H0658 TMT RECORD
COL...56

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MAR 28 2000
EDMC

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0658 was composed of three solid (soil) samples designated under SAF No. B00-006 with a Project Designation of: 200 Area Source Characterization 200-CS-1 Operable Unit.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. Results were transmitted to BHI via facsimile on February 8 and 16, 2000.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

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Data
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2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

Due to low yields Isotopic Thorium samples B0X0B1 (7302-01), B0X0B2 (7302-02), and B0X0B3 (7302-03) were reanalyzed with new QC samples. The Isotopic Thorium sample B0X0B3 reanalysis was batched with SDG H0662 (7306). The duplicate analysis RPD (139%) associated with samples B0X0B1 and B0X0B2 was greater than the allowable 70% three-sigma total protocol error. No other problems were encountered during the course of the reanalyses.

2.7 Total Uranium Analyses

No problems were encountered during the course of the analyses. Total Uranium results were transmitted to BHI via facsimile on January 10, 2000.

2.8 Isotopic Uranium Analyses

BHI requested sample B0X0B1 (7302-01) be analyzed for Isotopic Uranium on January 11, 2000. 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 Gamma Spec Analyses

Samples were recounted to meet contract required RDLs. No other problems were encountered during the course of the analyses.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SAMPLE SUMMARY

SDG 7302
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0X0B1	200 West	SOLID		N911232-01	B00-006	B00-006-11	11/22/99 10:35
B0X0B2	200 West	SOLID		N911232-02	B00-006	B00-006-11	11/22/99 10:35
B0X0B3	200 West	SOLID		N911232-03	B00-006	B00-006-13	11/22/99 09:45
Method Blank		SOLID		N911232-05	B00-006		
Method Blank		SOLID		N911232-08	B00-006		
Method Blank		SOLID		N911232-16	B00-006		
Method Blank		SOLID		N912041-12	B00-006		
Lab Control Sample		SOLID		N911232-04	B00-006		
Lab Control Sample		SOLID		N911232-07	B00-006		
Lab Control Sample		SOLID		N911232-15	B00-006		
Lab Control Sample		SOLID		N912041-11	B00-006		
Duplicate (N911232-01)	200 West	SOLID		N911232-06	B00-006		11/22/99 10:35
Duplicate (N911232-01)	200 West	SOLID		N911232-09	B00-006		11/22/99 10:35
Duplicate (N911232-01)	200 West	SOLID		N911232-17	B00-006		11/22/99 10:35
Duplicate (N911232-03)	200 West	SOLID		N911232-14	B00-006		11/22/99 09:45
Spike (N911232-01)	200 West	SOLID		N911232-10	B00-006		11/22/99 10:35
Spike (N911232-02)	200 West	SOLID		N911232-12	B00-006		11/22/99 10:35

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

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
7302	B00-006-11	B0X0B1	SOLID	98.0			11/24/99	2	N911232-01	7302-001
		B0X0B2	SOLID	98.3			11/24/99	2	N911232-02	7302-002
	B00-006-13	B0X0B3	SOLID	91.2			11/24/99	2	N911232-03	7302-003
		Method Blank	SOLID						N911232-05	7302-005
		Method Blank	SOLID						N911232-08	7302-008
		Method Blank	SOLID						N911232-16	7302-016
		Lab Control Sample	SOLID						N911232-04	7302-004
		Lab Control Sample	SOLID						N911232-07	7302-007
		Lab Control Sample	SOLID						N911232-15	7302-015
		Duplicate (N911232-01)	SOLID				11/24/99	2	N911232-06	7302-006
		Duplicate (N911232-01)	SOLID				11/24/99	2	N911232-09	7302-009
		Duplicate (N911232-01)	SOLID				11/24/99	2	N911232-17	7302-017
		Duplicate (N911232-03)	SOLID				11/24/99	2	N911232-14	7302-014
		Spike (N911232-01)	SOLID				11/24/99	2	N911232-10	7302-010
		Spike (N911232-02)	SOLID				11/24/99	2	N911232-12	7302-012
7306		Method Blank	SOLID						N912041-12	7306-012
		Lab Control Sample	SOLID						N912041-11	7306-011

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Soil	6909-124	5.0	3			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6909-124	5.0	3			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6909-124	5.0	2			1	1	1/1		
			6909-138	5.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6909-124	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6909-124	10.0	3			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6909-124	10.0	3			1	1	1/1		
Gas Proportional Counting												
80A	SOLID	Gross Alpha in Soil	6909-124	20.0	3			1	1	1/1		
80B	SOLID	Gross Beta in Soil	6909-124	15.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6909-124	15.0	3			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6909-124	9.0	3			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6909-124	10.0	3			1	1	1/1	1/1	
NI_L	SOLID	Nickel 63 in Soil	6909-124	10.0	3			1	1	1/1	1/1	

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0X0B1			N911232-01	7302-001	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/22/99	7302-001	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
B00-006-11	B00-006		11/24/99	7302-001	GAM		01/31/00	02/08/00	MCM	Gamma Scan
				7302-001	H		01/20/00	02/08/00	MCM	Tritium in Soil
				7302-001	NI_L		01/24/00	02/08/00	MCM	Nickel 63 in Soil
				7302-001	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-001	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-001	SR		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-001	TC		01/15/00	02/08/00	MCM	Technetium 99 in Soil
				7302-001	TH	A1	02/15/00	02/16/00	MCM	Thorium, Isotopic in Soil
				7302-001	U		01/15/00	02/08/00	MCM	Uranium, Isotopic in Soil
				7302-001	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil
B0X0B2			N911232-02	7302-002	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/22/99	7302-002	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
B00-006-11	B00-006		11/24/99	7302-002	GAM		01/31/00	02/08/00	MCM	Gamma Scan
				7302-002	H		01/20/00	02/08/00	MCM	Tritium in Soil
				7302-002	NI_L		01/24/00	02/08/00	MCM	Nickel 63 in Soil
				7302-002	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-002	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-002	SR .		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-002	TC		01/14/00	02/08/00	MCM	Technetium 99 in Soil
				7302-002	TH	A1	02/14/00	02/16/00	MCM	Thorium, Isotopic in Soil
				7302-002	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil
B0X0B3			N911232-03	7302-003	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/22/99	7302-003	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
B00-006-13	B00-006		11/24/99	7302-003	GAM		01/31/00	02/08/00	MCM	Gamma Scan
				7302-003	H		01/20/00	02/08/00	MCM	Tritium in Soil
				7302-003	NI_L		01/24/00	02/08/00	MCM	Nickel 63 in Soil
				7302-003	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-003	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-003	SR		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-003	TC		01/17/00	02/08/00	MCM	Technetium 99 in Soil
				7302-003	TH	A1	01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
				7302-003	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			N911232-05	7302-005	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
		SOLID		7302-005	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
	B00-006			7302-005	GAM		02/01/00	02/08/00	MCM	Gamma Scan
				7302-005	H		01/21/00	02/08/00	MCM	Tritium in Soil
				7302-005	NI_L		01/25/00	02/08/00	MCM	Nickel 63 in Soil
				7302-005	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-005	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-005	SR		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-005	TC		01/17/00	02/08/00	MCM	Technetium 99 in Soil
				7302-005	U		01/15/00	02/08/00	MCM	Uranium, Isotopic in Soil
Method Blank			N911232-08	7302-008	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil
		SOLID								
	B00-006									
Method Blank			N911232-16	7302-016	TH		02/14/00	02/16/00	MCM	Thorium, Isotopic in Soil
		SOLID								
	B00-006									
Method Blank			N912041-12	7306-012	TH		01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
		SOLID								
	B00-006									
Lab Control Sample			N911232-04	7302-004	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
		SOLID		7302-004	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
	B00-006			7302-004	GAM		01/31/00	02/08/00	MCM	Gamma Scan
				7302-004	H		01/21/00	02/08/00	MCM	Tritium in Soil
				7302-004	NI_L		01/24/00	02/08/00	MCM	Nickel 63 in Soil
				7302-004	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-004	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-004	SR		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-004	TC		01/14/00	02/08/00	MCM	Technetium 99 in Soil
				7302-004	U		01/15/00	02/08/00	MCM	Uranium, Isotopic in Soil
Lab Control Sample			N911232-07	7302-007	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil
		SOLID								
	B00-006									

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
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SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Maunion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample	B00-006	SOLID	N911232-15	7302-015	TH		02/14/00	02/16/00	MCM	Thorium, Isotopic in Soil
Lab Control Sample	B00-006	SOLID	N912041-11	7306-011	TH		01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
Duplicate (N911232-01)			N911232-06	7302-006	80A/80		01/11/00	02/08/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/22/99	7302-006	80B/80		01/11/00	02/08/00	MCM	Gross Beta in Soil
	B00-006		11/24/99	7302-006	GAM		02/01/00	02/08/00	MCM	Gamma Scan
				7302-006	H		01/21/00	02/08/00	MCM	Tritium in Soil
				7302-006	NI_L		01/25/00	02/08/00	MCM	Nickel 63 in Soil
				7302-006	NP		01/14/00	02/08/00	MCM	Neptunium in Soil
				7302-006	PU		01/07/00	02/08/00	MCM	Plutonium, Isotopic in Solids
				7302-006	SR		01/03/00	02/08/00	MCM	Total Strontium in Soil
				7302-006	TC		01/15/00	02/08/00	MCM	Technetium 99 in Soil
				7302-006	U		01/15/00	02/08/00	MCM	Uranium, Isotopic in Soil
Duplicate (N911232-01)			N911232-09	7302-009	U_T		01/06/00	02/08/00	MCM	Uranium, Total in Soil
200 West		SOLID	11/22/99							
	B00-006		11/24/99							
Duplicate (N911232-01)			N911232-17	7302-017	TH		02/14/00	02/16/00	MCM	Thorium, Isotopic in Soil
200 West		SOLID	11/22/99							
	B00-006		11/24/99							
Duplicate (N911232-03)			N911232-14	7302-014	TH		01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
200 West		SOLID	11/22/99							
	B00-006		11/24/99							
Spike (N911232-01)			N911232-10	7302-010	H		01/21/00	02/08/00	MCM	Tritium in Soil
200 West		SOLID	11/22/99							
	B00-006		11/24/99							
Spike (N911232-02)			N911232-12	7302-012	NI_L		01/25/00	02/08/00	MCM	Nickel 63 in Soil
200 West		SOLID	11/22/99							
	B00-006		11/24/99							

Lab id TMANC
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

SDG 7302
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
80A/80	B00-006	Gross Alpha in Soil	EPA900.0	3			1	1	1		6
80B/80	B00-006	Gross Beta in Soil	EPA900.0	3			1	1	1		6
GAM	B00-006	Gamma Scan	GAMMAHI	3			1	1	1		6
H	B00-006	Tritium in Soil	EPA906.0	3			1	1	1	1	7
NI_L	B00-006	Nickel 63 in Soil	NI63LSC	3			1	1	1	1	7
NP	B00-006	Neptunium in Soil	NP237PLATE	3			1	1	1		6
PU	B00-006	Plutonium, Isotopic in Solids	PUPLATE	3			1	1	1		6
SR	B00-006	Total Strontium in Soil	SRTOTAL	3			1	1	1		6
TC	B00-006	Technetium 99 in Soil	TC99TRLSC	3			1	1	1		6
TH	B00-006	Thorium, Isotopic in Soil	THPLATE	3			2	2	2		9
U	B00-006	Uranium, Isotopic in Soil	UPLATE	1			1	1	1		4
U_T	B00-006	Uranium, Total in Soil	UKPA	3			1	1	1		6
TOTALS				34			13	13	13	2	75

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-05

Method Blank

METHOD BLANK

SDG	7302	Client/Case no	Hanford	SDG H0658	
Contact	Melissa C. Mannion	Contract	TRB-SPB-207925		
Lab sample id	N911232-05	Client sample id	Method Blank		
Dept sample id	7302-005	Material/Matrix		SOLID	
		SAF No	B00-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.104	1.5	3.3	10	U	80A
Gross Beta	12587-47-2	-4.24	4.3	7.7	15	U	80B
Tritium	10028-17-8	0.024	0.17	0.28	400	U	H
Neptunium 237	13994-20-2	0.035	0.026	0.042		U	NP
Technetium 99	14133-76-7	0.003	0.18	0.50	15	U	TC
Uranium 233	U-233/234	0.005	0.013	0.025	1.0	U	U
Uranium 235	15117-96-1	-0.002	0.008	0.022	1.0	U	U
Uranium 238	U-238	0	0.003	0.013	1.0	U	U
Plutonium 238	13981-16-3	0.004	0.016	0.031	1.0	U	PU
Plutonium 239/240	PU-239/240	0.008	0.016	0.039	1.0	U	PU
Nickel 63	13981-37-8	-1.03	1.4	2.5	30	U	NI_L
Total Strontium	SR-RAD	-0.099	0.17	0.24	1.0	U	SR
Potassium 40	13966-00-2	U		0.28		U	GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.10	U	GAM
Europium 152	14683-23-9	U		0.051	0.10	U	GAM
Europium 154	15585-10-1	U		0.073	0.10	U	GAM
Europium 155	14391-16-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	U		0.041	0.10	U	GAM
Radium 228	15262-20-1	U		0.097	0.20	U	GAM
Thorium 228	14274-82-9	U		0.030		U	GAM
Thorium 232	TH-232	U		0.097		U	GAM
Americium 241	14596-10-2	U		0.046		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Uranium 235	15117-96-1	U		0.063		U	GAM

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK 32917

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-08 Method Blank

METHOD BLANK

SDG	7302	Client/Case no	Hanford	SDG H0658	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911232-08	Client sample id	Method Blank		
Dept sample id	7302-008	Material/Matrix		SOLID	
		SAF No	B00-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	-0.010	0.001	0.002	1.0	U	U_T

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK #32895

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-16 Method Blank

METHOD BLANK

SDG	7302	Client/Case no	Hanford	SDG H0658	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911232-16	Client sample id	Method Blank		
Dept sample id	7302-016	Material/Matrix		SOLID	
		SAF No	B00-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 228	14274-82-9	0	0.096	0.19	1.0	U	TH
Thorium 230	14269-63-7	0.060	0.12	0.16	1.0	U	TH
Thorium 232	TH-232	0.012	0.048	0.091	1.0	U	TH

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK #33428

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N912041-12 Method Blank

METHOD BLANK

SDG	7302	Client/Case no	Hanford SDG H0658
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N912041-12	Client sample id	Method Blank
Dept sample id	7306-012	Material/Matrix	SOLID
		SAF No	B00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Technetium 99	14133-76-7	N.A.			15		TC
Nickel 63	13981-37-8	N.A.			30		NI_L
Thorium 228	14274-82-9	-0.026	0.078	0.19	1.0	U	TH
Thorium 230	14269-63-7	0.039	0.13	0.17	1.0	U	TH
Thorium 232	TH-232	0.013	0.026	0.099	1.0	U	TH

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK 33199

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-04 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7302 Client/Case no Hanford SDG H0658

Contact Melissa C. Mannion Case no TRB-SPB-207925

Lab sample id N911232-04 Client sample id Lab Control Sample

Dept sample id 7302-004 Material/Matrix SOLID

SAF No P00-006

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
Gross Alpha	171	14	2.8	10		80A	201	8.0	85	72-128	70-130
Gross Beta	217	11	7.4	15		80B	225	9.0	96	76-124	70-130
Tritium	19.7	0.51	0.28	400	J	H	20.9	0.84	94	84-116	80-120
Neptunium 237	9.69	0.43	0.025			NP	10.6	0.42	91	89-111	
Technetium 99	65.0	2.4	0.65	15		TC	65.4	2.6	99	83-117	80-120
Uranium 233	4.79	0.23	0.10	1.0		U	4.64	0.19	103	88-112	80-120
Uranium 235	3.60	0.19	0.012	1.0		U	3.77	0.15	95	88-112	80-120
Uranium 238	4.84	0.23	0.095	1.0		U	5.04	0.20	96	88-112	80-120
Plutonium 238	10.7	0.88	0.062	1.0		PU	11.3	0.45	95	85-115	80-120
Plutonium 239/240	11.4	0.93	0.062	1.0		PU	11.9	0.48	96	85-115	80-120
Nickel 63	107	3.2	2.4	30		NI_L	100	4.0	107	82-118	80-120
Total Strontium	13.2	0.48	0.23	1.0		SR	11.3	0.45	117	80-120	80-120
Cobalt 60	1.65	0.084	0.056	0.050		GAM	1.66	0.066	99	76-124	80-120
Cesium 137	1.78	0.077	0.061	0.10		GAM	1.77	0.071	101	76-124	80-120

200 Area Source Chara. - 200-CS-1 OU

QC-LCS 32916

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-07 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7302 Client/Case no Hanford SDG H0658

Contact Melissa C. Mannion Case no TRB-SEB-207925

Lab sample id N911232-07 Client sample id Lab Control Sample

Dept sample id 7302-007 Material/Matrix SOLID

SAF No R00-006

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
Total Uranium (ug/g)	35.2	4.2	0.018	1.0		U_T	37.2	1.5	95	78-122	80-120

200 Area Source Chara. - 200-CS-1 OU

QC-LCS #32894

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-15

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7302

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0658

Case no TRP-SPR-207925

Lab sample id N911232-15

Dept sample id 7302-015

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No B00-006

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
Thorium 228	0.069	0.069	0.13	1.0	U	TH					
Thorium 230	21.1	1.4	0.16	1.0		TH	20.4	0.82	103	86-114	
Thorium 232	0.080	0.069	0.088	1.0	U	TH					

200 Area Source Chara. - 200-CS-1 OU

QC-LCS #33427

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N912041-11 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7302 Client/Case no Hanford SDG H0658

Contact Melissa C. Mannion Case no TRB-SPB-207925

Lab sample id N912041-11 Client sample id Lab Control Sample

Dept sample id 7306-011 Material/Matrix SOLID

SAF No B00-006

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
Technetium 99	N.A.			15		TC					80-120
Nickel 63	N.A.			30		NI_L					80-120
Thorium 228	-0.026	0.13	0.25	1.0	U	TH					
Thorium 230	21.3	1.5	0.16	1.0		TH	22.4	0.90	95	86-114	
Thorium 232	0.079	0.079	0.10	1.0	U	TH					

200 Area Source Chara. - 200-CS-1 OU

QC-LCS 33198

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-06

B0X0B1

DUPLICATE

SDG	7302			Client/Case no	Hanford SDG H0658
Contact	Melissa C. Mannion			Case no	TRB-SRB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N911232-06	Lab sample id	N911232-01	Client sample id	B0X0B1
Dept sample id	7302-006	Dept sample id	7302-001	Location/Matrix	200 West SOLID
		Received	11/24/99	Collected	11/22/99 10:35
		% solids	98.0	Custody/SAF No	B00-006-11 B00-006

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
Gross Alpha	8.58	3.5	3.4	10	J	80A	5.61	3.3	4.1	J	42	110
Gross Beta	21.9	5.2	7.1	15		80B	19.8	4.4	5.6		10	58
Tritium	0.030	0.087	0.15	400	U	H	0.064	0.092	0.15	U	-	
Neptunium 237	0.019	0.023	0.029		U	NP	0.030	0.030	0.048	U	-	
Technetium 99	0.078	0.25	0.68	15	U	TC	-0.062	0.18	0.54	U	-	
Uranium 233	0.415	0.051	0.016	1.0	J	U	0.452	0.053	0.011	J	9	28
Uranium 235	0.035	0.017	0.013	1.0	J	U	0.022	0.014	0.013	J	46	116
Uranium 238	0.412	0.051	0.014	1.0	J	U	0.381	0.049	0.011	J	8	29
Plutonium 238	0.011	0.014	0.027	1.0	U	PU	0.026	0.031	0.039	U	-	
Plutonium 239/240	0.004	0.014	0.027	1.0	U	PU	0.015	0.031	0.049	U	-	
Nickel 63	1.80	1.5	2.4	30	U	NI_L	0.758	1.5	2.4	U	-	
Total Strontium	-0.009	0.15	0.20	1.0	U	SR	-0.015	0.15	0.20	U	-	
Potassium 40	11.4	2.1	0.44			GAM	12.9	1.0	0.56		12	43
Cobalt 60	U		0.044	0.050	U	GAM	U		0.059	U	-	
Cesium 137	U		0.039	0.10	U	GAM	U		0.047	U	-	
Europium 152	U		0.11	0.10	U	GAM	U		0.12	U	-	
Europium 154	U		0.13	0.10	U	GAM	U		0.17	U	-	
Europium 155	U		0.083	0.10	U	GAM	U		0.12	U	-	
Radium 226	0.393	0.091	0.075	0.10		GAM	0.428	0.098	0.097		9	58
Radium 228	0.672	0.21	0.18	0.20		GAM	0.566	0.20	0.21		17	77
Thorium 228	0.541	0.069	0.047			GAM	0.583	0.054	0.056		7	40
Thorium 232	0.672	0.21	0.18			GAM	0.566	0.20	0.21		17	77
Americium 241	U		0.045		U	GAM	U		0.12	U	-	
Uranium 238	U		5.0		U	GAM	U		6.6	U	-	
Uranium 235	U		0.14		U	GAM	U		0.17	U	-	

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/16/00

DUPLICATE, cont.

SDG	7302		Client/Case no	Hanford	SDG H0658
Contact	Melissa C. Mannion		Case no	TRB-SPB-207825	
DUPLICATE		ORIGINAL			
Lab sample id	N911232-06	Lab sample id	N911232-01	Client sample id	B0X0B1
Dept sample id	7302-006	Dept sample id	7302-001	Location/Matrix	200 West SOLID
		Received	11/24/99	Collected	11/22/99 10:35
		% solids	98.0	Custody/SAF No	B00-006-11 B00-006

QC-DUP#1 32918

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-09 B0X0B1

DUPLICATE

SDG	7302			Client/Case no	Hanford SDG H0658
Contact	Melissa C. Mannion			Case no	TRB-SPB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N911232-09	Lab sample id	N911232-01	Client sample id	B0X0B1
Dept sample id	7302-009	Dept sample id	7302-001	Location/Matrix	200 West SOLID
		Received	11/24/99	Collected	11/22/99 10:35
		% solids	98.0	Custody/SAF No	B00-006-11 B00-006

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
Total Uranium (ug/g)	1.90	0.22	0.002	1.0		U_T	1.94	0.22	0.002		2	31	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#1 32896

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-17

B0X0B1

DUPLICATE

SDG 7302		Client/Case no Hanford	SDG H0658
Contact Melissa C. Mannion		Case no TRB-SPB-207925	
DUPLICATE	ORIGINAL		
Lab sample id N911232-17	Lab sample id N911232-01	Client sample id B0X0B1	
Dept sample id 7302-017	Dept sample id 7302-001	Location/Matrix 200 West	SOLID
	Received 11/24/99	Collected 11/22/99 10:35	
	% solids 98.0	Custody/SAF No B00-006-11	B00-006

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
Thorium 228	0.342	0.14	0.19	1.0	J	TH	0.475	0.18	0.20	J	33	84	
Thorium 230	0.191	0.14	0.19	1.0	J	TH	1.06	0.25	0.17		139	70	
Thorium 232	0.402	0.14	0.077	1.0	J	TH	0.387	0.15	0.095	J	4	79	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#1A1 33429

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-14 B0X0B3

DUPLICATE

SDG 7302		Client/Case no Hanford	SDG H0658
Contact Melissa C. Mannion		Case no TRB-SFR-207925	
DUPLICATE	ORIGINAL		
Lab sample id N911232-14	Lab sample id N911232-03	Client sample id B0X0B3	
Dept sample id 7302-014	Dept sample id 7302-003	Location/Matrix 200 West	SOLID
	Received 11/24/99	Collected 11/22/99 09:45	
	% solids 91.2	Custody/SAF No B00-006-13	B00-006

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
Thorium 228	0.730	0.24	0.20	1.0	J	TH	0.580	0.19	0.16	J	23	71	
Thorium 230	0.417	0.18	0.18	1.0	J	TH	0.812	0.21	0.16	J	64	68	
Thorium 232	0.744	0.21	0.11	1.0	J	TH	0.534	0.16	0.089	J	33	63	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#3A1 33202

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/16/00

MATRIX SPIKE

SDG 7302		Client/Case no Hanford	SDG H0658
Contact Melissa C. Mannion		Case no TRB-SPP-207925	
MATRIX SPIKE	ORIGINAL		
Lab sample id N911232-10	Lab sample id N911232-01	Client sample id H0X0B1	
Dept sample id 7302-010	Dept sample id 7302-001	Location/Matrix 200 West	SOLID
	Received 11/24/99	Collected 11/22/99 10:35	
	% solids 98.0	Custody/SAF No H00-006-11	H00-006

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	20.8	0.44	0.21	400	J	H	21.1	0.84	0.064	0.092	98	84-116	60-140

200 Area Source Chara. - 200-CS-1 OU

QC-MS#1 32919

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-12 B0X0B2

MATRIX SPIKE

SDG 7302		Client/Case no Hanford	SDG H0658
Contact Melissa C. Mannion		Case no TKB-SSB-207925	
MATRIX SPIKE	ORIGINAL		
Lab sample id N911232-12	Lab sample id N911232-02	Client sample id B0X0B2	
Dept sample id 7302-012	Dept sample id 7302-002	Location/Matrix 200 West	SOLID
	Received 11/24/99	Collected 11/22/99 10:35	
	% solids 98.3	Custody/SAF No B00-006-11	B00-006

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
Nickel 63	127	3.5	2.5	30		NI_L	134	5.4	2.46	1.5	93	84-116	60-140

200 Area Source Chara. - 200-CS-1 OU

QC-MS#2 32921

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-01 B0X0B1

DATA SHEET

SDG	7302	Client/Case no	Hanford SDG H0658
Contact	Melissa C. Mannion	Contract	TRB-SEB-207925
Lab sample id	N911232-01	Client sample id	B0X0B1
Dept sample id	7302-001	Location/Matrix	200 West SOLID
Received	11/24/99	Collected	11/22/99 10:35
% solids	98.0	Custody/SAF No	P00-006-11 P00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.61	3.3	4.1	10	J	80A
Gross Beta	12587-47-2	19.8	4.4	5.6	15		80B
Tritium	10028-17-8	0.064	0.092	0.15	400	U	H
Neptunium 237	13994-20-2	0.030	0.030	0.048		U	NP
Technetium 99	14133-76-7	-0.062	0.18	0.54	15	U	TC
Uranium 233	U-233/234	0.452	0.053	0.011	1.0	J	U
Uranium 235	15117-96-1	0.022	0.014	0.013	1.0	J	U
Uranium 238	U-238	0.381	0.049	0.011	1.0	J	U
Total Uranium (ug/g)	7440-61-1	1.94	0.22	0.002	1.0		U_T
Plutonium 238	13981-16-3	0.026	0.031	0.039	1.0	U	PU
Plutonium 239/240	PU-239/240	0.015	0.031	0.049	1.0	U	PU
Nickel 63	13981-37-8	0.758	1.5	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.015	0.15	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.475	0.18	0.20	1.0	J	TH
Thorium 230	14269-63-7	1.06	0.25	0.17	1.0		TH
Thorium 232	TH-232	0.387	0.15	0.095	1.0	J	TH
Potassium 40	13966-00-2	12.9	1.0	0.56			GAM
Cobalt 60	10198-40-0	U		0.059	0.050	U	GAM
Cesium 137	10045-97-3	U		0.047	0.10	U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Radium 226	13982-63-3	0.428	0.098	0.097	0.10		GAM
Radium 228	15262-20-1	0.566	0.20	0.21	0.20		GAM
Thorium 228	14274-82-9	0.583	0.054	0.056			GAM
Thorium 232	TH-232	0.566	0.20	0.21			GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Uranium 238	U-238	U		6.6		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

DATA SHEET, cont

SDG	7302	Client/Case no	Hanford	SDG H0658	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911232-01	Client sample id	B0X0B1		
Dept sample id	7302-001	Location/Matrix	200 West	SOLID	
Received	11/24/99	Collected	11/22/99 10:35		
% solids	98.0	Custody/SAF No	B00-006-11	B00-006	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 235	15117-96-1	U		0.17		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-02 B0X0B2

DATA SHEET

SDG	7302	Client/Case no	Hanford SDG H0658
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N911232-02	Client sample id	B0X0B2
Dept sample id	7302-002	Location/Matrix	200 West SOLID
Received	11/24/99	Collected	11/22/99 10:35
% solids	98.3	Custody/SAF No	B00-006-11 B00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.62	3.2	2.8	10	J	80A
Gross Beta	12587-47-2	21.9	5.4	7.4	15		80B
Tritium	10028-17-8	0.040	0.046	0.075	400	U	H
Neptunium 237	13994-20-2	0.028	0.024	0.031		U	NP
Technetium 99	14133-76-7	-0.144	0.30	0.89	15	U	TC
Total Uranium (ug/g)	7440-61-1	0.804	0.092	0.002	1.0	J	U_T
Plutonium 238	13981-16-3	0	0.032	0.076	1.0	U	PU
Plutonium 239/240	PU-239/240	0.016	0.032	0.076	1.0	U	PU
Nickel 63	13981-37-8	2.46	1.5	2.4	30	J	NI_L
Total Strontium	SR-RAD	1.57	0.20	0.19	1.0		SR
Thorium 228	14274-82-9	0.564	0.18	0.18	1.0	J	TH
Thorium 230	14269-63-7	0.432	0.16	0.15	1.0	J	TH
Thorium 232	TH-232	0.344	0.11	0.067	1.0	J	TH
Potassium 40	13966-00-2	12.5	2.1	0.46			GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.043	0.10	U	GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.089	0.10	U	GAM
Radium 226	13982-63-3	0.362	0.10	0.085	0.10		GAM
Radium 228	15262-20-1	0.492	0.20	0.19	0.20		GAM
Thorium 228	14274-82-9	0.573	0.071	0.050			GAM
Thorium 232	TH-232	0.492	0.20	0.19			GAM
Americium 241	14596-10-2	U		0.047		U	GAM
Uranium 238	U-238	U		5.4		U	GAM
Uranium 235	15117-96-1	U		0.15		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

N911232-03 B0X0B3

DATA SHEET

SDG	7302	Client/Case no	Hanford	SDG H0658	
Contact	Melissa C. Mannion	Contract	TRB-SPB-207925		
Lab sample id	N911232-03	Client sample id	B0X0B3		
Dept sample id	7302-003	Location/Matrix	200 West	SOLID	
Received	11/24/99	Collected	11/22/99 09:45		
% solids	91.2	Custody/SAF No	B00-006-13	B00-006	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	9.15	3.8	4.0	10	J	80A
Gross Beta	12587-47-2	16.8	4.3	5.6	15		80B
Tritium	10028-17-8	0.038	0.045	0.074	400	U	H
Neptunium 237	13994-20-2	0.013	0.026	0.042		U	NP
Technetium 99	14133-76-7	-0.132	0.18	0.54	15	U	TC
Total Uranium (ug/g)	7440-61-1	0.772	0.088	0.002	1.0	J	U_T
Plutonium 238	13981-16-3	0.005	0.021	0.041	1.0	U	PU
Plutonium 239/240	PU-239/240	0.117	0.054	0.041	1.0	J	PU
Nickel 63	13981-37-8	2.14	1.5	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.065	0.14	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.580	0.19	0.16	1.0	J	TH
Thorium 230	14269-63-7	0.812	0.21	0.16	1.0	J	TH
Thorium 232	TH-232	0.534	0.16	0.089	1.0	J	TH
Potassium 40	13966-00-2	13.1	0.63	0.33			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	U		0.029	0.10	U	GAM
Europium 152	14683-23-9	U		0.070	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.067	0.10	U	GAM
Radium 226	13982-63-3	0.564	0.061	0.055	0.10		GAM
Radium 228	15262-20-1	0.907	0.14	0.12	0.20		GAM
Thorium 228	14274-82-9	0.856	0.041	0.036			GAM
Thorium 232	TH-232	0.907	0.14	0.12			GAM
Americium 241	14596-10-2	U		0.074		U	GAM
Uranium 238	U-238	U		3.8		U	GAM
Uranium 235	15117-96-1	U		0.10		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test NP Matrix SOLID
SDG 7302
Contact Melissa C. Marrion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6909-124						
B0X0B1	N911232-01			7302-001	U	
B0X0B2	N911232-02			7302-002	U	
B0X0B3	N911232-03			7302-003	U	
BLK (QC ID=32917)	N911232-05			7302-005	U	
LCS (QC ID=32916)	N911232-04			7302-004	ok	
Duplicate (N911232-01)	N911232-06			7302-006	-	U

Nominal values and limits from method RDLs (pCi/g)
200 Area Source Chara. - 200-CS-1 OU

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 6909-124 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01			0.048	0.500			48		1011			53	01/12/00	01/14	SS-02
B0X0B2	N911232-02			0.031	0.500			55		1011			53	01/12/00	01/14	SS-03
B0X0B3	N911232-03			0.042	0.500			54		1011			53	01/12/00	01/14	SS-05
BLK (QC ID=32917)	N911232-05			0.042	0.500			56		1011				01/12/00	01/14	SS-08
LCS (QC ID=32916)	N911232-04			0.025	0.500			74		1011				01/12/00	01/14	SS-06
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.029	0.500			64		1003			53	01/12/00	01/14	SS-09
Nominal values and limits from method					0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237PLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-930	Neptunium Purification, rev 0

AVERAGES ± 2 SD MDA 0.036 ± 0.028
FOR 6 SAMPLES YIELD 58 ± 18

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test PU Matrix SOLID
SDG 7302
Contact Melissa C. Maupin

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 6909-124						
BCX0B1	N911232-01			7302-001	U	U
BCX0B2	N911232-02			7302-002	U	U
BCX0B3	N911232-03			7302-003	U	0.117 J
BLK (QC ID=32917)	N911232-05			7302-005	U	U
LCS (QC ID=32916)	N911232-04			7302-004	ok	ok
Duplicate (N911232-01)	N911232-06			7302-006	- U	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
200 Area Source Chara. - 200-CS-1 OU						

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 6909-124	2σ prep error 5.0 %			Reference Lab Notebook 6909 pg. 124												
BCX0B1	N911232-01			0.049	0.500			52		898			46	01/03/00	01/07	SS-003
BCX0B2	N911232-02			0.076	0.500			33		898			46	01/03/00	01/07	SS-005
BCX0B3	N911232-03			0.041	0.500			49		898			46	01/03/00	01/07	SS-006
BLK (QC ID=32917)	N911232-05			0.039	0.500			67		898				01/03/00	01/07	SS-008
LCS (QC ID=32916)	N911232-04			0.062	0.500			60		853				01/03/00	01/07	SS-057
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.027	0.500			75		896			46	01/03/00	01/07	SS-009
Nominal values and limits from method				1.0	0.500			20-105		50	100		180			

PROCEDURES	REFERENCE	PUPLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-940	Plutonium Purification, rev 0
	EP-008	Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.049 ± 0.035
YIELD 56 ± 30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test TH Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TEP-SPB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6909-124							
B0X0B1	N911232-01		A1	7302-001	0.475 J	1.06	0.387 J
B0X0B2	N911232-02		A1	7302-002	0.564 J	0.432 J	0.344 J
BLK (QC ID=33428)	N911232-16			7302-016	U	U	U
LCS (QC ID=33427)	N911232-15			7302-015	No data U	ok	No data U
Duplicate (N911232-01)	N911232-17			7302-017	ok J	OUT J	ok J
Preparation batch 6909-138							
B0X0B3	N911232-03		A1	7302-003	0.580 J	0.812 J	0.534 J
BLK (QC ID=33199)	N912041-12			7306-012	U	U	U
LCS (QC ID=33198)	N912041-11			7306-011	No data U	ok	No data U
Duplicate (N911232-03)	N911232-14			7302-014	ok J	ok J	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0

200 Area Source Chara. - 200-CS-1 OU

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 6909-124 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01		A1	0.20	0.250			81		458			85	02/09/00	02/15	SS-033
B0X0B2	N911232-02		A1	0.18	0.250			89		625			84	02/09/00	02/14	SS-029
BLK (QC ID=33428)	N911232-16			0.19	0.250			61		625				02/09/00	02/14	SS-032
LCS (QC ID=33427)	N911232-15			0.16	0.250			64		625				02/09/00	02/14	SS-031
Duplicate (N911232-01) (QC ID=33429)	N911232-17			0.19	0.250			74		625			84	02/09/00	02/14	SS-033
Preparation batch 6909-138 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 138																
B0X0B3	N911232-03		A1	0.16	0.250			97		434			67	01/24/00	01/28	SS-027
BLK (QC ID=33199)	N912041-12			0.19	0.250			82		434				01/24/00	01/28	SS-034
LCS (QC ID=33198)	N912041-11			0.25	0.250			81		434				01/24/00	01/28	SS-033
Duplicate (N911232-03) (QC ID=33202)	N911232-14			0.20	0.250			71		434			67	01/24/00	01/28	SS-029
Nominal values and limits from method				1.0	0.250			20-105		200			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test	TH
Matrix	
SDG	H0658
Contact	Melissa C. Munion

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SEB-207925
Case no	SDG H0658

PROCEDURES	REFERENCE	TEMPLATE
	EP-000	Data Entry and Document Preparation, rev 0
	EP-001	Q.C. Preparation, rev 0
	EP-003	Tracing, rev 0
	EP-008	Heavy Elements Electroplating, rev 0
	EP-070	Soil Dissolution, rev 0
	RP-901	Thorium Purification - Small Aliquot, rev 0

AVERAGES ± 2 SD	MDA	0.19	±	0.053
FOR 9 SAMPLES	YIELD	78	±	23

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test U	Matrix SOLID
SDG 7302	
Contact Melissa C. Mannion	

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SRB-207925	
Case no SDG H0658	

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 6909-124											
BOX0B1	N911232-01			7302-001	0.452 J	0.022 J	0.381 J	119	21	6	4
BLK (QC ID=32917)	N911232-05			7302-005	U	U	U				
LCS (QC ID=32916)	N911232-04			7302-004	ok	ok	ok				
Duplicate (N911232-01)	N911232-06			7302-006	ok J	ok J	ok J	101	18	8	4
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200 Area Source Chara. - 200-CS-1 OU								Averages 110		7	

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 6909-124 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 124																
BOX0B1	N911232-01			0.013	1.00			87		935			54	01/13/00	01/15	SS-045
BLK (QC ID=32917)	N911232-05			0.025	1.00			74		935				01/13/00	01/15	SS-049
LCS (QC ID=32916)	N911232-04			0.10	1.00			95		935				01/13/00	01/15	SS-048
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.016	1.00			87		935			54	01/13/00	01/15	SS-050
Nominal values and limits from method				1.0	1.00			30-105		150	100		180			

PROCEDURES	REFERENCE	UPLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-910	Uranium Purification, rev 0
	EP-008	Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	0.038	± 0.083
FOR 4 SAMPLES	YIELD	86	± 17

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test SR Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6909-124					
B0X0B1	N911232-01			7302-001	U
B0X0B2	N911232-02			7302-002	1.57
B0X0B3	N911232-03			7302-003	U
BLK (QC ID=32917)	N911232-05			7302-005	U
LCS (QC ID=32916)	N911232-04			7302-004	ok
Duplicate (N911232-01)	N911232-06			7302-006	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source Chara. - 200-CS-1 OU					

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 6909-124 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01			0.20	1.00			70		400			42	12/30/99	01/03	GRB-221
B0X0B2	N911232-02			0.19	1.00			70		400			42	12/30/99	01/03	GRB-223
B0X0B3	N911232-03			0.20	1.00			70		400			42	12/30/99	01/03	GRB-223
BLK (QC ID=32917)	N911232-05			0.24	1.00			58		400				12/30/99	01/03	GRB-207
LCS (QC ID=32916)	N911232-04			0.23	1.00			58		400				12/30/99	01/03	GRB-222
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.20	1.00			78		400			42	12/30/99	01/03	GRB-208
Nominal values and limits from method				1.0	1.00					100			180			

PROCEDURES	REFERENCE	SRTOTAL
	RP-500	Strontium - Initial Separation, rev 0
	RP-519	Strontium-89,90 Demounting and Yttrium Purification, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.21 ± 0.040
YIELD 67 ± 16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test TC	Matrix SOLID
SDG 7302	
Contact Melissa C. Munnion	

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract TAB-SFB-207925	
Case no SDG H0658	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6909-124						
B0X0B1	N911232-01			7302-001	U	
B0X0B2	N911232-02			7302-002	U	
B0X0B3	N911232-03			7302-003	U	
BLK (QC ID=32917)	N911232-05			7302-005	U	
LCS (QC ID=32916)	N911232-04			7302-004	ok	
Duplicate (N911232-01)	N911232-06			7302-006	-	U

Nominal values and limits from method RDLs (pCi/g) 15

200 Area Source Chara. - 200-CS-1 OU

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 6909-124	2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 124															
B0X0B1	N911232-01			0.54	1.02			62		101			54	01/09/00	01/15	GRB-203
B0X0B2	N911232-02			0.89	1.00			39		101			53	01/09/00	01/14	GRB-203
B0X0B3	N911232-03			0.54	1.00			66		101			56	01/09/00	01/17	GRB-227
BLK (QC ID=32917)	N911232-05			0.50	1.00			68		101				01/09/00	01/17	GRB-228
LCS (QC ID=32916)	N911232-04			0.65	1.00			55		101				01/09/00	01/14	GRB-207
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.68	1.02			50		101			54	01/09/00	01/15	GRB-202
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99TRLSC
	EP-060	Soil Preparation, rev 0
	EP-020	Sample Leach For Technetium-99, rev 0
	EP-540	Technetium-99 Purification, rev 0

AVERAGES ± 2 SD	MDA	0.63	± 0.29
FOR 6 SAMPLES	YIELD	57	± 22

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test 90A Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRR-SBB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6909-124						
B0X0B1	N911232-01	80		7302-001	5.61	J
B0X0B2	N911232-02	80		7302-002	7.62	J
B0X0B3	N911232-03	80		7302-003	9.15	J
BLK (QC ID=32917)	N911232-05	80		7302-005	U	
LCS (QC ID=32916)	N911232-04	80		7302-004	ok	
Duplicate (N911232-01)	N911232-06	80		7302-006	ok	J

Nominal values and limits from method RDLs (pCi/g) 10
200 Area Source Chara. - 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-124 2σ prep error 20.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01	80		4.1	0.100			34		100			50	01/06/00	01/11	GRB-115
B0X0B2	N911232-02	80		2.8	0.100			35		100			50	01/06/00	01/11	GRB-116
B0X0B3	N911232-03	80		4.0	0.100			33		100			50	01/06/00	01/11	GRB-115
BLK (QC ID=32917)	N911232-05	80		3.3	0.100			38		100				01/06/00	01/11	GRB-110
LCS (QC ID=32916)	N911232-04	80		2.8	0.100			37		100				01/06/00	01/11	GRB-116
Duplicate (N911232-01) (QC ID=32918)	N911232-06	80		3.4	0.100			35		100			50	01/06/00	01/11	GRB-112
Nominal values and limits from method				10	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 3.4 ± 1.1
RESIDUE 35 ± 4

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test 80B Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 6909-124					
B0X0B1	N911232-01	80		7302-001	19.8
B0X0B2	N911232-02	80		7302-002	21.9
B0X0B3	N911232-03	80		7302-003	16.8
BLK (QC ID=32917)	N911232-05	80		7302-005	U
LCS (QC ID=32916)	N911232-04	80		7302-004	ok
Duplicate (N911232-01)	N911232-06	80		7302-006	ok
Nominal values and limits from method				RDLs (pCi/g)	15
200 Area Source Chara. - 200 CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-124	2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 124															
B0X0B1	N911232-01	80		5.6	0.100			34		100			50	01/06/00	01/11	GRB-115
B0X0B2	N911232-02	80		7.4	0.100			35		100			50	01/06/00	01/11	GRB-116
B0X0B3	N911232-03	80		5.6	0.100			33		100			50	01/06/00	01/11	GRB-115
BLK (QC ID=32917)	N911232-05	80		7.7	0.100			38		100				01/06/00	01/11	GRB-110
LCS (QC ID=32916)	N911232-04	80		7.4	0.100			37		100				01/06/00	01/11	GRB-116
Duplicate (N911232-01) (QC ID=32918)	N911232-06	80		7.1	0.100			35		100			50	01/06/00	01/11	GRB-112
Nominal values and limits from method				15	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 6.8 ± 1.9
RESIDUE 35 ± 4

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test GAM Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6909-124								
BOX0B1	N911232-01			7302-001	U		U	
BOX0B2	N911232-02			7302-002	U		U	
BOX0B3	N911232-03			7302-003	U		U	
BLK (QC ID=32917)	N911232-05			7302-005	U		U	
LCS (QC ID=32916)	N911232-04			7302-004	ok		ok	
Duplicate (N911232-01)	N911232-06			7302-006	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	
200 Area Source Chara. - 200-CS-1 OU								

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 6909-124 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 124																
BOX0B1	N911232-01			0.13	206					403			70	12/28/99	01/31	JR,03,00
BOX0B2	N911232-02			0.12	202					402			70	12/28/99	01/31	JR,07,00
BOX0B3	N911232-03			0.096	147					604			70	12/28/99	01/31	JR,04,00
BLK (QC ID=32917)	N911232-05			0.040	145					420				12/28/99	02/01	JR,04,00
LCS (QC ID=32916)	N911232-04			0.056	145					600				12/28/99	01/31	JR,07,00
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.11	206					420			71	12/28/99	02/01	JR,07,00
Nominal values and limits from method				0.050	145					100			180			

PROCEDURES	REFERENCE	GAMMAHI
	EP-060	Soil Preparation, rev 0
	EP-100	Ge(Li) Preparation for Environmental Samples, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.092 ± 0.072
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test U T Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract TEP-SEB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6909-124					
B0X0B1	N911232-01			7302-001	1.94
B0X0B2	N911232-02			7302-002	0.804 J
B0X0B3	N911232-03			7302-003	0.772 J
BLK (QC ID=32895)	N911232-08			7302-008	U
LCS (QC ID=32894)	N911232-07			7302-007	ok
Duplicate (N911232-01)	N911232-09			7302-009	ok
Nominal values and limits from method			RDLs (ug/g)		1.0
200 Area Source Chara. - 200-CS-1 OU					

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 6909-124 2σ prep error 9.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01			0.002	0.0500								45	01/06/00	01/06	KPA-001
B0X0B2	N911232-02			0.002	0.0500								45	01/06/00	01/06	KPA-001
B0X0B3	N911232-03			0.002	0.0500								45	01/06/00	01/06	KPA-001
BLK (QC ID=32895)	N911232-08			0.002	0.0500									01/06/00	01/06	KPA-001
LCS (QC ID=32894)	N911232-07			0.018	0.0500									01/06/00	01/06	KPA-001
Duplicate (N911232-01) (QC ID=32896)	N911232-09			0.002	0.0500								45	01/06/00	01/06	KPA-001
Nominal values and limits from method				1.0	0.0500								180			

PROCEDURES	REFERENCE	UKPA
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-044	Preparation of Total Uranium by Kinetic Phosphorimetry, rev 1
	EP-928	Total Uranium by Kinetic Phosphorimetry, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.005 ± 0.013
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test H Matrix SOLID
SDG 7302
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB SEB-207925
Case no SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6909-124						
B0X0B1	N911232-01			7302-001	U	
B0X0B2	N911232-02			7302-002	U	
B0X0B3	N911232-03			7302-003	U	
BLK (QC ID=32917)	N911232-05			7302-005	U	
LCS (QC ID=32916)	N911232-04			7302-004	ok	J
Duplicate (N911232-01)	N911232-06			7302-006	-	U
Spike (N911232-01)	N911232-10			7302-010	ok	J

Nominal values and limits from method RDLs (pCi/g) 400
200 Area Source Chara. - 200-CS-1 OU

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 6909-124 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01			0.15	10.0			100		120			59	01/17/00	01/20	LSC-007
B0X0B2	N911232-02			0.075	20.4			100		120			59	01/17/00	01/20	LSC-007
B0X0B3	N911232-03			0.074	20.2			100		120			59	01/17/00	01/20	LSC-007
BLK (QC ID=32917)	N911232-05			0.28	10.0			52		120				01/17/00	01/21	LSC-007
LCS (QC ID=32916)	N911232-04			0.28	10.0			52		120				01/17/00	01/21	LSC-007
Duplicate (N911232-01) (QC ID=32918)	N911232-06			0.15	10.3			100		120			60	01/17/00	01/21	LSC-007
Spike (N911232-01) (QC ID=32919)	N911232-10			0.21	10.2			69		120			60	01/17/00	01/21	LSC-007
Nominal values and limits from method				400	10.0					25			180			

PROCEDURES	REFERENCE	EPA906.0
	EP-060	Soil Preparation, rev 0
	EP-211	Tritium in Solid Samples by Azeotropic Distillation, rev 0

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.17 ± 0.17
YIELD 82 ± 47

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/16/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0658

Test	NI L
Matrix	SOLID
SDG	7302
Contact	Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRB-SRB-207925
Case no	SDG H0658

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6909-124						
B0X0B1	N911232-01			7302-001	U	
B0X0B2	N911232-02			7302-002	2.46	J
B0X0B3	N911232-03			7302-003	U	
BLK (QC ID=32917)	N911232-05			7302-005	U	
LCS (QC ID=32916)	N911232-04			7302-004	ok	
Duplicate (N911232-01)	N911232-06			7302-006	-	U
Spike (N911232-02)	N911232-12			7302-012	ok	

Nominal values and limits from method RDLs (pCi/g) 30

200 Area Source Chara. - 200-CS-1 OU

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 6909-124 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 124																
B0X0B1	N911232-01			2.4	0.500			100		100			63	01/14/00	01/24	LSC-004
B0X0B2	N911232-02			2.4	0.500			100		100			63	01/14/00	01/24	LSC-004
B0X0B3	N911232-03			2.4	0.500			100		100			63	01/14/00	01/24	LSC-004
BLK (QC ID=32917)	N911232-05			2.5	0.500			100		100				01/14/00	01/25	LSC-004
LCS (QC ID=32916)	N911232-04			2.4	0.500			100		100				01/14/00	01/24	LSC-004
Duplicate (N911232-01) (QC ID=32918)	N911232-06			2.4	0.500			100		100			64	01/14/00	01/25	LSC-004
Spike (N911232-02) (QC ID=32921)	N911232-12			2.5	0.500			100		100			64	01/14/00	01/25	LSC-004
Nominal values and limits from method				30	0.500					10			180			

PROCEDURES	REFERENCE	NI63LSC
	EP-060	Soil Preparation, rev 0
	EP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD	MDA	2.4	± 0.098
FOR 7 SAMPLES	YIELD	100	± 0

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/16/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99003	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: TMA/~~RECRA~~ RF 11/22/99	Offsite Property No.: A00048	Bill of Lading/Air Bill No.: 42357953 2248	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL
SAMPLE ANALYSIS	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions. ✓	See item (3) in Special Instructions. ✓	Neptunium-237; Nickel-63 ✓	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035	X	X	X				X	X	X	
B0X0B2	Soil	11/22/99	1035	X	X	X				X	X	X	
										✓	✓	✓	
										A	B	C	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg	11-22-99 1300	RF C-C	11-22-99 1300
RF C-C	11-23-99 0730	R. Thoren	11-23-99 0730
R. Thoren	11-23-99 1430	FED EX	11-23-99
Fed Ex	11-24-99 10:00	JR Lorso JR Lorso	11-24-99

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99003	Field Logbook No.: EL 1435	COA: B20CS1 671C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A0000848	Bill of Lading/Air Bill No.: 42357953 2248	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B3	Soil	11/23/99	0945	X	X	X				X	X	X	
										✓	✓	✓	
										A	B	C	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R. Fahlberg	1031 11-23-99	R. Thoren / R. Thoren	11-23-99 / 1031
R. Thoren / R. Thoren	11-23-99 / 1430	FED EX	11-23-99
Fed Ex	11-24-99 10:00	[illegible]	11-24-99

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

Matrix *
S=Soil
SE=Sediment
SO=Solid
S=Sludge
W = Water
O=Oil
A=Air
DS=Dmm Solids
DL=Dmm 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)

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 11-24-99 10:00

CoC No. BOD-006-11, BOD-006-13

Container I.D. No. ERC-99-003 Requested TAT (Days) 45 P.O. Received Yes [ ] No [✓]

INSPECTION

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by Joseph R. Corso Date: 11-24-99 Time: 10:00

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9911L847
SDG/SAF#: H0658/B00-006

W.O #: 10985-001-001-9999-00
Date Received: 11-26-99

DIESEL RANGE ORGANICS

The set of samples consisted of three (3) soil samples collected on 11-22-99.

The samples and their associated QC samples were prepared on 12-21-99 and analyzed according to Recra OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 12-23-99. 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 analysis were met. The samples were extracted outside of technical holding times. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

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

5. All surrogate recoveries were within acceptance criteria.

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

FEB 2000
RECEIVED
Data
Log In

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-04-00
Date

R:\group\hplc\narr\dro\11-847d.doc

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

GLOSSARY OF DIESEL DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates spiked compound.

Recra LabNet Philadelphia **Sample Discrepancy Report (SDR)** SDR #: 99EX116

Initiator: L. Kauffman
Date: 12/28/99
Client: TU
H0658

RFW Batch: 9911C847
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: 0625, 0143, 0RU
Matrix:
Prep Batch: 99EF472, 1479, 1542

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
X Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

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

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

Hold time Exceeded

2. Known or Probable Causes(s)

Missed Hold time

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: Brett S. Johnson 12/28/99

__ 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: _____ Other Explanation:

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

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Doughty
__	X Lab Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Carey/Schrenkel/Johnson	2	X GC/LC: Schnell
__	X Section Mgr: Wesson/Daniels	__	__ MS: Taylor
__	X QA (file): Racioppi	__	__ Log-in: Janson
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 12/27/99 13:34

RFW Batch Number: **9911L847** Client: **TNU-HANFORD B00-006** Work Order: **10985-001-001-9999-00**

	Cust ID:	B0X0B1	B0X0B1	B0X0B1	B0X0B2	B0X0B3	BLK
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	99LE1542-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
Surrogate:	p-Terphenyl	86 %	86 %	83 %	81 %	82 %	81 %
Diesel Range Organics		4.1 U	94 %	94 %	4.1 U	4.4 U	4.0 U

	Cust ID:	BLK BS
Sample Information	RFW#:	99LE1542-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	mg/kg
Surrogate:	p-Terphenyl	86 %
Diesel Range Organics		92 %

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

LK 12/27/99.

12/28/99 [illegible]

100

Recra LabNet - Lionville Laboratory
DRO ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1	001	S	99LE1542	11/22/99	12/21/99	12/23/99
B0X0B1	001 MS	S	99LE1542	11/22/99	12/21/99	12/23/99
B0X0B1	001 MSD	S	99LE1542	11/22/99	12/21/99	12/23/99
B0X0B2	002	S	99LE1542	11/22/99	12/21/99	12/23/99
B0X0B3	003	S	99LE1542	11/23/99	12/21/99	12/23/99

LAB QC:

BLK	MB1	S	99LE1542	N/A	12/21/99	12/23/99
BLK	MB1 BS	S	99LE1542	N/A	12/21/99	12/23/99

12/28/99 [illegible]

RECRA LabNet Use Only

9911L847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU-HANFORD # BOX-006

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC spec Del std TAT 30 day

Date Rec'd 11/26/99 Date Due 12/26/99

Account #

Refrigerator #		1	3	3				3			1					
#/Type Container	Liquid															
	Solid	1AG	1AG	1				1AG			1AG					
Volume	Liquid															
	Solid	60	60	1				60			250					
Preservatives		—	—					—			—					
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb			PH	INORG: Metal	CN	IC Anions						
RECRA LabNet Use Only	8024H 8015C	8025H 8DRO	8PCB				1PH	Met①	ICNT0	Ang①						

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

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	8024H 8015C	8025H 8DRO	8PCB				1PH	Met①	ICNT0	Ang①						
001	BOX081			S	11/26/99	1035	1	1	1				1	/	1	1						
002	1 2			1	1	1	1	1	1				1	/	1	1						
003	1 3			1	11/26/99	0945	1	1	1				1	/	1	1						

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. Met① = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICRG
4. Ang① = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 9.2 °C

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

NOTES:
4235795322259

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

YMIL 247

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock — Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	Air Quality ☐
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435 — COA: B20CS1671C	Method of Shipment: Fed Ex	
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: AØØØØ47	Bill of Lading/Air Bill No.: 42357953 2259	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~OP~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions	See item (3) in Special Instructions	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11.22.99 1300	Ref 2-C	11.22.99 1300
Ref 2-C	11.23.99 0730	R. Thoren	11.23.99 0730
R. Thoren	11.23.99 1430	FED EX	
FED EX	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-006-13

ctor Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
ct Designation) Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
hest No. ERC 99 011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex
ped To MA/RECRA	Offsite Property No. A000047		Bill of Lading/Air Bill No. 42357953 2259

Price Code 8N

Data Turnaround 45 Days

Air Quality [ ]

800

SSIBLE SAMPLE HAZARDS/REMARKS

ecial Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions	See item (3) in Special Instructions	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082
X0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
P. Fahlberg / P. Fahlberg	1031 11-23-99	R. Thoren / R. Thoren	11-23-99 / 1031
R. Thoren / Thoren	10-23-99 / 1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 ~ Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

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

ABORATORY SECTION	Received By	Title	Date/Time
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

ll-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
Ice Chest No. ER199011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex
Shipped To ~~TMA~~/RECRA RF 11-23-99	Offsite Property No. A00047		Bill of Lading/Air Bill No. 4235795 3225 9

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

009

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B3	Soil	11/23/99	0945	X									

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

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	11-23-99 1031	R. Thoren	11-23-99 1031
R. Thoren / R. Thoren	11-23-99 1430	FED EX	
Fed Ex	11/26/99 0940	Vicki Hennessy	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63, Tech-99, Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

FEB 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW#: 9911L847
SDG/SAF#: H0658/B00-006

W.O.#: 10985-001-001-9999-00
Date Received: 11-26-99

PCB

The set of samples consisted of three (3) soil samples collected on 11-22,23-99.

The samples and their associated QC samples were extracted on 12-06-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 12-12-99. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. The samples and their associated QC samples received a sulfuric acid and sulfur cleanup.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

by J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-D-00
Date

pefs:\group\data\pest\11L-847.peb

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 • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

Recra LabNet Philadelphia

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

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

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

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 12/29/99 13:11

RFW Batch Number: **9911L847** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1

	Cust ID:	B0X0B1	B0X0B1	B0X0B1	B0X0B2	B0X0B3	PBLKBD
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	99LE1479-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		95 %	110 %	80 %	75 %	90 %	95 %
Decachlorobiphenyl		104 %	114 %	89 %	81 %	101 %	109 %
Aroclor-1016		34 U	34 U	34 U	34 U	37 U	33 U
Aroclor-1221		68 U	68 U	68 U	69 U	74 U	67 U
Aroclor-1232		34 U	34 U	34 U	34 U	37 U	33 U
Aroclor-1242		34 U	34 U	34 U	34 U	37 U	33 U
Aroclor-1248		34 U	34 U	34 U	34 U	37 U	33 U
Aroclor-1254		34 U	88 %	66 %	34 U	37 U	33 U
Aroclor-1260		34 U	34 U	34 U	34 U	37 U	33 U

	Cust ID:	PBLKBD BS
Sample Information	RFW#:	99LE1479-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
Surrogate: Tetrachloro-m-xylene		98 %
Decachlorobiphenyl		106 %
Aroclor-1016		33 U
Aroclor-1221		67 U
Aroclor-1232		33 U
Aroclor-1242		33 U
Aroclor-1248		33 U
Aroclor-1254		83 %
Aroclor-1260		33 U

JW 01-05-00

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

Recra LabNet - Lionville Laboratory
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1	001	S	99LE1479	11/22/99	12/06/99	12/12/99
B0X0B1	001 MS	S	99LE1479	11/22/99	12/06/99	12/12/99
B0X0B1	001 MSD	S	99LE1479	11/22/99	12/06/99	12/12/99
B0X0B2	002	S	99LE1479	11/22/99	12/06/99	12/12/99
B0X0B3	003	S	99LE1479	11/23/99	12/06/99	12/12/99

LAB QC:

PBLKBD	MB1	S	99LE1479	N/A	12/06/99	12/12/99
PBLKBD	MB1 BS	S	99LE1479	N/A	12/06/99	12/12/99

gi 01-05-00

RECRA LabNet Use Only

9911C847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU-HANFORD # B00-006

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC spec Del std TAT 30 day

Date Rec'd 11/26/99 Date Due 12/26/99

Account #

Refrigerator #		1	3	3				3			1					3
#/Type Container	Liquid															
	Solid	1AG	1AG	1				1AG			1AG					
Volume	Liquid															
	Solid	60	60	1				60			250					
Preservatives		—	—					—			—					
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb			PH	INORG: Metal	CN	IC Anions						
RECRA LabNet Use Only	0824H 0EXSC	0825H 0DRO	0PCB				IPH	MetD	ICNTO	AnqD						

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	0824H 0EXSC	0825H 0DRO	0PCB				IPH	MetD	ICNTO	AnqD						
001	BOX 081			S	11/26/99	1035	1	1	1				1	/	1	1						
002	2						1	1	1				1	/	1	1						
003	3				11/26/99	0945	1	1	1				1	/	1	1						

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. MetD = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICRG
4. AnqD = 1N3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___

Airbill # See Below

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 9.2 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7953 2259

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

9911L241

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-006-11

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West		SAF No.: B00-006
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A00047		Bill of Lading/Air Bill No.: 42357953 2259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~O/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1300 11.22.99	R Fahlberg	1300 11.22.99
R Fahlberg	11.23.99/0730	R. Thoren	11.23.99/0730
R. Thoren	11.23.99/1430	FED EX	
FED EX	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 1 of 2

ctor ahlberg	Company Contact: C Cearlock Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N Data Turnaround: 45 Days Air Quality: [illegible]
ct Designation Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
hest No.: EPC 99 011	Field Logbook No.: EL 1435 COA: B20CS1 671C	Method of Shipment: Fed Ex	
ped To MA/RECRA	Offsite Property No.: A000047	Bill of Lading/Air Bill No.: 42357953	

SSIBLE SAMPLE HAZARDS/REMARKS

ecial Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions	See item (3) in Special Instructions	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082
X0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION	Sign/Print Names		
nquished By	Date/Time 1031	Received By: R. Thoren	Date/Time: R. Thoren 11-23-99/1031
nquished By: R. Thoren	Date/Time: R. Thoren 10-23-99/1430	Received By: FED EX	Date/Time
nquished By	Date/Time: 11/26/99 0940	Received By	Date/Time: 11/26/99 0940
nquished By	Date/Time	Received By	Date/Time
nquished By	Date/Time	Received By	Date/Time
nquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

ABORATORY SECTION	Received By	Title	Date/Time
N AL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

H-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006	Air Quality ☐	
Ice Chest No. ERC99011	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex		
Shipped To ~~AMA~~/RECRA RF 11-23-99	Offsite Property No. A000047		Bill of Lading/Air Bill No. 4235795322 5		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B3	Soil	11/23/99	0945	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11-23-99 1031	R. Thoren / R. Thoren	11-23-99 1031
Relinquished By	Date/Time	Received By	Date/Time
R. Thoren / R. Thoren	11-23-99 1430	FED EX	
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63, *Tech-99, Tritium and Iso-Uranium*. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2
Collector R Fahlberg	Company Contact C Cearlock Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West	SAF No. B00-006	Air Quality ☐
Ice Chest No. ERC99.011	Field Logbook No. EL 1435 COA B20CS1671C	Method of Shipment Fed Ex	
Shipped To TMA/RECRA RF 11.22.99	Offsite Property No. AØØØØ47	Bill of Lading/Air Bill No. 42357953 2259	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035	X									
B0X0B2	Soil	11/22/99	1035	X									

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By R Fahlberg / R.Fahlberg 11.22.99 1300	Received By Ref Z-C 11.22.99 1300	Date/Time
Relinquished By Ref Z-C 11.23.99/0730	Received By R. Thoren 11.23.99/0730	Date/Time
Relinquished By R. Thoren 11.23.99/1430	Received By FED EX	Date/Time
Relinquished By Fed Ex 11/26/99 0940	Received By [illegible] 11/26/99 0940	Date/Time
Relinquished By	Received By	Date/Time
Relinquished By	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300 0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

Matrix *
S=Soil
SE=Sediment
SO=Solid
S =Sludge
W = Water
O=Oil
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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)

RECRA
ENVIRONMENTAL
INC.
Chemical and Environmental Measurement Information

FEB 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9911L847
SDG/SAF# : H0658/B00-006

W.O.# : 10985-001-001-9999-00
Date Received: 11-26-99

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 (80-120% for Mercury).

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) 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 laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

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

11. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

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

12. 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-31-00
Date

jjw/m11-847

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9911L847

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

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

Other:_____ Method:_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/31/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BCX0B1	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Arsenic, Total	2.4	MG/KG	0.19	1.0
		Barium, Total	67.2	MG/KG	0.01	1.0
		Beryllium, Total	0.20	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	12.1	MG/KG	0.05	1.0
		Copper, Total	12.1	MG/KG	0.04	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	10.6	MG/KG	0.07	1.0
		Lead, Total	10.3	MG/KG	0.15	1.0
		Selenium, Total	0.30 u	MG/KG	0.30	1.0
		Vanadium, Total	41.9	MG/KG	0.04	1.0
		Zinc, Total	31.8	MG/KG	0.04	1.0
-002	BCX0B2	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Arsenic, Total	2.6	MG/KG	0.19	1.0
		Barium, Total	52.4	MG/KG	0.01	1.0
		Beryllium, Total	0.20	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	11.9	MG/KG	0.05	1.0
		Copper, Total	10.6	MG/KG	0.04	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Nickel, Total	10.0	MG/KG	0.07	1.0
		Lead, Total	7.2	MG/KG	0.15	1.0
		Selenium, Total	0.29 u	MG/KG	0.29	1.0
		Vanadium, Total	37.4	MG/KG	0.04	1.0
		Zinc, Total	29.5	MG/KG	0.04	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/31/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0X0B3	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Arsenic, Total	5.3	MG/KG	0.25	1.0
		Barium, Total	85.1	MG/KG	0.02	1.0
		Beryllium, Total	0.35	MG/KG	0.03	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	15.9	MG/KG	0.06	1.0
		Copper, Total	13.9	MG/KG	0.05	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Nickel, Total	14.0	MG/KG	0.09	1.0
		Lead, Total	7.3	MG/KG	0.19	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	36.9	MG/KG	0.05	1.0
		Zinc, Total	42.8	MG/KG	0.05	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/31/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0876-MB1	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	0.27 u	MG/KG	0.27	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.03 u	MG/KG	0.03	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.07 u	MG/KG	0.07	1.0
		Copper, Total	0.05 u	MG/KG	0.05	1.0
		Nickel, Total	0.10 u	MG/KG	0.10	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.41 u	MG/KG	0.41	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.05 u	MG/KG	0.05	1.0
BLANK1	99C0383-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/31/00

CLIENT: TNU-HANFORD B00-006

RECRA LOT #: 9911L847

WORK ORDER: 1C985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0X0B1	Silver, Total	4.0	0.06u	4.4	90.9	1.0
		Arsenic, Total	166	2.4	176	93.0	1.0
		Barium, Total	223	67.2	176	88.5	1.0
		Beryllium, Total	4.1	0.20	4.4	88.6	1.0
		Cadmium, Total	4.0	0.03u	4.4	90.9	1.0
		Chromium, Total	27.3	12.1	17.6	86.2	1.0
		Copper, Total	32.0	12.1	22.0	90.5	1.0
		Mercury, Total	0.17	0.02u	0.17	97.6	1.0
		Nickel, Total	50.6	10.6	44.1	90.7	1.0
		Lead, Total	47.5	10.3	44.1	84.4	1.0
		Selenium, Total	158	0.30u	176	89.6	1.0
		Vanadium, Total	85.2	41.9	44.1	98.2	1.0
		Zinc, Total	70.1	31.8	44.1	86.8	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/31/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	BCX0B1	Silver, Total	0.06u	0.07u	NC	1.0
		Arsenic, Total	2.4	2.7	11.8	1.0
		Barium, Total	67.2	70.2	4.4	1.0
		Beryllium, Total	0.20	0.23	15.1	1.0
		Cadmium, Total	0.03u	0.04u	NC	1.0
		Chromium, Total	12.1	11.9	1.7	1.0
		Copper, Total	12.1	12.5	3.3	1.0
		Mercury, Total	0.02u	0.01u	NC	1.0
		Nickel, Total	10.6	9.8	7.8	1.0
		Lead, Total	10.3	6.1	51.2	1.0
		Selenium, Total	0.30u	0.36u	NC	1.0
		Vanadium, Total	41.9	49.2	16.0	1.0
		Zinc, Total	31.8	33.5	5.2	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/31/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0876-LC1	Silver, LCS	49.3	50.0	MG/KG	98.6
		Arsenic, LCS	945	1000	MG/KG	94.5
		Barium, LCS	491	500	MG/KG	98.2
		Beryllium, LCS	23.5	25.0	MG/KG	94.0
		Cadmium, LCS	24.2	25.0	MG/KG	96.8
		Chromium, LCS	49.8	50.0	MG/KG	99.6
		Copper, LCS	123	125	MG/KG	98.3
		Nickel, LCS	193	200	MG/KG	96.3
		Lead, LCS	241	250	MG/KG	96.5
		Selenium, LCS	918	1000	MG/KG	91.8
		Vanadium, LCS	255	250	MG/KG	101.9
		Zinc, LCS	95.5	100	MG/KG	95.5
LCS1	99C0383-LC1	Mercury, LCS	1.2	1.0	MG/KG	115.3

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1						
SILVER, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
SILVER, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
SILVER, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
ARSENIC, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
ARSENIC, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
ARSENIC, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
BARIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
BARIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
BARIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
BERYLLIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/14/00
BERYLLIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/14/00
BERYLLIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/14/00
CADMIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
CADMIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
CADMIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
CHROMIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
CHROMIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
CHROMIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
COPPER, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
COPPER, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
COPPER, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
MERCURY, TOTAL	001	S	99C0383	11/22/99	12/13/99	12/14/99
MERCURY, TOTAL	001 REP	S	99C0383	11/22/99	12/13/99	12/14/99
MERCURY, TOTAL	001 MS	S	99C0383	11/22/99	12/13/99	12/14/99
NICKEL, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
NICKEL, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
NICKEL, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
LEAD, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
LEAD, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
LEAD, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
SELENIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
SELENIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
SELENIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
VANADIUM, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
VANADIUM, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
ZINC, TOTAL	001	S	99L0876	11/22/99	01/10/00	01/12/00
ZINC, TOTAL	001 REP	S	99L0876	11/22/99	01/10/00	01/12/00
ZINC, TOTAL	001 MS	S	99L0876	11/22/99	01/10/00	01/12/00
B0X0B2						
SILVER, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
ARSENIC, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
BARIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
BERYLLIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/14/00
CADMIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
CHROMIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
COPPER, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
MERCURY, TOTAL	002	S	99C0383	11/22/99	12/13/99	12/14/99
NICKEL, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
LEAD, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
SELENIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
VANADIUM, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
ZINC, TOTAL	002	S	99L0876	11/22/99	01/10/00	01/12/00
B0X0B3						
SILVER, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
ARSENIC, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
BARIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
BERYLLIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/14/00
CADMIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
CHROMIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
COPPER, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
MERCURY, TOTAL	003	S	99C0383	11/23/99	12/13/99	12/14/99
NICKEL, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
LEAD, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
SELENIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
VANADIUM, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00
ZINC, TOTAL	003	S	99L0876	11/23/99	01/10/00	01/12/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
ARSENIC LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
ARSENIC, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
BARIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
BARIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
BERYLLIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/14/00
BERYLLIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/14/00
CADMIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
CADMIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
CHROMIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
CHROMIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
COPPER LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
COPPER, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
MERCURY LABORATORY	LC1 BS	S	99C0383	N/A	12/13/99	12/14/99
MERCURY, TOTAL	MB1	S	99C0383	N/A	12/13/99	12/14/99
NICKEL LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
NICKEL, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
LEAD LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
LEAD, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
SELENIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
SELENIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
VANADIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
VANADIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
ZINC LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
ZINC, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00

RECRA LabNet Use Only

9911C847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-HANFORD # B00-006

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 11/26/99 Date Due: 12/26/99

Account #:

Refrigerator #		1	3	3				3			1			
#/Type Container	Liquid													
	Solid	1AG	1AG	1				1AG			1AG			
Volume	Liquid													
	Solid	60	60	1				60			250			
Preservatives		—	—					—			—			
ANALYSES REQUESTED →		ORGANIC							INORG					
		VOA	BNA	Pest/PCB	Herb			PH	Metal	CN	IC Anions			
		RECRA LabNet Use Only												
		0624H	0625C	0625H	0DRO	0PCB		IPH	MetD	ICNTO	AngD			

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	0624H	0625C	0625H	0DRO	0PCB			IPH	MetD	ICNTO	AngD			
001	BOX 081			S	11/26/99	1035	1	1	1					1	/	1	1			
002	1 2			1	1	1	1	1	1					1	/	1	1			
003	1 3			1	11/26/99	0945	1	1	1					1	/	1	1			

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. MetD = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICR6
4. AngD = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 9.2 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: 4235 7953 2259

Relinquished by	Received by	Date	Time
Ted Ep	[illegible]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A000047		Bill of Lading/Air Bill No.: 42357953 2259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~GP~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptinium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R.Fahlberg/R.Fahlberg	1300 11.22.99	Ref 2-C	1300 11.22.99
Ref 2-C	11.23.99/0730	K. Thoren	11.23.99/0730
K. Thoren	11.23.99/1430	Fed Ex	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 – Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

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

LABORATORY SECTION — Received By — Title — Date/Time

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006		
Ice Chest No. ERC99.011	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RF 11.22.99	Offsite Property No. A00047		Bill of Lading/Air Bill No. 42357953 2259		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035	X									
B0X0B2	Soil	11/22/99	1035	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R. Fahlberg	1300 11.22.99	Raf Z-C	1300 11.22.99
Raf Z-C	11.23.99/0730	R. Thoren	R. Thoren 11.23.99/0730
R. Thoren	11.23.99/1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 1 of 2

ector Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
ect Designation 00 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
Chest No. ERC 99 011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex
ped To MA/RECRA	Offsite Property No. A000047		Bill of Lading/Air Bill No. 42357953 2259

Price Code 8N

Air Quality N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
	Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
	No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL
SAMPLE ANALYSIS		Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082
X0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By: P. Fahlberg, Date/Time: 11-23-99 1031	Received By: R. Thoren, Date/Time: 11-23-99/1031	
Relinquished By: R. Thoren, Date/Time: 11-23-99/1430	Received By: FED EX, Date/Time:	
Relinquished By: Fed Ex, Date/Time: 11/26/99 0940	Received By: [illegible], Date/Time: 11/26/99 0940	
Relinquished By: Date/Time:	Received By: Date/Time:	
Relinquished By: Date/Time:	Received By: Date/Time:	
Relinquished By: Date/Time:	Received By: Date/Time:	

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 – Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

Matrix *

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

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

II-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: E&C 99 011	Field Logbook No.: EL 1435	COA: B20CS1 671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 11-23-99	Offsite Property No.: A000047		Bill of Lading/Air Bill No.: 4235795322 59

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B3	Soil	11/23/99	0945	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11-23-99 1031	R. Thoren / R. Thoren	11-23-99 1031
R. Thoren / R. Thoren	11-23-99 1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

RECRA LabNet
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Virtual Laboratories Everywhere

FEB 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9911L847
SDG# : H0658
SAF# : B00-006

W.O. # : 10985-001-001-9999-00
Date Received: 11-26-99

INORGANIC CASE 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 with the exception of Sulfide and Total Cyanide.

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

5. The method blanks were within method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD).

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

8. The replicate analyses were within the 20% RPD control limit with the exception of Nitrate Nitrite.

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

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-24-00
Date

njp\i11-847

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.

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

Recra LabNet Philadelphia

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 Soilids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3	
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)
Oxygne Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		__ Section 7.3	
Sulfide		✓ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Prpearation Leach		__ 1312	
Paint Filter		9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2

Other: Ammonia **Method** EPA 350.5

Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate } EPA 300.0

02

Recra LabNet Philadelphia
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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/27/99

CLIENT: TNU-HANFORD E00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BCX0B1	% Solids	97.8		%	0.01	1.0
		Chloride by IC	1.9		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	1.5		MG/KG	1.3	1.0
		Cyanide, Total	0.51	u	MG/KG	0.51	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	7.5		MG/KG	1.3	1.0
		Nitrate Nitrite	0.29		MG/KG	0.16	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	9.1		SOIL PH	0.01	1.0
		Sulfide	2.0	u	MG/KG	2.0	1.0
-002	BCX0B2	% Solids	96.7		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	1.3		MG/KG	1.3	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	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	9.0		MG/KG	1.3	1.0
		Nitrate Nitrite	0.31		MG/KG	0.23	1.0
		Ammonia, as N	1.7		MG/KG	1.3	1.0
		pH	9.0		SOIL PH	0.01	1.0
		Sulfide	2.2	u	MG/KG	2.2	1.0
-003	BCX0B3	% Solids	90.2		%	0.01	1.0
		Chloride by IC	1.7		MG/KG	1.4	1.0
		Fluoride by IC	2.8	u	MG/KG	2.8	1.0
		Nitrite by IC	1.4	u	MG/KG	1.4	1.0
		Nitrate by IC	1.4	u	MG/KG	1.4	1.0
		Cyanide, Total	0.55	u	MG/KG	0.55	1.0
		Phosphate by IC	1.4	u	MG/KG	1.4	1.0
		Chromium VI	0.44	u	MG/KG	0.44	1.0
		Sulfate by IC	2.6		MG/KG	1.4	1.0
		Nitrate Nitrite	0.27		MG/KG	0.24	1.0
		Ammonia, as N	1.4		MG/KG	1.4	1.0
		pH	8.8		SOIL PH	0.01	1.0

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INORGANICS DATA SUMMARY REPORT 12/27/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0X0B3	Sulfide	4.3	MG/KG	2.2	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/27/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC106-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	1.2	u	MG/KG	1.2	1.0
		Nitrate 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	99LC130A-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI086-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3A62-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAMA47-MB1	Ammonia, as N	25.0	u	MG/KG	25.0	1.0
BLANK10	99LSDB73-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/27/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	BCX0B1	Chloride by IC	26.7	1.9	25.6	97.1	1.0
		Fluoride by IC	55.4	1.0	51.1	106.3	1.0
		Nitrite by IC	26	1.3 u	26	101.3	1.0
		Nitrate by IC	28	1.5	26	102.6	1.0
		Phosphate by IC	25.7	1.3 u	25.6	100.6	1.0
		Sulfate by IC	33.4	7.5	25.6	101.2	1.0
		Nitrate Nitrite	4.3	0.29	4.0	99.5	1.0
-002	BCX0B2	Cyanide, Total	5.0	0.52u	5.2	96.8	1.0
		Ammonia, as N	110	1.7	103	105.3	1.0
-003	BCX0B3	Soluble Chromium VI	4.5	0.44u	4.4	100.9	1.0
		Insoluble Chromium VI	1220	0.44u	1180	103.6	100
		Sulfide	388	4.3	400	95.9	1.0
BLANK10	99LIC106-MB1	Chloride by IC	23.3	1.2 u	25.0	93.3	1.0
		Fluoride by IC	52.0	2.5 u	50.0	104.0	1.0
		Nitrite by IC	24	1.2 u	25	94.9	1.0
		Nitrate by IC	25	1.2 u	25	99.2	1.0
		Phosphate by IC	25.4	1.2 u	25.0	101.8	1.0
		Sulfate by IC	23.4	1.2 u	25.0	93.5	1.0
BLANK10	99LVI0B6-MB1	Soluble Chromium VI	4.0	0.40u	4.0	99.4	1.0
		Insoluble Chromium VI	1130	0.40u	1160	97.0	100
BLANK10	99LN3A62-MB1	Nitrate Nitrite	4.7	0.20u	5.0	94.6	1.0
BLANK10	99LAMA47-MB1	Ammonia, as N	918	25.0 u	1000	91.8	1.0
		Ammonia, as N MSD	1010	25.0 u	1000	101.2	1.0
BLANK10	99LSDB73-MB1	Sulfide	9.3	2.0 u	10.0	93.0	1.0
		Sulfide MSD	9.2	2.0 u	10.0	92.0	1.0

Recra LabNet - Lionville

INORGANICS DUPLICATE SPIKE REPORT 12/27/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	99LAMA47-MB1	Ammonia, as N	91.8	101.2	9.8
BLANK10	99LSDB73-MB1	Sulfide	93.0	92.0	1.1

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/27/99

CLIENT: TNU-HANFORD E00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	E0X0B1	Chloride by IC	1.9	1.8	3.6	1.0
		Fluoride by IC	2.6 u	2.6 u	NC	1.0
		Nitrite by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	1.5	1.3 u	NC	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	7.5	7.4	1.2	1.0
		Nitrate Nitrite	0.29	0.23	25.8	1.0
-002REP	E0X0B2	Cyanide, Total	0.52u	0.52u	NC	1.0
		Ammonia, as N	1.7	1.9	6.5	1.0
-003REP	E0X0B3	Chromium VI	0.44u	0.44u	NC	1.0
		Sulfide	4.3	3.9	11.0	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/27/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9911L847

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS10	99LC130A-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	98.4
LCS20	99LC130A-LC2	Cyanide, Total LCS	9.5	10	MG/KG	95.2

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1						
% SOLIDS	001	S	99L%S159	11/22/99	12/02/99	12/03/99
CHLORIDE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
CHLORIDE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
CHLORIDE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
FLUORIDE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
FLUORIDE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
FLUORIDE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRITE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRITE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRITE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
TOTAL CYANIDE	001	S	99LC130A	11/22/99	12/07/99	12/08/99
PHOSPHATE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
PHOSPHATE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
PHOSPHATE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
CHROMIUM VI	001	S	99LVI086	11/22/99	12/05/99	12/05/99
SULFATE BY IC	001	S	99LIC106	11/22/99	12/07/99	12/07/99
SULFATE BY IC	001 REP	S	99LIC106	11/22/99	12/07/99	12/07/99
SULFATE BY IC	001 MS	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE NITRITE	001	S	99LN3A62	11/22/99	12/17/99	12/17/99
NITRATE NITRITE	001 REP	S	99LN3A62	11/22/99	12/17/99	12/17/99
NITRATE NITRITE	001 MS	S	99LN3A62	11/22/99	12/17/99	12/17/99
AMMONIA	001	S	99LAMA47	11/22/99	12/21/99	12/22/99
PH	001	S	99LPH129	11/22/99	12/01/99	12/01/99
SULFIDE	001	S	99LSDB73	11/22/99	12/05/99	12/05/99
B0X0B2						
% SOLIDS	002	S	99L%S159	11/22/99	12/02/99	12/03/99
CHLORIDE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99
FLUORIDE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRITE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL CYANIDE	002	S	99LC130A	11/22/99	12/07/99	12/08/99
TOTAL CYANIDE	002 REP	S	99LC130A	11/22/99	12/07/99	12/08/99
TOTAL CYANIDE	002 MS	S	99LC130A	11/22/99	12/07/99	12/08/99
PHOSPHATE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99
CHROMIUM VI	002	S	99LVI086	11/22/99	12/05/99	12/05/99
SULFATE BY IC	002	S	99LIC106	11/22/99	12/07/99	12/07/99
NITRATE NITRITE	002	S	99LN3A62	11/22/99	12/17/99	12/17/99
AMMONIA	002	S	99LAMA47	11/22/99	12/21/99	12/22/99
AMMONIA	002 REP	S	99LAMA47	11/22/99	12/21/99	12/22/99
AMMONIA	002 MS	S	99LAMA47	11/22/99	12/21/99	12/22/99
PH	002	S	99LPH129	11/22/99	12/01/99	12/01/99
SULFIDE	002	S	99LSDB73	11/22/99	12/05/99	12/05/99
BCX0B3						
% SOLIDS	003	S	99L%S159	11/23/99	12/02/99	12/03/99
CHLORIDE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
FLUORIDE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
NITRITE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
NITRATE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
TOTAL CYANIDE	003	S	99LC130A	11/23/99	12/07/99	12/08/99
PHOSPHATE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
CHROMIUM VI	003	S	99LVI086	11/23/99	12/05/99	12/05/99
CHROMIUM VI	003 REP	S	99LVI086	11/23/99	12/05/99	12/05/99
CHROMIUM VI	003 MS	S	99LVI086	11/23/99	12/05/99	12/05/99
CHROMIUM VI	003 MSD	S	99LVI086	11/23/99	12/05/99	12/05/99
SULFATE BY IC	003	S	99LIC106	11/23/99	12/07/99	12/07/99
NITRATE NITRITE	003	S	99LN3A62	11/23/99	12/17/99	12/17/99
AMMONIA	003	S	99LAMA47	11/23/99	12/21/99	12/22/99
PH	003	S	99LPH129	11/23/99	12/01/99	12/01/99
SULFIDE	003	S	99LSDB73	11/23/99	12/05/99	12/05/99
SULFIDE	003 REP	S	99LSDB73	11/23/99	12/05/99	12/05/99
SULFIDE	003 MS	S	99LSDB73	11/23/99	12/05/99	12/05/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
CHLORIDE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
FLUORIDE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRITE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
NITRITE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
TOTAL CYANIDE	LC1 L	S	99LC130A	N/A	12/07/99	12/08/99
TOTAL CYANIDE	LC2 L	S	99LC130A	N/A	12/07/99	12/08/99
TOTAL CYANIDE	MB1	S	99LC130A	N/A	12/07/99	12/08/99
PHOSPHATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
PHOSPHATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
CHROMIUM VI	MB1	S	99LVI086	N/A	12/05/99	12/05/99
CHROMIUM VI	MB1 BS	S	99LVI086	N/A	12/05/99	12/05/99
CHROMIUM VI	MB1 BSD	S	99LVI086	N/A	12/05/99	12/05/99
SULFATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
SULFATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE NITRITE	MB1	S	99LN3A62	N/A	12/17/99	12/17/99
NITRATE NITRITE	MB1 BS	S	99LN3A62	N/A	12/17/99	12/17/99
AMMONIA	MB1	S	99LAMA47	N/A	12/21/99	12/22/99
AMMONIA	MB1 BS	S	99LAMA47	N/A	12/21/99	12/22/99
AMMONIA	MB1 BSD	S	99LAMA47	N/A	12/21/99	12/22/99
SULFIDE	MB1	S	99LSDB73	N/A	12/05/99	12/05/99
SULFIDE	MB1 BS	S	99LSDB73	N/A	12/05/99	12/05/99
SULFIDE	MB1 BSD	S	99LSDB73	N/A	12/05/99	12/05/99

RECRA LabNet Use Only

9911C847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-HANFORD # B00-006

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 11/26/99 Date Due: 12/26/99

Account #:

Refrigerator #		1	3	3				3								
#/Type Container	Liquid															
	Solid	1AG	1AG					1AG					1AG			
Volume	Liquid															
	Solid	60	60					60					250			
Preservatives		—	—					—					—			
ANALYSES REQUESTED	ORGANIC: VOA											INORG: Metal		CN		IC Anions
	ORGANIC: BNA															
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															
								PH								

RECRA LabNet 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	0624H	0625SC	0625H	0PRO	0PCB	IPH	MetQ	ICNTQ	AnqQ
001	BOX 081			S	11/22/99	1035	1	1	1			1	/	1	1
002	2						1	1	1			1	/	1	1
003	3				11/22/99	0945	1	1	1			1	/	1	1

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
Met Q = As, Be, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICRG
Anq Q = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec'l Y or N
Cooler Temp. 9.2 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
4235 7953 2259

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

1110471

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality: ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A000047		Bill of Lading/Air Bill No.: 4235795322 59

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~aG~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol}	See item (2) in Special Instructions	See item (3) in Special Instructions.	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11.22.99 1300	Ref 2-C	11.22.99 1300
Ref 2-C	11.23.99 0730	R. Thoren / R. Thoren	11.23.99 0730
R. Thoren / R Thoren	11.23.99 1430	Fed Ex	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-006-13	Page 1 of 2
ector Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality
ect Designation 0 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006	Data Turnaround 45 Days
Chest No. ERC 99 011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex	
ped To MA/RECRA	Offsite Property No. A000047		Bill of Lading/Air Bill No. 42357953 2259	

SSIBLE SAMPLE HAZARDS/REMARKS

ecial Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~GP~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions	See item (3) in Special Instructions	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D, PCBs - 8082
X0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time 1031	Received By R. Thoren	Date/Time
R. Fahlberg 11.23.99		R. Thoren 11.23.99	1031
Relinquished By R. Thoren	Date/Time	Received By	Date/Time
Thoren 10.23.99	1430	FED EX	
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	11/26/99 0940		11/26/99 0940
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

ABORATORY SECTION	Received By	Title	Date/Time
NAL SAMPLE ISPOSITION	Disposal Method	Disposed By	Date/Time

I-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock — Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days — Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99 011	Field Logbook No.: EL 1435 — COA: B20CS1 671C	Method of Shipment: Fed Ex	
Shipped To: ~~TMA~~/RECRA RF 11-22-99	Offsite Property No.: A000047	Bill of Lading/Air Bill No.: 4235795302 59	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										
Sample No.	Matrix *	Sample Date	Sample Time								
B0X0B3	Soil	11/23/99	0945	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R Fahlberg / R Fahlberg 11-23-99	Date/Time: 1031	Received By: R. Thoren	Date/Time: R. Thoren 11-23-99 / 1031
Relinquished By: R Thoren / R. Thoren 11-23-99	Date/Time: 1430	Received By: FED EX	Date/Time:
Relinquished By: Fed Ex	Date/Time: 11/26/99 0940	Received By: [illegible]	Date/Time: 11/26/99 0940
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality: [ ]	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West		SAF No.: B00-006
Ice Chest No.: ERC 99-011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 11.22.99	Offsite Property No.: A00047		Bill of Lading/Air Bill No.: 42357953 2059

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										
Sample No.	Matrix *	Sample Date	Sample Time								
B0X0B1	Soil	11/22/99	1035	X							
B0X0B2	Soil	11/22/99	1035	X							

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: R Fahlberg / R. Fahlberg	Received By: Raf Z-C	11.22.99 1300
Relinquished By: Raf Z-C	Received By: R. Thoren	11.23.99/0730
Relinquished By: R. Thoren	Received By: FED EX	11.23.99/1430
Relinquished By: Fed Ex	Received By: [illegible]	11/26/99 0940
Relinquished By:	Received By:	
Relinquished By:	Received By:	

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW #: 9911L847
SDG/SAF #: H0658/B00-006

W.O. #: 10985-001-001-9999-00
Date Received: 11-26-99

GC/MS VOLATILE

Three (3) soil samples were collected on 11-22,23-99.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for the client specified Volatile target compounds on 12-03-99.

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 required holding time for analysis was met.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL and the target compound 2-Hexanone at a level less than the CRQL.

FEB 2000
RECEIVED
Data
Log In

by J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-11-00
Date

som\group\data\voa\tnu-hanford-11-847.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 13 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

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

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

mmz\10-94\gloss.voa

GLOSSARY OF VOA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.voa

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS, HSL List

Report Date: 01/31/00 11:01

RFW Batch Number: 9911L847 Client: TNU-HANFORD B00-006 Work Order: 10985001001 Page: 1a

	Cust ID:	B0X0B1		B0X0B2		B0X0B3		B0X0B3		B0X0B3		VBLKJB	
Sample Information	RFW#:	001		002		003		003 MS		003 MSD		99LVH621-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.02		1.02		1.06		1.02		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	94	%	93	%	93	%	95	%	96	%	92	%
	Bromofluorobenzene	78	%	81	%	80	%	82	%	84	%	85	%
	1,2-Dichloroethane-d4	80	%	89	%	81	%	92	%	94	%	88	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	11	U	12	U	11	U	3	J	10	U
Bromomethane		10	U	11	U	12	U	11	U	11	U	10	U
Vinyl Chloride		10	U	11	U	12	U	11	U	11	U	10	U
Chloroethane		10	U	11	U	12	U	11	U	11	U	10	U
Methylene Chloride		6	B	7	B	19	B	20	B	6	B	5	
Acetone		30		22		33		44		40		10	U
Carbon Disulfide		5	U	6	U	6	U	6	U	6	U	5	U
1,1-Dichloroethene		5	U	6	U	6	U	68	%	73	%	5	U
1,1-Dichloroethane		5	U	6	U	6	U	6	U	6	U	5	U
1,2-Dichloroethene (total)		5	U	6	U	6	U	6	U	6	U	5	U
Chloroform		5	U	6	U	6	U	6	U	6	U	5	U
1,2-Dichloroethane		5	U	6	U	6	U	6	U	6	U	5	U
2-Butanone		10	U	11	U	12		18		19		10	U
1,1,1-Trichloroethane		5	U	6	U	6	U	6	U	6	U	5	U
Carbon Tetrachloride		5	U	6	U	6	U	6	U	6	U	5	U
Bromodichloromethane		5	U	6	U	6	U	6	U	6	U	5	U
1,2-Dichloropropane		5	U	6	U	6	U	6	U	6	U	5	U
cis-1,3-Dichloropropene		5	U	6	U	6	U	6	U	6	U	5	U
Trichloroethene		5	U	6	U	6	U	87	%	95	%	5	U
Dibromochloromethane		5	U	6	U	6	U	6	U	6	U	5	U
1,1,2-Trichloroethane		5	U	6	U	6	U	6	U	6	U	5	U
Benzene		5	U	6	U	6	U	89	%	97	%	5	U
Trans-1,3-Dichloropropene		5	U	6	U	6	U	6	U	6	U	5	U
Bromoform		5	U	6	U	6	U	6	U	6	U	5	U
4-Methyl-2-pentanone		10	U	11	U	12	U	11	U	11	U	10	U
2-Hexanone		10	U	11	U	12	U	11	U	11	U	2	J
Tetrachloroethene		5	U	6	U	6	U	6	U	6	U	5	U
1,1,2,2-Tetrachloroethane		5	U	6	U	6	U	6	U	6	U	5	U
Toluene		5	U	6	U	6	U	97	%	105	%	5	U

*= Outside of EPA CLP QC limits.

01-31-00

RFW Batch Number: **9911L847** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1b

05

Cust ID:	B0X0B1	B0X0B2	B0X0B3	B0X0B3	B0X0B3	VBLKJB
RFW#:	001	002	003	003 MS	003 MSD	99LVH621-MB1
Chlorobenzene	5 U	6 U	6 U	96 %	105 %	5 U
Ethylbenzene	5 U	6 U	6 U	6 U	6 U	5 U
Styrene	5 U	6 U	6 U	6 U	6 U	5 U
Xylene (total)	5 U	6 U	6 U	6 U	6 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID: VBLKJB BS

Sample Information
RFW#: 99LVH621-MB1
Matrix: SOIL
D.F.: 1.00
Units: UG/KG

Surrogate Recovery	Toluene-d8	95	%
	Bromofluorobenzene	82	%
	1,2-Dichloroethane-d4	83	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	6	B
Acetone	4	J
Carbon Disulfide	5	U
1,1-Dichloroethene	74	%
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	84	%
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	87	%
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U
Toluene	95	%

*= Outside of EPA CLP QC limits.

01-31-00

Cust ID: VBLKJB BS

RFW#: 99LVH621-MB1

Chlorobenzene	93	%
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1	001	S	99LVH621	11/22/99	N/A	12/03/99
B0X0B2	002	S	99LVH621	11/22/99	N/A	12/03/99
B0X0B3	003	S	99LVH621	11/23/99	N/A	12/03/99
B0X0B3	003 MS	S	99LVH621	11/23/99	N/A	12/03/99
B0X0B3	003 MSD	S	99LVH621	11/23/99	N/A	12/03/99
LAB QC:						
VBLKJB	MB1	S	99LVH621	N/A	N/A	12/03/99
VBLKJB	MB1 BS	S	99LVH621	N/A	N/A	12/03/99

01-31-00

RECRA LabNet Use Only

9911C847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TWL-HANFORD # B00-006

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 11/26/99 Date Due: 12/26/99

Account #:

Refrigerator #		1	3	3				3			1							
#/Type Container	Liquid																	
	Solid	1AG	1AG	1				1AG			1AG							
Volume	Liquid																	
	Solid	60	60	1				60			250							
Preservatives		—	—					—			—							
ANALYSES REQUESTED		ORGANIC							INORG									
		VOA	BNA	Pest/PCB	Herb			PH	Metal	CN	IC Anions							
RECRA LabNet Use Only		0624H OCCSC	0625H 0DRO	0PCB				IPH	MetD	ICNTO	AngD							

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			PH	Metal	CN	IC Anions						
001	BOX 081			S	11/26/99	1035	1	1	1				1	/	1	1						
002	1 2			1	1	1	1	1	1				1	/	1	1						
003	1 3			1	11/26/99	0945	1	1	1				1	/	1	1						

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. MetD = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICR6
4. AngD = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 9.2 °C

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7953 2259

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A0000047		Bill of Lading/Air Bill No.: 42357953 2259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~OA~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL
SAMPLE ANALYSIS	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1300 11.22.99	Ref 2.C	1300 11.22.99
Ref 2.C	11.23.99/0730	R. Thoren / R. Thoren	11.23.99/0730
R. Thoren / R Thoren	11.23.99/1430	Fed Ex	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-006-13	Page 1 of 2
or hiberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality [ ]
Designation Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006	Data Turnaround 45 Days
est No. ERC 99 011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex	
ed To A/RECRA	Offsite Property No. A000047		Bill of Lading/Air Bill No. 42357953 2259	

SIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
	Type of Container	aG	aG	aG	aG	~~G~~ aG	aG	aG	aG	aG	aG
	No. of Container(s)	0	0	0	0	1	1	1	1	1	1
ial Handling and/or Storage	Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS				Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
Sample No.	Matrix *	Sample Date	Sample Time										
)B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION		Sign/Print Names	
quished By	Date/Time 1031	Received By R. Thoren	Date/Time
Fellows / R. Fellows	11-23-99	R. Thoren	11-23-99/1031
quished By R. Thoren	Date/Time	Received By	Date/Time
Thoren	10-23-99/1430	FED EX	
quished By	Date/Time	Received By	Date/Time
ed Ex	11/26/99 0940		11/26/99 0940
quished By	Date/Time	Received By	Date/Time
quished By	Date/Time	Received By	Date/Time
quished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63, Tech-99, Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

BORATORY SECTION	Received By	Title	Date/Time
AL SAMPLE SPOSITION	Disposal Method	Disposed By	Date/Time

-EE-011 (10/99)

Tarp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-006-13
Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West		SAF No.: B00-006
Ice Chest No.: ERC99011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RE 11.22.99	Offsite Property No.: A000047		Bill of Lading/Air Bill No.: 423579532259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
B0X0B3	Soil	11/23/99	0945	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11-23-99 1031	R. Thoren	11-23-99 1031
R. Thoren / R. Thoren	11-23-99 1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 11.22.99	Offsite Property No.: AØØØØ47	Bill of Lading/Air Bill No.: 42357953 2059	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035	X									
B0X0B2	Soil	11/22/99	1035	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R. Fahlberg	1300 11.22.99	Raf Z-C	1300 11.22.99
Raf Z-C	11.23.99/0730	R. Thoren	11.23.99/0730
R. Thoren	11.23.99/1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

Matrix *
S=Soil
SE=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
W/=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)

13

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

FEB 2000
RECEIVED
Data
Log In

Reera LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW #: 9911L847
SDG/SAF #: 110658/B00-006

W.O.#: 10985-001-001-9999-00
Date Received: 11-26-99

SEMIVOLATILE

Three (3) soil samples were collected on 11-22,23-99.

The samples and their associated QC samples were extracted on 12-06-99 and analyzed according to criteria set forth in Reera OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 12-09,10,30,31-99.

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. Non-target compounds were detected in the samples.

3. The required holding times for extraction and analysis were met.

4. All surrogate recoveries were within EPA QC limits.

5. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

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

7. The samples were spectrally searched for Butylated Hydroxytoluene and Tributylphosphate; however, they were not identified in the samples.

by J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-16-00
Date

som\group.data\bna\tnu11-847.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 17 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.bna

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 01/16/00 17:14

RFW Batch Number: 9911L847 Client: TNU-HANFORD B00-006 Work Order: 10985001001 Page: 1a

	Cust ID:	B0X0B1		B0X0B1		B0X0B1		B0X0B2		B0X0B3		SBLKHT	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		99LE1472-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	85	%	82	%	90	%	85	%	84	%	88	%
	2-Fluorobiphenyl	90	%	81	%	91	%	90	%	82	%	93	%
	Terphenyl-d14	111	%	109	%	119	%	113	%	121	%	112	%
	Phenol-d5	99	%	93	%	102	%	97	%	95	%	91	%
	2-Fluorophenol	91	%	83	%	93	%	89	%	91	%	91	%
	2,4,6-Tribromophenol	101	%	118	%	117	%	101	%	119	%	86	%
Phenol		340	U	94 *	%	97 *	%	340	U	370	U	330	U
bis(2-Chloroethyl)ether		340	U	340	U	340	U	340	U	370	U	330	U
2-Chlorophenol		340	U	94	%	101	%	340	U	370	U	330	U
1,3-Dichlorobenzene		340	U	340	U	340	U	340	U	370	U	330	U
1,4-Dichlorobenzene		340	U	68	%	75	%	340	U	370	U	330	U
1,2-Dichlorobenzene		340	U	340	U	340	U	340	U	370	U	330	U
2-Methylphenol		340	U	340	U	340	U	340	U	370	U	330	U
2,2'-oxybis(1-Chloropropane)		340	U	340	U	340	U	340	U	370	U	330	U
4-Methylphenol		340	U	340	U	340	U	340	U	370	U	330	U
N-Nitroso-di-n-propylamine		340	U	103	%	109	%	340	U	370	U	330	U
Hexachloroethane		340	U	340	U	340	U	340	U	370	U	330	U
Nitrobenzene		340	U	340	U	340	U	340	U	370	U	330	U
Isophorone		340	U	340	U	340	U	340	U	370	U	330	U
2-Nitrophenol		340	U	340	U	340	U	340	U	370	U	330	U
2,4-Dimethylphenol		340	U	340	U	340	U	340	U	370	U	330	U
bis(2-Chloroethoxy)methane		340	U	340	U	340	U	340	U	370	U	330	U
2,4-Dichlorophenol		340	U	340	U	340	U	340	U	370	U	330	U
1,2,4-Trichlorobenzene		340	U	78	%	86	%	340	U	370	U	330	U
Naphthalene		340	U	340	U	340	U	340	U	370	U	330	U
4-Chloroaniline		340	U	340	U	340	U	340	U	370	U	330	U
Hexachlorobutadiene		340	U	340	U	340	U	340	U	370	U	330	U
4-Chloro-3-methylphenol		340	U	89	%	91	%	340	U	370	U	330	U
2-Methylnaphthalene		340	U	340	U	340	U	340	U	370	U	330	U
Hexachlorocyclopentadiene		340	U	340	U	340	U	340	U	370	U	330	U
2,4,6-Trichlorophenol		340	U	340	U	340	U	340	U	370	U	330	U
2,4,5-Trichlorophenol		850	U	850	U	840	U	860	U	920	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0X0B1		B0X0B1		B0X0B1		B0X0B2		B0X0B3		SBLKHT	
RFW#:	001		001 MS		001 MSD		002		003		99LE1472-MB1	
2-Chloronaphthalene	340	U	340	U	340	U	340	U	370	U	330	U
2-Nitroaniline	850	U	850	U	840	U	860	U	920	U	840	U
Dimethylphthalate	340	U	340	U	340	U	340	U	370	U	330	U
Acenaphthylene	340	U	340	U	340	U	340	U	370	U	330	U
2,6-Dinitrotoluene	340	U	340	U	340	U	340	U	370	U	330	U
3-Nitroaniline	850	U	850	U	840	U	860	U	920	U	840	U
Acenaphthene	340	U	87	%	88	%	340	U	370	U	330	U
2,4-Dinitrophenol	850	U	850	U	840	U	860	U	920	U	840	U
4-Nitrophenol	850	U	92	%	94	%	860	U	920	U	840	U
Dibenzofuran	340	U	340	U	340	U	340	U	370	U	330	U
2,4-Dinitrotoluene	340	U	79	%	79	%	340	U	370	U	330	U
Diethylphthalate	340	U	340	U	340	U	340	U	370	U	330	U
4-Chlorophenyl-phenylether	340	U	340	U	340	U	340	U	370	U	330	U
Fluorene	340	U	340	U	340	U	340	U	370	U	330	U
4-Nitroaniline	850	U	850	U	840	U	860	U	920	U	840	U
4,6-Dinitro-2-methylphenol	850	U	850	U	840	U	860	U	920	U	840	U
N-Nitrosodiphenylamine (1)	340	U	340	U	340	U	340	U	370	U	330	U
4-Bromophenyl-phenylether	340	U	340	U	340	U	340	U	370	U	330	U
Hexachlorobenzene	340	U	340	U	340	U	340	U	370	U	330	U
Pentachlorophenol	850	U	93	%	103	%	860	U	920	U	840	U
Phenanthrene	340	U	340	U	340	U	340	U	370	U	330	U
Anthracene	340	U	340	U	340	U	340	U	370	U	330	U
Carbazole	340	U	340	U	340	U	340	U	370	U	330	U
Di-n-butylphthalate	340	U	340	U	340	U	340	U	370	U	330	U
Fluoranthene	340	U	340	U	340	U	340	U	370	U	330	U
Pyrene	340	U	106	%	111	%	340	U	370	U	330	U
Butylbenzylphthalate	340	U	340	U	340	U	340	U	370	U	330	U
3,3'-Dichlorobenzidine	340	U	340	U	340	U	340	U	370	U	330	U
Benzo(a)anthracene	340	U	340	U	340	U	340	U	370	U	330	U
Chrysene	340	U	340	U	340	U	340	U	370	U	330	U
bis(2-Ethylhexyl)phthalate	24	J	24	J	29	J	27	J	370	U	330	U
Di-n-octyl phthalate	340	U	340	U	340	U	340	U	370	U	330	U
Benzo(b)fluoranthene	340	U	340	U	340	U	340	U	370	U	330	U
Benzo(k)fluoranthene	340	U	340	U	340	U	340	U	370	U	330	U
Benzo(a)pyrene	340	U	340	U	340	U	340	U	370	U	330	U
Indeno(1,2,3-cd)pyrene	340	U	340	U	340	U	340	U	370	U	330	U
Dibenz(a,h)anthracene	340	U	340	U	340	U	340	U	370	U	330	U
Benzo(g,h,i)perylene	340	U	340	U	340	U	340	U	370	U	330	U

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

Cust ID: **SBLKHT BS**

Sample Information	RFW#:	**99LE1472-MB1**
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG

Surrogate Recovery	Nitrobenzene-d5	85	%
	2-Fluorobiphenyl	89	%
	Terphenyl-d14	118	%
	Phenol-d5	90	%
	2-Fluorophenol	84	%
	2,4,6-Tribromophenol	89	%

Phenol	85	%
bis(2-Chloroethyl)ether	330	U
2-Chlorophenol	90	%
1,3-Dichlorobenzene	330	U
1,4-Dichlorobenzene	77	%
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	79	%
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	83	%
Naphthalene	330	U
4-Chloroaniline	330	U
Hexachlorobutadiene	330	U
4-Chloro-3-methylphenol	84	%
2-Methylnaphthalene	330	U
Hexachlorocyclopentadiene	330	U
2,4,6-Trichlorophenol	330	U
2,4,5-Trichlorophenol	840	U

*= Outside of EPA CLP QC limits.

Cust ID: SBLKHT BS

RFW#: 99LE1472-MB1

2-Chloronaphthalene	330	U
2-Nitroaniline	840	U
Dimethylphthalate	330	U
Acenaphthylene	330	U
2,6-Dinitrotoluene	330	U
3-Nitroaniline	840	U
Acenaphthene	89	%
2,4-Dinitrophenol	840	U
4-Nitrophenol	69	%
Dibenzofuran	330	U
2,4-Dinitrotoluene	79	%
Diethylphthalate	330	U
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	840	U
4,6-Dinitro-2-methylphenol	840	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	76	%
Phenanthrene	330	U
Anthracene	330	U
Carbazole	330	U
Di-n-butylphthalate	330	U
Fluoranthene	330	U
Pyrene	119	%
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	17	J
Benzo(b)fluoranthene	330	U
Benzo(k)fluoranthene	330	U
Benzo(a)pyrene	330	U
Indeno(1,2,3-cd)pyrene	330	U
Dibenz(a,h)anthracene	330	U
Benzo(g,h,i)perylene	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0X0B1

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-006

Matrix: (soil/water) SOIL Lab Sample ID: 99111847-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A123018

Level: (low/med) LOW Date Received: 11/26/99

% Moisture: 2 decanted: (Y/N) __ Date Extracted: 12/06/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.82	100	JB
2.	ALDOL CONDENSATE	8.38	90	JA
3.	HEXADECANOIC ACID	21.12	300	J
4.	UNKNOWN	24.29	100	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0X0B2

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-006

Matrix: (soil/water) SOIL Lab Sample ID: 9911L847-002

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A123021

Level: (low/med) LOW Date Received: 11/26/99

% Moisture: 3 decanted: (Y/N) __ Date Extracted: 12/06/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/31/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.83	90	JB
2.	ALDOL CONDENSATE	8.38	100	JA
3.	HEXADECANOIC ACID	21.12	300	J
4.	UNKNOWN	24.29	200	J
5.	UNKNOWN	26.03	90	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BCX0B3

Lab Name: Recra LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-006

Matrix: (soil/water) SOIL Lab Sample ID: 9911L847-003

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A123022

Level: (low/med) LOW Date Received: 11/26/99

% Moisture: 10 decanted: (Y/N) __ Date Extracted: 12/06/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/31/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.82	100	JB
2.	ALDOL CONDENSATE	8.38	100	JA
3.	HEXADECANOIC ACID	21.12	400	J
4.	UNKNOWN	24.29	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SELKHT

Lab Name: Recra LabNet Work Order: 10985001001

Client: TNU-HANFORD EC0-006

Matrix: (soil/water) SOIL Lab Sample ID: 99LE1472-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D120909

Level: (low/med) LOW Date Received: 12/06/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 12/06/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/09/99

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	7.73	80	J

FORM 1 SV-TIC 3/90

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1	001	S	99LE1472	11/22/99	12/06/99	12/30/99
B0X0B1	001 MS	S	99LE1472	11/22/99	12/06/99	12/30/99
B0X0B1	001 MSD	S	99LE1472	11/22/99	12/06/99	12/30/99
B0X0B2	002	S	99LE1472	11/22/99	12/06/99	12/31/99
B0X0B3	003	S	99LE1472	11/23/99	12/06/99	12/31/99

LAB QC:

SBLKHT	MB1	S	99LE1472	N/A	12/06/99	12/09/99
SBLKHT	MB1 BS	S	99LE1472	N/A	12/06/99	12/10/99

RECRA LabNet Use Only

9911C847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-HANFORD # B00-006

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 11/26/99 Date Due: 12/26/99

Account #:

Refrigerator #		1	3	3				3			1					
#/Type Container	Liquid															
	Solid	1AG	1AG	1				1AG			1AG					
Volume	Liquid															
	Solid	60	60	1				60			250					
Preservatives		—	—					—			—					
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb			PH	INORG: Metal	CN	IC Anions						

RECRA LabNet Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H 0525C	0625H 0DRO	0PCB				IPH	MetD	ICNTD	AnglD						
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	001	BOX 081			S	11/26/99	1035	1	1	1				1	/	1	1						
	002	1 2			1	1	1	1	1	1				1	/	1	1						
	003	1 3			1	11/26/99	0945	1	1	1				1	/	1	1						

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. MetD = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICRG
4. AnglD = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICPO4, ICSO4, ISFD, INH3N
6.

RECRA LabNet Use Only

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

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N; 2) Unbroken on Outer Package Y or N; 3) Present on Sample Y or N; 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 9.2 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235795322259

Relinquished by	Received by	Date	Time
Ted Eg	[signature]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

9911L241

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A00047	Bill of Lading/Air Bill No.: 42357953 2259	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~O/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL*
SAMPLE ANALYSIS	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11.22.99 1300	Ref Z-C	11.22.99 1300
Ref Z-C	11.23.99/0730	R. Thoren	11.23.99/0730
R. Thoren	11.23.99/1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228)
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Strontium-89,90 – Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Tho

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 1 of 2
tor ahlberg	Company Contact: C Cearlock Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N Data Turnaround: 45 Days
t Designation Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	Air Quality: [illegible]
hest No.: BPC 99 011	Field Logbook No.: EL 1435 COA: B20CS1 671C	Method of Shipment: Fed Ex	
ed To A/RECRA	Offsite Property No.: A000047	Bill of Lading/Air Bill No.: 42357953 2259	

15

SSIBLE SAMPLE HAZARDS/REMARKS

cial Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~GP~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol}	See item (2) in Special Instructions.	See item (3) in Special Instructions	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D, PCBs - 8082
0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fohlberg	1031 11-23-99	R. Thoren	11-23-99/1031
R. Thoren	10-23-99/1430	FED EX	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

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

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

I-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: EL 99011	Field Logbook No.: EL 1435	COA: B20CS1 671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 11-23-99	Offsite Property No.: A00047		Bill of Lading/Air Bill No.: 4235795302259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											
Sample No.	Matrix *	Sample Date	Sample Time									
B0X0B3	Soil	11/23/99	0945	X								

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Sign/Print Names	Date/Time
Relinquished By	R Fahlberg	1031 11-23-99	Received By: R. Thoren	11/23/99 1031
Relinquished By	R. Thoren	11/23/99 1430	Received By: FED EX	
Relinquished By: FED EX		11/26/99 0940	Received By: Vicki Hennessy	11/26/99 0940
Relinquished By			Received By	
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63, Tech-99, Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2

R Fa... erg	Company Contact: C Cearlock; Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC99.011	Field Logbook No.: EL 1435; COA: B20CS1671C	Method of Shipment: Fed Ex	
Shipped To: ~~TMA~~/RECRA RF 11.22.99	Offsite Property No.: A00047	Bill of Lading/Air Bill No.: 42357953 2059	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
B0X0B1	Soil	11/22/99	1035	X								
B0X0B2	Soil	11/22/99	1035	X								

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R.Folly / R.Fahlberg	11.22.99 1300	Received By: R.F. Z-C	11.22.99 1300
Relinquished By: R.F. Z-C		11.23.99/0730	Received By: R. Thoren	11.23.99/0730
Relinquished By: R. Thoren		11.23.99/1430	Received By: FED EX	
Relinquished By: Fed Ex		11/26/99 0940	Received By: [illegible]	11/26/99 0940
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63, Tech-99, Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

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SO=Solid
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W=Water
O=Oil
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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)

17

ORIGINAL Dayer

SDR # B00-039
Revision #: 0
Date Initiated: 12/29/99

SAMPLE DISPOSITION RECORD

SAF: B00-006
OU: 200-CS-1
Project ID: 200-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 OU

Laboratory: TMA/RECRA

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 3
ID Numbers: B0X0B1, B0X0B2, B0X0B3
Matrix: Soil
Collection Date: 11/22/99 – 11/23/99

Issue Background:

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

Type: Analysis Holding Time Exceeded

Description: Laboratory Did Not Analyze Samples Within Required Holding Time for PCB, WTPH-D, and Semi-Volatile Analytes

Disposition:

Description: The laboratory reported that the analysis holding time for the listed samples was exceeded for PCB, WTPH-D, and semi-volatile analytes. The laboratory continued with the analyses and will note the holding time issue in the data package case narrative.

Justification: The data associated with the impacted PCB, WTPH-D and semi-volatile analyses are still of use to the 200 Area Source Characterization project. However, validation of these analyses will result in a "J" flag assignment to the associated data.

Approval Signatures:

S. J. Trent — 1/19/00
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 1/19/00
Task Manager (Print/Sign Name) — Date

RECRA LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client: TNU HANFORD B00-006
RFW #: 9911L847
SDG/SAF#: H0658/B00-006

W.O. #: #: 10985-001-001-9999-00
Date Received: 11-26-99

GC SCAN

Three (3) soil samples were collected on 11-22-99.

The samples and their associated QC samples were prepared on 12-02-99 and analyzed by methodology based on EPA Method 8015B for Ethanol and 1-Propanol on 12-02-99.

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 required holding time for analysis was met.
3. All initial calibrations associated with this data set were within acceptance criteria.
4. All continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.
5. Surrogates were not used for this analysis.
6. All blank spike recoveries were within advisory control limits of 50%-150%.
7. All matrix spike recoveries were within advisory control limits of 50%-150%.

FEB 2000
RECEIVED
Data
Log In

12-21-99
Date

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

r:\share\le\gescan\11-847.doc

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

GLOSSARY OF OGCSC DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates spiked compound.

Recra LabNet - Lionville Laboratory

GC SCAN

RFW Batch Number: **9911L847** Client: **TNU-HANFORD B00-006** Work Order: **10985-001-001-9999-00** Report Date: 12/17/99 13:33 Page: 1

	Cust ID:	B0X0B1	B0X0B1	B0X0B1	B0X0B2	B0X0B3	BLK
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	99LLC182-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
n-Propyl Alcohol		4.6 U	89 %	86 %	5.0 U	5.5 U	5.0 U
Ethanol		4.6 U	5.0 U	4.8 U	5.0 U	5.5 U	5.0 U

	Cust ID:	BLK BS
Sample Information	RFW#:	99LLC182-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	mg/kg
n-Propyl Alcohol		85 %
Ethanol		5.0 U

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

12/17/99

Recra LabNet - Lionville Laboratory
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 11/26/99 RFW LOT # :9911L847

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B1	001	S	99LLC182	11/22/99	12/02/99	12/02/99
B0X0B1	001 MS	S	99LLC182	11/22/99	12/02/99	12/02/99
B0X0B1	001 MSD	S	99LLC182	11/22/99	12/02/99	12/02/99
B0X0B2	002	S	99LLC182	11/22/99	12/02/99	12/02/99
B0X0B3	003	S	99LLC182	11/23/99	12/02/99	12/02/99

LAB QC:

BLK	MB1	S	99LLC182	N/A	12/02/99	12/02/99
BLK	MB1 BS	S	99LLC182	N/A	12/02/99	12/02/99

12-30-99

RECRA LabNet Use Only

9911L847

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU-HANFORD # B00-006

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC spec Del std TAT 30 day

Date Rec'd 11/26/99 Date Due 12/26/99

Account #

Refrigerator #		1	3	3				3			1					
#/Type Container	Liquid															
	Solid	1AG	1AG	1				1AG			1AG					
Volume	Liquid															
	Solid	60	60	1				60			250					
Preservatives		—	—					—			—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb			PH	Metal	CN	IC Anions					
RECRA LabNet Use Only		0624H 0625SC	0625H 0DRO	0PCB				IPH	MetO	ICNTO	AnaO					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H 0625SC	0625H 0DRO	0PCB			IPH	MetO	ICNTO	AnaO					
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	001	BOX 081			S	11/26/99	1035	1	1	1			1	/	1	1					
	002	1 2			1	1	1	1	1	1			1	/	1	1					
	003	1 3			1	11/26/99	0945	1	1	1			1	/	1	1					

Special Instructions:

COMPOSITE WASTE

DATE/REVISIONS:

1. Run matrix QC
2. MetO = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
3. Cu, Ni, V, Zn, Hg, ICR6
4. AnaO = IN3N2, ICCL, ICFL, ICNO2, ICNO3
5. ICP04, ICS04, ISFD, INH3N
6.

RECRA LabNet Use Only

Samples were: 1) Shipped / or Hand Delivered

Airbill # See Label

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 9.2 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235795322259

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11/26/99	0940

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality: ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA/RECRA~~ RECRA 11.22.99	Offsite Property No.: A00047		Bill of Lading/Air Bill No.: 42357953 2259

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~GP~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL
SAMPLE ANALYSIS	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B1	Soil	11/22/99	1035				X	X	X				X
B0X0B2	Soil	11/22/99	1035				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11.22.99 1300	Ref Z-C	11.22.99 1300
Ref Z-C	11.23.99/0730	R. Thoren / R. Thoren	11.23.99/0730
R. Thoren / R. Thoren	11.23.99/1430	Fed Ex	
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196

(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

Matrix *
S=Soil
SE=Sediment
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WI=Wipe
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LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 1 of 2

tor ahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days	Air Quality ☐	
t Designation Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
est No. ERC 99 011	Field Logbook No. EL 1435	COA B20CS1 671C	Method of Shipment Fed Ex
ed To IA/RECRA	Offsite Property No. A000047		Bill of Lading/Air Bill No. 42357953 2259

SIBLE SAMPLE HAZARDS/REMARKS

cial Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol]	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
0B3	Soil	11/23/99	0945				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Folliard	1031 11-23-99	R. Thoren	11-23-99/1031
R. Thoren	11-23-99/1430	FED EX	
Fed Ex	11/26/99 0940		11/26/99 0940

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

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(2) Gamma Spec - Complete [Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228]
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241, Radium-228]; Strontium-89,90 -- Total Sr; Total Uranium [Uranium]; Isotopic Plutonium; Isotopic Thorium [Tho

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

BORATORY SECTION	Received By	Title	Date/Time
AL SAMPLE SPOSITION	Disposal Method	Disposed By	Date/Time

-EE-011 (10/99)

Temp 9-2

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-13	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
Ice Chest No. ERC99011	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex
Shipped To ~~TMA~~/RECRA RF 11-23-99	Offsite Property No. A00047		Bill of Lading/Air Bill No. 4235795302259

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B3	Soil	11/23/99	0945	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	11-23-99 1031	R. Thoren / R. Thoren	11-23-99 1031
Relinquished By	Date/Time	Received By	Date/Time
R. Thoren / R. Thoren	11-23-99 1430	FED EX	
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	11/26/99 0940	[illegible]	11/26/99 0940
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-11	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC99.011	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 11.22.99	Offsite Property No.: A00047	Bill of Lading/Air Bill No.: 42357953 2059	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions										
Sample No.	Matrix *	Sample Date	Sample Time								
B0X0B1	Soil	11/22/99	1035	X							
B0X0B2	Soil	11/22/99	1035	X							

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R Fahlberg / R. Fahlberg	11.22.99 1300	Received By: Ref Z-C	11.22.99 1300
Relinquished By: Ref Z-C		11.23.99/0730	Received By: R. Thoren	11.23.99/0730
Relinquished By: R. Thoren		11.23.99/1430	Received By: FED EX	
Relinquished By: Fed Ex		11/26/99 0940	Received By: [illegible]	11/26/99 0940
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

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

BHI-EE-011 (10/99)