}, ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)~~ RT 6-27-01

~~(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045~~

~~(3) Semi-VOA - 8270A (Add-On) {Tributyl phosphate}; TPH Diesel Range - WTPH-D~~

~~(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}~~

(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-12	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W H1404 (7024)	SAF No.: B01-058	
Ice Chest No.: ERC-96.018 (1 of 1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: TMA RECRA	Offsite Property No.: RSR# 106561	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14K CPM ON SPLIT SPOON β/γ < 0.5 mREM/hr

Special Handling and/or Storage

Preservation	Cool 4C	~~Cool 4C~~ RT 6-26-01	Cool 4C	~~Cool 4C~~ RT 6-26-01	~~None~~ RT 6-26-01	None
Type of Container	~~Debbie~~	6 aG	~~Debbie~~ RT 6-26-01	6 aG	6 aG	aG
No. of Container(s)	~~RT 6-26-01~~ 1	1	1	1	1	1
Volume	500mL	1000mL	120mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B125Y2	SOIL	06/26/01	0400	X RT 6-26-01	X		X	X	X			TIETO	B12630

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: D. Shuffler/[illegible]	0820 06-26-01	Received By/Stored In: R. Thoren	0820 6-26-01
Relinquished By/Removed From: R.T. Thoren	0900 6/26/01	Received By/Stored In: R.T. 1A 3728	0900 6/26/01
Relinquished By/Removed From: R.T. 1A 3728	0900 6-29-01	Received By/Stored In: R.T. Thoren	0900 6-28-01
Relinquished By/Removed From: R.T. Thoren	0820 6-28-01	Received By/Stored In: FED EX	6-28-01
Relinquished By/Removed From: FED. Express	10:00 6-29-01	Received By/Stored In: SC-2 E. [illegible]	10:00 6-29-01
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

DELETED

~~(1) ICP Metals - 6010 (Add-on) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Boron, Iron, Lead); Mercury - 7470 (CV); Chromium Hex - 7196~~

~~(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.2; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045~~

~~(3) Semi-VOA - 8270A (Add-On) (Tributyl phosphate); TPH Diesel Range - WTPH-D~~

~~(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)~~

(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

RT 6-26-01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-13	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W H140H (7024)	SAF No.: B01-058	
Ice Chest No.: RT 6-28-01 AHA ERC 96-008 (1661)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: ~~TMA/PROD~~ 3T 6-27-01	Offsite Property No.: RSR# 106561		Bill of Lading/Air Bill No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	DELETE ITEM 2 & VOA	1	1	Delete item	1				
Volume	500mL	1000mL	500mL	500mL	1000mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL) DJ 6/26	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/29/01 for shipment. RT 6-28-01

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y3	SOIL	06-25-01	0145					X		TIETO	B12626	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: DJ WATSON	06-25-01/0735	REF. 1A 3728	06-25-01/0735
Relinquished By/Removed From: Ref 1A 3728	0800 6.28.01	Received By/Stored In: R. Thoren	0800 6.28.01
Relinquished By/Removed From: R. Thoren	0800 6.28.01	Received By/Stored In: ED	6-28-01
Relinquished By/Removed From: FED. EXPRESS	10 AM 6-29-01	Received By/Stored In: SCA-2 E. SEGURA	10 AM 6-29-01
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

~~(4) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (GV); Chromium, Hex - 7196~~

~~(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.2; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045~~

~~(3) Semi VOA - 8270A (Add On) {Tributyl phosphate}; TPH Diesel Range - WTPH-D~~

~~(4) ICP Metals - 6010B (Short List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}~~

(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

Matrix *

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

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

BHI-EE-011 (10/99)

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc. Date/Time received 6-29-01 10:Am

CoC No. B01-058-3, B01-058-12, AND B01-058-13.

Container I.D. No. ERC96-018 Requested TAT (Days) 45 DAYS P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 3 SAMPLES +1 EXTRA B12674
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: Program Manager had the COC. Received sample B12674, suggested to send to Pecra, other sample received less than 100 CPM.
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by _____ Date: _____ Time: _____

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr
B12542	6,000	0.36			

Ion Chamber Ser. No. 4011 Calibration date 2-27-01

Survey Meter Ser No. 112 Calibration date May 17, 2001.

AUG 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B125Y3						
% SOLIDS	001	S	01L%S083	06/25/01	07/06/01	07/07/01
% SOLIDS	001 REP	S	01L%S083	06/25/01	07/06/01	07/07/01
CHLORIDE BY IC	001	S	01LICD48	06/25/01	07/24/01	07/24/01
FLUORIDE BY IC	001	S	01LICC48	06/25/01	07/24/01	07/24/01
NITRITE BY IC	001	S	01LICE48	06/25/01	07/24/01	07/24/01
NITRATE BY IC	001	S	01LICF48	06/25/01	07/24/01	07/24/01
PHOSPHATE BY IC	001	S	01LICD48	06/25/01	07/24/01	07/24/01
CHROMIUM VI	001	S	01LVIA61	06/25/01	07/20/01	07/20/01
CHROMIUM VI	001 REP	S	01LVIA61	06/25/01	07/20/01	07/20/01
CHROMIUM VI	001 MS	S	01LVIA61	06/25/01	07/20/01	07/20/01
CHROMIUM VI	001 MSD	S	01LVIA61	06/25/01	07/20/01	07/20/01
SULFATE BY IC	001	S	01LICD48	06/25/01	07/24/01	07/24/01
B125X3						
% SOLIDS	002	S	01L%S083	06/26/01	07/06/01	07/07/01
CHLORIDE BY IC	002	S	01LICA45	06/26/01	07/10/01	07/10/01
CHLORIDE BY IC	002 REP	S	01LICA45	06/26/01	07/10/01	07/10/01
CHLORIDE BY IC	002 MS	S	01LICA45	06/26/01	07/10/01	07/10/01
FLUORIDE BY IC	002	S	01LICA45	06/26/01	07/10/01	07/10/01
FLUORIDE BY IC	002 REP	S	01LICA45	06/26/01	07/10/01	07/10/01
FLUORIDE BY IC	002 MS	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRITE BY IC	002	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRITE BY IC	002 REP	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRITE BY IC	002 MS	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRATE BY IC	002	S	01LICC46	06/26/01	07/16/01	07/16/01
NITRATE BY IC	002 REP	S	01LICC46	06/26/01	07/16/01	07/16/01
NITRATE BY IC	002 MS	S	01LICC46	06/26/01	07/16/01	07/16/01
TOTAL CYANIDE	002	S	01LC064	06/26/01	07/03/01	07/03/01
PHOSPHATE BY IC	002	S	01LICD46	06/26/01	07/16/01	07/16/01
PHOSPHATE BY IC	002 REP	S	01LICD46	06/26/01	07/16/01	07/16/01
PHOSPHATE BY IC	002 MS	S	01LICD46	06/26/01	07/16/01	07/16/01
CHROMIUM VI	002	S	01LVIA61	06/26/01	07/20/01	07/20/01
SULFATE BY IC	002	S	01LICA45	06/26/01	07/10/01	07/10/01
SULFATE BY IC	002 REP	S	01LICA45	06/26/01	07/10/01	07/10/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	002 MS	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRATE NITRITE	002	S	01LN3F39	06/26/01	07/18/01	07/18/01
NITRATE NITRITE	002 REP	S	01LN3F39	06/26/01	07/18/01	07/18/01
NITRATE NITRITE	002 MS	S	01LN3F39	06/26/01	07/18/01	07/18/01
AMMONIA	002	S	01LAM034	06/26/01	07/09/01	07/09/01
AMMONIA	002 REP	S	01LAM034	06/26/01	07/09/01	07/09/01
AMMONIA	002 MS	S	01LAM034	06/26/01	07/09/01	07/09/01
TOTAL ORGANIC CARBON	002	S	01LTZ018	06/26/01	07/18/01	07/19/01
TOTAL ORGANIC CARBON	002 REP	S	01LTZ018	06/26/01	07/18/01	07/19/01
TOTAL ORGANIC CARBON	002 MS	S	01LTZ018	06/26/01	07/18/01	07/19/01
PH	002	S	01LPH050	06/26/01	07/19/01	07/19/01
PH	002 REP	S	01LPH050	06/26/01	07/19/01	07/19/01
B125Y2						
% SOLIDS	003	S	01L%S083	06/26/01	07/06/01	07/07/01
CHLORIDE BY IC	003	S	01LICA45	06/26/01	07/10/01	07/10/01
FLUORIDE BY IC	003	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRITE BY IC	003	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRATE BY IC	003	S	01LICA45	06/26/01	07/10/01	07/10/01
TOTAL CYANIDE	003	S	01LC064	06/26/01	07/03/01	07/03/01
TOTAL CYANIDE	003 REP	S	01LC064	06/26/01	07/03/01	07/03/01
TOTAL CYANIDE	003 MS	S	01LC064	06/26/01	07/03/01	07/03/01
PHOSPHATE BY IC	003	S	01LICD46	06/26/01	07/16/01	07/16/01
CHROMIUM VI	003	S	01LVIA61	06/26/01	07/20/01	07/20/01
SULFATE BY IC	003	S	01LICA45	06/26/01	07/10/01	07/10/01
NITRATE NITRITE	003	S	01LN3F39	06/26/01	07/18/01	07/18/01
AMMONIA	003	S	01LAM034	06/26/01	07/09/01	07/09/01
TOTAL ORGANIC CARBON	003	S	01LTZ018	06/26/01	07/18/01	07/19/01
PH	003	S	01LPH050	06/26/01	07/19/01	07/19/01

LAB QC:

CHLORIDE BY IC	MB1	S	01LICD48	N/A	07/24/01	07/24/01
CHLORIDE BY IC	MB1 BS	S	01LICD48	N/A	07/24/01	07/24/01
FLUORIDE BY IC	MB1	S	01LICC48	N/A	07/24/01	07/24/01
FLUORIDE BY IC	MB1 BS	S	01LICC48	N/A	07/24/01	07/24/01
NITRITE BY IC	MB1	S	01LICE48	N/A	07/24/01	07/24/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	MB1 BS	S	01LICE48	N/A	07/24/01	07/24/01
NITRATE BY IC	MB1	S	01LICF48	N/A	07/24/01	07/24/01
NITRATE BY IC	MB1 BS	S	01LICF48	N/A	07/24/01	07/24/01
PHOSPHATE BY IC	MB1	S	01LICD48	N/A	07/24/01	07/24/01
PHOSPHATE BY IC	MB1 BS	S	01LICD48	N/A	07/24/01	07/24/01
CHROMIUM VI	MB1	S	01LVIA61	N/A	07/20/01	07/20/01
CHROMIUM VI	MB1 BS	S	01LVIA61	N/A	07/20/01	07/20/01
CHROMIUM VI	MB1 BSD	S	01LVIA61	N/A	07/20/01	07/20/01
SULFATE BY IC	MB1	S	01LICD48	N/A	07/24/01	07/24/01
SULFATE BY IC	MB1 BS	S	01LICD48	N/A	07/24/01	07/24/01
CHLORIDE BY IC	MB1	S	01LICA45	N/A	07/10/01	07/10/01
CHLORIDE BY IC	MB1 BS	S	01LICA45	N/A	07/10/01	07/10/01
FLUORIDE BY IC	MB1	S	01LICA45	N/A	07/10/01	07/10/01
FLUORIDE BY IC	MB1 BS	S	01LICA45	N/A	07/10/01	07/10/01
NITRITE BY IC	MB1	S	01LICA45	N/A	07/10/01	07/10/01
NITRITE BY IC	MB1 BS	S	01LICA45	N/A	07/10/01	07/10/01
NITRATE BY IC	MB1	S	01LICA45	N/A	07/10/01	07/10/01
NITRATE BY IC	MB1 BS	S	01LICA45	N/A	07/10/01	07/10/01
NITRATE BY IC	MB1	S	01LICC46	N/A	07/16/01	07/16/01
NITRATE BY IC	MB1 BS	S	01LICC46	N/A	07/16/01	07/16/01
TOTAL CYANIDE	LCS L	S	01LC064	N/A	07/03/01	07/03/01
TOTAL CYANIDE	LCS L	S	01LC064	N/A	07/03/01	07/03/01
TOTAL CYANIDE	MB1	S	01LC064	N/A	07/03/01	07/03/01
PHOSPHATE BY IC	MB1	S	01LICD46	N/A	07/16/01	07/16/01
PHOSPHATE BY IC	MB1 BS	S	01LICD46	N/A	07/16/01	07/16/01
SULFATE BY IC	MB1	S	01LICA45	N/A	07/10/01	07/10/01
SULFATE BY IC	MB1 BS	S	01LICA45	N/A	07/10/01	07/10/01
NITRATE NITRITE	MB1	S	01LN3F39	N/A	07/18/01	07/18/01
NITRATE NITRITE	MB1 BS	S	01LN3F39	N/A	07/18/01	07/18/01
AMMONIA	MB1	S	01LAM034	N/A	07/09/01	07/09/01
AMMONIA	MB1 BS	S	01LAM034	N/A	07/09/01	07/09/01
AMMONIA	MB1 BSD	S	01LAM034	N/A	07/09/01	07/09/01
TOTAL ORGANIC CARBON	MB1	S	01LTZ018	N/A	07/18/01	07/19/01
TOTAL ORGANIC CARBON	MB1 BS	S	01LTZ018	N/A	07/18/01	07/19/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-058 H1404
LVL#: 0106L206

W.O.#: 11343-606-001-9999-00
Date Received: 06-29-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil 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. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Soluble Chromium VI that may be attributed to sample inhomogeneity.

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

9. Results for solid samples are reported on a dry weight basis and Total Organic Carbon samples are dried prior to analysis.

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

07-30-01
Date

njp\i06-206

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 20 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

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

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

Ammonia EPA 350.3

Nitrate Nitrite EPA 353.2 (mod.)

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B125Y3	% Solids	97.2	%	0.01	1.0
		Chloride by IC	3.2	MG/KG	1.3	1.0
		Fluoride by IC	2.6 u	MG/KG	2.6	1.0
		Nitrite by IC	1.29 u	MG/KG	1.29	1.0
		Nitrate by IC	10.2	MG/KG	1.29	1.0
		Phosphate by IC	2.9	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	7.5	MG/KG	1.3	1.0
-002	B125X3	% Solids	97.8	%	0.01	1.0
		Chloride by IC	2.2	MG/KG	1.3	1.0
		Fluoride by IC	28.9	MG/KG	2.6	1.0
		Nitrite by IC	1.28 u	MG/KG	1.28	1.0
		Nitrate by IC	69.0	MG/KG	2.56	2.0
		Cyanide, Total	0.31 u	MG/KG	0.31	1.0
		Phosphate by IC	4.8	MG/KG	2.6	2.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	29.4	MG/KG	1.3	1.0
		Nitrate Nitrite	16.7	MG/KG	1.0	5.0
		Ammonia, as N	4.9 u	MG/KG	4.9	1.0
		Total Organic Carbon	191	MG/KG	132	1.0
		pH	9.9	SOIL PH	0.01	1.0
-003	B125Y2	% Solids	97.4	%	0.01	1.0
		Chloride by IC	6.5	MG/KG	1.3	1.0
		Fluoride by IC	25.7	MG/KG	2.6	1.0
		Nitrite by IC	1.28 u	MG/KG	1.28	1.0
		Nitrate by IC	255	MG/KG	12.8	10.0
		Cyanide, Total	0.34 u	MG/KG	0.34	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	106	MG/KG	12.8	10.0
		Nitrate Nitrite	62.7	MG/KG	1.9	10.0
		Ammonia, as N	4.9 u	MG/KG	4.9	1.0
		Total Organic Carbon	281	MG/KG	137	1.0
		pH	8.9	SOIL PH	0.01	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LICD48-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	01LICC48-MB1	Fluoride by IC	2.5	u	MG/KG	2.5	1.0
BLANK10	01LICB48-MB1	Nitrite by IC	1.25	u	MG/KG	1.25	1.0
BLANK10	01LICF48-MB1	Nitrate by IC	1.25	u	MG/KG	1.25	1.0
BLANK10	01LVIA61-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	01LICA45-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
BLANK10	01LICC46-MB1	Nitrate by IC	1.25	u	MG/KG	1.25	1.0
BLANK1	01LC064-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	01LICD46-MB1	Phosphate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	01LN3F39-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/27/01

CLIENT: TNUHANFORD B01-058 H1404

LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LAM034-MB1	Ammonia, as N	5.0	u	MG/KG	5.0	1.0
BLANK10	01LTZ018-MB1	Total Organic Carbon	20.0	u	MG/KG	20.0	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B125Y3	Soluble Chromium VI	2.6	0.02	4.1	63.9	1.0
		Insoluble Chromium VI	2090	0.02	1860	112.4	100
-002	B125X3	Chloride by IC	50.9	2.2	51.1	95.2	2.0
		Fluoride by IC	135	28.9	102	103.9	2.0
		Nitrite by IC	49.7	1.28u	51.1	97.2	2.0
		Nitrate by IC	195	69.0	128	98.9	5.0
		Phosphate by IC	125	4.8	128	94.4	5.0
		Sulfate by IC	77.2	29.4	51.1	93.6	2.0
		Nitrate Nitrite	23.0	16.7	5.1	124.0	5.0
		Ammonia, as N	203	4.9 u	198	102.8	1.0
		Total Organic Carbon	2690	191	2650	94.3	1.0
-003	B125Y2	Cyanide, Total	2.76	0.34u	3.04	91.0	1.0
BLANK10	01LICD48-MB1	Chloride by IC	23.3	1.2 u	25.0	93.2	1.0
		Phosphate by IC	26.0	1.2 u	25.0	104.0	1.0
		Sulfate by IC	24.1	1.2 u	25.0	96.5	1.0
BLANK10	01LICC48-MB1	Fluoride by IC	54.8	2.5 u	50.0	109.7	1.0
BLANK10	01LICE48-MB1	Nitrite by IC	23.8	1.25u	25.0	95.3	1.0
BLANK10	01LICF48-MB1	Nitrate by IC	24.8	1.25u	25.0	99.4	1.0
BLANK10	01LVIA61-MB1	Soluble Chromium VI	3.6	0.40u	4.0	90.7	1.0
		Insoluble Chromium VI	1790	0.40u	1740	103.1	100
BLANK10	01LICA45-MB1	Chloride by IC	23.5	1.2 u	25.0	93.9	1.0
		Fluoride by IC	54.6	2.5 u	50.0	109.2	1.0
		Nitrite by IC	23.6	1.25u	25.0	94.4	1.0
		Nitrate by IC	25.0	1.25u	25.0	100.1	1.0
		Phosphate by IC	25.4	1.2 u	25.0	101.8	1.0
		Sulfate by IC	23.1	1.2 u	25.0	92.4	1.0
BLANK10	01LICC46-MB1	Nitrate by IC	25.1	1.25u	25.0	100.2	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
BLANK10	01LICD46-MB1	Phosphate by IC	25.2	1.2 u	25.0	100.7	1.0
BLANK10	01LN3F39-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.0	1.0
BLANK10	01LAM034-MB1	Ammonia, as N	94.0	5.0 u	100	94.0	1.0
		Ammonia, as N MSD	98.5	5.0 u	100	98.5	1.0
BLANK10	01LTZ018-MB1	Total Organic Carbon	397	20.0 u	400	99.2	1.0

Lionville Lababoratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LAM034-MB1	Ammonia, as N	94.0	98.5	4.7

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B125Y3	% Solids	97.2	96.4	0.82	1.0
		Chromium VI	0.41u	0.41u	NC	1.0
-002REP	B125X3	Chloride by IC	2.2	2.4	5.1	1.0
		Fluoride by IC	28.9	29.7	2.8	1.0
		Nitrite by IC	1.28u	1.28u	NC	1.0
		Nitrate by IC	69.0	71.3	3.3	2.0
		Phosphate by IC	4.8	4.1	16.4	2.0
		Sulfate by IC	29.4	30.9	5.0	1.0
		Nitrate Nitrite	16.7	17.6	5.2	5.0
		Ammonia, as N	4.9 u	4.9 u	NC	1.0
		Total Organic Carbon	191	163	15.9	1.0
		pH	9.94	9.9	0.1	1.0
-003REP	B125Y2	Cyanide, Total	0.34u	0.31u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 07/27/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LC064-LCS1	Cyanide, Total LCS	1.84	2.0	MG/KG	91.8
LCSS2	01LC064-LCS2	Cyanide, Total LCS	10.0	10.0	MG/KG	100.4

Lionville Laboratory Use Only

0106L206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) Mrt Perrone Dig wet

LVL LIONVILLE LABORATORIES, INC.

Client: TNU-Hanford B01-058

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: QS

QC: SpC Del: Std TAT: 30 day

Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B						C		D	E	F			
Refrigerator #		1	4						4		4	4	4			
#/Type Container	Liquid		Hg Cont													
	Solid	1AG	1AG						1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	500						500		60	250 120				
Preservatives		–	–						–		–	–	–			
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	Chromium Hexane	Ic Anions	ICP Metals			
Lionville Laboratory Use Only		0021H	0025X			8270			mct①		ICRL①	Inorg①	mct②			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0021H	0025X			8270			mct①		ICRL①	Inorg①	mct②			
S - Soil	001	B125Y3			S	6-25-01	0145		X 500mL			✓			X 500mL		X					
SE - Sediment	002	B125X3			⊥	6-26-01	0600	X	X 250mL			✓			X 120mL		X	X	X			
SO - Solid	003	B125Y2			⊥	6-26-01	0400		X 500mL			✓					X	X 1000mL	X 500mL			
SL - Sludge																						
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
Wi - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: Saf B01-058

Run Matrix QC 7-16-01

Mrt① = Cd, Cr, Cu, Ni, Ag, Bi, Pb, Hg

Inorg① = ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, InH3N, In3N2, ICNTO, IOCT, IPH

Mrt② = Al, Bi, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn

DATE/REVISIONS:

#001 1. Cr+6 + Metals share 500mL AG

7-16-01 2. Bi cancelled

3. #001 anions added (Cl, Fl, NO2, NO3, PO4, SO4)

4. #003 - Cr+6 added

5.

6.

Relinquished by	Received by	Date	Time
Fed Ex	Inez Stoltz-Fw	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # 8200 9089 2130

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 6.5 °C

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

NOTES:

Lionville Laboratory Use Only: 0106L206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B01-058
Est. Final Proj. Sampling Date:
Project #: 11343-6060-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: Q1
QC: Spec Del: Std TAT: 30 day

Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B					C		D	E	F			
Refrigerator #		1	4					4		4	4	4			
#/Type Container	Liquid		1L Cond												
	Solid	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid														
	Solid	60	500					500		60	250 60g	120			
Preservatives		–	–					–		–	–	–			
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb			INORG: Metal	CN	Chromium Hexane	IC Anions	ICP Metals			
Lionville Laboratory Use Only		0624H	0625X			0DRO		mct①		ICRL①	Inorg①	mct②			

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	VOA	BNA	Pest/PCB	Herb				Metal	CN	Chromium Hexane	IC Anions	ICP Metals			
001	B125Y3			S	6-25-01	0145		X	500mL		✓			X 500mL		X					
002	B125X3			W	6-26-01	0600	X	X	250mL		✓			X 120mL		X	X	X			
003	B125Y2			W	6-26-01	0400		X	500mL		✓						X 1000mL	X 500mL			

Special Instructions: Saf B01-058
Run Matrix QC
mct① = Cd, Cr, Cu, Ni, Ag, Bi, Pb, Hg
Inorg① = ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, InH3N, In3N2, ICNTO, IOCT, IPH
mct② = Al, Bi, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn

DATE/REVISIONS:
#001 1. Cr+6 + Metals share 500ml AG
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___
Airbill # 820090892130
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

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

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 6.5 °C

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

Relinquished by	Received by	Date	Time
FedEx	Inez Stokes-Sw	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE W			

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B01-058-13	Page 1 of 1
Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐	Data Turnaround: 45 Days
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W		SAF No.: B01-058	
Ice Chest No.: ~~ERC96-042~~ ERC96-042 (10H)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX	
Shipped To: ~~TMA~~/ECRA	Offsite Property No.: R6R10713		Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	sG	sG	sG	sG	sG	sG				
No. of Container(s)	1	1	1	1	1	1				
Volume	500mL	1000mL	500mL	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions. VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/28/01 for shipment.

RT 6-28-01

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y3	SOIL	06-25-01	0145	X			X				TIE to B2626	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJ Watson/[signature]	06-25-01/0735	REF. 1A 3728	06-25-01/0735
Ref 1A 3728	6-28-01 0900	R. Thorey [signature]	6-28-01 0900
R. Thorey [signature]	6-28-01 0900		
Fed Ex	6-29-01 0900	Amy [signature]	6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV); Chromium Hex - 7196

(2) ~~IC Anions - 300.0 {Bromide, Chloride, Nitrate, Nitrite, Phosphate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Total Alkalinity - 310.1; TDS - 160.1; pH (soil) - 9045~~ DELETE ITEM (2) RT 6-27-01

(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

~~(4) ICP Metals - 6010A (TAL) (Add-on) {Aluminum, Barium, Beryllium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Potassium, Silver, Sodium, Vanadium, Zinc}~~ DELETE ITEM (4)

~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-228}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~ RT 6-27-01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-3	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E. — Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days — Air Quality ☐
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: RT 6.28.01 N/A ERC 960426(GH)	Field Logbook No.: EL-1518 — COA: B20TW1A44C	Method of Shipment: 03W 06.26.01 Government Vehicle/Fed EX	
Shipped To: 03W 06.26.01 Severn Trent Incorporated ~~TMA/Kelso TMA~~ REGRA	Offsite Property No.: RSR 10713	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SPLITSPOON B/G <0.5mrem/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	RT 6.27.01	RT 6.27.01		
Type of Container	sG	sG	sG	sG	sG	sG				
No. of Container(s)	1	1	1	1	1	1				
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan		

Sample No.	Matrix *	Sample Date	Sample Time										
B125X3	SOIL	06/26/01	0600	X	X	X	X	X	X	X	X	TIE TO	B2629

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJWATSON/TGWatson	06/26/01 0820	R. Thorer	6.26.01 0820
R. Thorer	6/26/01 0900	Ref 1A 3728	6/26/01 0900
Ref 1A 3728	6.28.01 0800	R. Thorer	6.28.01 0800
R. Thorer	6.28.01 0800	FED EX	
Fed Ex	6.29.01 0900	[illegible]	6.29.01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}
~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-12	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: ERC 96-042 (10of)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: TMA/RECRA	Offsite Property No.: RSR 107131	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14k cpm on split spoon β/γ
< 0.5 mR/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	~~Poly~~	sG	~~Poly~~	sG	sG	sG				
No. of Container(s)	RT 6-26-01	1	RT 6-26-01	1	1	RT 6-26-01				
Volume	~~500mL~~	1000mL	~~1000mL~~	500mL	500mL	~~1000mL~~				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B125Y2	SOIL	06/26/01	0400	~~X~~ RT 6-26-01	X		X	X	X			TIETO	B12630

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: D Watson/D Watson	06-26-01 0820	Received By/Stored In: R. Thorson	6-26-01 0820
Relinquished By/Removed From: R Thorson	6-26-01 0900	Received By/Stored In: R Thorson IA 3728	6/26/01 0900
Relinquished By/Removed From: R Thorson IA 3728	6-26-01 0800	Received By/Stored In: R Thorson	6-26-01 0800
Relinquished By/Removed From: R Thorson	6-26-01 0800	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FedEx	6-29-01 0900	Received By/Stored In: Angela Hafner	6-29-01 900
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

~~(1) ICP Metals - 6010A (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Bismuth, Lithium, Thallium) - 7470 (Hg), Cyanide - 7196~~ DELETED RT 6-26-01

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA – 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D

(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)

~~(5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 – Total Sr, Technetium-99, Total Uranium, Tritium - H3, Isotopic Uranium~~ RT 6-26-01

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 6-29-01 0900

SDG#: 010601206C

Work Order Number: – SAF# B01-058

Shipping Container ID: ERC96-042 Chain of Custody # 010601206

1. Custody Seals on shipping container intact? Yes [X] No [ ]
2. Custody Seals dated and signed? Yes [X] No [ ]
3. Chain-of-Custody record present? Yes [X] No [ ]
4. Cooler temperature 6.5°
5. Vermiculite/packing materials is Wet [ ] Dry [X]
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? Yes [ ] No [X]

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 [X] No ~~[X]~~ TH 6-29-01

11. Description of anomalies (include sample numbers):

high external dose reading on sample containers - 700 mR

Sample Custodian/Laboratory: [illegible] Date: 6-29-01

Telephoned to: ___ On ___ By ___

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

AUG 2001
RECEIVED

RFW LOT # :0106L2

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B125Y3	001	S	01LE0792	06/25/01	06/29/01	07/03/01	07/06/01
B125X3	002	S	01LE0792	06/26/01	06/29/01	07/03/01	07/06/01
B125X3	002 MS	S	01LE0792	06/26/01	06/29/01	07/03/01	07/06/01
B125X3	002 MSD	S	01LE0792	06/26/01	06/29/01	07/03/01	07/07/01
B125Y2	003	S	01LE0792	06/26/01	06/29/01	07/03/01	07/07/01
LAB QC:							
BLK	MB1	S	01LE0792	N/A	N/A	07/03/01	07/17/01
BLK	MB1 BS	S	01LE0792	N/A	N/A	07/03/01	07/17/01

LK 7-18-01

7/25/01

LIONVILLE LABORATORY INC.

Analytical Report

Client : TNU HANFORD B01-058
LVL# : 0106L206
SDG/SAF#: H1404/B01-058

W.O #: 11343-606-001-9999-00
Date Received: 06-29-01

DIESEL RANGE ORGANICS

The set of samples consisted of three (3) soil samples collected on 06-25,26-01.

The samples and their associated QC samples were prepared on 07-03-01 and analyzed according to Lionville Laboratory OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 07-06,07,17-01. The analysis met the intent of method WTPH-D.

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

2. All required holding times for extraction and analysis were met.

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

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

5. One (1) of seven (7) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

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

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

7/26/01
Date

R:\share\dro\06-206.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 01LC055

Initiator: L. Kauffman Batch: 0106L206 Parameter: ODRO
Date: 7-18-01 Samples: 002 Matrix: Soil
Client: TRU-Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 01LE0792

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)

Surrogate recovery for 01LE0792-MB1-T outside acceptance range.
Surr. Rec. = 154% (range 35-130%)

All other Surrogate and spike recoveries within ranges.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: [signature] 7/25/01

__ 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] 7/25/01 Other Explanation:

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

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

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

L-WI-006/E-01/01

GLOSSARY OF DIESEL RANGE ORGANICS DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates a blank spike duplicate.

MS = Indicates a matrix spike.

MSD = Indicates a matrix spike duplicate.

NA = Not Applicable.

NS = Not spiked.

DF = Dilution factor.

NR = Not required.

SP = Indicates a spiked compound.

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 07/18/01 1[illegible]46

RFW Batch Number: **0106L206** Client: **TNUHANFORD B01-058 H1404** Work Order: 11343606001 Page: 1

	Cust ID:	B125Y3	B125X3	B125X3	B125X3	B125Y2	BLK
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	01LE0792-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	p-Terphenyl	62 %	68 %	59 %	154 * %	40 %	55 %
Diesel Range Organics		11.9 U	11.9 U	69 %	72 %	11.6 U	12.0 U

	Cust ID:	BLK BS
Sample Information	RFW#:	01LE0792-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	mg/kg
	p-Terphenyl	59 %
Diesel Range Organics		61 %

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

LE 7-18-01

7/25/01

Lionville Laboratory Use Only

0106L206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(B) met Perrone Dig wet

LVLI LIONVILLE LABORATORY INC

Client: TNU-Hanford B01-058

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: SpC Del: Std TAT: 30 day

Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B					C		D	E	F			
Refrigerator #		1	4					4		4	4	4			
#/Type Container	Liquid		~~1AG~~ Cont												
	Solid	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid														
	Solid	60	500					500		60	250 ~~500~~	120			
Preservatives		–	–					–		–	–	–			
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN	Chromium Hexane	IC Anions	ICP Metals			

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA 2H	BNA 2X	Pest/PCB	Herb			Metal	CN	ICRLQ	Inorg (1)	Met (2)			
001	B125Y3			S	6-25-01	0145		X 500mL			✓		X 500mL		X					
002	B125X3			⊥	6-26-01	0600	X	X 250mL			✓		X 120mL		X	X	X			
003	B125Y2			⊥	6-26-01	0400		X 500mL			✓				X	X 1000mL	X 500mL			

Special Instructions: Saf B01-058

Run Matrix QC

Met(1) = Cd, Cr, Cu, Ni, Ag, Bi, Pb, Hg

Inorg(1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, InH3N, In3N2, ICNTO, IOCT, IPH

Met(2) = Al, Bi, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn

DATE/REVISIONS:

#001 1. Cr+6 + Metals share 500mL AG

7-16-01 2. Bi cancelled

3. #001 anions added (Cl, F, NO2, NO3, PO4, SO4)

4. #003: Cr+6 added

5.

6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 8200 9089 2130
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 6.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	Inez Stoltefus	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-13	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No. ETG-28-01 ERC96-042(104)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: ~~TMA~~ RECRA	Offsite Property No.: R6R107131		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	500mL	1000mL	1000mL	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8260A (TEL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/26/01 for shipment. RT 6.28.01

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y3	SOIL	06-25-01	0145	X			X				TIE TO B2626	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: DJ WATSON	06-25-01/0735	REF. 1A 3728	06-25-01/0735
Relinquished By/Removed From: Ref 1A 3728	6.28.01 0800	R. Thorey	6.28.01 0800
Relinquished By/Removed From: R.T. Thorey	6.28.01 0800		
Relinquished By/Removed From: Fed Ex	6-29-01 0900	Greg Stokstad	6-29-01 0900
Relinquished By/Removed From			
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV); Chromium Hex - 7196

(2) ~~IC Anions - 300.0 (Bromide, Fluoride, Nitrate, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (soil) - 9045~~

(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

~~(4) ICP Metals - 6020 (Add-on) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Vanadium, Zinc}~~

~~(5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 – Total Sr, Technetium-99, Total Uranium, Tritium - H3, Isotopic Uranium~~

DELETED

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-3	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: RT 6.28.01 NA ERC 96042(04)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: DSW 06-26-01 Government Vehicle/Fed EX
Shipped To: DSW 06-26-01 ~~Severn Trent Incorporated~~ ~~TMA/KEERA~~ KEERA TMA	Offsite Property No.: RSR 10713		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SALT SPOON B/G <.05mrem/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None RT 6.27.01	None RT 6.27.01		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan		
Sample No. / Matrix * / Sample Date / Sample Time										
B125X3 / SOIL / 06/26/01 / 0600	X	X	X	X	X	X	X	X	TIE TO	B2629

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: DJWATSON	06/26/01 0800	Received By/Stored In: R. Thorer	0820 6.26.01
Relinquished By/Removed From: R. Thorer	06/26/01 0900	Received By/Stored In: Ref 1A 3728	06/26/01 0900
Relinquished By/Removed From: Ref 1A 3728	6.28.01 0800	Received By/Stored In: R. Thorer	6.28.01 0800
Relinquished By/Removed From: R. Thorer	6.28.01 0900	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed EX	6.29.01 0900	Received By/Stored In: [illegible]	6.29.01 0900
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}
~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-12	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: EPC 96-042 (1 of 1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: TMA/RECRA	Offsite Property No.: RSR 107131		Bill of Lading/Air Bill No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14K CPM ON SPLIT SPOON β/γ < 0.5 mR/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	~~Poly~~	aG	~~Poly~~	aG	aG	aG				
No. of Container(s)	1 RT 6-26-01	1	1 RT 6-26-01	1	1	1 RT 6-26-01				
Volume	500mL	1000mL	120mL	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y2	SOIL	06/26/01	0400	~~X~~ RT 6-26-01	X		X	X	X		TIETO	B12630

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D Watson/Trent	06-26-01 0800	R. Thorson	6-26-01 0820
R. Thorson	6-26-01 0900	IA 3728	6/26/01 0900
IA 3728	6-26-01 0800	R. Thorson	6-26-01 0800
R. Thorson	6-26-01 0800		
Fed EX	6-29-01 0900		6-29-01 0900

SPECIAL INSTRUCTIONS

~~(1) ICP Metals - 6010A (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Silver); ICP Metals - 6010A (Add-on) (Barium, Lead) (Mercury) - 7470 (CV); Mercury - 7196~~ DELETED RT 6-26-01

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045

(3) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D

(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)

~~(5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~ RT 6-26-01

Matrix *

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

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

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 6-29-01 0900

SDG#: 01061206

Work Order Number: – SAF# B01-058

Shipping Container ID: ERC96-042 Chain of Custody # 01061206

1. Custody Seals on shipping container intact? Yes [X] No [ ]
2. Custody Seals dated and signed? Yes [X] No [ ]
3. Chain-of-Custody record present? Yes [X] No [ ]
4. Cooler temperature 6.5°
5. Vermiculite/packing materials is Wet [ ] Dry [X]
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? Yes [ ] No [X]

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 [X] No [X] TIC 6-29-01

11. Description of anomalies (include sample numbers):

high external dose reading on sample containers - 700 cpm

Sample Custodian/Laboratory: [signature] Date: 6-29-01

Telephoned to: ____ On ____ By ____

AUG 2001
RECEIVED

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B125Y3	001	S	01LE0791	06/25/01	07/03/01	07/12/01
B125Y3	001 MS	S	01LE0791	06/25/01	07/03/01	07/12/01
B125Y3	001 MSD	S	01LE0791	06/25/01	07/03/01	07/12/01
B125X3	002	S	01LE0791	06/26/01	07/03/01	07/11/01
B125Y2	003	S	01LE0791	06/26/01	07/03/01	07/11/01

LAB QC:

SBLKBK	MB1	S	01LE0791	N/A	07/03/01	07/09/01
SBLKBK	MB1 BS	S	01LE0791	N/A	07/03/01	07/09/01

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-058
RFW #: 0106L206
SDG/SAF #: H1404/B01-058

W.O. #: 11343-606-001-9999-00
Date Received: 06-29-2001

SEMIVOLATILE

Three (3) soil samples were collected on 06-25,26-2001.

The samples and their associated QC samples were extracted on 07-03-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL and Tributylphosphate Semivolatile target compounds on 07-09,11,12-2001.

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

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

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

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

4. Sample B125Y3 required a 2-fold dilution due to dark and viscous nature of the extracts.

5. All surrogate recoveries were within EPA QC limits.

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

7. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.

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

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

J. Michael Taylor
President
Lionville Laboratory Incorporated

7/30/01
Date

som\gorup\data\bna\tnu-hanford-0106-206.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 7 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

VLI
LIONVILLE LABORATORY INC

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.

VLI
LIONVILLE LABORATORY INC

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List — Report Date: 07/26/01 15:24

RFW Batch Number: **0106L206** — Client: **TNUHANFORD B01-058 H1404** — Work Order: 11343606001 — Page: 1a

	Cust ID:	B125Y3		B125Y3		B125Y3		B125X3		B125Y2		SBLKBK	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		01LE0791-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	2.00		2.00		2.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	74	%	74	%	75	%	71	%	72	%	77	%
	2-Fluorobiphenyl	81	%	85	%	90	%	69	%	73	%	72	%
	p-Terphenyl-d14	94	%	99	%	113	%	92	%	88	%	89	%
	Phenol-d5	82	%	77	%	86	%	82	%	80	%	76	%
	2-Fluorophenol	78	%	77	%	83	%	75	%	75	%	71	%
	2,4,6-Tribromophenol	74	%	80	%	87	%	70	%	73	%	83	%
			fl		fl		fl		fl		fl		fl
Phenol		110	J	77	%	86	%	340	U	340	U	330	U
bis(2-Chloroethyl)ether		660	U	690	U	690	U	340	U	340	U	330	U
2-Chlorophenol		660	U	72	%	81	%	340	U	340	U	330	U
1,3-Dichlorobenzene		660	U	690	U	690	U	340	U	340	U	330	U
1,4-Dichlorobenzene		660	U	66	%	70	%	340	U	340	U	330	U
1,2-Dichlorobenzene		660	U	690	U	690	U	340	U	340	U	330	U
2-Methylphenol		660	U	690	U	690	U	340	U	340	U	330	U
2,2'-oxybis(1-Chloropropane)		660	U	690	U	690	U	340	U	340	U	330	U
4-Methylphenol		660	U	690	U	690	U	340	U	340	U	330	U
N-Nitroso-Di-n-propylamine		660	U	80	%	91	%	340	U	340	U	330	U
Hexachloroethane		660	U	690	U	690	U	340	U	340	U	330	U
Nitrobenzene		660	U	690	U	690	U	340	U	340	U	330	U
Isophorone		660	U	690	U	690	U	340	U	340	U	330	U
2-Nitrophenol		660	U	690	U	690	U	340	U	340	U	330	U
2,4-Dimethylphenol		660	U	690	U	690	U	340	U	340	U	330	U
bis(2-Chloroethoxy)methane		660	U	690	U	690	U	340	U	340	U	330	U
2,4-Dichlorophenol		660	U	690	U	690	U	340	U	340	U	330	U
1,2,4-Trichlorobenzene		660	U	74	%	79	%	340	U	340	U	330	U
Naphthalene		660	U	690	U	690	U	340	U	340	U	330	U
4-Chloroaniline		660	U	690	U	690	U	340	U	340	U	330	U
Hexachlorobutadiene		660	U	690	U	690	U	340	U	340	U	330	U
4-Chloro-3-methylphenol		660	U	74	%	87	%	340	U	340	U	330	U
2-Methylnaphthalene		660	U	690	U	690	U	340	U	340	U	330	U
Hexachlorocyclopentadiene		660	U	690	U	690	U	340	U	340	U	330	U
2,4,6-Trichlorophenol		660	U	690	U	690	U	340	U	340	U	330	U
2,4,5-Trichlorophenol		1700	U	1700	U	1700	U	850	U	840	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0106L206 Client: TNUHANFORD B01-058 H1404 Work Order: 11343606001 Page: 1b

Cust ID:	B125Y3		B125Y3		B125Y3		B125X3		B125Y2		SBLKBK	
RFW#:	001		001 MS		001 MSD		002		003		01LE0791-MB1	
2-Chloronaphthalene	660	U	690	U	690	U	340	U	340	U	330	U
2-Nitroaniline	1700	U	1700	U	1700	U	850	U	840	U	830	U
Dimethylphthalate	660	U	690	U	690	U	340	U	340	U	330	U
Acenaphthylene	660	U	690	U	690	U	340	U	340	U	330	U
2,6-Dinitrotoluene	660	U	690	U	690	U	340	U	340	U	330	U
3-Nitroaniline	1700	U	1700	U	1700	U	850	U	840	U	830	U
Acenaphthene	660	U	84	%	91	%	340	U	340	U	330	U
2,4-Dinitrophenol	1700	U	1700	U	1700	U	850	U	840	U	830	U
4-Nitrophenol	1700	U	51	%	58	%	850	U	840	U	830	U
Dibenzofuran	660	U	690	U	690	U	340	U	340	U	330	U
2,4-Dinitrotoluene	660	U	71	%	83	%	340	U	340	U	330	U
Diethylphthalate	660	U	690	U	690	U	340	U	340	U	330	U
4-Chlorophenyl-phenylether	660	U	690	U	690	U	340	U	340	U	330	U
Fluorene	660	U	690	U	690	U	340	U	340	U	330	U
4-Nitroaniline	1700	U	1700	U	1700	U	850	U	840	U	830	U
4,6-Dinitro-2-methylphenol	1700	U	1700	U	1700	U	850	U	840	U	830	U
N-Nitrosodiphenylamine (1)	660	U	690	U	690	U	340	U	340	U	330	U
4-Bromophenyl-phenylether	660	U	690	U	690	U	340	U	340	U	330	U
Hexachlorobenzene	660	U	690	U	690	U	340	U	340	U	330	U
Pentachlorophenol	1700	U	83	%	96	%	850	U	840	U	830	U
Phenanthrene	660	U	690	U	690	U	340	U	340	U	330	U
Anthracene	660	U	690	U	690	U	340	U	340	U	330	U
Carbazole	660	U	690	U	690	U	340	U	340	U	330	U
Di-n-Butylphthalate	660	U	690	U	690	U	340	U	340	U	330	U
Fluoranthene	660	U	690	U	690	U	340	U	340	U	330	U
Pyrene	660	U	98	%	111	%	340	U	340	U	330	U
Butylbenzylphthalate	660	U	690	U	690	U	340	U	340	U	330	U
3,3'-Dichlorobenzidine	660	U	690	U	690	U	340	U	340	U	330	U
Benzo(a)anthracene	660	U	690	U	690	U	340	U	340	U	330	U
Chrysene	660	U	690	U	690	U	340	U	340	U	330	U
bis(2-Ethylhexyl)phthalate	660	U	690	U	690	U	340	U	340	U	330	U
Di-n-Octyl phthalate	660	U	690	U	690	U	340	U	340	U	330	U
Benzo(b)fluoranthene	660	U	690	U	690	U	340	U	340	U	330	U
Benzo(k)fluoranthene	660	U	690	U	690	U	340	U	340	U	330	U
Benzo(a)pyrene	660	U	690	U	690	U	340	U	340	U	330	U
Indeno(1,2,3-cd)pyrene	660	U	690	U	690	U	340	U	340	U	330	U
Dibenzo(a,h)anthracene	660	U	690	U	690	U	340	U	340	U	330	U
Benzo(g,h,i)perylene	660	U	690	U	690	U	340	U	340	U	330	U
Tributylphosphate	660	U	690	U	690	U	340	U	340	U	330	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List — Report Date: 07/26/01 15:24

RFW Batch Number: **0106L206** Client: **TNUHANFORD B01-058 H1404** Work Order: 11343606001 Page: 2a

Cust ID: **SBLKBK BS**

Sample Information	RFW#:	**01LE0791-MB1**
	Matrix:	SOIL
	D.F.:	1.00
	Units:	ug/Kg

Surrogate Recovery	Nitrobenzene-d5	83	%
	2-Fluorobiphenyl	76	%
	p-Terphenyl-d14	89	%
	Phenol-d5	79	%
	2-Fluorophenol	76	%
	2,4,6-Tribromophenol	87	%

==========fl==========fl==========fl==========fl==========fl==========fl

Phenol	77	%
bis(2-Chloroethyl)ether	330	U
2-Chlorophenol	76	%
1,3-Dichlorobenzene	330	U
1,4-Dichlorobenzene	72	%
1,2-Dichlorobenzene	330	U
2-Methylphenol	330	U
2,2'-oxybis(1-Chloropropane)	330	U
4-Methylphenol	330	U
N-Nitroso-Di-n-propylamine	92	%
Hexachloroethane	330	U
Nitrobenzene	330	U
Isophorone	330	U
2-Nitrophenol	330	U
2,4-Dimethylphenol	330	U
bis(2-Chloroethoxy)methane	330	U
2,4-Dichlorophenol	330	U
1,2,4-Trichlorobenzene	75	%
Naphthalene	330	U
4-Chloroaniline	330	U
Hexachlorobutadiene	330	U
4-Chloro-3-methylphenol	83	%
2-Methylnaphthalene	330	U
Hexachlorocyclopentadiene	330	U
2,4,6-Trichlorophenol	330	U
2,4,5-Trichlorophenol	830	U

*= Outside of EPA CLP QC limits.

Cust ID: **SBLKBK BS**

RFW#: **01LE0791-MB1**

2-Chloronaphthalene	330	U
2-Nitroaniline	830	U
Dimethylphthalate	330	U
Acenaphthylene	330	U
2,6-Dinitrotoluene	330	U
3-Nitroaniline	830	U
Acenaphthene	78	%
2,4-Dinitrophenol	830	U
4-Nitrophenol	96	%
Dibenzofuran	330	U
2,4-Dinitrotoluene	92 *	%
Diethylphthalate	330	U
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	830	U
4,6-Dinitro-2-methylphenol	830	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	95	%
Phenanthrene	330	U
Anthracene	330	U
Carbazole	330	U
Di-n-Butylphthalate	330	U
Fluoranthene	330	U
Pyrene	84	%
Butylbenzylphthalate	330	U
3,3'-Dichlorobenzidine	330	U
Benzo(a)anthracene	330	U
Chrysene	330	U
bis(2-Ethylhexyl)phthalate	330	U
Di-n-Octyl phthalate	330	U
Benzo(b)fluoranthene	330	U
Benzo(k)fluoranthene	330	U
Benzo(a)pyrene	330	U
Indeno(1,2,3-cd)pyrene	330	U
Dibenzo(a,h)anthracene	330	U
Benzo(g,h,i)perylene	330	U
Tributylphosphate	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B125Y3

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

Client: TNUHANFORD B01-058 H1404

Matrix: (soil/water) SOIL

Lab Sample ID: 0106L206-001

Sample wt/vol: 31.1 (g/mL) G

Lab File ID: A071210

Level: (low/med) LOW

Date Received: 06/29/01

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

Date Extracted: 07/03/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/12/01

Injection Volume: 2.0(uL)

Dilution Factor: 2.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.910	400	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B125X3

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

Client: TNUHANFORD B01-058 H1404

Matrix: (soil/water) SOIL

Lab Sample ID: 0106L206-002

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: A071114

Level: (low/med) LOW

Date Received: 06/29/01

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

Date Extracted: 07/03/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/11/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.924	400	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B125Y2

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

Client: TNUHANFORD B01-058 H1404

Matrix: (soil/water) SOIL

Lab Sample ID: 0106L206-003

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: A071115

Level: (low/med) LOW

Date Received: 06/29/01

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

Date Extracted: 07/03/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/11/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.924	300	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKBK

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

Client: TNUHANFORD B01-058 H1404

Matrix: (soil/water) SOIL

Lab Sample ID: 01LE0791-MB1

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

Lab File ID: D070904

Level: (low/med) LOW

Date Received: 07/03/01

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

Date Extracted: 07/03/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/09/01

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.032	200	J
2.	ORGANIC ACID	20.546	7000	J
3.	UNKNOWN	23.553	90	J

Lionville Laboratory Use Only: 0106L206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU-Hanford B01-058
Est. Final Proj. Sampling Date:
Project #: 11343-6006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: QI
QC: Spec Del: Std TAT: 30 day
Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B					C		D	E	F			
Refrigerator #		1	4					4		4	4	4			
#/Type Container	Liquid		1AG												
	Solid	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid														
	Solid	60	500					500		60	250	120			
Preservatives		–	–					–		–	–	–			
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN	Chromium Hexane	IC Anions	ICP Metals			
		Lionville Laboratory Use Only													
		8260HH	8260SX			8080		mct①		ICAL①	Inorg①	mct②			

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	8260HH	8260SX			8080			mct①		ICAL①	Inorg①	mct②			
001	B125Y3			S	6-25-01	0145		X 500mL			✓			X 500mL		X					
002	B125X3			⊥	6-26-01	0600	X	X 250mL			✓			X 120mL		X	X	X			
003	B125Y2			⊥	6-26-01	0400		X 500mL			✓						X 1000mL	X 500mL			

Special Instructions: Saf B01-058
Run Matrix QC
mct①=Cd,Cr,Cu,Ni,Ag,Bi,Pb,Hg
Inorg①=ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, InH3N, In3N2, ICNTO, IOCT, IPH
mct②=Al,Bi,Cd,Ca,Cr,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Ag,Na,V,Zn

DATE/REVISIONS:
#001 1. Cr+6 + Metals share 500mL AG
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Fed Ex	Inez Stoltz-Fw	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___
Airbill # 8200 9089 2130
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 6.5 °C

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B01-058-13	Page 1 of 1
Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐	Data Turnaround: 45 Days
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W		SAF No.: B01-058	
Ice Chest No.: ~~ETG-28-01~~ ERC96-042 (1041)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX	
Shipped To: ~~TMA~~ ECRA	Offsite Property No.: R6R107131		Bill of Lading/Air Bill No.: JK	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	sG	sG	sG	sG	sG	sG					
No. of Container(s)	1	1	1	1	1	1					
Volume	500mL	1000mL	1000mL	500mL	500mL	1000mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/26/01 for shipment. RT 6-28-01

Sample No.	Matrix *	Sample Date	Sample Time								
B125Y3	SOIL	06-25-01	0145	X		X					TIE TO B2626

DELETE ITEM 6-25

DELETE ITEM 6-25

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJ Watson	06-25-01/0735	REF. 1A 3728	06-25-01/0735
Ref 1A 3728	6-28-01 0900	R. Thore	6-28-01 0900
R. Thore	6-28-01 0900		
Fed Ex	6-29-01 0900	Fed Ex	6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV); Chromium Hex - 7196

~~(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045~~ RT 6-27-01

(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

~~(4) ICP Metals - 6010A (TAL) (Add-on) {Aluminum, Barium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Potassium, Silver, Sodium, Vanadium, Zinc}~~

~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

DELETE ITEM 6-27-01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-3	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E. — Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days — Air Quality ☐
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: RT 6.28.01 NA ERC 96042(GH)	Field Logbook No.: EL-1518 — COA: B20TW1A44C	Method of Shipment: DSW 06-26-01 Government Vehicle/Fed EX	
Shipped To: DSW 06-26-01 ~~Severn Trent Incorporated~~ REGRA NA	Offsite Property No.: RSR 10713	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SALT SPOON B/G <.05mREM/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1					
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan			
Sample No.	Matrix *	Sample Date	Sample Time								
B125X3	SOIL	06/26/01	0600	X	X	X	X	X	X	X	X	TIE TO B2629

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJWATSON	06/26/01 0800	R. Thorer	0820 6.26.01
R. Thorer	06/26/01 0900	Ref 1A 3728	06/26/01 0900
Ref 1A 3728	6.28.01 0800	R. Thorer	0800 6.28.01
R. Thorer	0800 6.28.01	FED EX	
Fed Ex	6-29-01 0900	[illegible]	6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}
~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec. Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-12	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: EPC 96-042 (1 of 1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: TMA/RECRA	Offsite Property No.: RSR 107131	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14k cpm on split spoon β/γ
< 0.5 mREM/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	Bottle	aG	Bottle	aG	aG	aG					
No. of Container(s)	RT 6-26-01	1	RT 6-26-01	1	1	RT 6-26-01					
Volume	500mL	1000mL	120mL	500mL	500mL	1000mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time								
B125Y2	SOIL	06/26/01	0400	X RT 6-26-01	X		X	X	X	TIC TO	B12630

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: D. Watson	06-26-01 0800	R. Thorn	06-26-01 0820
Relinquished By/Removed From: R. Thorn	6-26-01 0900	Received By/Stored In: R. Thorn IA 3728	6/26/01 0900
Relinquished By/Removed From: R. Thorn IA 3728	6-26-01 0800	Received By/Stored In: R. Thorn	6-26-01 0800
Relinquished By/Removed From: R. Thorn	6-26-01	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FedEx	6-29-01 0900	Received By/Stored In: [illegible]	6-29-01 900
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - [illegible] Silver); ICP Metals - 6010A; ~~(Add-on) (B[illegible]) Mercury - 7470 (CV); Cyanide - 7196~~ RT 6-26-01
(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)
(5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); ~~Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~ RT 6-26-01

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

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

BHI-EE-011 (10/99)

AUG 2001
RECEIVED

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B125X3	002	S	01LVH263	06/26/01	N/A	07/04/01
B125X3	002 MS	S	01LVH263	06/26/01	N/A	07/04/01
B125X3	002 MSD	S	01LVH263	06/26/01	N/A	07/04/01

LAB QC:

VBLKGS	MB1	S	01LVH263	N/A	N/A	07/03/01
VBLKGS	MB1 BS	S	01LVH263	N/A	N/A	07/03/01

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-058
RFW #: 0106L206
SDG/SAF #: H1404/B01-058

W.O. #: 11343-606-001-9999-00
Date Received: 06-29-2001

GC/MS VOLATILE

One (1) soil sample was collected on 06-26-2001.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 07-03,04-2001.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was analyzed within required holding time.
3. Non-target compounds were not detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

J. Michael Taylor
President
Lionville Laboratory Incorporated

7/27/01
Date

som\group\data\voa\tnu-hanford\0106-206.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 1 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

LVLI
LIONVILLE LABORATORY INC

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.

LIONVILLE LABORATORY INC

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 07/23/01 14:44

RFW Batch Number: **0106L206** Client: **TNUHANFORD B01-058 H1404** Work Order: 11343606001 Page: 1a

	Cust ID:	B125X3		B125X3		B125X3		VBLKGS		VBLKGS BS	
Sample Information	RFW#:	002		002 MS		002 MSD		01LVH263-MB1		01LVH263-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		0.962		0.926		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	103	%	96	%	96	%	100	%	98	%
	Bromofluorobenzene	87	%	80	%	79	%	87	%	85	%
	1,2-Dichloroethane-d4	79	%	87	%	86	%	77	%	89	%
Chloromethane		10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U
Methylene Chloride		11	B	11	B	11	B	3	J	4	BJ
Acetone		10	U	10	U	10	U	3	J	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	90	%	88	%	5	U	91	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	68	%	68	%	5	U	68	%
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Benzene		5	U	95	%	96	%	5	U	95	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U
Toluene		5	U	102	%	105	%	5	U	101	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0106L206** Client: **TNUHANFORD B01-058 H1404** Work Order: 11343606001 Page: 1b

Cust ID:	B125X3	B125X3	B125X3	VBLKGS	VBLKGS BS
RFW#:	002	002 MS	002 MSD	01LVH263-MB1	01LVH263-MB1
Chlorobenzene	5 U	102 %	104 %	5 U	100 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only: 0106L206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(B) Met Dig Perrone wet

LVL LIONVILLE LABORATORY INC

Client: TNU-Hanford B01-058

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: QS

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B					C		D	E	F			
Refrigerator #		1	4					4		4	4	4			
#/Type Container	Liquid														
	Solid	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid														
	Solid	60	500					500		60	250	120			
Preservatives		–	–					–		–	–	–			
ANALYSES REQUESTED		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb			INORG: Metal	INORG: CN	Chromium Hexane	HC Anions	ICP metals			
Lionville Laboratory Use Only		0L2-1H	0L2-5X			0DPO		Met①		ICP①	Inorg①	Met②			

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0L2-1H	0L2-5X			0DPO			Met①		ICP①	Inorg①	Met②		
S - Soil	001	B125Y3			S	6-25-01	0145		X 500mL			✓			X 500mL		X				
SE - Sediment	002	B125X3			⊥	6-26-01	0600	X	X 250mL			✓			X 120mL		X	X	X		
SO - Solid	003	B125Y2			⊥	6-26-01	0400		X 500mL			✓					X	X 1000mL	X 500mL		
SL - Sludge																					
W - Water																					
O - Oil																					
A - Air																					
DS - Drum Solids																					
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

Special Instructions: See B01-058

Run Matrix QC (7-10-01)

Met① = Cd, Cr, Cu, Ni, Ag, Bi, Pb, Hg

Inorg① = ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, ⊥ INH3N, IN3N2, ICNTO, IOCT, IPH

Met② = Al, Bi, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn

DATE/REVISIONS:

#001 1. Cr+6 + Metals Share 500mL AG

7-16-01 2. Bi cancelled

3. #001 anions added (Cl, Fl, NO2, NO3, PO4, SO4)

4. #003 - Cr+6 added

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # 820090892130

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 6.5 °C

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

NOTES:

Relinquished by	Received by	Date	Time
Fed Ex	Inez Stoltefus	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-13	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: ET 6.28.01 JA ERC96.042 (1 of 1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: ~~TMA~~ RECRA	Offsite Property No.: R6R10713		Bill of Lading/Air Bill No.: JA

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	500mL	1000mL	1000mL	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8260A (TAL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/26/01 for shipment.

ZT 6.28.01

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y3	SOIL	06-25-01	0145	X			X				TIE TO B2626	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJ WATSON	06-25-01/0735	REF. 1A 3728	06-25-01/0735
R. Ket 1A 3728	6.28.01 0800	R. Thorey	6.28.01 0800
R.T. R. Thorey	6.28.01 0800		
Fed Ex	6-29-01 0900	Amy Abbotson	6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV); Chromium Hex - 7196

(2) IC Anions - 300.0 ~~{Bromide, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate}~~ Ammonia - 350.3, ~~NO2/NO3 - 353.1, Total Alkalinity - 310.1, TOC - 9060, pH (soil) - 9045~~

(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

~~(4) ICP Metals - 6010A (Add-on) {Aluminum, Barium, Beryllium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}~~

~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}, Isotopic Plutonium, Isotopic Thorium {Thorium-232}, Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Total Uranium, Tritium -H3, Isotopic Uranium~~

DELETE ITEM (4)

ZT 6.27.01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-3	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No. RT6.28.01 NHA ERC 96042(04)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: DSW 06-26-01 Government Vehicle/Fed EX
Shipped To: DSW 06-26-01 ~~Severn Trent Incorporated~~ ~~TMA/KEQRA~~ KEQRA TMA	Offsite Property No.: RSR 10713		Bill of Lading/Air Bill No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SPLIT SPOON B/G <0.5mrem/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1					
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan			
Sample No.	Matrix *	Sample Date	Sample Time								
B125X3	SOIL	06/26/01	0600	X	X	X	X	X	X	X	X	TIE TO B2629

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJWATSON	06/26/01 0800	R. Thorer	06/26/01 0820
R. Thorer	06/26/01 0900	Ref 1A 3728	06/26/01 0900
Ref 1A 3728	6.28.01 0800	R. Thorer	6.28.01 0800
R. Thorer	6.28.01 0800	FED EX	
Fed Ex	6-29-01 0900		6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}
~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium, Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 = Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B01-058-12	Page 1 of 1
Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ	Price Code: 8N
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W		SAF No.: B01-058	Air Quality ☐
Ice Chest No.: ERC 96-042 (10f1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX	Data Turnaround: 45 Days
Shipped To: TMA/RECRA	Offsite Property No.: RSR 107131		Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14kcpm on split spoon β/γ
<0.5 mR/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	~~Poly~~	sG	~~Poly~~	sG	sG	sG					
No. of Container(s)	RT 6-26-01	1	RT 6-26-01	1	1	RT 6-26-01					
Volume	~~500mL~~	1000mL	~~500mL~~	500mL	500mL	1000mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time								
B125Y2	SOIL	06/26/01	0400	~~X~~ RT 6-26-01	X		X	X	X	TIC TO	B12630

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: DO Watson	06-26-01 0800	Received By/Stored In: R. Thorson	06-26-01 0820
Relinquished By/Removed From: R. Thorson	6.26.01 0900	Received By/Stored In: IA 3728	6/26/01 0900
Relinquished By/Removed From: IA 3728	6.26.01 0800	Received By/Stored In: R. Thorson	6.26.01 0800
Relinquished By/Removed From: R. Thorson	6.26.01 0800	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FedEx	6-29-01 0900	Received By/Stored In: [illegible]	6-29-01 900
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - [illegible] Nickel, Silver); ICP Metals - 6010A; (Add-on) (B[illegible]) Mercury - 7470 (CN); [illegible] - 7196 RT 6-26-01
(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)
(5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); ~~Gamma Spec - Add-on (Radium-226, Radium-228), Isotopic Plutonium, Isotopic Thorium (Thorium-232), Americium-241, Carbon-14, Neptunium-237, Nickel-63, Strontium-89,90 -- Total Sr, Technetium-99, Total Uranium, Tritium - H3, Isotopic Uranium~~ RT 6-26-01

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

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

BHI-EE-011 (10/99)

AUG 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B125Y3						
SILVER, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
CADMIUM, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
CHROMIUM, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
COPPER, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
MERCURY, TOTAL	001	S	01C0228	06/25/01	07/23/01	07/23/01
MERCURY, TOTAL	001 REP	S	01C0221	06/25/01	07/17/01	07/17/01
MERCURY, TOTAL	001 MS	S	01C0221	06/25/01	07/17/01	07/17/01
NICKEL, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
LEAD, TOTAL	001	S	01L0426	06/25/01	07/14/01	07/23/01
B125X3						
SILVER, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
ALUMINUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
CALCIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
CADMIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
CHROMIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
COPPER, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
IRON, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
MERCURY, TOTAL	002	S	01C0221	06/26/01	07/17/01	07/17/01
POTASSIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
MAGNESIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
MANGANESE, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
MOLYBDENUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/25/01
SODIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
NICKEL, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
LEAD, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
VANADIUM, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
ZINC, TOTAL	002	S	01L0426	06/26/01	07/14/01	07/23/01
B125Y2						
SILVER, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
SILVER, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
SILVER, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
ALUMINUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
ALUMINUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
BISMUTH, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/25/01
BISMUTH, TOTAL REP	003 REP	S	01L0426	06/26/01	07/14/01	07/25/01
BISMUTH, TOTAL SPIKE	003 MS	S	01L0426	06/26/01	07/14/01	07/25/01
CALCIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
CALCIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
CALCIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
CADMIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
CADMIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
CADMIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
CHROMIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
CHROMIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
CHROMIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
COPPER, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
COPPER, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
COPPER, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
IRON, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
IRON, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
IRON, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
MERCURY, TOTAL	003	S	01C0221	06/26/01	07/17/01	07/17/01
POTASSIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
POTASSIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
POTASSIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
MAGNESIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
MAGNESIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
MAGNESIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
MANGANESE, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
MANGANESE, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
MANGANESE, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
MOLYBDENUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/25/01
MOLYBDENUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/25/01
MOLYBDENUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/25/01
SODIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
SODIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
SODIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
NICKEL, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
NICKEL, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
LEAD, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
LEAD, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
LEAD, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
VANADIUM, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
VANADIUM, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
VANADIUM, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01
ZINC, TOTAL	003	S	01L0426	06/26/01	07/14/01	07/23/01
ZINC, TOTAL	003 REP	S	01L0426	06/26/01	07/14/01	07/23/01
ZINC, TOTAL	003 MS	S	01L0426	06/26/01	07/14/01	07/23/01

LAB QC:

SILVER LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
SILVER, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
CADMIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
CADMIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
CHROMIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
CHROMIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
COPPER LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
COPPER, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
MERCURY LABORATORY	LC1 BS	S	01C0228	N/A	07/23/01	07/23/01
MERCURY, TOTAL	MB1	S	01C0228	N/A	07/23/01	07/23/01
MERCURY LABORATORY	LC1 BS	S	01C0221	N/A	07/17/01	07/17/01
MERCURY, TOTAL	MB1	S	01C0221	N/A	07/17/01	07/17/01
NICKEL LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
NICKEL, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
LEAD LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
LEAD, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
ALUMINUM LABORTORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
ALUMINUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
CALCIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
CALCIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
IRON LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
IRON, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
POTASSIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
POTASSIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-058 H1404

DATE RECEIVED: 06/29/01 LVL LOT # :0106L206

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
MAGNESIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
MANGANESE LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
MANGANESE, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
MOLYBDENUM LABORATOR	LC1 BS	S	01L0426	N/A	07/14/01	07/25/01
MOLYBDENUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/25/01
SODIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
SODIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
VANADIUM LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
VANADIUM, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
ZINC LABORATORY	LC1 BS	S	01L0426	N/A	07/14/01	07/23/01
ZINC, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/23/01
BISMUTH, LCS	LC1 BS	S	01L0426	N/A	07/14/01	07/25/01
BISMUTH, TOTAL	MB1	S	01L0426	N/A	07/14/01	07/25/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-058
LVL#: 0106L206
SDG/SAF#: H1404/B01-058

W.O.#: 11343-606-001-9999-00
Date Received: 06-29-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 3 soil 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.

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), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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

10. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration levels for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B125Y2	Aluminum	20,000	101.3
	Iron	20,000	79.0

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 18 pages.

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.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

07-30-01
Date

jjw/m06-206

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0106L706

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	X6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	NW 1/30/07 X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	X7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B		__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__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	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B125Y3	Silver, Total	0.30	MG/KG	0.29	1.0
		Cadmium, Total	0.46	MG/KG	0.44	1.0
		Chromium, Total	10.8	MG/KG	0.40	1.0
		Copper, Total	14.0	MG/KG	0.24	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	12.8	MG/KG	1.2	1.0
		Lead, Total	10.1	MG/KG	3.2	1.0
-002	B125X3	Silver, Total	0.37	MG/KG	0.29	1.0
		Aluminum, Total	5970	MG/KG	1.7	1.0
		Calcium, Total	9590	MG/KG	2.7	1.0
		Cadmium, Total	0.67	MG/KG	0.44	1.0
		Chromium, Total	15.4	MG/KG	0.40	1.0
		Copper, Total	13.7	MG/KG	0.25	1.0
		Iron, Total	24900	MG/KG	1.1	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	796	MG/KG	44.3	1.0
		Magnesium, Total	4100	MG/KG	2.6	1.0
		Manganese, Total	298	MG/KG	0.18	1.0
		Molybdenum, Total	1.2 u	MG/KG	1.2	1.0
		Sodium, Total	994	MG/KG	2.0	1.0
		Nickel, Total	11.9	MG/KG	1.2	1.0
		Lead, Total	5.6	MG/KG	3.2	1.0
		Vanadium, Total	65.7	MG/KG	0.44	1.0
		Zinc, Total	43.7	MG/KG	0.30	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B125Y2	Silver, Total	0.50		MG/KG	0.29	1.0
		Aluminum, Total	7580		MG/KG	1.7	1.0
		Bismuth, Total	5.7	u	MG/KG	5.7	1.0
		Calcium, Total	9230		MG/KG	2.7	1.0
		Cadmium, Total	0.44	u	MG/KG	0.44	1.0
		Chromium, Total	16.5		MG/KG	0.40	1.0
		Copper, Total	13.5		MG/KG	0.25	1.0
		Iron, Total	23300		MG/KG	1.1	1.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Potassium, Total	1070		MG/KG	44.6	1.0
		Magnesium, Total	4320		MG/KG	2.6	1.0
		Manganese, Total	282		MG/KG	0.18	1.0
		Molybdenum, Total	1.2	u	MG/KG	1.2	1.0
		Sodium, Total	1170		MG/KG	2.0	1.0
		Nickel, Total	13.9		MG/KG	1.2	1.0
		Lead, Total	4.6		MG/KG	3.2	1.0
		Vanadium, Total	65.3		MG/KG	0.44	1.0
		Zinc, Total	45.0		MG/KG	0.30	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0426-MB1	Silver, Total	0.28 u	MG/KG	0.28	1.0
		Aluminum, Total	1.7 u	MG/KG	1.7	1.0
		Bismuth, Total	5.6 u	MG/KG	5.6	1.0
		Calcium, Total	2.6 u	MG/KG	2.6	1.0
		Cadmium, Total	0.43 u	MG/KG	0.43	1.0
		Chromium, Total	0.39 u	MG/KG	0.39	1.0
		Copper, Total	0.24 u	MG/KG	0.24	1.0
		Iron, Total	1.1 u	MG/KG	1.1	1.0
		Potassium, Total	43.4 u	MG/KG	43.4	1.0
		Magnesium, Total	2.6 u	MG/KG	2.6	1.0
		Manganese, Total	0.18 u	MG/KG	0.18	1.0
		Molybdenum, Total	1.2 u	MG/KG	1.2	1.0
		Sodium, Total	3.3	MG/KG	1.9	1.0
		Nickel, Total	1.1 u	MG/KG	1.1	1.0
		Lead, Total	3.1 u	MG/KG	3.1	1.0
		Vanadium, Total	0.43 u	MG/KG	0.43	1.0
		Zinc, Total	0.89	MG/KG	0.29	1.0
BLANK1	01C0228-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	01C0221-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B125Y3	Mercury, Total	0.17	0.02u	0.17	99.4	1.0
-003	B125Y2	Silver, Total	5.1	0.50	5.1	90.1	1.0
		Aluminum, Total	8350	7580	205	373.0*	1.0
		Bismuth, Total	515	5.7 u	514	100.3	1.0
		Calcium, Total	11400	9230	2570	86.0	1.0
		Cadmium, Total	4.6	0.44u	5.1	90.2	1.0
		Chromium, Total	38.0	16.5	20.5	104.9	1.0
		Copper, Total	37.0	13.5	25.7	91.4	1.0
		Iron, Total	22800	23300	103	-500. *	1.0
		Potassium, Total	3720	1070	2570	103.1	1.0
		Magnesium, Total	7070	4320	2570	107.1	1.0
		Manganese, Total	344	282	51.3	120.7*	1.0
		Molybdenum, Total	98.3	1.2 u	103	95.7	1.0
		Sodium, Total	3700	1170	2570	98.5	1.0
		Nickel, Total	66.2	13.9	51.3	101.9	1.0
		Lead, Total	55.3	4.6	51.3	98.8	1.0
		Vanadium, Total	112	65.3	51.3	90.1	1.0
		Zinc, Total	97.9	45.0	51.3	103.1	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B125Y3	Mercury, Total	0.02u	0.02u	NC	1.0
-003REP	B125Y2	Silver, Total	0.50	0.39	26.1	1.0
		Aluminum, Total	7580	8130	7.0	1.0
		Bismuth, Total	5.7 u	9.9	~~NC~~ zero	1.0
		Calcium, Total	9230	9290	0.66 MJ 7/30/01	1.0
		Cadmium, Total	0.44u	0.44u	NC	1.0
		Chromium, Total	16.5	18.2	9.8	1.0
		Copper, Total	13.5	13.8	2.2	1.0
		Iron, Total	23300	24400	4.7	1.0
		Potassium, Total	1070	1220	13.4	1.0
		Magnesium, Total	4320	4500	4.1	1.0
		Manganese, Total	282	311	9.5	1.0
		Molybdenum, Total	1.2 u	1.2 u	NC	1.0
		Sodium, Total	1170	1250	6.3	1.0
		Nickel, Total	13.9	17.6	23.5	1.0
		Lead, Total	4.6	5.9	24.8	1.0
		Vanadium, Total	65.3	68.8	5.2	1.0
		Zinc, Total	45.0	49.3	9.1	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 07/30/01

CLIENT: TNUHANFORD B01-058 H1404 LVL LOT #: 0106L206

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0426-LC1	Silver, LCS	47.0	50.0	MG/KG	94.0
		Aluminum, LCS	481	500	MG/KG	96.1
		Bismuth, LCS	478	500	MG/KG	95.7
		Calcium, LCS	2440	2500	MG/KG	97.5
		Cadmium, LCS	23.8	25.0	MG/KG	95.2
		Chromium, LCS	49.4	50.0	MG/KG	98.8
		Copper, LCS	117	125	MG/KG	93.8
		Iron, LCS	487	500	MG/KG	97.4
		Potassium, LCS	2350	2500	MG/KG	94.0
		Magnesium, LCS	2370	2500	MG/KG	94.9
		Manganese, LCS	73.2	75.0	MG/KG	97.6
		Molybdenum, LCS	484	500	MG/KG	96.8
		Sodium, LCS	2330	2500	MG/KG	93.0
		Nickel, LCS	196	200	MG/KG	98.2
		Lead, LCS	241	250	MG/KG	96.4
		Vanadium, LCS	241	250	MG/KG	96.4
		Zinc, LCS	95.4	100	MG/KG	95.4
LCS1	01C0228-LC1	Mercury, LCS	2.7	2.5	MG/KG	108.2
LCS1	01C0221-LC1	Mercury, LCS	2.5	2.5	MG/KG	101.3

Lionville Laboratory Use Only

01061206

Custody Transfer Record/Lab Work Request

Page 1 of 1

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) Met Porous Dig wet

LVL LIONVILLE LABORATORY INC

Client: TNU-Hanford B01-058

Est. Final Proj. Sampling Date:

Project #: 11343-6006-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: QS

QC: SpC Del: Std TAT: 30 day

Date Rec'd: 6-29-01 Date Due: 7-29-01

		A	B						C		D	E	F			
Refrigerator #		1	4						4		4	4	4			
#/Type Container	Liquid															
	Solid	1AG	1AG						1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	500						500		60	250	120			
Preservatives		–	–						–		–	–	–			
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	Chromium Hexane	HC Anions	ICP metals			
		Lionville Laboratory Use Only														
		0021H	0025X			0020			met①		ICRL①	Inorg①	met②			

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	VOA	BNA	Pest/PCB	Herb				Metal	CN	Chromium Hexane	HC Anions	ICP metals			
001	B125Y3			S	6-25-01	0145		X 500mL			✓			X 500mL		X					
002	B125X3			L	6-26-01	0600	X	X 250mL			✓			X 120mL		X	X	X			
003	B125Y2			L	6-26-01	0400		X 500mL			✓					X	X 1000mL	X 500mL			

Special Instructions: Soil B01-058
Run Matrix QC 7-10-01
Met①=Cd,Cr,Cu,Ni,Ag,Bi,Pb,Hg
Inorg①=ICCL, ICFL, ICNO2, ICNO3, ICPO4, ICSO4, InH3N, In3N2, ICNTO, IOCT, IPH
Met②=Al,Bi,Cd,Ca,Cr,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Ag,Na,V,Zn

DATE/REVISIONS:
#001 1. Cr+6 + Metals Share 500mL AG
7-10-01 2. Bi cancelled
3. #001 anions added (Cl,F,NO2,NO3,PO4,SO4)
4. #003 - Cr+6 added
5.
6.

Lionville Laboratory Use Only

Samples were: ✓
1) Shipped ___ or Hand Delivered ___
Airbill # 8200 9089 2130
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 6.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	Inez Stoltefus	6-29-01	0900

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-13	Page 1 of 1

Collector Thomas G./Watson D.	**Company Contact** Todd, M.E. **Telephone No.** (509) 372-9631	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	**Sampling Location** T-26/200 W	**SAF No.** B01-058	**Air Quality** ☐
Ice Chest No. ETG-28-01 ERC96-042 (1 of 1)	**Field Logbook No.** EL-1518 **COA** B20TW1A44C	**Method of Shipment** Fed EX	
Shipped To ~~TMA~~/ECRA	**Offsite Property No.** R6R10713	**Bill of Lading/Air Bill No.**	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	aG	aG	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	500mL	1000mL	500mL	500mL	500mL	1000mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 6/25/01. Collector not available to relinquish samples on 6/26/01 for shipment.

ZT 6-28-01

Sample No.	Matrix *	Sample Date	Sample Time									
B125Y3	SOIL	06-25-01	0145	X			X					TIE TO B2626

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJ Watson	06-25-01/0735	REF. 1A 3728	06-25-01/0735
Ref 1A 3728	0800 6-28-01	R Thore	0800 6-28-01
R Thore	0800 6-28-01		
Fed Ex	6-29-01 0900		6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV); Chromium Hex - 7196

(2) ~~IC Anions - 300.0 (Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Alkalinity - 310.1; TDS - 160.1; pH (Soil) - 9045~~ DELETED ITEM(S) ZT 6-27-01

(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D

~~(4) ICP Metals - 6010A (TAL) (Add-on) {Aluminum, Barium, Beryllium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Potassium, Silver, Sodium, Vanadium, Zinc}; (5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 - Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~ ZT 6-27-01

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-3	Page 1 of 1

Collector Thomas G./Watson D.	**Company Contact** Todd, M.E. **Telephone No.** (509) 372-9631	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	**Sampling Location** T-26/200 W	**SAF No.** B01-058	**Air Quality** ☐
Ice Chest No. RT 6.28.01 N/A ERC 96042(6d)	**Field Logbook No.** EL-1518	**COA** B20TW1A44C	**Method of Shipment** 03W 06-26-01 Government Vehicle/Fed EX
Shipped To 03W 06-26-01 ~~Severn Trent Incorporated~~ REGRA ~~TMH~~	**Offsite Property No.** RSR 10713		**Bill of Lading/Air Bill No.** N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 10K CPM ON SPLIT SPOON B/G <0.5mrem/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None RT 6.27.01	None RT 6.27.01		
Type of Container	sG	sG	sG	sG	sG	sG	sG	sG		
No. of Container(s)	1	1	1	1	1	1				
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan		

Sample No.	Matrix *	Sample Date	Sample Time										
B125X3	SOIL	06/26/01	0600	X	X	X	X	X	X	X	X	TIE TO	B2629

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DJWATSON	06/26/01 0800	R. Thorer	0820 6.26.01
R. Thorer	06/26/01 0900	R. IA 3728	06/26/01 0900
R. IA 3728	6.28.01 0800	R. Thorer	6.28.01 0800
R. Thorer	6.28.01 0800	FED EX	
Fed Ex	6-29-01 0900		6-29-01 0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Bismuth, Lead}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}
~~(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6.27.01

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-12	Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/200 W	SAF No.: B01-058	
Ice Chest No.: ERC 96-042 (1 of 1)	Field Logbook No.: EL-1518	COA: B20TW1A44C	Method of Shipment: Fed EX
Shipped To: TMA/RECRA	Offsite Property No.: RSR 107131		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive 14kcpm on split spoon β/γ
< 0.5 mR/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container	~~Poly~~	sG	~~Poly~~	sG	sG	sG				
No. of Container(s)	RT 6-26-01	1	RT 6-26-01	1	1	RT 6-26-01				
Volume	~~500mL~~	1000mL	~~1000mL~~	500mL	500mL	1000mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B125Y2	SOIL	06/26/01	0400	~~X~~ RT 6-26-01	X		X	X	X			TICTO	B12630

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: DO WATSON	06-26-01 0820	Received By/Stored In: R. Thorson	6-26-01 0820
Relinquished By/Removed From: R. Thorson	6-26-01 0900	Received By/Stored In: IA 3728	6/26/01 0900
Relinquished By/Removed From: IA 3728	6-26-01 0800	Received By/Stored In: R. Thorson	6-26-01 0800
Relinquished By/Removed From: R. Thorson	6-26-01 0800	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FedEx	6-29-01 0900	Received By/Stored In: [illegible]	6-29-01 900
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Add-on) (Barium, Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (B[illegible]); [illegible] 7196 RT 6-26-01
(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA – 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(4) ICP Metals - 6010TR (Client List) (Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc)
(5) ~~Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228); Isotopic Plutonium, Isotopic Thorium (Thorium-232); Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 – Total Sr, Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium~~

RT 6-26-01

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

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

BHI-EE-011 (10/99)

ORIGINAL Dayes

SDR # B01-087
Revision #: 0
Date Initiated: 07/10/01

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200 TW 1&2
Task ID: 1
Sampling Event: 200-TW-1 & 2 – Soil

Laboratory: TMA/RECRA

Task Manager: M. E. Todd

Sampling Information:
Number of Samples: 6
ID Numbers: B125X3, B125X5, B125X6, B125X7, B125Y3, B125Y9
Matrix: Soil
Collection Date: 06/25/01 – 07/09/01

Issue Background:

Class: ☐ Project Data Use ☒ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Other

Description: Laboratory Instructed to Not Report Bismuth Results

Disposition:

Description: For the listed samples, bismuth was incorrectly identified as a constituent to report from the 6010A metals analysis. The laboratory was subsequently instructed to not report bismuth results for the listed samples. The SAF/FSR has been revised to remove bismuth from the standard 6010A TAL analysis list for this project.

Justification: Bismuth is not a contaminant of concern for characterization.

Approval Signatures:

S. J. Trent — 7/16/01
Project Coordinator (Print/Sign Name) — Date

M. E. Todd — 7/20/01
Task Manager (Print/Sign Name) — Date

ORIGINAL Naynes

SDR # B01-083
Revision #: 0
Date Initiated: 07/09/01

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200 TW 1&2
Task ID: 1
Sampling Event: 200-TW-1 & 2 – Soil

Laboratory: TMA/RECRA

Task Manager: M. E. Todd

Sampling Information:
Number of Samples: 1
ID Numbers: B125Y2
Matrix: Soil
Collection Date: 06/26/01

Issue Background:

Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Chain of Custody Problem

Description: Chain of Custody Requested Analyses Not Properly Completed

Disposition:

Description: The chain of custody for the listed sample did not have all required analyses requested. The required analyses were subsequently added to the sample analysis request (see SDR B01-084).

Justification: Chain of custody documents need to reflect all required sample analyses.

Approval Signatures:

S. J. Trent — 7/16/01
Project Coordinator (Print/Sign Name) — Date

M. E. Todd — 7/20/01
Task Manager (Print/Sign Name) — Date

ORIGINAL DGuyes

SDR # B01-084
Revision #: 0
Date Initiated: 07/09/01

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200 TW 1&2
Task ID: 1
Sampling Event: 200-TW-1 & 2 – Soil

Laboratory: TMA/RECRA

Task Manager: M. E. Todd

Sampling Information:
Number of Samples: 1
ID Numbers: B125Y2
Matrix: Soil
Collection Date: 06/26/01

Issue Background:

Class: ☐ Project Data Use ☒ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Addition of Analyses

Description: Addition of Cr-VI and total Hg Analyses

Disposition:

Description: Because of a chain of custody error (see SDR B01-083) Cr-VI and total Hg analyses were not included in the analytical request for this sample. ERC Sample Management subsequently requested the laboratory to add these analyses to the sample analysis request for the listed sample.

Justification: Cr-VI and total Hg data are needed to meet data quality objectives associated with the 200-TW-1 characterization effort.

Approval Signatures:

S. J. Trent — 7/16/01
Project Coordinator (Print/Sign Name) — Date

M. E. Todd — 7/20/01
Task Manager (Print/Sign Name) — Date

ORIGINAL Dayna

SDR # B01-087
Revision #: 0
Date Initiated: 07/10/01

SAMPLE DISPOSITION RECORD

SAF: B01-058
OU: 200-TW-1/2
Project ID: 200 TW 1&2
Task ID: 1
Sampling Event: 200-TW-1 & 2 – Soil

Laboratory: TMA/RECRA

Task Manager: M. E. Todd

Sampling Information:
Number of Samples: 6
ID Numbers: B125X3, B125X5, B125X6, B125X7, B125Y3, B125Y9
Matrix: Soil
Collection Date: 06/25/01 – 07/09/01

Issue Background:

Class: ☐ Project Data Use ☒ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Other

Description: Laboratory Instructed to Not Report Bismuth Results

Disposition:

Description: For the listed samples, bismuth was incorrectly identified as a constituent to report from the 6010A metals analysis. The laboratory was subsequently instructed to not report bismuth results for the listed samples. The SAF/FSR has been revised to remove bismuth from the standard 6010A TAL analysis list for this project.

Justification: Bismuth is not a contaminant of concern for characterization.

Approval Signatures:

S. J. Trent — 7/16/01
Project Coordinator (Print/Sign Name) — Date

M. E. Todd — 7/20/01
Task Manager (Print/Sign Name) — Date