H0499-TMA/RLLRA

0052398

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JAN 18 2000
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Thermo Nutech
W.O. No. N9-08-132-7182

Bechtel Hanford Inc.
SDG H0499

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0499 is composed of seven solid (soil) samples designated under SAF No. B99-078 with a Project Designation of: 200 Area Source characterization-200-CW-1 OU.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklists. The results were transmitted to BHI via facsimile on October 6, 1999 with the exception of Americium-241 data, which was faxed to BHI on October 21, 1999.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.2 Total and Isotopic Uranium Analyses

Isotopic analyses were to be based on the results from the total uranium analyses. Isotopic uranium was requested on samples B0W5P7 and B0W681. No problems were encountered during the course of the analyses.

2.3 Gamma Spec Analyses

No problems were encountered during the course of the analyses.

2.4 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses. A recount was performed on sample B0W5M5.

2.5 Americium-241 Analyses

All samples were reanalyzed due to low initial yields. Reanalyses were performed with new QC samples. No problems were encountered with the reanalyses. Recounts were performed on samples B0W5M4, B0W5P4 and the QC blank.

2.6 Tritium Analyses

No problems were encountered during the course of the analyses.

2.7 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.8 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

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2.9 Isotopic Thorium Analyses

No probems were encountered during the course of the analyses. Recounts were performed on sample B0W5M4, the QC blank and duplicate.

2.10 Neptunium-237 Analyses

No problems were encountered during the course of the analyses. Recounts were performed on samples B0W5M4 and B0W5P7.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

SAMPLE SUMMARY

SDG 7182
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0W5M4	GP-3<15' bgs 12-13'	SOLID		N908132-01	B99-078	B99-078-31	08/19/99 10:25
B0W5M5	GP-3<15' bgs 14-15'	SOLID		N908132-02	B99-078	B99-078-32	08/19/99 10:50
B0W5P2	GP-3<15' bgs 17-18'	SOLID		N908132-03	B99-078	B99-078-36	08/19/99 11:05
B0W5P3	GP-3<15' bgs 19.5-20.5	SOLID		N908132-04	B99-078	B99-078-37	08/19/99 11:21
B0W5P4	GP-3<15' bgs 24-25	SOLID		N908132-05	B99-078	B99-078-38	08/19/99 11:45
B0W5P7	GP-3<15' bgs 9.5-10.5	SOLID		N908132-06	B99-078	B99-078-41	08/19/99 09:00
B0W681	GP-3<15' bgs 9.5-10.5	SOLID		N908132-07	B99-078	B99-078-41	08/19/99 09:00
Method Blank		SOLID		N908132-09	B99-078		
Method Blank		SOLID		N908132-13	B99-078		
Lab Control Sample		SOLID		N908132-08	B99-078		
Lab Control Sample		SOLID		N908132-12	B99-078		
Duplicate (N908132-01)	GP-3<15' bgs 12-13'	SOLID		N908132-10	B99-078		08/19/99 10:25
Duplicate (N908132-01)	GP-3<15' bgs 12-13'	SOLID		N908132-14	B99-078		08/19/99 10:25
Duplicate (N908132-03)	GP-3<15' bgs 17-18'	SOLID		N908132-11	B99-078		08/19/99 11:05

Lab id TMANC
Protocol Hanford
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SAMPLE DELIVERY GROUP H0499

QC SUMMARY

SDG 7182
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

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
7182	B99-078-31	B0W5M4	SOLID	91.5			08/24/99	5	N908132-01	7182-001
	B99-078-32	B0W5M5	SOLID	94.2			08/24/99	5	N908132-02	7182-002
	B99-078-36	B0W5P2	SOLID	94.0			08/24/99	5	N908132-03	7182-003
	B99-078-37	B0W5P3	SOLID	94.2			08/24/99	5	N908132-04	7182-004
	B99-078-38	B0W5P4	SOLID	95.7			08/24/99	5	N908132-05	7182-005
	B99-078-41	B0W5P7	SOLID	68.4			08/24/99	5	N908132-06	7182-006
		B0W681	SOLID	80.5			08/24/99	5	N908132-07	7182-007
		Method Blank	SOLID						N908132-09	7182-009
		Method Blank	SOLID						N908132-13	7182-013
		Lab Control Sample	SOLID						N908132-08	7182-008
		Lab Control Sample	SOLID						N908132-12	7182-012
		Duplicate (N908132-01)	SOLID	91.5			08/24/99	5	N908132-10	7182-010
		Duplicate (N908132-01)	SOLID				08/24/99	5	N908132-14	7182-014
		Duplicate (N908132-03)	SOLID	94.0			08/24/99	5	N908132-11	7182-011

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SAMPLE DELIVERY GROUP H0499

SDG 7182
Contact Kevin C. Johnson

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6893-101	5.0	7			1	1	1/1		
NP	SOLID	Neptunium in Soil	6893-101	5.0	7			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6893-101	5.0	7			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6893-101	5.0	7			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6893-101	5.0	2			1	1			
Beta Counting												
SR	SOLID	Total Strontium in Soil	6893-101	10.0	7			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6893-101	10.0	3			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6893-101	15.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6893-101	9.0	7			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6893-101	10.0	3			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6893-101	10.0	3			1	1	1/1		

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

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SAMPLE DELIVERY GROUP H0499

WORK SUMMARY

SDG 7182
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0W5M4			N908132-01	7182-001	AM	A1	10/20/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 12-13'		SOLID	08/19/99	7182-001	GAM		10/02/99	10/06/99	NJV	Gamma Scan
B99-078-31	B99-078		08/24/99	7182-001	NP		10/05/99	10/06/99	NJV	Neptunium in Soil
				7182-001	PU		09/27/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-001	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-001	TH		10/05/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-001	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
B0W5M5			N908132-02	7182-002	AM	A1	10/15/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 14-15'		SOLID	08/19/99	7182-002	GAM		10/02/99	10/06/99	NJV	Gamma Scan
B99-078-32	B99-078		08/24/99	7182-002	NP		09/25/99	10/06/99	NJV	Neptunium in Soil
				7182-002	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-002	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-002	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-002	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
B0W5P2			N908132-03	7182-003	AM	A1	10/15/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 17-18'		SOLID	08/19/99	7182-003	GAM		10/02/99	10/06/99	NJV	Gamma Scan
B99-078-36	B99-078		08/24/99	7182-003	H		09/25/99	10/08/99	NJV	Tritium in Soil
				7182-003	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7182-003	NP		09/25/99	10/06/99	NJV	Neptunium in Soil
				7182-003	PU		09/27/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-003	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-003	TC		10/01/99	10/06/99	NJV	Technetium 99 in Soil
				7182-003	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-003	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
B0W5P3			N908132-04	7182-004	AM	A1	10/15/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 19.5-20.5		SOLID	08/19/99	7182-004	GAM		10/02/99	10/06/99	NJV	Gamma Scan
B99-078-37	B99-078		08/24/99	7182-004	H		09/26/99	10/08/99	NJV	Tritium in Soil
				7182-004	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7182-004	NP		09/25/99	10/06/99	NJV	Neptunium in Soil
				7182-004	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-004	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-004	TC		10/01/99	10/06/99	NJV	Technetium 99 in Soil
				7182-004	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-004	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil

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SAMPLE DELIVERY GROUP H0499

SDG 7182
Contact Kevin C. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0W5P4			N908132-05	7182-005	AM	A1	10/18/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 24-25		SOLID	08/19/99	7182-005	GAM		10/02/99	10/06/99	NJV	Gamma Scan
B99-078-38	B99-078		08/24/99	7182-005	H		09/26/99	10/08/99	NJV	Tritium in Soil
				7182-005	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7182-005	NP		09/27/99	10/06/99	NJV	Neptunium in Soil
				7182-005	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-005	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-005	TC		10/04/99	10/06/99	NJV	Technetium 99 in Soil
				7182-005	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-005	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
B0W5P7			N908132-06	7182-006	AM	A1	10/15/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 9.5-10.5		SOLID	08/19/99	7182-006	GAM		09/29/99	10/06/99	NJV	Gamma Scan
B99-078-41	B99-078		08/24/99	7182-006	NP		10/05/99	10/06/99	NJV	Neptunium in Soil
				7182-006	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-006	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-006	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-006	U		10/01/99	10/08/99	NJV	Uranium, Isotopic in Soil
				7182-006	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
B0W681			N908132-07	7182-007	AM	A1	10/15/99	10/21/99	NJV	Americium 241 in Soil
GP-3<15' bgs 9.5-10.5		SOLID	08/19/99	7182-007	GAM		10/04/99	10/06/99	NJV	Gamma Scan
B99-078-41	B99-078		08/24/99	7182-007	NP		09/25/99	10/06/99	NJV	Neptunium in Soil
				7182-007	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-007	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-007	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-007	U		10/01/99	10/08/99	NJV	Uranium, Isotopic in Soil
				7182-007	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
Method Blank			N908132-09	7182-009	GAM		10/04/99	10/06/99	NJV	Gamma Scan
		SOLID		7182-009	H		09/26/99	10/08/99	NJV	Tritium in Soil
	B99-078			7182-009	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7182-009	NP		09/27/99	10/06/99	NJV	Neptunium in Soil
				7182-009	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-009	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-009	TC		10/01/99	10/06/99	NJV	Technetium 99 in Soil
				7182-009	TH		10/01/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-009	U		10/01/99	10/08/99	NJV	Uranium, Isotopic in Soil
				7182-009	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
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SAMPLE DELIVERY GROUP H0499

SDG 7182
Contact Kevin C. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank	B99-078	SOLID	N908132-13	7182-013	AM		10/20/99	10/21/99	NJV	Americium 241 in Soil
Lab Control Sample	B99-078	SOLID	N908132-08	7182-008	GAM		10/04/99	10/06/99	NJV	Gamma Scan
				7182-008	H		09/26/99	10/08/99	NJV	Tritium in Soil
				7182-008	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7182-008	NP		09/25/99	10/06/99	NJV	Neptunium in Soil
				7182-008	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-008	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-008	TC		10/01/99	10/06/99	NJV	Technetium 99 in Soil
				7182-008	TH		09/29/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-008	U		10/01/99	10/08/99	NJV	Uranium, Isotopic in Soil
				7182-008	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
Lab Control Sample	B99-078	SOLID	N908132-12	7182-012	AM		10/15/99	10/21/99	NJV	Americium 241 in Soil
Duplicate (N908132-01) GP-3<15' bgs 12-13'	B99-078	SOLID	N908132-10 08/19/99 08/24/99	7182-010	GAM		10/04/99	10/06/99	NJV	Gamma Scan
				7182-010	NP		09/27/99	10/06/99	NJV	Neptunium in Soil
				7182-010	PU		09/28/99	10/06/99	NJV	Plutonium, Isotopic in Solids
				7182-010	SR		09/23/99	10/06/99	NJV	Total Strontium in Soil
				7182-010	TH		10/01/99	10/06/99	NJV	Thorium, Isotopic in Soil
				7182-010	U_T		09/13/99	10/06/99	NJV	Uranium, Total in Soil
Duplicate (N908132-01) GP-3<15' bgs 12-13'	B99-078	SOLID	N908132-14 08/19/99 08/24/99	7182-014	AM		10/17/99	10/21/99	NJV	Americium 241 in Soil
Duplicate (N908132-03) GP-3<15' bgs 17-18'	B99-078	SOLID	N908132-11 08/19/99 08/24/99	7182-011	H		09/29/99	10/08/99	NJV	Tritium in Soil
				7182-011	NI_L		10/08/99	10/08/99	NJV	Nickel 63 in Soil
				7132-011	TC		10/04/99	10/06/99	NJV	Technetium 99 in Soil

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SAMPLE DELIVERY GROUP H0499

SDG 7182
Contact Kevin C. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B99-078	Americium 241 in Soil	AM/CMPLATE	7			1	1	1	10
GAM	B99-078	Gamma Scan	GAMMAHI	7			1	1	1	10
H	B99-078	Tritium in Soil	EPA906.0	3			1	1	1	6
NI_L	B99-078	Nickel 63 in Soil	NI63LSC	3			1	1	1	6
NP	B99-078	Neptunium in Soil	NP237PLATE	7			1	1	1	10
PU	B99-078	Plutonium, Isotopic in Solids	PUPLATE	7			1	1	1	10
SR	B99-078	Total Strontium in Soil	SRTOTAL	7			1	1	1	10
TC	B99-078	Technetium 99 in Soil	TC99TRLSC	3			1	1	1	6
TH	B99-078	Thorium, Isotopic in Soil	THPLATE	7			1	1	1	10
U	B99-078	Uranium, Isotopic in Soil	UPLATE	2			1	1		4
U_T	B99-078	Uranium, Total in Soil	UKPA	7			1	1	1	10
TOTALS				60			11	11	10	92

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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-09

Method Blank

METHOD BLANK

SDG	7182	Client/Case no	Hanford	SDG-H0499	
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925		
Lab sample id	N908132-09	Client sample id	Method Blank		
Dept sample id	7182-009	Material/Matrix		SOLID	
		SAF No	B99-078		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.002	0.043	0.072	400	U	H
Technetium 99	14133-76-7	0.279	0.31	0.59	15	U	TC
Neptunium 237	13994-20-2	0	0.008	0.029		U	NP
Uranium 233/234	U-233/234	0.006	0.017	0.027	1.0	U	U
Uranium 235	15117-96-1	0.007	0.007	0.026	1.0	U	U
Uranium 238	U-238	0	0.006	0.022	1.0	U	U
Total Uranium (ug/g)	7440-61-1	-0.003	0.003	0.006	1.0	U	U_T
Plutonium 238	13981-16-3	-0.007	0.030	0.082	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.030	0.082	1.0	U	PU
Nickel 63	13981-37-8	-0.215	1.1	1.9	30	U	NI_L
Total Strontium	SR-RAD	-0.063	0.12	0.22	1.0	U	SR
Thorium 228	14274-82-9	-0.006	0.044	0.098	1.0	U	TH
Thorium 230	14269-63-7	U		1.4	1.0	U	TH
Thorium 232	TH-232	0.022	0.022	0.042	1.0	U	TH
Potassium 40	13966-00-2	U		0.088		U	GAM
Cobalt 60	10198-40-0	U		0.008	0.050	U	GAM
Cesium 137	10045-97-3	U		0.008	0.10	U	GAM
Europium 152	14683-23-9	U		0.019	0.10	U	GAM
Europium 154	15585-10-1	U		0.022	0.10	U	GAM
Europium 155	14391-16-3	U		0.016	0.10	U	GAM
Radium 226	13982-63-3	U		0.015	0.10	U	GAM
Radium 228	15262-20-1	U		0.032	0.20	U	GAM
Thorium 228	14274-82-9	U		0.012		U	GAM
Thorium 232	TH-232	U		0.032		U	GAM
Americium 241	14596-10-2	U		0.017		U	GAM
Uranium 238	U-238	U		0.96		U	GAM
Uranium 235	15117-96-1	U		0.025		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

BLANK, cont.

SDG	7182	Client/Case no	Hanford	SDG-H0499	
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925		
Lab sample id	N908132-09	Client sample id	Method Blank		
Dept sample id	7182-009	Material/Matrix		SOLID	
		SAF No	B99-078		

QC-BLANK 31692

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-13

Method Blank

METHOD BLANK

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-13	Client sample id	Method Blank
Dept sample id	7182-013	Material/Matrix	SOLID
		SAF No	B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	0.032	0.032	0.041	1.0	U	AM

200 Area source chctzn-200-CW-1 OU

QC-BLANK 32021

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-08 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7182 Client/Case no Hanford SDG-H0499
Contact Kevin C. Johnson Case no TRB-SBB-207925

Lab sample id N908132-08 Client sample id Lab Control Sample
Dept sample id 7182-008 Material/Matrix SOLID
SAF No B99-078

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	5.82	0.14	0.074	400	J	H	5.84	0.23	100	84-116	80-120
Technetium 99	48.1	2.0	0.93	15		TC	48.0	1.9	100	83-117	80-120
Neptunium 237	2.75	0.24	0.059			NP	2.64	0.11	104	83-117	
Uranium 233/234	4.57	0.34	0.16	1.0		U	4.64	0.19	98	85-115	80-120
Uranium 235	3.90	0.30	0.027	1.0		U	3.77	0.15	103	85-115	80-120
Uranium 238	4.99	0.36	0.15	1.0		U	5.04	0.20	99	86-114	80-120
Total Uranium (ug/g)	30.9	3.5	0.060	1.0		U_T	30.0	1.2	103	77-123	80-120
Plutonium 238	10.5	0.90	0.053	1.0		PU	11.3	0.45	93	85-115	80-120
Plutonium 239/240	10.8	0.91	0.037	1.0		PU	11.9	0.48	91	85-115	80-120
Nickel 63	135	3.7	2.0	30		NI_L	134	5.4	101	83-117	
Total Strontium	11.8	0.49	0.18	1.0		SR	11.3	0.45	104	82-118	
Thorium 230	21.1	1.1	0.17	1.0		TH	20.4	0.82	103	87-113	
Cobalt 60	0.428	0.048	0.026	0.050		GAM	0.406	0.016	105	70-130	80-120
Cesium 137	0.427	0.037	0.028	0.10		GAM	0.417	0.017	102	73-127	80-120

200 Area source chctzn-200-CW-1 OU

QC-LCS 31691

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-12 Lab Control Sample

LAB CONTROL SAMPLE

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Case no	TRB-SBB-207925
Lab sample id	N908132-12	Client sample id	Lab Control Sample
Dept sample id	7182-012	Material/Matrix	SOLID
		SAF No	B99-078

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
Americium 241	8.81	0.48	0.035	1.0		AM	9.58	0.38	92	88-112	80-120

200 Area source chctzn-200-CW-1 OU

QC-LCS 32020

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-10 B0W5M4

DUPLICATE

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	N908132-10	Lab sample id	N908132-01
Dept sample id	7182-010	Dept sample id	7182-001
		Received	08/24/99
% solids	91.5	% solids	91.5
Client sample id	B0W5M4		
Location/Matrix	GP-3<15' bgs 12-13' SOLID		
Collected	08/19/99 10:25		
Custody/SAF No	B99-078-31 B99-078		

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
Neptunium 237	0.005	0.009	0.017		U	NP	0.006	0.012	0.025	U	-	
Total Uranium (ug/g)	0.417	0.045	0.006	1.0	J	U_T	0.421	0.045	0.006	J	1	30
Plutonium 238	0.010	0.030	0.056	1.0	U	PU	0.004	0.022	0.041	U	-	
Plutonium 239/240	0.005	0.020	0.049	1.0	U	PU	0.011	0.022	0.041	U	-	
Total Strontium	0.422	0.14	0.17	1.0	J	SR	0.484	0.10	0.12	J	14	61
Thorium 228	0.330	0.12	0.14	1.0	J	TH	0.397	0.17	0.23	J	18	87
Thorium 230	U		0.17	1.0	U	TH	0.218	0.13	0.18	J	25	166
Thorium 232	0.345	0.098	0.066	1.0	J	TH	0.403	0.12	0.080	J	16	63
Potassium 40	13.3	0.60	0.28			GAM	12.7	0.77	0.37		5	34
Cobalt 60	U		0.027	0.050	U	GAM	U		0.044	U	-	
Cesium 137	25.8	0.20	0.064	0.10		GAM	24.8	0.23	0.071		4	32
Europium 152	U		0.19	0.10	U	GAM	U		0.23	U	-	
Europium 154	U		0.10	0.10	U	GAM	U		0.14	U	-	
Europium 155	U		0.19	0.10	U	GAM	U		0.14	U	-	
Radium 226	0.573	0.10	0.11	0.10		GAM	0.546	0.10	0.11		5	50
Radium 228	0.844	0.13	0.13	0.20		GAM	0.764	0.17	0.17		10	51
Thorium 228	0.687	0.069	0.094			GAM	0.858	0.12	0.14		22	42
Thorium 232	0.844	0.13	0.13			GAM	0.764	0.17	0.17		10	51
Americium 241	U		0.50		U	GAM	U		0.076	U	-	
Uranium 238	U		3.6		U	GAM	U		5.2	U	-	
Uranium 235	U		0.25		U	GAM	U		0.23	U	-	

200 Area source chctzn-200-CW-1 OU

QC-DUP#1 31693

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-14 B0W5M4

DUPLICATE

SDG	7182			Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N908132-14	Lab sample id	N908132-01	Client sample id	B0W5M4
Dept sample id	7182-014	Dept sample id	7182-001	Location/Matrix	GP-3<15' bgs 12-13' SOLID
		Received	08/24/99	Collected	08/19/99 10:25
		% solids	91.5	Custody/SAF No	B99-078-31 B99-078

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Americium 241	0.006	0.019	0.031	1.0	U	AM	0	0.029	0.056	U	-		

200 Area source chctzn-200-CW-1 OU

QC-DUP#1 32022

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-11 B0W5P2

DUPLICATE

SDG	7182			Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N908132-11	Lab sample id	N908132-03	Client sample id	B0W5P2
Dept sample id	7182-011	Dept sample id	7182-003	Location/Matrix	GP-3<15' bqs 17-18' SOLID
		Received	08/24/99	Collected	08/19/99 11:05
% solids	94.0	% solids	94.0	Custody/SAF No	B99-078-36 B99-078

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Tritium	-0.067	0.045	0.080	400	U	H	-0.014	0.043	0.074	U	-		
Technetium 99	0.054	0.29	0.46	15	U	TC	0.126	0.29	0.29	U	-		
Nickel 63	-0.478	1.2	2.0	30	U	NI_L	-0.722	1.0	1.8	U	-		

200 Area source chctzn-200-CW-1 OU

QC-DUP#3 31694

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-01 B0W5M4

DATA SHEET

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-01	Client sample id	B0W5M4
Dept sample id	7182-001	Location/Matrix	GP-3<15' bgs 12-13' SOLID
Received	08/24/99	Collected	08/19/99 10:25
% solids	91.5	Custody/SAF No	B99-078-31 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.006	0.012	0.025		U	NP
Total Uranium (ug/g)	7440-61-1	0.421	0.045	0.006	1.0	J	U_T
Plutonium 238	13981-16-3	0.004	0.022	0.041	1.0	U	PU
Plutonium 239/240	PU-239/240	0.011	0.022	0.041	1.0	U	PU
Americium 241	14596-10-2	0	0.029	0.056	1.0	U	AM
Total Strontium	SR-RAD	0.484	0.10	0.12	1.0	J	SR
Thorium 228	14274-82-9	0.397	0.17	0.23	1.0	J	TH
Thorium 230	14269-63-7	0.218	0.13	0.18	1.0	J	TH
Thorium 232	TH-232	0.403	0.12	0.080	1.0	J	TH
Potassium 40	13966-00-2	12.7	0.77	0.37			GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Cesium 137	10045-97-3	24.8	0.23	0.071	0.10		GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Radium 226	13982-63-3	0.546	0.10	0.11	0.10		GAM
Radium 228	15262-20-1	0.764	0.17	0.17	0.20		GAM
Thorium 228	14274-82-9	0.858	0.12	0.14			GAM
Thorium 232	TH-232	0.764	0.17	0.17			GAM
Americium 241	14596-10-2	U		0.076		U	GAM
Uranium 238	U-238	U		5.2		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-02 B0W5M5

DATA SHEET

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-02	Client sample id	B0W5M5
Dept sample id	7182-002	Location/Matrix	GP-3<15' bgs 14-15' SOLID
Received	08/24/99	Collected	08/19/99 10:50
% solids	94.2	Custody/SAF No	B99-078-32 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	-0.002	0.006	0.015		U	NP
Total Uranium (ug/g)	7440-61-1	0.528	0.057	0.006	1.0	J	U_T
Plutonium 238	13981-16-3	-0.015	0.040	0.085	1.0	U	PU
Plutonium 239/240	PU-239/240	0.015	0.030	0.056	1.0	U	PU
Americium 241	14596-10-2	-0.004	0.016	0.039	1.0	U	AM
Total Strontium	SR-RAD	0.565	0.10	0.12	1.0	J	SR
Thorium 228	14274-82-9	0.341	0.13	0.16	1.0	J	TH
Thorium 230	14269-63-7	U		0.18	1.0	U	TH
Thorium 232	TH-232	0.206	0.077	0.071	1.0	J	TH
Potassium 40	13966-00-2	10.8	0.70	0.40			GAM
Cobalt 60	10198-40-0	U		0.031	0.050	U	GAM
Cesium 137	10045-97-3	7.30	0.13	0.053	0.10		GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Radium 226	13982-63-3	0.397	0.082	0.097	0.10		GAM
Radium 228	15262-20-1	0.594	0.14	0.14	0.20		GAM
Thorium 228	14274-82-9	0.584	0.051	0.064			GAM
Thorium 232	TH-232	0.594	0.14	0.14			GAM
Americium 241	14596-10-2	U		0.16		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Uranium 235	15117-96-1	U		0.18		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-03 B0W5P2

DATA SHEET

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-03	Client sample id	B0W5P2
Dept sample id	7182-003	Location/Matrix	GP-3<15' bgs 17-18' SOLID
Received	08/24/99	Collected	08/19/99 11:05
% solids	94.0	Custody/SAF No	B99-078-36 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.014	0.043	0.074	400	U	H
Technetium 99	14133-76-7	0.126	0.29	0.29	15	U	TC
Neptunium 237	13994-20-2	0.002	0.008	0.020		U	NP
Total Uranium (ug/g)	7440-61-1	0.408	0.044	0.006	1.0	J	U_T
Plutonium 238	13981-16-3	0	0.015	0.042	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.004	0.023	0.050	1.0	U	PU
Nickel 63	13981-37-8	-0.722	1.0	1.8	30	U	NI_L
Americium 241	14596-10-2	-0.036	0.036	0.079	1.0	U	AM
Total Strontium	SR-RAD	2.07	0.18	0.14	1.0		SR
Thorium 228	14274-82-9	0.170	0.096	0.14	1.0	J	TH
Thorium 230	14269-63-7	0.279	0.12	0.17	1.0	J	TH
Thorium 232	TH-232	0.225	0.096	0.091	1.0	J	TH
Potassium 40	13966-00-2	11.4	0.42	0.15			GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 137	10045-97-3	3.76	0.061	0.025	0.10		GAM
Europium 152	14683-23-9	U		0.068	0.10	U	GAM
Europium 154	15585-10-1	U		0.065	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Radium 226	13982-63-3	0.414	0.040	0.040	0.10		GAM
Radium 228	15262-20-1	0.602	0.092	0.085	0.20		GAM
Thorium 228	14274-82-9	0.498	0.029	0.032			GAM
Thorium 232	TH-232	0.602	0.092	0.085			GAM
Americium 241	14596-10-2	U		0.069		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Uranium 235	15117-96-1	U		0.086		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-04 B0W5P3

DATA SHEET

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-04	Client sample id	B0W5P3
Dept sample id	7182-004	Location/Matrix	GP-3<15' bgs 19.5-20.5 SOLID
Received	08/24/99	Collected	08/19/99 11:21
% solids	94.2	Custody/SAF No	B99-078-37 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.008	0.044	0.075	400	U	H
Technetium 99	14133-76-7	-0.101	0.34	0.78	15	U	TC
Neptunium 237	13994-20-2	-0.006	0.012	0.029		U	NP
Total Uranium (ug/g)	7440-61-1	0.414	0.045	0.006	1.0	J	U_T
Plutonium 238	13981-16-3	0.006	0.035	0.072	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.012	0.023	0.072	1.0	U	PU
Nickel 63	13981-37-8	-0.364	1.2	2.0	30	U	NI_L
Americium 241	14596-10-2	-0.007	0.014	0.032	1.0	U	AM
Total Strontium	SR-RAD	1.58	0.15	0.12	1.0		SR
Thorium 228	14274-82-9	0.226	0.12	0.15	1.0	J	TH
Thorium 230	14269-63-7	U		0.14	1.0	U	TH
Thorium 232	TH-232	0.187	0.078	0.049	1.0	J	TH
Potassium 40	13966-00-2	12.0	0.57	0.21			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	0.140	0.031	0.035	0.10		GAM
Europium 152	14683-23-9	U		0.062	0.10	U	GAM
Europium 154	15585-10-1	U		0.095	0.10	U	GAM
Europium 155	14391-16-3	U		0.092	0.10	U	GAM
Radium 226	13982-63-3	0.459	0.049	0.045	0.10		GAM
Radium 228	15262-20-1	0.559	0.11	0.11	0.20		GAM
Thorium 228	14274-82-9	0.534	0.036	0.035			GAM
Thorium 232	TH-232	0.559	0.11	0.11			GAM
Americium 241	14596-10-2	U		0.23		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Uranium 235	15117-96-1	U		0.11		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-05 B0W5P4

DATA SHEET

SDG	7182	Client/Case no	Hanford SDG-H0499
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925
Lab sample id	N908132-05	Client sample id	B0W5P4
Dept sample id	7182-005	Location/Matrix	GP-3<15' bgs 24-25 SOLID
Received	08/24/99	Collected	08/19/99 11:45
% solids	95.7	Custody/SAF No	B99-078-38 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.009	0.043	0.073	400	U	H
Technetium 99	14133-76-7	0.243	0.78	0.72	15	U	TC
Neptunium 237	13994-20-2	0.002	0.010	0.023		U	NP
Total Uranium (ug/g)	7440-61-1	0.519	0.056	0.006	1.0	J	U_T
Plutonium 238	13981-16-3	0	0.023	0.056	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.012	0.023	0.071	1.0	U	PU
Nickel 63	13981-37-8	-0.407	1.2	2.0	30	U	NI_L
Americium 241	14596-10-2	-0.005	0.019	0.045	1.0	U	AM
Total Strontium	SR-RAD	0.646	0.11	0.13	1.0	J	SR
Thorium 228	14274-82-9	0.198	0.10	0.13	1.0	J	TH
Thorium 230	14269-63-7	U		0.14	1.0	U	TH
Thorium 232	TH-232	0.262	0.090	0.061	1.0	J	TH
Potassium 40	13966-00-2	12.2	1.7	0.24			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	4.08	0.067	0.030	0.10		GAM
Europium 152	14683-23-9	U		0.077	0.10	U	GAM
Europium 154	15585-10-1	U		0.070	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Radium 226	13982-63-3	U		0.074	0.10	U	GAM
Radium 228	15262-20-1	U		0.15	0.20	U	GAM
Thorium 228	14274-82-9	U		0.062		U	GAM
Thorium 232	TH-232	U		0.15		U	GAM
Americium 241	14596-10-2	U		0.035		U	GAM
Uranium 238	U-238	U		2.5		U	GAM
Uranium 235	15117-96-1	U		0.098		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-06 B0W5P7

DATA SHEET

SDG	7182	Client/Case no	Hanford	SDG-H0499	
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925		
Lab sample id	N908132-06	Client sample id	B0W5P7		
Dept sample id	7182-006	Location/Matrix	GP-3<15' bgs 9.5-10.5	SOLID	
Received	08/24/99	Collected	08/19/99 09:00		
% solids	68.4	Custody/SAF No	B99-078-41	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	-0.003	0.017	0.035		U	NP
Uranium 233/234	U-233/234	0.653	0.10	0.059	1.0	J	U
Uranium 235	15117-96-1	0.043	0.029	0.040	1.0	J	U
Uranium 238	U-238	0.623	0.094	0.037	1.0	J	U
Total Uranium (ug/g)	7440-61-1	2.19	0.24	0.006	1.0		U_T
Plutonium 238	13981-16-3	0.030	0.030	0.038	1.0	U	PU
Plutonium 239/240	PU-239/240	0.359	0.092	0.066	1.0	J	PU
Americium 241	14596-10-2	0.763	0.22	0.16	1.0	J	AM
Total Strontium	SR-RAD	2.40	0.18	0.13	1.0		SR
Thorium 228	14274-82-9	0.405	0.12	0.11	1.0	J	TH
Thorium 230	14269-63-7	U		0.16	1.0	U	TH
Thorium 232	TH-232	0.303	0.10	0.055	1.0	J	TH
Potassium 40	13966-00-2	8.62	0.84	0.53			GAM
Cobalt 60	10198-40-0	0.118	0.039	0.041	0.050		GAM
Cesium 137	10045-97-3	4270	3.0	0.78	0.10		GAM
Europium 152	14683-23-9	U		2.9	0.10	U	GAM
Europium 154	15585-10-1	2.49	0.38	0.37	0.10		GAM
Europium 155	14391-16-3	U		2.3	0.10	U	GAM
Radium 226	13982-63-3	U		1.2	0.10	U	GAM
Radium 228	15262-20-1	0.608	0.45	0.59	0.20		GAM
Thorium 228	14274-82-9	U		1.2		U	GAM
Thorium 232	TH-232	0.608	0.45	0.59			GAM
Americium 241	14596-10-2	U		1.7		U	GAM
Uranium 238	U-238	U		19		U	GAM
Uranium 235	15117-96-1	U		2.6		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

N908132-07 B0W681

DATA SHEET

SDG	7182	Client/Case no	Hanford	SDG-H0499	
Contact	Kevin C. Johnson	Contract	TRB-SBB-207925		
Lab sample id	N908132-07	Client sample id	B0W681		
Dept sample id	7182-007	Location/Matrix	GP-3<15' bgs 9.5-10.5	SOLID	
Received	08/24/99	Collected	08/19/99 09:00		
% solids	80.5	Custody/SAF No	B99-078-41	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	-0.021	0.033	0.070		U	NP
Uranium 233/234	U-233/234	0.531	0.087	0.028	1.0	J	U
Uranium 235	15117-96-1	0.029	0.022	0.027	1.0	J	U
Uranium 238	U-238	0.537	0.087	0.036	1.0	J	U
Total Uranium (ug/g)	7440-61-1	2.12	0.23	0.006	1.0		U_T
Plutonium 238	13981-16-3	0.022	0.022	0.043	1.0	U	PU
Plutonium 239/240	PU-239/240	0.128	0.057	0.054	1.0	J	PU
Americium 241	14596-10-2	0.214	0.068	0.056	1.0	J	AM
Total Strontium	SR-RAD	1.15	0.14	0.13	1.0		SR
Thorium 228	14274-82-9	0.426	0.16	0.17	1.0	J	TH
Thorium 230	14269-63-7	U		0.16	1.0	U	TH
Thorium 232	TH-232	0.286	0.10	0.066	1.0	J	TH
Potassium 40	13966-00-2	12.0	0.85	0.47			GAM
Cobalt 60	10198-40-0	U		0.053	0.050	U	GAM
Cesium 137	10045-97-3	1310	2.0	0.44	0.10		GAM
Europium 152	14683-23-9	U		1.7	0.10	U	GAM
Europium 154	15585-10-1	0.845	0.19	0.19	0.10		GAM
Europium 155	14391-16-3	U		1.2	0.10	U	GAM
Radium 226	13982-63-3	0.666	0.49	0.65	0.10		GAM
Radium 228	15262-20-1	0.599	0.24	0.28	0.20		GAM
Thorium 228	14274-82-9	U		0.71		U	GAM
Thorium 232	TH-232	0.599	0.24	0.28			GAM
Americium 241	14596-10-2	0.635	0.33	0.51			GAM
Uranium 238	U-238	U		10		U	GAM
Uranium 235	15117-96-1	U		1.5		U	GAM

200 Area source chctzn-200-CW-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test AM	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6893-101					
B0W5M4	N908132-01		A1	7182-001	U
B0W5M5	N908132-02		A1	7182-002	U
B0W5P2	N908132-03		A1	7182-003	U
B0W5P3	N908132-04		A1	7182-004	U
B0W5P4	N908132-05		A1	7182-005	U
B0W5P7	N908132-06		A1	7182-006	0.763 J
B0W681	N908132-07		A1	7182-007	0.214 J
BLK (QC ID=32021)	N908132-13			7182-013	U
LCS (QC ID=32020)	N908132-12			7182-012	ok
Duplicate (N908132-01)	N908132-14			7182-014	- U

Nominal values and limits from method RDLs (pCi/g) 1.0

200 Area source chctzn-200-CW-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 6893-101	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01		A1	0.056	0.500			53		638			62	10/15/99	10/20	SS-001
B0W5M5	N908132-02		A1	0.039	0.500			58		1004			57	10/15/99	10/15	SS-008
B0W5P2	N908132-03		A1	0.079	0.500			50		1063			57	10/15/99	10/15	SS-009
B0W5P3	N908132-04		A1	0.032	0.500			63		1063			57	10/15/99	10/15	SS-010
B0W5P4	N908132-05		A1	0.045	0.500			59		862			60	10/15/99	10/18	SS-002
B0W5P7	N908132-06		A1	0.16	0.150			57		1060			57	10/15/99	10/15	SS-013
B0W681	N908132-07		A1	0.056	0.500			61		1060			57	10/15/99	10/15	SS-014
BLK (QC ID=32021)	N908132-13			0.041	0.500			82		548				10/15/99	10/20	SS-009
LCS (QC ID=32020)	N908132-12			0.035	0.500			102		1044				10/15/99	10/15	SS-061
Duplicate (N908132-01) (QC ID=32022)	N908132-14			0.031	0.500			75		1003			59	10/15/99	10/17	SS-002
Nominal values and limits from method				1.0	0.500			20-105		700	100		180			

Lab id TMANC	
Protocol Hanford	
Version Ver 1.0	
Form DVD-CMS	
Version 3.06	
Report date 10/21/99	

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test AM	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

PROCEDURES	REFERENCE	AM/CMPLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-940	Plutonium Purification, rev 0
	EP-960	Americium-Curium Purification, rev 0
	EP-008	Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	0.057	±	0.078
FOR 10 SAMPLES	YIELD	66	±	32

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test NP	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6893-101						
B0W5M4	N908132-01			7182-001	U	
B0W5M5	N908132-02			7182-002	U	
B0W5P2	N908132-03			7182-003	U	
B0W5P3	N908132-04			7182-004	U	
B0W5P4	N908132-05			7182-005	U	
B0W5P7	N908132-06			7182-006	U	
B0W681	N908132-07			7182-007	U	
BLK (QC ID=31692)	N908132-09			7182-009	U	
LCS (QC ID=31691)	N908132-08			7182-008	ok	
Duplicate (N908132-01)	N908132-10			7182-010	-	U

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

200 Area source chctzn-200-CW-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 6893-101	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01			0.025	1.00			73		200			47	09/21/99	10/05	BETA
B0W5M5	N908132-02			0.015	1.00			76		200			37	09/21/99	09/25	BETA
B0W5P2	N908132-03			0.020	1.00			61		200			37	09/21/99	09/25	BETA
B0W5P3	N908132-04			0.029	1.00			62		200			37	09/21/99	09/25	BETA
B0W5P4	N908132-05			0.023	1.00			54		200			39	09/23/99	09/27	BETA
B0W5P7	N908132-06			0.035	1.00			39		200			47	09/23/99	10/05	BETA
B0W681	N908132-07			0.070	1.00			30		200			37	09/23/99	09/25	BETA
BLK (QC ID=31692)	N908132-09			0.029	1.00			33		200				09/21/99	09/27	BETA
LCS (QC ID=31691)	N908132-08			0.059	1.00			32		200				09/23/99	09/25	BETA
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.017	1.00			52		200			39	09/23/99	09/27	BETA
Nominal values and limits from method					1.00			20-105		100						

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	NP
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

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	0.032	±	0.036
FOR 10 SAMPLES	YIELD	51	±	34

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	PU
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6893-101								
B0W5M4	N908132-01			7182-001	U		U	
B0W5M5	N908132-02			7182-002	U		U	
B0W5P2	N908132-03			7182-003	U		U	
B0W5P3	N908132-04			7182-004	U		U	
B0W5P4	N908132-05			7182-005	U		U	
B0W5P7	N908132-06			7182-006	U		0.359	J
B0W681	N908132-07			7182-007	U		0.128	J
BLK (QC ID=31692)	N908132-09			7182-009	U		U	
LCS (QC ID=31691)	N908132-08			7182-008	ok		ok	
Duplicate (N908132-01)	N908132-10			7182-010	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
200 Area source chctzn-200-CW-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 6893-101	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01			0.041	0.500			74		897			39	09/26/99	09/27	SS-001
B0W5M5	N908132-02			0.085	0.500			78		597			40	09/26/99	09/28	SS-044
B0W5P2	N908132-03			0.050	0.500			71		896			39	09/26/99	09/27	SS-012
B0W5P3	N908132-04			0.072	0.500			61		685			40	09/26/99	09/28	SS-011
B0W5P4	N908132-05			0.071	0.500			60		685			40	09/26/99	09/28	SS-012
B0W5P7	N908132-06			0.066	0.500			73		685			40	09/26/99	09/28	SS-015
B0W681	N908132-07			0.054	0.500			71		586			40	09/26/99	09/28	SS-059
BLK (QC ID=31692)	N908132-09			0.082	0.500			53		586				09/26/99	09/28	SS-062
LCS (QC ID=31691)	N908132-08			0.053	0.500			80		586				09/26/99	09/28	SS-061
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.056	0.500			77		583			40	09/26/99	09/28	SS-063
Nominal values and limits from method				1.0	0.500			20-105		10	100		180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	PU
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

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	MDA	0.063	±	0.029
FOR 10 SAMPLES	YIELD	70	±	18

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	TH
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6893-101							
B0W5M4	N908132-01			7182-001	0.397 J	0.218 J	0.403 J
B0W5M5	N908132-02			7182-002	0.341 J	U	0.206 J
B0W5P2	N908132-03			7182-003	0.170 J	0.279 J	0.225 J
B0W5P3	N908132-04			7182-004	0.226 J	U	0.187 J
B0W5P4	N908132-05			7182-005	0.198 J	U	0.262 J
B0W5P7	N908132-06			7182-006	0.405 J	U	0.303 J
B0W681	N908132-07			7182-007	0.426 J	U	0.286 J
BLK (QC ID=31692)	N908132-09			7182-009	U	U	U
LCS (QC ID=31691)	N908132-08			7182-008		ok	
Duplicate (N908132-01)	N908132-10			7182-010	ok J	ok U	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0
200 Area source chctzn-200-CW-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 6893-101	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01			0.23	0.250			92		598			47	09/29/99	10/05	SS-040
B0W5M5	N908132-02			0.18	0.250			91		785			41	09/29/99	09/29	SS-031
B0W5P2	N908132-03			0.17	0.250			86		785			41	09/29/99	09/29	SS-032
B0W5P3	N908132-04			0.15	0.250			92		785			41	09/29/99	09/29	SS-033
B0W5P4	N908132-05			0.14	0.250			93		785			41	09/29/99	09/29	SS-034
B0W5P7	N908132-06			0.16	0.250			85		782			41	09/29/99	09/29	SS-035
B0W681	N908132-07			0.17	0.250			70		782			41	09/29/99	09/29	SS-036
BLK (QC ID=31692)	N908132-09			1.4	0.250			88		935				09/29/99	10/01	SS-029
LCS (QC ID=31691)	N908132-08			0.17	0.250			84		782				09/29/99	09/29	SS-038
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.17	0.250			92		935			43	09/29/99	10/01	SS-031
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	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	TH
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

PROCEDURES	REFERENCE	THPLATE
	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	0.29	±	0.78
FOR 10 SAMPLES	YIELD	87	±	14

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test U	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 6893-101											
B0W5P7	N908132-06			7182-006	0.653 J	0.043 J	0.623 J	105	23	7	5
B0W681	N908132-07			7182-007	0.531 J	0.029 J	0.537 J	99	23	5	4
BLK (QC ID=31692)	N908132-09			7182-009	U	U	U				
LCS (QC ID=31691)	N908132-08			7182-008	ok	ok	ok				
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200 Area source chctzn-200-CW-1 OU								Averages 102		6	

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 6893-101	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.101												
B0W5P7	N908132-06			0.059	1.00			72		537			43	10/01/99	10/01	SS-031
B0W681	N908132-07			0.036	1.00			72		537			43	10/01/99	10/01	SS-032
BLK (QC ID=31692)	N908132-09			0.027	1.00			76		537				10/01/99	10/01	SS-034
LCS (QC ID=31691)	N908132-08			0.16	1.00			74		537				10/01/99	10/01	SS-033
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	0.070 ±	0.12
FOR 4 SAMPLES	YIELD	74 ±	4

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	SR
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6893-101					
B0W5M4	N908132-01			7182-001	0.484 J
B0W5M5	N908132-02			7182-002	0.565 J
B0W5P2	N908132-03			7182-003	2.07
B0W5P3	N908132-04			7182-004	1.58
B0W5P4	N908132-05			7182-005	0.646 J
B0W5P7	N908132-06			7182-006	2.40
B0W681	N908132-07			7182-007	1.15
BLK (QC ID=31692)	N908132-09			7182-009	U
LCS (QC ID=31691)	N908132-08			7182-008	ok
Duplicate (N908132-01)	N908132-10			7182-010	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0

200 Area source chctzn-200-CW-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 6893-101	2σ prep error 10.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01			0.12	1.00			99		200			35	09/23/99	09/23	GRB-217
B0W5M5	N908132-02			0.12	1.00			99		200			35	09/23/99	09/23	GRB-218
B0W5P2	N908132-03			0.14	1.00			99		200			35	09/23/99	09/23	GRB-224
B0W5P3	N908132-04			0.12	1.00			98		200			35	09/23/99	09/23	GRB-228
B0W5P4	N908132-05			0.13	1.00			99		200			35	09/23/99	09/23	GRB-229
B0W5P7	N908132-06			0.13	1.00			97		200			35	09/23/99	09/23	GRB-230
B0W681	N908132-07			0.13	1.00			92		200			35	09/23/99	09/23	GRB-230
BLK (QC ID=31692)	N908132-09			0.22	1.00			85		200				09/23/99	09/23	GRB-203
LCS (QC ID=31691)	N908132-08			0.18	1.00			84		150				09/23/99	09/23	GRB-218
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.17	1.00			93		200			35	09/23/99	09/23	GRB-202
Nominal values and limits from method				1.0	1.00					100			180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test SR	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

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

AVERAGES ± 2 SD	MDA	0.15	±	0.067
FOR 10 SAMPLES	YIELD	94	±	12

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test TC	Matrix SOLID
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6893-101						
B0W5P2	N908132-03			7182-003	U	
B0W5P3	N908132-04			7182-004	U	
B0W5P4	N908132-05			7182-005	U	
BLK (QC ID=31692)	N908132-09			7182-009	U	
LCS (QC ID=31691)	N908132-08			7182-008	ok	
Duplicate (N908132-03)	N908132-11			7182-011	-	U

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

200 Area source chctzn-200-CW-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 6893-101	2σ prep error 10.0 % Reference Lab Notebook 6893 pg.101															
B0W5P2	N908132-03			0.29	1.01			83		200			43	09/28/99	10/01	GRB-228
B0W5P3	N908132-04			0.78	1.00			49		101			43	09/28/99	10/01	GRB-208
B0W5P4	N908132-05			0.72	1.02			48		101			46	09/28/99	10/04	GRB-221
BLK (QC ID=31692)	N908132-09			0.59	1.00			59		101				09/28/99	10/01	GRB-203
LCS (QC ID=31691)	N908132-08			0.93	1.00			38		101				09/28/99	10/01	GRB-202
Duplicate (N908132-03) (QC ID=31694)	N908132-11			0.46	1.01			73		101			46	09/28/99	10/04	GRB-222
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 ± 0.46
FOR 6 SAMPLES	YIELD 58 ± 34

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test	GAM
Matrix	SOLID
SDG	7182
Contact	Kevin C. Johnson

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6893-101						
B0W5M4	N908132-01			7182-001	U	24.8
B0W5M5	N908132-02			7182-002	U	7.30
B0W5P2	N908132-03			7182-003	U	3.76
B0W5P3	N908132-04			7182-004	U	0.140
B0W5P4	N908132-05			7182-005	U	4.08
B0W5P7	N908132-06			7182-006	0.118	4270
B0W681	N908132-07			7182-007	U	1310
BLK (QC ID=31692)	N908132-09			7182-009	U	U
LCS (QC ID=31691)	N908132-08			7182-008	ok	ok
Duplicate (N908132-01)	N908132-10			7182-010	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
200 Area source chctzn-200-CW-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 6893-101	2σ prep error 15.0 % Reference Lab Notebook 6893 pg.101															
B0W5M4	N908132-01			0.12	709					205			44	09/15/99	10/02	02,01,00
B0W5M5	N908132-02			0.089	724					205			44	09/15/99	10/02	02,03,00
B0W5P2	N908132-03			0.053	722					205			44	09/15/99	10/02	02,04,00
B0W5P3	N908132-04			0.070	730					204			44	09/15/99	10/02	MB,05,00
B0W5P4	N908132-05			0.055	717					204			44	09/15/99	10/02	MB,07,00
B0W5P7	N908132-06			0.28	111					420			41	09/15/99	09/29	JR,04,00
B0W681	N908132-07			0.16	611					208			46	09/15/99	10/04	02,01,00
BLK (QC ID=31692)	N908132-09			0.014	618					214				09/15/99	10/04	01,04,00
LCS (QC ID=31691)	N908132-08			0.026	618					214				09/15/99	10/04	01,03,00
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.081	709					213			46	09/15/99	10/04	MB,05,00
Nominal values and limits from method				0.050	617					100			180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test GAM Matrix SOLID	
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

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

AVERAGES ± 2 SD	MDA	0.095 ± 0.16
FOR 10 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

METHOD SUMMARY

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Test U T Matrix SOLID
SDG 7182
Contact Kevin C. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6893-101					
B0W5M4	N908132-01			7182-001	0.421 J
B0W5M5	N908132-02			7182-002	0.528 J
B0W5P2	N908132-03			7182-003	0.408 J
B0W5P3	N908132-04			7182-004	0.414 J
B0W5P4	N908132-05			7182-005	0.519 J
B0W5P7	N908132-06			7182-006	2.19
B0W681	N908132-07			7182-007	2.12
BLK (QC ID=31692)	N908132-09			7182-009	U
LCS (QC ID=31691)	N908132-08			7182-008	ok
Duplicate (N908132-01)	N908132-10			7182-010	ok J
Nominal values and limits from method				RDLs (ug/g)	1.0

200 Area source chctzn-200-CW-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 6893-101	2σ prep error 9.0 %			Reference Lab Notebook 6893 pg.101												
B0W5M4	N908132-01			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W5M5	N908132-02			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W5P2	N908132-03			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W5P3	N908132-04			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W5P4	N908132-05			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W5P7	N908132-06			0.006	0.0550								25	09/13/99	09/13	KPA-001
B0W681	N908132-07			0.006	0.0550								25	09/13/99	09/13	KPA-001
BLK (QC ID=31692)	N908132-09			0.006	0.0550									09/13/99	09/13	KPA-001
LCS (QC ID=31691)	N908132-08			0.060	0.0550									09/13/99	09/13	KPA-001
Duplicate (N908132-01) (QC ID=31693)	N908132-10			0.006	0.0550								25	09/13/99	09/13	KPA-001
Nominal values and limits from method				1.0	0.0550								180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test U_T Matrix SOLID	
SDG 7182	
Contact Kevin C. Johnson	

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG-H0499	

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	MDA	0.011	±	0.034
FOR 10 SAMPLES	YIELD		±	

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test H Matrix SOLID
SDG 7182
Contact Kevin C. Johnson

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6893-101						
B0W5P2	N908132-03			7182-003	U	
B0W5P3	N908132-04			7182-004	U	
B0W5P4	N908132-05			7182-005	U	
BLK (QC ID=31692)	N908132-09			7182-009	U	
LCS (QC ID=31691)	N908132-08			7182-008	ok	J
Duplicate (N908132-03)	N908132-11			7182-011	-	U

Nominal values and limits from method RDLs (pCi/g) 400
200 Area source chctzn-200-CW-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 6893-101	2σ prep error 10.0 %			Reference Lab Notebook 6893 pg.101												
B0W5P2	N908132-03			0.074	20.2			100		120			37	09/24/99	09/25	LSC-007
B0W5P3	N908132-04			0.075	20.0			100		120			38	09/24/99	09/26	LSC-007
B0W5P4	N908132-05			0.073	20.5			100		120			38	09/24/99	09/26	LSC-007
BLK (QC ID=31692)	N908132-09			0.072	20.2			100		120				09/24/99	09/26	LSC-007
LCS (QC ID=31691)	N908132-08			0.074	20.2			100		120				09/24/99	09/26	LSC-007
Duplicate (N908132-03) (QC ID=31694)	N908132-11			0.080	20.3			100		120			41	09/24/99	09/29	LSC-007
Nominal values and limits from method				400	20.2					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 MDA 0.075 ± 0.006
FOR 6 SAMPLES YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0499

Test NI L Matrix SOLID
SDG 7182
Contact Kevin C. Johnson

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6893-101						
B0W5P2	N908132-03			7182-003	U	
B0W5P3	N908132-04			7182-004	U	
B0W5P4	N908132-05			7182-005	U	
BLK (QC ID=31692)	N908132-09			7182-009	U	
LCS (QC ID=31691)	N908132-08			7182-008	ok	
Duplicate (N908132-03)	N908132-11			7182-011	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
200 Area source chctzn-200-CW-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 6893-101	2σ prep error 10.0 %			Reference Lab Notebook 6893 pg.101												
B0W5P2	N908132-03			1.8	0.500			95		100			50	09/23/99	10/08	LSC-005
B0W5P3	N908132-04			2.0	0.500			86		100			50	09/23/99	10/08	LSC-005
B0W5P4	N908132-05			2.0	0.500			86		100			50	09/23/99	10/08	LSC-005
BLK (QC ID=31692)	N908132-09			1.9	0.500			91		100				09/23/99	10/08	LSC-005
LCS (QC ID=31691)	N908132-08			2.0	0.500			87		100				09/23/99	10/08	LSC-005
Duplicate (N908132-03) (QC ID=31694)	N908132-11			2.0	0.500			86		100			50	09/23/99	10/08	LSC-005
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 FOR 6 SAMPLES
MDA 2.0 ± 0.17
YIELD 88 ± 7

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/21/99

SDG 7182
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0499

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/21/99

SDG 7182
Contact Kevin C. Johnson

Client Hanford
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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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GUIDE, cont.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Version 3.06
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Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'	SAF No.: B99-078	
Ice Chest No.: ERC 99 012	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECKA BJD 8-12-99	Offsite Property No.: A990224	Bill of Lading/Air Bill No.: 4235 8952 8587	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5M4	Soil	8-19-99	1025	X 2	X 0				X 1		B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Roger TB	Date/Time: 8/19/99 15:00
Relinquished By: REF 1-B	Date/Time: 82399 1100	Received By: SJ Gale	Date/Time: 82399 1100
Relinquished By: SJ Gale	Date/Time: 82399 1100	Received By: FED EX	Date/Time: 8-23-99
Relinquished By: FedEx	Date/Time: 8-24-99 9:00	Received By: TNV M. Goldenberg	Date/Time: 8-24-99 9:00

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

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Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 14' - 15'	SAF No.: B99-078	
Ice Chest No.: EFC-99-012	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA AZB 8-18-99	Offsite Property No.: A990224	Bill of Lading/Air Bill No.: 4235795285 87	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5M5 / Soil / 8-19-99 / 1050	X	X						X		B0W5G8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Reber, J.B.	Date/Time: 8/19/99 15:00
Relinquished By: Reber, J.B.	Date/Time: 8/23/99 1100	Received By: M.H. Bachler / M.G. Bachler	Date/Time: 8/23/99 1100
Relinquished By: M.H. Bachler / M.G. Bachler	Date/Time: 8/23/99 1100	Received By: FEDEX	Date/Time: 8-23-99
Relinquished By: FedEx	Date/Time: 8-24-99 9:00	Received By: TNV H. Goldenberg	Date/Time: 8-24-99 9:00

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-36

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 17'-18'		SAF No. B99-078
Ice Chest No. ERC 9902	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA RJB 8-19-99	Offsite Property No. A990224		Bill of Lading/Air Bill No. 4235 7952 8587
			COA D26 CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - 113	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) on Special Instructions	See item (2) on Special Instructions
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5P2	Soil	8-19-99	1105	X	X	X	X	X			
											B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Brent Porter JB	Date/Time 8/19/99 15:00
Relinquished By ROT-LB	Date/Time 82399 1100	Received By SJGALE	Date/Time 82399 1100
Relinquished By SJ GALE	Date/Time 82399 1100	Received By FED EX	Date/Time 8-23-99
Relinquished By FedEx	Date/Time 8-24-99 9:00	Received By TNV McGolden	Date/Time 8-24-99 9:00
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 2 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 17'-18'		SAF No. B99-078		
Ice Chest No. ERC-99-012	Field Logbook No. FL 1511		Method of Shipment Federal Express		
Shipped To TMA/RECRA 8-19-99	Offsite Property No. A990224		Bill of Lading/Air Bill No. 4235795285 87		
			COA B20CW1 671C		

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None										
	Type of Container	aG										
Special Handling and/or Storage	No. of Container(s)	1										
	Volume	1000mL										
SAMPLE ANALYSIS		See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time									
B0W5P2	Soil	8-19-99	1105	X								
												BOWSL8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Refer JB	Date/Time 8/19/99 15:00
Relinquished By Refer JB	Date/Time 8/23/99 1100	Received By M.H. Boechler/M.G. Boechler	Date/Time 8/23/99 1100
Relinquished By M.H. Boechler/M.G. Boechler	Date/Time 8/23/99 1100	Received By FED EX	Date/Time 8-23-99
Relinquished By Fed Ex	Date/Time 8-24-99 9:00	Received By TNV M. Goldenberg	Date/Time 8-24-99 9:00

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 19.5 20.5	SAF No.: B99-078	
Ice Chest No.: ERC-99-012	Field Logbook No.: FL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA DAB 8-19-99	Offsite Property No.: A990224	Bill of Lading/Air Bill No.: 4235795285 87	
		COA: B20CW1 67IC	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5P3	Soil	8-19-99	1128	X	X	X	X	X			
											B0W5C8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Kaser, J.B.	Date/Time: 8/19/99 15:00
Relinquished By: Kaser, J.B.	Date/Time: 8/23/99 1100	Received By: M.H. Bauchke/M.G. Bauchke	Date/Time: 8/23/99 1100
Relinquished By: M.H. Bauchke/M.G. Bauchke	Date/Time: 8/23/99 1100	Received By: FED EX	Date/Time: 8-23-99
Relinquished By: FedEx	Date/Time: 8-24-99 9:00	Received By: TNW M. Goldenberg	Date/Time: 8-24-99 9:00

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 2 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 19.5' 20.5'		SAF No. B99-078
Ice Chest No. ERC-99-02	Field Logbook No. FL 15711		Method of Shipment Federal Express
Shipped To TMA/RECRA DZB 8-19-99	Offsite Property No. A990224		Bill of Lading/Air Bill No. 4235795285 87
			COA B20CW1 67K

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None										
	Type of Container	aG										
Special Handling and/or Storage	No. of Container(s)	1										
	Volume	1000mL										
SAMPLE ANALYSIS		See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time									
B0W5P3	Soil	8-19-99	1128	X								
												B0W5P8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Peter JB	Date/Time 8/19/99 15:00
Relinquished By Peter JB	Date/Time 8/23/99 1100	Received By [illegible]	Date/Time 8/23/99 1100
Relinquished By [illegible]	Date/Time 8/23/99 1100	Received By FED EX	Date/Time 8-23-99
Relinquished By FedEx 8-24-99 9:00	Date/Time	Received By TNV M. Goldenberg 9:00 8-24-99	Date/Time
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-38

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25		SAF No.: B99-078
Ice Chest No.: ERC 99 012	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 8-19-99	Offsite Property No.: A990224		Bill of Lading/Air Bill No.: 4235795285 87
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.
B0W5P4	Soil	8-19-99	1145	X	X	X	X	X					
													B0W5C8

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Brent Porter	8/19/99 BPP	Peter LB	8/19/99 15:00
REF LB	82399 1100	SIGALS	82399 1100
SIGALS	82399 1100	FED EX	8-23-99
FedEx	8-24-99 9:00	TNW M. Goldenberg	8-24-99 9:00

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 2 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 24 - 25		SAF No. B99-078
Ice Chest No. ERC 99 012	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA 5725 8-19-99	Offsite Property No. A990224		Bill of Lading/Air Bill No. 4235 7952 8587
			COA B20 CW1 671C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None										
	Type of Container	aG										
Special Handling and/or Storage	No. of Container(s)	1										
	Volume	1000mL										
SAMPLE ANALYSIS		See item (1) in Special Instructions										
Sample No.	Matrix *	Sample Date	Sample Time									
B0W5P4	Soil	8-19-99	1145	X *								
												B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter 8/19/99 15:00	Received By Peter J B 8/19/99 15:00		
Relinquished By REF. J.B 8-23-99 1100	Received By SJ Gale 8-23-99 1100		
Relinquished By SJ Gale 8-23-99 1100	Received By FED EX 8-23-99 9:00		
Relinquished By FedEx 8-24-99 9:00	Received By TNV M. Goldenberg 8-24-99		
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 <15' bgs 9.5-10.5		SAF No. B99-078
Ice Chest No. ERC 99 003	Field Logbook No. EL 15~~40~~ 11 8-15-99		Method of Shipment Federal Express
Shipped To ~~TMA/RECKA~~ THERMO	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A
			COA B20CW1 67/C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P7	Soil	8-19-99	0900	X	X						X	CPM 800	B0W5L6
B0W681	Soil	8-19-99	0900	X	X						X	"	B0W5L6

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Kevin IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 0900	Received By: Stone & Webster	Date/Time: 82399 0900
Relinquished By: Stone & Webster	Date/Time: 82399 0900	Received By: FED EX.	Date/Time: 8-23-99
Relinquished By: FedEx	Date/Time: 9:00 8-24-99	Received By: TNV M. Goldenberg	Date/Time: 9:00 8-24-99

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

RADIOACTIVE SHIPMENT RECORD

105416 3.

Page 1 of 2

1. SHIP FROM U.S. DEPT. OF ENERGY C/O
Company: Bechtel Hanford Inc
Address: 372X Building, 300-Area
City, State, Zip: Richland WA 99352
Contact: David St. John
Phone: 1-509-372-9588

Ship: [X] Prepaid [ ] Collect 4.

Via: [ ] Motor [X] Air Psgr [ ] UPS [ ] Rail [ ] Air Cargo [ ] Site Carrier

SHIPMENT AUTHORIZATION NUMBER

2. SHIP TO
Company: Thermo Retec
Address: 2032 Wright Avenue
City, State, Zip: Richmond, CA 94804
Attention: Larry Johnson
Phone: 1-510-235-2633

Markings Applied 6.
- [ ] Radioactive - LSA
- [ ] Radioactive - SCO
- [ ] Type A
- [ ] Type B with trefoil

LSA Description 8.
- [ ] LSA-I
- [ ] LSA-II
- [ ] LSA-III
- [ ] SCO-I
- [ ] SCO-II

Labels Applied 10.
- [ ] Empty
- [ ] Radioactive White - I
- [ ] Radioactive Yellow - II
- [ ] Radioactive Yellow - III
- [ ] Subsidiary Hazard

For Normal Form only 7.
Identify
Physical Form: [ ] Liquid [ ] Gas [X] Solid Soil
Chemical Form: [X] Elemental [ ] Metal [ ] Nitrate [ ] Oxide [ ] Mixture [ ] Other

EMERGENCY RESPONSE 9.
Telephone: 1-888-726-0771
Emergency Response Guide(s): 161

Highway Route Controlled Quantity [ ]
Exclusive Use Shipment with instructions [ ]
Placards Applied [ ]
If Rail Specify:
Fissile Excepted, Grams [ ]
Excepted Package Statement [X]

5. HM Proper Shipping Name: _____ Radioactive Material,

	excepted package - empty packaging	7	UN2910
	excepted package - instruments or articles	7	UN2910
X	excepted package - limited quantity of material	7	UN2910
	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7	UN2910
	Special Form, n.o.s.	7	UN2974
	Low Specific Activity, n.o.s.	7	UN2912
	n.o.s.	7	UN2982
	Fissile, n.o.s.	7	UN2918
	Surface Contaminated Object	7	UN2913

Warning – Fissile Material Controlled Shipment. Do Not Load More Than N/A Packages Per Vehicle. In Loading and Storage Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

11.

No. Pkg.	Model Package	COC/Spec.	Serial No.	Seal No.	Isotopes	T.I.	Bq/Package	Gr. Wt. Kg.
1	poly cooler	Strong tight	CRC-99-003	tape	Cs-137	N/A	8.2x10^7	7Kg
Glass samples contained in bubble wrap and in double poly bags packed on absorbing material. 4000 gms total 6 bottles total								
(Shipper may describe package in detail on one of the unused lines above)					TOTALS	N/A	8.2x10^7	7Kg

12. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
Certifier's Signature: David St John On behalf of DOE-RL | Date: 8/23/99 | Organization: CRC-AFS | Complete Cost Code (Inc. End Function): R20CW1-1671C

13. Surface Dose Rate of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)
Dose Rate @ 1 Meter from Surface of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)
Smears of Outer Container: [X] <0.41 Bq (22 dpm) ß γ /cm²; [X] <0.04 Bq (2.2 dpm) α /cm²; [ ] <Tbl. 2-2 HSRCM Onsite Limits
TRUCK LOAD OR EXCLUSIVE USE: Surface [X] <2 mSv/hr (200 mrem/hr); @ 2 meters [X] <0.1 mSv/hr (10 mrem/hr); @ Cab or sleeper [X] <0.02 mSv/hr (2 mrem/hr) (Using N+ß γ)
Additional Data and Instructions (inc. Readings on Internal Packaging)
Signature - Radiation Monitoring: P Mercer | Bldg. 3728 | Survey No. FF½-99-1273 | Date 8/23/99

14. TRANSPORTER: Vehicle Number 463-30345 | DRIVER SIGNATURE: M. A. Bochler
RECEIVER: RECEIVER SIGNATURE | Date

15. OFFSITE AUTHORIZATION
Shipment has been inspected and verified to be in compliance with DOT regulations
Authorized Signature: Keith R. Smith | Printed Name: Keith R. Smith | Date 8-23-99

16. AUTHORIZATION FOR SHIPMENT
AIR TRANSPORT CERTIFICATION: [ ] N/A
CARGO AIRCRAFT: [ ] Cargo Aircraft Only Labels Applied
PASSENGER AIRCRAFT: [X] Ltd Qty [ ] <3 T.I. [X] Research/Medical Diagnosis [ ] Human Medical Research
Pkg. Dimensions (cm)

17. OFFSITE AUTHORIZATION

Tracking No.	Date Shipped	Routing	ETA
KMBH 3655	8/23/99	FED-X	8/24/99
Surveyed By	Date	Approved for Shipment Offsite	Date
[illegible]	8-23-99	[illegible]	8/23/99

54-6000-088 (06/97)

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Beehtel Hanford Inc Date/Time received 8-24-99 9:00

CoC No. B99-078-41 ~~2 samples~~ (4)

Container I.D. No. _____ 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: 4 ✓
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 M. Goldenberg Date: 8-24-99 Time: 9:00

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 8-24-99 9:00

CoC No. B99-078-31,32,36,37,38 B99-085-01 (2 PKLS)

Container I.D. No. _____ 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: ~~9~~ 10
7. Number of containers per sample: _____ (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 M. Goldenberg Date: 8-24-99 Time: 9:00

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

OCT 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L850
SDG# : H0499
SAF# : B99-078

W.O. # : 10985-001-001-9999-00
Date Received: 08-24-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 7 soil samples.

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

3. Sample holding times as required by the method and/or contract were met.

4. The cooler temperatures were 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) control limit.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Nitrate Nitrite which was above the control limits and may be attributed to sample inhomogeneity. The matrix spike duplicates were within the 20% RPD control limit.

8. The replicate analyses were within the 20% RPD control limit.

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

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

9-29-99
Date

njp\i08-850

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 23 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	__		✓ 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: chloride, fluoride, Nitrate **Method:** EPA 300.0 (mod)

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

Ammonia EPA 350.3

Nitrate Nitrite EPA 353.2

002

L-WI-034/B-06/99

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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.

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INORGANICS DATA SUMMARY REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W5P4	% Solids	95.3		%	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	65		MG/KG	5.2	4.0
		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	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	86.7		MG/KG	5.2	4.0
		Nitrate Nitrite	17.2		MG/KG	1.0	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	8.2		MG/KG	0.63	1.0
-002	B0W5P2	% Solids	94.7		%	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	150		MG/KG	13	10
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	170		MG/KG	13.2	10.0
		Nitrate Nitrite	33.6		MG/KG	1.0	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.9		SOIL PH	0.01	1.0
		Sulfide	4.1		MG/KG	0.63	1.0
-003	B0W5M4	% Solids	92.2		%	0.01	1.0
		Chloride by IC	4.9		MG/KG	1.4	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.4	u	MG/KG	1.4	1.0
		Nitrate by IC	140		MG/KG	14	10
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	1.4	u	MG/KG	1.4	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	375		MG/KG	13.6	10.0
		Nitrate Nitrite	32.4		MG/KG	1.1	5.0
		Ammonia, as N	17.6		MG/KG	1.3	1.0
		pH	5.6		SOIL PH	0.01	1.0

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INORGANICS DATA SUMMARY REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W5M4	Sulfide	0.63 u	MG/KG	0.63	1.0
-004	B0W5P3	% Solids	94.8	%	0.01	1.0
		Chloride by IC	2.5	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	130	MG/KG	6.6	5.0
		Cyanide, Total	0.53 u	MG/KG	0.53	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	155	MG/KG	6.6	5.0
		Nitrate Nitrite	29.8	MG/KG	1.1	5.0
		Ammonia, as N	1.3 u	MG/KG	1.3	1.0
		pH	7.9	SOIL PH	0.01	1.0
		Sulfide	4.0	MG/KG	0.65	1.0
-005	B0W5M5	% Solids	95.0	%	0.01	1.0
		Chloride by IC	4.0	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	78	MG/KG	5.3	4.0
		Cyanide, Total	0.53 u	MG/KG	0.53	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	210	MG/KG	5.3	4.0
		Nitrate Nitrite	18.0	MG/KG	1.0	5.0
		Ammonia, as N	1.3 u	MG/KG	1.3	1.0
		pH	7.4	SOIL PH	0.01	1.0
		Sulfide	0.63 u	MG/KG	0.63	1.0
-006	B0W5P7	% Solids	99.8	%	0.01	1.0
		Chloride by IC	12.2	MG/KG	1.3	1.0
		Fluoride by IC	5.3	MG/KG	2.5	1.0
		Nitrite by IC	3.0	MG/KG	1.3	1.0
		Nitrate by IC	500	MG/KG	63	50
		Cyanide, Total	0.50 u	MG/KG	0.50	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
		Sulfate by IC	1890	MG/KG	62.6	50.0
		Nitrate Nitrite	132	MG/KG	4.9	25.0

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INORGANICS DATA SUMMARY REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B0W5P7	Ammonia, as N	77.3	MG/KG	1.3	1.0
		pH	4.2	SOIL PH	0.01	1.0
		Sulfide	0.63 u	MG/KG	0.63	1.0
-007	B0W681	% Solids	83.5	%	0.01	1.0
		Chloride by IC	10.6	MG/KG	1.5	1.0
		Fluoride by IC	3.0 u	MG/KG	3.0	1.0
		Nitrite by IC	1.5 u	MG/KG	1.5	1.0
		Nitrate by IC	360	MG/KG	15	10
		Cyanide, Total	0.60 u	MG/KG	0.60	1.0
		Phosphate by IC	1.5 u	MG/KG	1.5	1.0
		Chromium VI	0.48 u	MG/KG	0.48	1.0
		Sulfate by IC	1720	MG/KG	74.8	50.0
		Nitrate Nitrite	75.2	MG/KG	2.4	10.0
		Ammonia, as N	47.1	MG/KG	1.4	1.0
		pH	4.3	SOIL PH	0.01	1.0
		Sulfide	4.5	MG/KG	0.72	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LICA76-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
BLANK1	99LC096-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI058-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3044-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM033-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LSDA38-MB1	Sulfide	0.60	u	MG/KG	0.60	1.0

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INORGANICS ACCURACY REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0W5P4	Chloride by IC	27.7	2.0	26.2	97.8	1.0
		Chloride by IC MSD	29.5	2.0	26.2	104.5	1.0
		Fluoride by IC	59.4	0.77	52.5	111.8	1.0
		Fluoride by IC MSD	58.9	0.77	52.5	110.8	1.0
		Nitrite by IC	27	1.3 u	26	103.5	1.0
		Nitrite by IC MSD	27	1.3 u	26	104.2	1.0
		Nitrate by IC	180	65	100	106.8	4.0
		Nitrate by IC MSD	180	65	100	107.4	4.0
		Phosphate by IC	28.4	1.3 u	26.2	108.1	1.0
		Phosphate by IC MSD	28.9	1.3 u	26.2	110.2	1.0
		Sulfate by IC	202	86.7	105	109.6	4.0
		Sulfate by IC MSD	200	86.7	105	108.1	4.0
-002	B0W5P2	Nitrate Nitrite	40.4	33.6	5.2	129.9*	5.0
		Nitrate Nitrite MSD	39.6	33.6	5.3	114.0*	5.0
-007	B0W681	Cyanide, Total	6.2	0.60u	6.0	103.6	1.0
		Soluble Chromium VI	4.7	0.0	4.8	98.7	1.0
		Insoluble Chromium VI	1330	0.0	1180	113.3	100
		Sulfide	393	4.5	428	90.9	1.0
		Sulfide MSD	395	4.5	428	91.3	1.0
BLANK10	99LICA76-MB1	Chloride by IC	24.1	1.2 u	25.0	96.3	1.0
		Fluoride by IC	52.3	2.5 u	50.0	104.6	1.0
		Nitrite by IC	24	1.2 u	25	97.3	1.0
		Nitrate by IC	25	1.2 u	25	98.1	1.0
		Phosphate by IC	25.5	1.2 u	25.0	102.0	1.0
		Sulfate by IC	24.0	1.2 u	25.0	96.1	1.0
BLANK10	99LVI058-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.7	1.0
		Insoluble Chromium VI	1160	0.40u	1160	100	100
BLANK10	99LN3044-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100.4	1.0
		Nitrate Nitrite MSD	5.0	0.20u	5.0	100.6	1.0
BLANK10	99LAM033-MB1	Ammonia, as N	51.6	1.2 u	50.0	103.2	1.0
		Ammonia, as N MSD	51.8	1.2 u	50.0	103.5	1.0
BLANK10	99LSDA38-MB1	Sulfide	9.6	0.60u	10.0	96.0	1.0
		Sulfide MSD	9.5	0.60u	10.0	95.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B0W5P4	Chloride by IC	97.8	104.5	6.6
		Fluoride by IC	111.8	110.8	0.86
		Nitrite by IC	103.5	104.2	0.65
		Nitrate by IC	106.8	107.4	0.62
		Phosphate by IC	108.1	110.2	2.0
		Sulfate by IC	109.6	108.1	1.3
-002	B0W5P2	Nitrate Nitrite	129.9	114.0*	~~N~~ 13.0%
-007	B0W681	~~Chromium VI~~	~~98.7~~	~~113.3~~	~~13.8~~
		Sulfide	90.9	91.3	0.39
BLANK10	99LN3044-MB1	Nitrate Nitrite	100.4	100.6	0.20
BLANK10	99LAM033-MB1	Ammonia, as N	103.2	103.5	0.24
BLANK10	99LSDA38-MB1	Sulfide	96.0	95.0	1.0

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INORGANICS PRECISION REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0W5P4	% Solids	95.3	95.0	0.33	1.0
		Chloride by IC	2.0	1.8	12.9	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	65	66	0.56	4.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	86.7	86.9	0.20	4.0
-002REP	B0W5P2	Nitrate Nitrite	33.6	34.4	2.3	5.0
-007REP	B0W681	Cyanide, Total	0.60u	0.60u	NC	1.0
		Chromium VI	0.48u	0.48u	NC	1.0
		pH	4.3	4.4	2.3	1.0
		Sulfide	4.5	4.4	1.5	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/23/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC096-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	102.5
LCS2	99LC096-LC2	Cyanide, Total LCS	9.5	10	MG/KG	95.4

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4						
% SOLIDS	001	S	99L%S117	08/19/99	08/26/99	08/27/99
% SOLIDS	001 REP	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	001	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	001	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	001	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	001	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	001	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	001	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5P2						
% SOLIDS	002	S	99L%S117	08/19/99	08/26/99	08/27/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	002	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	002	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	002	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	002	S	99LN3044	08/19/99	09/08/99	09/09/99
NITRATE NITRITE	002 REP	S	99LN3044	08/19/99	09/08/99	09/09/99
NITRATE NITRITE	002 MS	S	99LN3044	08/19/99	09/08/99	09/09/99
NITRATE NITRITE	002 MSD	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	002	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	002	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	002	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5M4						
% SOLIDS	003	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	003	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	003	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	003	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	003	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	003	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	003	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	003	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5P3						
% SOLIDS	004	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	004	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	004	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	004	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	004	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	004	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	004	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	004	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5M5						
% SOLIDS	005	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	005	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	005	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	005	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	005	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	005	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	005	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	005	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5P7						
% SOLIDS	006	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	006	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	006	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	006	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	006	S	99LN3044	08/19/99	09/08/99	09/09/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
AMMONIA	006	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	006	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	006	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W681						
% SOLIDS	007	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	007	S	99LC096	08/19/99	08/31/99	09/01/99
TOTAL CYANIDE	007 REP	S	99LC096	08/19/99	08/31/99	09/01/99
TOTAL CYANIDE	007 MS	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	007	S	99LVI058	08/19/99	08/27/99	08/27/99
CHROMIUM VI	007 REP	S	99LVI058	08/19/99	08/27/99	08/27/99
CHROMIUM VI	007 MS	S	99LVI058	08/19/99	08/27/99	08/27/99
CHROMIUM VI	007 MSD	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	007	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	007	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	007	S	99LAM033	08/19/99	09/03/99	09/03/99
PH	007	S	99LPH093	08/19/99	08/31/99	08/31/99
PH	007 REP	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	007	S	99LSDA38	08/19/99	08/26/99	08/26/99
SULFIDE	007 REP	S	99LSDA38	08/19/99	08/26/99	08/26/99
SULFIDE	007 MS	S	99LSDA38	08/19/99	08/26/99	08/26/99
SULFIDE	007 MSD	S	99LSDA38	08/19/99	08/26/99	08/26/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
CHLORIDE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
FLUORIDE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
FLUORIDE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
NITRITE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
NITRITE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
NITRATE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
TOTAL CYANIDE	LC1 L	S	99LC096	N/A	08/31/99	09/01/99
TOTAL CYANIDE	LC2 L	S	99LC096	N/A	08/31/99	09/01/99
TOTAL CYANIDE	MB1	S	99LC096	N/A	08/31/99	09/01/99
PHOSPHATE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
PHOSPHATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
CHROMIUM VI	MB1	S	99LVI058	N/A	08/27/99	08/27/99
CHROMIUM VI	MB1 BS	S	99LVI058	N/A	08/27/99	08/27/99
CHROMIUM VI	MB1 BSD	S	99LVI058	N/A	08/27/99	08/27/99
SULFATE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
SULFATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
NITRATE NITRITE	MB1	S	99LN3044	N/A	09/08/99	09/09/99
NITRATE NITRITE	MB1 BS	S	99LN3044	N/A	09/08/99	09/09/99
NITRATE NITRITE	MB1 BSD	S	99LN3044	N/A	09/08/99	09/09/99
AMMONIA	MB1	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BS	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BSD	S	99LAM033	N/A	09/03/99	09/03/99
SULFIDE	MB1	S	99LSDA38	N/A	08/26/99	08/26/99
SULFIDE	MB1 BS	S	99LSDA38	N/A	08/26/99	08/26/99
SULFIDE	MB1 BSD	S	99LSDA38	N/A	08/26/99	08/26/99

RECRA LabNet Use Only: 99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TWL-Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: aJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1					500		250	1000				
Preservatives																
ANALYSES REQUESTED →	ORGANIC: VOA					w/VOA										
	ORGANIC: BNA						w/BNA									
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															
	INORG: Metal															
	INORG: CN															

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8021B/H	8015H	8082B		8260C	8270D		7470A		1PH	Anion				
001	BOW SP4			S	8/19/99	1145	X	X	X		X	X		X		X	X				
2	SP2					1105															
3	SM4					1025															
4	SP3					1121															
5	SM5					1050															
6	SP7					0900															
7	681					0900															

Run matrix QC

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
Anion(3) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 4235795286602-3.7°C
6. 4235795286598-4.2°C

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___
Airbill # *
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. 5.1 °C
3.7°C
4.2°C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25	SAF No.: B99-078	
Ice Chest No.: 96-006	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA 87B 8-19-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235749528602 - 3.7	
		COA: B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P4	Soil	8-19-99	1145						X	X	X	X	X
													B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: 25GAL Drum	Date/Time: 82399 1100
Relinquished By: 25GAL Drum	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Federal	Date/Time:	Received By: Jansson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 17'-18'		SAF No. B99-078		
Ice Chest No. 96-006	Field Logbook No. EL 1511		Method of Shipment Federal Express		
Shipped To TMA/RECRA 8-18-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 423579528602		
			COA B20CW1 67/C		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P2	Soil	8-19-99	1105						X	X	X	X	X
													B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter 8/19/99 15:00	Received By: Peter 1B 8/19/99 15:00		
Relinquished By: REF 1B 82399 1100	Received By: signature 82399 1100		
Relinquished By: signature 82399 1100	Received By: FED EX		
Relinquished By: Jeelue	Received By: Jonson 8/24/99 0930		

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

0019

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-31	Page 1 of 1

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 <15' bgs 12'-13'		SAF No. B99-078
Ice Chest No. SML 185	Field Logbook No. FL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA 8-18-99	Offsite Property No. A990 223		Bill of Lading/Air Bill No. 4235795285 98 -42
			COA B20CM 67/C

Price Code 8N

Data Turnaround 45 Days

020

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time								
3 B0W5M4	Soil	8-18-99	1025			X	X	X	X	X	B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer JB	Date/Time: 8/19/99 15:00
Relinquished By: REF JB	Date/Time: 82399 1100	Received By: SIGALE	Date/Time: 82399 1100
Relinquished By: SIGALE	Date/Time: 82399	Received By: FEDEX	Date/Time:
Relinquished By: Fedex	Date/Time:	Received By: Jameson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 19.5 20.5	SAF No. B99-078	
Ice Chest No. SMG-185	Field Logbook No. EL 1511	Method of Shipment Federal Express	
Shipped To TMA/RECRA 8-19-99	Offsite Property No. A990223	Bill of Lading/Air Bill No. 4235795285 98	
		COA B20 CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5P3	Soil / 8-19-99 / 1121						X	X	X	X	X
											B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SIGNATURE	Date/Time: 82399 1100
Relinquished By: SIGNATURE	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedue	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-32	Page 1 of 1

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 <15' bgs 14' - 15'		SAF No. B99-078		
Ice Chest No. SML 185	Field Logbook No. FLK11		Method of Shipment Federal Express		
Shipped To TMA/RECRA 8-17-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795285 98		
			COA B20CW167IC		

022

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5M5	Soil / 8-19-99 / 1050			X	X	X	X	X			B0W568

5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Baker JB	Date/Time: 8/19/99 15:00
Relinquished By: REF 1-B	Date/Time: 82399 1100	Received By: SJOHNSON	Date/Time: 82399 1100
Relinquished By: SJOHNSON	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedlund	Date/Time:	Received By: Johnson	Date/Time: 8/23/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 9.5 - 10.5	SAF No.: B99-078	
Ice Chest No.: SML-161	Field Logbook No.: EL1511	Method of Shipment: Federal Express	
Shipped To: ~~TMA/RECRA~~ MD 8-19-99 RECRA	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A 4019645195-5.1	
		COA: B20CW1 67/C	

023

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5P7	Soil	8-19-99	0900			X	X	X	X	X			B0W5L6
B0W681	Soil	8-19-99	0900			X	X	X	X	X			B0W5L6

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: Peter 1B	Date/Time: 82399 0900	Received By: SJ Scale	Date/Time: 82399 0900
Relinquished By: SJ Scale	Date/Time: 82399 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedey	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

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

OCT 1999
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Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L850
SDG/SAF# : B99-078/H0499

W.O.# : 10985-001-001-9999-00
Date Received: 08-24-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 7 soil samples.

2. 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. All cooler temperatures have 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) and matrix spike duplicate (MSD) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 24 pages.

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.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

9-20-99
Date

mld/m08-850

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9908L850

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

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

Other:_____ Method:_____

L-WI-033/M-03/98

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W5P4	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.2	MG/KG	0.28	1.0
		Barium, Total	60.3	MG/KG	0.03	1.0
		Beryllium, Total	0.59	MG/KG	0.009	1.0
		Cadmium, Total	0.22	MG/KG	0.03	1.0
		Chromium, Total	6.0	MG/KG	0.07	1.0
		Copper, Total	16.4	MG/KG	0.10	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	9.3	MG/KG	0.10	1.0
		Lead, Total	3.4	MG/KG	0.18	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Vanadium, Total	63.9	MG/KG	0.05	1.0
		Zinc, Total	48.1	MG/KG	0.07	1.0
-002	B0W5P2	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.3	MG/KG	0.29	1.0
		Barium, Total	92.6	MG/KG	0.03	1.0
		Beryllium, Total	0.79	MG/KG	0.009	1.0
		Cadmium, Total	0.15	MG/KG	0.03	1.0
		Chromium, Total	7.8	MG/KG	0.07	1.0
		Copper, Total	16.6	MG/KG	0.10	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	11.9	MG/KG	0.10	1.0
		Lead, Total	3.6	MG/KG	0.18	1.0
		Selenium, Total	0.40	MG/KG	0.32	1.0
		Vanadium, Total	77.7	MG/KG	0.05	1.0
		Zinc, Total	54.2	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W5M4	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	2.4	MG/KG	0.28	1.0
		Barium, Total	104	MG/KG	0.03	1.0
		Beryllium, Total	0.72	MG/KG	0.008	1.0
		Cadmium, Total	0.23	MG/KG	0.03	1.0
		Chromium, Total	9.5	MG/KG	0.07	1.0
		Copper, Total	14.1	MG/KG	0.10	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	11.4	MG/KG	0.10	1.0
		Lead, Total	4.8	MG/KG	0.18	1.0
		Selenium, Total	0.45	MG/KG	0.31	1.0
		Vanadium, Total	63.3	MG/KG	0.05	1.0
		Zinc, Total	62.1	MG/KG	0.07	1.0
-004	B0W5P3	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	2.3	MG/KG	0.26	1.0
		Barium, Total	81.2	MG/KG	0.02	1.0
		Beryllium, Total	0.69	MG/KG	0.008	1.0
		Cadmium, Total	0.09	MG/KG	0.02	1.0
		Chromium, Total	6.2	MG/KG	0.06	1.0
		Copper, Total	13.9	MG/KG	0.1	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	8.7	MG/KG	0.1	1.0
		Lead, Total	3.4	MG/KG	0.17	1.0
		Selenium, Total	0.57	MG/KG	0.29	1.0
		Vanadium, Total	70.3	MG/KG	0.05	1.0
		Zinc, Total	49.9	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0W5M5	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	2.0	MG/KG	0.28	1.0
		Barium, Total	76.3	MG/KG	0.03	1.0
		Beryllium, Total	0.98	MG/KG	0.008	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	6.4	MG/KG	0.07	1.0
		Copper, Total	13.6	MG/KG	0.10	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	9.7	MG/KG	0.10	1.0
		Lead, Total	3.4	MG/KG	0.18	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0
		Vanadium, Total	70.2	MG/KG	0.05	1.0
		Zinc, Total	47.2	MG/KG	0.07	1.0
-006	B0W5P7	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.8	MG/KG	0.29	1.0
		Barium, Total	64.4	MG/KG	0.03	1.0
		Beryllium, Total	0.67	MG/KG	0.009	1.0
		Cadmium, Total	1.1	MG/KG	0.03	1.0
		Chromium, Total	10.0	MG/KG	0.07	1.0
		Copper, Total	34.2	MG/KG	0.10	1.0
		Mercury, Total	0.05	MG/KG	0.01	1.0
		Nickel, Total	7.8	MG/KG	0.10	1.0
		Lead, Total	11.8	MG/KG	0.18	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Vanadium, Total	45.5	MG/KG	0.05	1.0
		Zinc, Total	118	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B0W681	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.5	MG/KG	0.29	1.0
		Barium, Total	78.9	MG/KG	0.03	1.0
		Beryllium, Total	1.0	MG/KG	0.009	1.0
		Cadmium, Total	0.80	MG/KG	0.03	1.0
		Chromium, Total	8.8	MG/KG	0.07	1.0
		Copper, Total	25.8	MG/KG	0.11	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.6	MG/KG	0.11	1.0
		Lead, Total	7.5	MG/KG	0.19	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0
		Vanadium, Total	73.0	MG/KG	0.05	1.0
		Zinc, Total	114	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0601-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Barium, Total	0.19	MG/KG	0.03	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.12 u	MG/KG	0.12	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.23	MG/KG	0.08	1.0
BLANK1	99C0254-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0W5P4	Silver, Total	3.9	0.09u	4.4	88.6	1.0
		Arsenic, Total	165	2.2	178	91.6	1.0
		Barium, Total	215	60.3	178	86.9	1.0
		Beryllium, Total	4.7	0.59	4.4	93.4	1.0
		Cadmium, Total	4.2	0.22	4.4	90.5	1.0
		Chromium, Total	20.5	6.0	17.8	81.5	1.0
		Copper, Total	33.6	16.4	22.2	77.5	1.0
		Mercury, Total	0.12	0.01u	0.13	96.9	1.0
		Nickel, Total	46.8	9.3	44.5	84.3	1.0
		Lead, Total	43.1	3.4	44.5	89.2	1.0
		Selenium, Total	158	0.32u	178	89.1	1.0
		Vanadium, Total	104	63.9	44.5	91.2	1.0
		Zinc, Total	84.3	48.1	44.5	81.3	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0W5P4	Silver, Total	0.09u	0.08u	NC	1.0
		Arsenic, Total	2.2	2.1	4.7	1.0
		Barium, Total	60.3	64.2	6.3	1.0
		Beryllium, Total	0.59	0.63	6.1	1.0
		Cadmium, Total	0.22	0.20	10.0	1.0
		Chromium, Total	6.0	3.7	47.4	1.0
		Copper, Total	16.4	14.8	10.3	1.0
		Mercury, Total	0.01u	0.01u	NC	1.0
		Nickel, Total	9.3	7.4	22.8	1.0
		Lead, Total	3.4	3.3	3.0	1.0
		Selenium, Total	0.32u	0.28u	NC	1.0
		Vanadium, Total	63.9	57.9	9.9	1.0
		Zinc, Total	48.1	44.6	7.6	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/20/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L850

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0601-LC1	Silver, LCS	49.7	50.0	MG/KG	99.4
		Arsenic, LCS	974	1000	MG/KG	97.4
		Barium, LCS	503	500	MG/KG	100.5
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
		Chromium, LCS	50.5	50.0	MG/KG	101.0
		Copper, LCS	126	125	MG/KG	100.4
		Nickel, LCS	198	200	MG/KG	99.0
		Lead, LCS	245	250	MG/KG	98.0
		Selenium, LCS	948	1000	MG/KG	94.8
		Vanadium, LCS	257	250	MG/KG	102.9
		Zinc, LCS	97.1	100	MG/KG	97.1
LCS1	99C0254-LC1	Mercury, LCS	0.97	1.0	MG/KG	96.7

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4						
SILVER, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
SILVER, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
SILVER, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
ARSENIC, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
ARSENIC, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
ARSENIC, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
MERCURY, TOTAL	001	S	99C0254	08/19/99	08/26/99	08/27/99
MERCURY, TOTAL	001 REP	S	99C0254	08/19/99	08/26/99	08/27/99
MERCURY, TOTAL	001 MS	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
NICKEL, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
NICKEL, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
VANADIUM, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
VANADIUM, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	001	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	001 REP	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	001 MS	S	99L0601	08/19/99	09/01/99	09/03/99
B0W5P2						
SILVER, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
ARSENIC, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
MERCURY, TOTAL	002	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
VANADIUM, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	002	S	99L0601	08/19/99	09/01/99	09/03/99
B0W5M4						
SILVER, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
ARSENIC, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
MERCURY, TOTAL	003	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
VANADIUM, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	003	S	99L0601	08/19/99	09/01/99	09/03/99
B0W5P3						
SILVER, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
BARIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
BERYLLIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
CADMIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
CHROMIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
COPPER, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
MERCURY, TOTAL	004	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
LEAD, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
SELENIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
VANADIUM, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
ZINC, TOTAL	004	S	99L0601	08/19/99	09/01/99	09/03/99
B0W5M5						
SILVER, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
ARSENIC, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
BARIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
CADMIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
CHROMIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
COPPER, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
MERCURY, TOTAL	005	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
LEAD, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
SELENIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
VANADIUM, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
ZINC, TOTAL	005	S	99L0601	08/19/99	09/01/99	09/07/99
B0W5P7						
SILVER, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
ARSENIC, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
BARIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
CADMIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
CHROMIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
COPPER, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	006	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
LEAD, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
SELENIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
VANADIUM, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
ZINC, TOTAL	006	S	99L0601	08/19/99	09/01/99	09/07/99
B0W681						
SILVER, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
ARSENIC, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
BARIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
BERYLLIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
CADMIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
CHROMIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
COPPER, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
MERCURY, TOTAL	007	S	99C0254	08/19/99	08/26/99	08/27/99
NICKEL, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
LEAD, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
SELENIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
VANADIUM, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99
ZINC, TOTAL	007	S	99L0601	08/19/99	09/01/99	09/07/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
SILVER, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
ARSENIC LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
ARSENIC, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
BARIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
BARIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
BERYLLIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
CADMIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
CADMIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
CHROMIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
CHROMIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
COPPER LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
MERCURY LABORATORY	LC1 BS	S	99C0254	N/A	08/26/99	08/27/99
MERCURY, TOTAL	MB1	S	99C0254	N/A	08/26/99	08/27/99
NICKEL LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
NICKEL, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
LEAD LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
LEAD, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
SELENIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
SELENIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
VANADIUM LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
VANADIUM, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99
ZINC LABORATORY	LC1 BS	S	99L0601	N/A	09/01/99	09/03/99
ZINC, TOTAL	MB1	S	99L0601	N/A	09/01/99	09/03/99

RECRA LabNet Use Only
99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INW-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1					500		250	1000				
Preservatives						w/VOA	w/BNA									
ANALYSES REQUESTED → ORGANIC: VOA									INORG: Metal							
ORGANIC: BNA																
ORGANIC: Pest/PCB																
ORGANIC: Herb																
INORG: CN																

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	0824H	0825H	0826B		0826SC	0826D		MetD		1PH	AnegD				
001	BOW SP4			S	8/19/99	1145	X	X	X		X	X		X		X	X				
2	SP2					1105															
3	SM4					1025															
4	SP3					1121															
5	SM5					1050															
6	SP7					0900															
7	681					0900															

Run matrix QC

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met① = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
Aneg① = 1N3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 4235795286602-3.7°C
6. 4235795298598-4.2°C

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # *
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. 5.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

018

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25		SAF No.: B99-078
Ice Chest No.: 96-006	Field Logbook No.: FL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA ~~STB~~ 8-19-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 4235795286 02 - 3.7
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P4	Soil	8-19-99	1145						X	X	X	X	X
													now

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Reber IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SSGALLOWAY	Date/Time: 82399 1100
Relinquished By: SSGALLOWAY	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedere	Date/Time:	Received By: Janson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

019

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 17'-18'		SAF No. B99-078
Ice Chest No. 96-006	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA 8-19-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235749528602
			COA B20CW1 67/C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P2 / Soil / 8-19-99 / 1105						X	X	X	X	X
										B0W5L8

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Brent Porter	8/19/99 15:00	Beler IB	8/19/99 15:00
Relinquished By	REF IB	82399 1100	SJGarrett	82399 1100
Relinquished By	SJGarrett	82399 1100	FED EX	
Relinquished By	Jedrie		Jonson	8/24/99 0930

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

020

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-31	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'		SAF No.: B99-078
Ice Chest No.: SML 185	Field Logbook No.: FL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 870 8-13-99	Offsite Property No.: A990 223		Bill of Lading/Air Bill No.: 4235795 28598 -4.2
			COA: B20CM 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time								
3 B0W5M4	Soil	8-18-99	1025			X	X	X	X	X	B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer JB	Date/Time: 8/19/99 15:00
Relinquished By: REF JB	Date/Time: 8239 1100	Received By: SIGNATURE	Date/Time: 8239 1100
Relinquished By: SIGNATURE	Date/Time: 8239	Received By: FEDEX	Date/Time:
Relinquished By: Federal	Date/Time:	Received By: Jameson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

021

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 19.5 20.5		SAF No.: B99-078
Ice Chest No.: SML-185	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 8-19-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 4235795285 98
			COA: B20 CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS												
Preservation				None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container				aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1	1	1	1
Volume				60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
				Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P3	Soil	8-19-99	1128						X	X	X	X	X
													B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter LB	Date/Time: 8/19/99 15:00
Relinquished By: REF LB	Date/Time: 82399 1100	Received By: SJOHNSON/Fed	Date/Time: 82399 1100
Relinquished By: SJOHNSON/Fed	Date/Time: 8239 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedue	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

022

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-32	Page 1 of 1

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 <15' bgs 14' - 15'		SAF No. B99-078
Ice Chest No. SML 185	Field Logbook No. FLK11		Method of Shipment Federal Express
Shipped To TMA/RECRA RZ43 8-12-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795285 98
			COA B20CW167C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5M5	Soil	8-19-99	1050			X	X	X	X	X	

5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Foster JB	Date/Time 8/19/99 15:00
Relinquished By REF I-B	Date/Time 82399 1100	Received By SIGNE [illegible]	Date/Time 82399 1100
Relinquished By SIGNE [illegible]	Date/Time 82399 1100	Received By FED EX	Date/Time
Relinquished By Jedlee	Date/Time	Received By Jenson	Date/Time 8/23/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE - TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

023

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 9.5 - 10.5		SAF No.: B99-078
Ice Chest No.: SML-161	Field Logbook No.: EL1511		Method of Shipment: Federal Express
Shipped To: ~~TMA/RECRA~~ RECRA ~~DOD 82399 10:40 8-19-99~~	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A 4019645195-5.1
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P7 / Soil / 8-19-99 / 0900			X	X	X	X	X			Bowsl
B0W681 / Soil / 8-19-99 / 0900			X	X	X	X	X			Bowsl

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: Peter 1B	Date/Time: 8/23/99 0900	Received By: SJCARLE s/Peter	Date/Time: 8/23/99 0900
Relinquished By: SJCARLE s/Peter	Date/Time: 8/23/99 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedlee	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

024

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

4
OCT 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L850
SDG/SAF#: H0499/B99-078

W.O #: 10985-001-001-9999-00
Date Received: 08-24-99

DIESEL RANGE ORGANICS

The set of samples consisted of seven (7) soil samples collected on 08-19-99.

The samples and their associated QC samples were prepared on 08-31-99 and analyzed by methodology based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 09-15-99. 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 extraction and analysis were met.

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

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

5. All surrogate recoveries were within acceptance criteria.

6. All blank spike recoveries were within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. Samples B0W5P7 and B0W681 contained contamination beyond (heavier) the diesel range with estimated concentrations of 13.7 mg/kg and 6.5 mg/kg respectively.

Pat E
for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

9-27-99
Date

R:\SHARE\LC\GCSCAN\08-850d.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 11 pages.

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

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 - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 09/16/99 12:24

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00**

003

	Cust ID:	B0W5P4	B0W5P4	B0W5P4	B0W5P2	B0W5M4	B0W5P3
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	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	61 %	64 %	58 %	59 %	49 %	67 %
Diesel Range Organics		4.2 U	67 %	65 %	4.2 U	4.3 U	4.1 U

	Cust ID:	B0W5M5	B0W5P7	B0W681	BLK	BLK BS
Sample Information	RFW#:	005	006	007	99LE1061-MB1	99LE1061-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surrogate:	p-Terphenyl	63 %	86 %	64 %	44 %	61 %
Diesel Range Organics		4.1 U	4.0 U	4.8 U	4.0 U	55 %

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.

Recra LabNet - Lionville Laboratory
DRO ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4	001	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5P4	001 MS	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5P4	001 MSD	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5P2	002	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5M4	003	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5P3	004	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5M5	005	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W5P7	006	S	99LE1061	08/19/99	08/31/99	09/15/99
B0W681	007	S	99LE1061	08/19/99	08/31/99	09/15/99

LAB QC:

BLK	MB1	S	99LE1061	N/A	08/31/99	09/15/99
BLK	MB1 BS	S	99LE1061	N/A	08/31/99	09/15/99

09/24/99

RECRA LabNet Use Only
99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INW-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1					500		250	1000				
Preservatives																
ANALYSES REQUESTED →	ORGANIC: VOA					w/VOA			INORG: Metal							
	ORGANIC: BNA						w/BNA									
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															
	INORG: CN															

RECRA LabNet Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0824H	0825H	0803		0825C	0DRO		9MetQ		1PH	8AnQ				
S - Soil	001	BOW SP4			S	8/19/99	1145	X	X	X		X	X		X		X	X				
SE - Sediment	2	SP2					1105															
SO - Solid	3	SM4					1025															
SL - Sludge	4	SP3					1121															
W - Water	5	SM5					1050															
O - Oil	6	SP7					0900															
A - Air	7	681					0900															
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Run matrix QC

Special Instructions:

saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:

Met (1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
Anq (1) 3. = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 4235795286 02-3.7°C
6. 4235795285 98-4.2°C

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___
Airbill # *
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. 5.1 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 24 - 25		SAF No. B99-078
Ice Chest No. 96-006	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA STR 8-19-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795286 02 - 3.7
			COA B20CW1 671C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P4	Soil	8-19-99	1145						X	X	X	X	X
													DOWSLR

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Refer IB	Date/Time 8/19/99 15:00
Relinquished By REF IB	Date/Time 82399 1100	Received By SSGALE	Date/Time 82399 1100
Relinquished By SSGALE	Date/Time 82399 1100	Received By FED EX	Date/Time
Relinquished By Federal	Date/Time	Received By Johnson	Date/Time 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 17'-18'	SAF No.: B99-078	
Ice Chest No.: 96-006	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA 8/18-19-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235795286 02	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5P2	Soil / 8-19-99 / 1105						X	X	X	X	X
											B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Beler IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SJGarrett	Date/Time: 82399 1100
Relinquished By: SJGarrett	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jeelue	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-31	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'		SAF No.: B99-078
Ice Chest No.: SML 185	Field Logbook No.: FL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 870 8-13-99	Offsite Property No.: A990 223		Bill of Lading/Air Bill No.: 4235795 28598 -4.2
			COA: B20CM 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time											
3 B0W5M4 / Soil / 8-19-99 / 1025			X	X	X	X	X			B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer JB	Date/Time: 8/19/99 15:00
Relinquished By: REF JB	Date/Time: 82399 1100	Received By: SIGALE	Date/Time: 82399 1100
Relinquished By: SIGALE	Date/Time: 82399	Received By: FEDEX	Date/Time:
Relinquished By: Fedex	Date/Time:	Received By: Jameson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 19.5 20.5		SAF No. B99-078
Ice Chest No. SML-185	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA B 8-19-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795285 98
			COA B20 CW1 67/C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5P3	Soil / 8-19-99 / 1128						X	X	X	X	X
											B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter LB	Date/Time: 8/19/99 15:00
Relinquished By: REF LB	Date/Time: 82399 1100	Received By: SJOBLOM/Ash	Date/Time: 82399 1100
Relinquished By: SJOBLOM/Ash	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedue	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-32	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 14' - 15'	SAF No.: B99-078	
Ice Chest No.: SML 185	Field Logbook No.: FLK11	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA 8-12-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235795285 98	
		COA: B20CW167IC	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5M5	Soil	8-19-99	1050			X	X	X	X	X			B0W5G8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter JB	Date/Time: 8/19/99 15:00
Relinquished By: REF 1-B	Date/Time: 82399 1100	Received By: Signature	Date/Time: 82399 1100
Relinquished By: Signature	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jeel-ee	Date/Time:	Received By: Johnson	Date/Time: 8/23/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 9.5 - 10.5	SAF No.: B99-078	
Ice Chest No.: SML-161	Field Logbook No.: EL151	Method of Shipment: Federal Express	
Shipped To: ~~TMA/RECRA~~ RECRA MS 8-19-99	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A 4019645195-5.1	
		COA: B20CW167C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P7 / Soil / 8-19-99 / 0900			X	X	X	X	X			B0W516
B0W681 / Soil / 8-19-99 / 0900			X	X	X	X	X			B0W516

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: REF 1B 82399	Date/Time: 0900	Received By: SSCALE s/Peb 82399	Date/Time: 0900
Relinquished By: SSCALE s/Peb 82399	Date/Time: 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedey	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

OCT 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-078
RFW#: 9908L850
SDG/SAF#: H0499/B99-078

W.O.#: 10985-001-001-9999-00
Date Received: 08-24-99

PCB

The set of samples consisted of seven (7) soil samples collected on 08-19-99.

The samples and their associated QC samples were extracted on 08-30-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 09-21-99. 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. All cooler temperatures have been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a sulfuric acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of twenty-two (22) surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
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.

for J. Michael Taylor
J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

09-30-99
Date

pef\r:\group\data\pest\08L-850.pcb

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

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

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: 09/27/99 17:06

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1

004

	Cust ID:	B0W5P4	B0W5P4	B0W5P4	B0W5P2	B0W5M4	B0W5P3
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	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	102 %	115 %	112 %	110 %	125 * %	102 %
	Decachlorobiphenyl	102 %	108 %	109 %	104 %	121 %	97 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		34 U	35 U	34 U	35 U	36 U	35 U
Aroclor-1221		69 U	69 U	68 U	70 U	71 U	69 U
Aroclor-1232		34 U	35 U	34 U	35 U	36 U	35 U
Aroclor-1242		34 U	35 U	34 U	35 U	36 U	35 U
Aroclor-1248		34 U	35 U	34 U	35 U	36 U	35 U
Aroclor-1254		34 U	88 %	86 %	35 U	36 U	35 U
Aroclor-1260		34 U	35 U	34 U	35 U	36 U	35 U

	Cust ID:	B0W5M5	B0W5P7	B0W681	PBLKTF	PBLKTF BS
Sample Information	RFW#:	005	006	007	99LE1055-MB1	99LE1055-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	108 %	90 %	90 %	100 %	68 %
	Decachlorobiphenyl	103 %	82 %	82 %	99 %	72 %
		fl	fl	fl	fl	fl
Aroclor-1016		34 U	33 U	39 U	33 U	33 U
Aroclor-1221		68 U	65 U	78 U	67 U	67 U
Aroclor-1232		34 U	33 U	39 U	33 U	33 U
Aroclor-1242		34 U	33 U	39 U	33 U	33 U
Aroclor-1248		34 U	33 U	39 U	33 U	33 U
Aroclor-1254		34 U	33 U	39 U	33 U	59 %
Aroclor-1260		34 U	33 U	39 U	33 U	33 U

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

gw 09-28-99

Recra LabNet - Lionville Laboratory
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4	001	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5P4	001 MS	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5P4	001 MSD	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5P2	002	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5M4	003	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5P3	004	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5M5	005	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W5P7	006	S	99LE1055	08/19/99	08/30/99	09/21/99
B0W681	007	S	99LE1055	08/19/99	08/30/99	09/21/99

LAB QC:

PBLKTF	MB1	S	99LE1055	N/A	08/30/99	09/21/99
PBLKTF	MB1 BS	S	99LE1055	N/A	08/30/99	09/21/99

AJ 09-28-99

RECRA LabNet Use Only: 99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TWU-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1					500		250	1000				
Preservatives																
ANALYSES REQUESTED	ORGANIC: VOA								INORG: Metal							
	ORGANIC: BNA								INORG: CN							
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8082A/H	8021B/H	8081A		8260C	8270D		7470A		1PH	8015B				
001	BOW 5P4			S	8/19/99	1145	X	X	X		X	X		X		X	X				
2	5P2					1105															
3	5M4					1025															
4	5P3					1121															
5	5M5					1050															
6	5P7					0900															
7	681					0900															

Run matrix QC

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, 1CR6
Anion(3) = 1N3N2, 1CCL, 1CFL, 1CNO2, 1CNO3,
4. 1CPO4, 1SO4, 1SFD, 1NH3N, 1CNTO
* 5. 4235795286028-3.7°C
6. 4235795285984-4.2°C

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___
Airbill # *
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. 5.1 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: *4019645195

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25		SAF No.: B99-078
Ice Chest No.: 96-006	Field Logbook No.: FL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 87B 8-19-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 4235795286 02 - 3.7
			COA: B20CW1 67/C

Price Code: 8N

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P4	Soil	8-19-99	1145						X	X	X	X	X
													DOWSLB

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SSGALLOWAY	Date/Time: 82399 1100
Relinquished By: SSGALLOWAY	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Federal	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 17'-18'		SAF No. B99-078
Ice Chest No. 96-006	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA BXA 8-18-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235749528602

Price Code 8N

Data Turnaround 45 Days

COA B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P2	Soil	8-19-99	1105						X	X	X	X	X
													B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SJGarlock	Date/Time: 82399 1100
Relinquished By: SJGarlock	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jeelue	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-31	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'		SAF No.: B99-078
Ice Chest No.: SML 185	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 870 8-13-99	Offsite Property No.: A990 ZZ3		Bill of Lading/Air Bill No.: 4235795 28598 -4.2
			COA: B20CM 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
3 B0W5M4	Soil	8-18-99	1025			X	X	X	X	X			B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Roger JB	Date/Time: 8/19/99 15:00
Relinquished By: REF JB	Date/Time: 82399 1100	Received By: SIGALE	Date/Time: 82399 1100
Relinquished By: SIGALE	Date/Time: 82399	Received By: FEDEX	Date/Time:
Relinquished By: Jedcil	Date/Time:	Received By: Jameson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 2

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 >15' bgs 19.5 20.5		SAF No. B99-078
Ice Chest No. SML-185	Field Logbook No. EL 1511		Method of Shipment Federal Express
Shipped To TMA/RECRA 8-19-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795 2859 8
			COA B20 CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5P3	Soil / 8-19-99 / 1128						X	X	X	X	X
											B0W5G8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter LB	Date/Time: 8/19/99 15:00
Relinquished By: REF LB	Date/Time: 82399 1100	Received By: SJOBLOM/Peter	Date/Time: 82399 1100
Relinquished By: SJOBLOM/Peter	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedue	Date/Time:	Received By: Janson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-32	Page 1 of 1

Collector Brent Porter	Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-3 <15' bgs 14' - 15'		SAF No. B99-078
Ice Chest No. SML 185	Field Logbook No. ELK11		Method of Shipment Federal Express
Shipped To TMA/RECRA RJB 8-19-99	Offsite Property No. A990223		Bill of Lading/Air Bill No. 4235795285 98
			COA B20CW1 671C

Price Code 8N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No.	Matrix *	Sample Date	Sample Time								
B0W5M5	Soil	8-19-99	1050			X	X	X	X	X			B0W568

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Brent Porter	Date/Time 8/19/99 15:00	Received By Fedex JB	Date/Time 8/19/99 15:00
Relinquished By REF 1-B	Date/Time 82399 1100	Received By SIGNATURE	Date/Time 82399 1100
Relinquished By SIGNATURE	Date/Time 82399 1100	Received By FED EX	Date/Time
Relinquished By Jeel-el	Date/Time	Received By Johnson	Date/Time 8/23/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 9.5 - 10.5		SAF No.: B99-078
Ice Chest No.: SML-161	Field Logbook No.: EL151		Method of Shipment: Federal Express
Shipped To: ~~TMA/RECRA~~ MD 8-19-99 RECRA	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A 4019645195-5.1
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P7	Soil	8-19-99	0900			X	X	X	X	X			B0W526
B0W681	Soil	8-19-99	0900			X	X	X	X	X			B0W526

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: REF 1B	Date/Time: 82399 0900	Received By: SJ Scale s/Peh	Date/Time: 82399 0900
Relinquished By: SJ Scale s/Peh	Date/Time: 82399 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedeu	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L850
SDG/SAF #: H0499/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 08-24-99

SEMIVOLATILE

Seven (7) soil samples were collected on 08-19-99.

The samples and their associated QC samples were extracted on 08-31-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 09-03,18,20-99.

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 temperatures upon receipt have been recorded on the chain-of-custody.
2. The required holding times for extraction and analysis were met.
3. Non-target compounds were 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. A spectral search was conducted for the compound Butylated Hydroxytoluene; this compound was not identified in the samples.

OCT 1999
RECEIVED
Data
Log In

By J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

09-30-99
Date

som\gorup\data\bna\tnu08850.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.

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Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 09/28/99 15:14

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

	Cust ID:	B0W5P4		B0W5P2		B0W5M4		B0W5P3		B0W5M5		B0W5P7	
Sample Information	RFW#:	001		002		003		004		005		006	
	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	76	%	84	%	81	%	85	%	78	%	81	%
	2-Fluorobiphenyl	74	%	75	%	74	%	76	%	72	%	72	%
	Terphenyl-d14	79	%	83	%	80	%	82	%	81	%	78	%
	Phenol-d5	66	%	66	%	62	%	68	%	62	%	66	%
	2-Fluorophenol	61	%	60	%	59	%	64	%	58	%	61	%
	2,4,6-Tribromophenol	63	%	65	%	63	%	77	%	64	%	59	%
			fl		fl		fl		fl		fl		fl
Phenol		350	U	350	U	360	U	350	U	350	U	330	U
bis(2-Chloroethyl)ether		350	U	350	U	360	U	350	U	350	U	330	U
2-Chlorophenol		350	U	350	U	360	U	350	U	350	U	330	U
1,3-Dichlorobenzene		350	U	350	U	360	U	350	U	350	U	330	U
1,4-Dichlorobenzene		350	U	350	U	360	U	350	U	350	U	330	U
1,2-Dichlorobenzene		350	U	350	U	360	U	350	U	350	U	330	U
2-Methylphenol		350	U	350	U	360	U	350	U	350	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	360	U	350	U	350	U	330	U
4-Methylphenol		350	U	350	U	360	U	350	U	350	U	330	U
N-Nitroso-di-n-propylamine		350	U	350	U	360	U	350	U	350	U	330	U
Hexachloroethane		350	U	350	U	360	U	350	U	350	U	330	U
Nitrobenzene		350	U	350	U	360	U	350	U	350	U	330	U
Isophorone		350	U	350	U	360	U	350	U	350	U	330	U
2-Nitrophenol		350	U	350	U	360	U	350	U	350	U	330	U
2,4-Dimethylphenol		350	U	350	U	360	U	350	U	350	U	330	U
bis(2-Chloroethoxy)methane		350	U	350	U	360	U	350	U	350	U	330	U
2,4-Dichlorophenol		350	U	350	U	360	U	350	U	350	U	330	U
1,2,4-Trichlorobenzene		350	U	350	U	360	U	350	U	350	U	330	U
Naphthalene		350	U	350	U	360	U	350	U	350	U	330	U
4-Chloroaniline		350	U	350	U	360	U	350	U	350	U	330	U
Hexachlorobutadiene		350	U	350	U	360	U	350	U	350	U	330	U
4-Chloro-3-methylphenol		350	U	350	U	360	U	350	U	350	U	330	U
2-Methylnaphthalene		350	U	350	U	360	U	350	U	350	U	330	U
Hexachlorocyclopentadiene		350	U	350	U	360	U	350	U	350	U	330	U
2,4,6-Trichlorophenol		350	U	350	U	360	U	350	U	350	U	330	U
2,4,5-Trichlorophenol		870	U	880	U	900	U	880	U	880	U	840	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9908L850 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Page: 1b

Cust ID:	B0W5P4		B0W5P2		B0W5M4		B0W5P3		B0W5M5		B0W5P7	
RFW#:	001		002		003		004		005		006	
2-Chloronaphthalene	350	U	350	U	360	U	350	U	350	U	330	U
2-Nitroaniline	870	U	880	U	900	U	880	U	880	U	840	U
Dimethylphthalate	350	U	350	U	360	U	350	U	350	U	330	U
Acenaphthylene	350	U	350	U	360	U	350	U	350	U	330	U
2,6-Dinitrotoluene	350	U	350	U	360	U	350	U	350	U	330	U
3-Nitroaniline	870	U	880	U	900	U	880	U	880	U	840	U
Acenaphthene	350	U	350	U	360	U	350	U	350	U	330	U
2,4-Dinitrophenol	870	U	880	U	900	U	880	U	880	U	840	U
4-Nitrophenol	870	U	880	U	900	U	880	U	880	U	840	U
Dibenzofuran	350	U	350	U	360	U	350	U	350	U	330	U
2,4-Dinitrotoluene	350	U	350	U	360	U	350	U	350	U	330	U
Diethylphthalate	350	U	350	U	360	U	350	U	350	U	330	U
4-Chlorophenyl-phenylether	350	U	350	U	360	U	350	U	350	U	330	U
Fluorene	350	U	350	U	360	U	350	U	350	U	330	U
4-Nitroaniline	870	U	880	U	900	U	880	U	880	U	840	U
4,6-Dinitro-2-methylphenol	870	U	880	U	900	U	880	U	880	U	840	U
N-Nitrosodiphenylamine (1)	350	U	350	U	360	U	350	U	350	U	330	U
4-Bromophenyl-phenylether	350	U	350	U	360	U	350	U	350	U	330	U
Hexachlorobenzene	350	U	350	U	360	U	350	U	350	U	330	U
Pentachlorophenol	870	U	880	U	900	U	880	U	880	U	840	U
Phenanthrene	350	U	350	U	360	U	350	U	350	U	330	U
Anthracene	350	U	350	U	360	U	350	U	350	U	330	U
Carbazole	350	U	350	U	360	U	350	U	350	U	330	U
Di-n-butylphthalate	350	U	350	U	360	U	350	U	350	U	330	U
Fluoranthene	350	U	350	U	360	U	350	U	350	U	330	U
Pyrene	350	U	350	U	360	U	350	U	350	U	330	U
Butylbenzylphthalate	350	U	350	U	360	U	350	U	350	U	330	U
3,3'-Dichlorobenzidine	350	U	350	U	360	U	350	U	350	U	330	U
Benzo(a)anthracene	350	U	350	U	360	U	350	U	350	U	330	U
Chrysene	350	U	350	U	360	U	350	U	350	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	360	U	350	U	350	U	330	U
Di-n-octyl phthalate	350	U	350	U	360	U	350	U	350	U	330	U
Benzo(b)fluoranthene	350	U	350	U	360	U	350	U	350	U	330	U
Benzo(k)fluoranthene	350	U	350	U	360	U	350	U	350	U	330	U
Benzo(a)pyrene	350	U	350	U	360	U	350	U	350	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	360	U	350	U	350	U	330	U
Dibenz(a,h)anthracene	350	U	350	U	360	U	350	U	350	U	330	U
Benzo(g,h,i)perylene	350	U	350	U	360	U	350	U	350	U	330	U

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

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

Report Date: 09/28/99 15:14

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	B0W681		B0W681		B0W681		SBLKBY		SBLKBY BS	
Sample Information	RFW#:	007		007 MS		007 MSD		99LE1063-MB1		99LE1063-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	73	%	81	%	87	%	76	%	71	%
	2-Fluorobiphenyl	68	%	70	%	69	%	72	%	66	%
	Terphenyl-d14	71	%	75	%	74	%	69	%	60	%
	Phenol-d5	61	%	62	%	59	%	72	%	70	%
	2-Fluorophenol	57	%	64	%	61	%	69	%	69	%
	2,4,6-Tribromophenol	65	%	72	%	64	%	58	%	58	%
Phenol		400	U	58	%	52	%	330	U	64	%
bis(2-Chloroethyl)ether		400	U	400	U	400	U	330	U	330	U
2-Chlorophenol		400	U	63	%	61	%	330	U	65	%
1,3-Dichlorobenzene		400	U	400	U	400	U	330	U	330	U
1,4-Dichlorobenzene		400	U	75	%	74	%	330	U	74	%
1,2-Dichlorobenzene		400	U	400	U	400	U	330	U	330	U
2-Methylphenol		400	U	400	U	400	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		400	U	400	U	400	U	330	U	330	U
4-Methylphenol		400	U	400	U	400	U	330	U	330	U
N-Nitroso-di-n-propylamine		400	U	102	%	102	%	330	U	80	%
Hexachloroethane		400	U	400	U	400	U	330	U	330	U
Nitrobenzene		400	U	400	U	400	U	330	U	330	U
Isophorone		400	U	400	U	400	U	330	U	330	U
2-Nitrophenol		400	U	400	U	400	U	330	U	330	U
2,4-Dimethylphenol		400	U	400	U	400	U	330	U	330	U
bis(2-Chloroethoxy)methane		400	U	400	U	400	U	330	U	330	U
2,4-Dichlorophenol		400	U	400	U	400	U	330	U	330	U
1,2,4-Trichlorobenzene		400	U	77	%	81	%	330	U	75	%
Naphthalene		400	U	400	U	400	U	330	U	330	U
4-Chloroaniline		400	U	400	U	400	U	330	U	330	U
Hexachlorobutadiene		400	U	400	U	400	U	330	U	330	U
4-Chloro-3-methylphenol		400	U	68	%	64	%	330	U	64	%
2-Methylnaphthalene		400	U	400	U	400	U	330	U	330	U
Hexachlorocyclopentadiene		400	U	400	U	400	U	330	U	330	U
2,4,6-Trichlorophenol		400	U	400	U	400	U	330	U	330	U
2,4,5-Trichlorophenol		1000	U	1000	U	1000	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0W681		B0W681		B0W681		SBLKBY		SBLKBY BS	
RFW#:	007		007 MS		007 MSD		99LE1063-MB1		99LE1063-MB1	
2-Chloronaphthalene	400	U	400	U	400	U	330	U	330	U
2-Nitroaniline	1000	U	1000	U	1000	U	840	U	840	U
Dimethylphthalate	400	U	400	U	400	U	330	U	330	U
Acenaphthylene	400	U	400	U	400	U	330	U	330	U
2,6-Dinitrotoluene	400	U	400	U	400	U	330	U	330	U
3-Nitroaniline	1000	U	1000	U	1000	U	840	U	840	U
Acenaphthene	400	U	75	%	73	%	330	U	63	%
2,4-Dinitrophenol	1000	U	1000	U	1000	U	840	U	840	U
4-Nitrophenol	1000	U	54	%	53	%	840	U	45	%
Dibenzofuran	400	U	400	U	400	U	330	U	330	U
2,4-Dinitrotoluene	400	U	79	%	76	%	330	U	64	%
Diethylphthalate	400	U	400	U	400	U	330	U	330	U
4-Chlorophenyl-phenylether	400	U	400	U	400	U	330	U	330	U
Fluorene	400	U	400	U	400	U	330	U	330	U
4-Nitroaniline	1000	U	1000	U	1000	U	840	U	840	U
4,6-Dinitro-2-methylphenol	1000	U	1000	U	1000	U	840	U	840	U
N-Nitrosodiphenylamine (1)	400	U	400	U	400	U	330	U	330	U
4-Bromophenyl-phenylether	400	U	400	U	400	U	330	U	330	U
Hexachlorobenzene	400	U	400	U	400	U	330	U	330	U
Pentachlorophenol	1000	U	71	%	78	%	840	U	61	%
Phenanthrene	400	U	400	U	400	U	330	U	330	U
Anthracene	400	U	400	U	400	U	330	U	330	U
Carbazole	400	U	400	U	400	U	330	U	330	U
Di-n-butylphthalate	400	U	400	U	400	U	330	U	330	U
Fluoranthene	400	U	400	U	400	U	330	U	330	U
Pyrene	400	U	79	%	76	%	330	U	63	%
Butylbenzylphthalate	400	U	400	U	400	U	330	U	330	U
3,3'-Dichlorobenzidine	400	U	400	U	400	U	330	U	330	U
Benzo(a)anthracene	400	U	400	U	400	U	330	U	330	U
Chrysene	400	U	400	U	400	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	100	J	400	U	400	U	330	U	330	U
Di-n-octyl phthalate	400	U	400	U	400	U	330	U	330	U
Benzo(b)fluoranthene	400	U	400	U	400	U	330	U	330	U
Benzo(k)fluoranthene	400	U	400	U	400	U	330	U	330	U
Benzo(a)pyrene	400	U	400	U	400	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	400	U	400	U	400	U	330	U	330	U
Dibenz(a,h)anthracene	400	U	400	U	400	U	330	U	330	U
Benzo(g,h,i)perylene	400	U	400	U	400	U	330	U	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.

B0W5P4

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A091714

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/18/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.34	70	JA

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W5P2

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A091715

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/18/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

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

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.35	90	JA
2.	UNKNOWN	24.36	90	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W5M4

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-003

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A091716

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 8 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/18/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.34	100	JA
2.	UNKNOWN	24.36	100	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W5P3

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-004

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A092011

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.34	100	JA

FORM 1 SV-TIC 3/90

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W5M5

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A092012

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 0

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W5P7

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-006

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A092013

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 0 decanted: (Y/N) Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.34	200	JA
2.	ALDOL CONDENSATE	9.13	100	JA
3.	UNKNOWN	10.04	100	J
4.	UNKNOWN	24.38	100	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W681

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L850-007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A092014

Level: (low/med) LOW Date Received: 08/24/99

% Moisture: 16 decanted: (Y/N) __ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.35	200	JA
2.	ALDOL CONDENSATE	9.13	100	JA
3.	ORGANIC ACID	21.13	100	J
4.	UNKNOWN	24.36	200	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKBY

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 99LE1063-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A090314

Level: (low/med) LOW Date Received: 08/31/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 08/31/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/03/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.45	200	J

FORM 1 SV-TIC 3/90

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4	001	S	99LE1063	08/19/99	08/31/99	09/18/99
B0W5P2	002	S	99LE1063	08/19/99	08/31/99	09/18/99
B0W5M4	003	S	99LE1063	08/19/99	08/31/99	09/18/99
B0W5P3	004	S	99LE1063	08/19/99	08/31/99	09/20/99
B0W5M5	005	S	99LE1063	08/19/99	08/31/99	09/20/99
B0W5P7	006	S	99LE1063	08/19/99	08/31/99	09/20/99
B0W681	007	S	99LE1063	08/19/99	08/31/99	09/20/99
B0W681	007 MS	S	99LE1063	08/19/99	08/31/99	09/20/99
B0W681	007 MSD	S	99LE1063	08/19/99	08/31/99	09/20/99

LAB QC:

SBLKBY	MB1	S	99LE1063	N/A	08/31/99	09/03/99
SBLKBY	MB1 BS	S	99LE1063	N/A	08/31/99	09/03/99

RECRA LabNet Use Only

99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TWU-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6					
#/Type Container	Liquid																
	Solid	1g	1g	1					1g		1g	1g					
Volume	Liquid																
	Solid	250	500	1					500		250	1000					
Preservatives																	
ANALYSES REQUESTED →	ORGANIC: VOA					W/VOA											
	ORGANIC: BNA						W/BNA										
	ORGANIC: Pest/PCB																
	ORGANIC: Herb																
	INORG: Metal																
	INORG: CN																

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0U24H	0U25H	0PCB		0825C	0DRO		MetQ		1PH	AnqQ				
001	BOW SP4			S	8/19/99	1145	X	X	X		X	X		X		X	X				
2	SP2					1105															
3	SM4					1025															
4	SP3					1121															
5	SM5					1050															
6	SP7					0900															
7	681					0900															

Run matrix QC

RECRA LabNet Use Only

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
AnqQ 3. = 1N3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 4235795286 02-3.7°C
6. 4235795285 98-4.2°C

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # *
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. 5.1 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L850
SDG/SAF #: H0499/ B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 08-24-99

GC/MS VOLATILE

Seven (7) soil samples were collected on 08-19-99.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 09-02-99.

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 temperatures upon receipt have 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 contaminants Methylene Chloride and Acetone at levels less than 4x the CRQL.

OCT 1999
RECEIVED
Data
Log In

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

09-30-99
Date

som\group\data\ voa\tnu08850.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.

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

	Cust ID:	B0W5P4		B0W5P2		B0W5M4		B0W5P3		B0W5M5		B0W5P7	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		0.962		0.943		1.00		0.962		1.02	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	98	%	92	%	100	%	98	%	92	%	104	%
	Bromofluorobenzene	96	%	92	%	92	%	94	%	91	%	102	%
	1,2-Dichloroethane-d4	103	%	102	%	105	%	103	%	98	%	112	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	5	J	11	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	11	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	11	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	11	U	10	U	10	U
Methylene Chloride		17	B	13	B	20	B	19	B	19	B	20	B
Acetone		10	U	4	JB	10	U	11	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	6	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	6	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	6	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	6	U	5	U	5	U
Chloroform		5	U	5	U	5	U	6	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	6	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	11	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	6	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	6	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	6	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	6	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	6	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	6	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	6	U	5	U	5	U
Benzene		5	U	5	U	5	U	6	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	6	U	5	U	5	U
Bromoform		5	U	5	U	5	U	6	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	11	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	11	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	6	U	5	U	5	U
Toluene		5	U	5	U	5	U	6	U	5	U	5	U

*= Outside of EPA CLP QC limits.

09-28-99

RFW Batch Number: 9908L850 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Page: 1b

Cust ID:	B0W5P4	B0W5P2	B0W5M4	B0W5P3	B0W5M5	B0W5P7
RFW#:	001	002	003	004	005	006
Chlorobenzene	5 U	5 U	5 U	6 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	6 U	5 U	5 U
Styrene	5 U	5 U	5 U	6 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 09/24/99 03:51

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	B0W681		B0W681		B0W681		VBLKPJ		VBLKPJ BS	
Sample Information	RFW#:	007		007 MS		007 MSD		99LVH333-MB1		99LVH333-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.980		0.943		0.962		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	104	%	97	%	96	%	97	%	97	%
	Bromofluorobenzene	98	%	86	%	91	%	96	%	95	%
	1,2-Dichloroethane-d4	107	%	106	%	104	%	97	%	100	%
Chloromethane		12	U	11	U	12	U	10	U	10	U
Bromomethane		12	U	11	U	12	U	10	U	10	U
Vinyl Chloride		12	U	11	U	12	U	10	U	10	U
Chloroethane		12	U	11	U	12	U	10	U	10	U
Methylene Chloride		18	B	21	B	20	B	18		24	B
Acetone		3	JB	11	U	12	U	2	J	10	U
Carbon Disulfide		6	U	6	U	6	U	5	U	5	U
1,1-Dichloroethene		6	U	93	%	97	%	5	U	91	%
1,1-Dichloroethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	5	U	5	U
Chloroform		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	6	U	5	U	5	U
2-Butanone		12	U	11	U	12	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	6	U	5	U	5	U
Bromodichloromethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Trichloroethene		6	U	96	%	96	%	5	U	91	%
Dibromochloromethane		6	U	6	U	6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Benzene		6	U	104	%	103	%	5	U	99	%
Trans-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Bromoform		6	U	6	U	6	U	5	U	5	U
4-Methyl-2-pentanone		12	U	11	U	12	U	10	U	10	U
2-Hexanone		12	U	11	U	12	U	10	U	10	U
Tetrachloroethene		6	U	6	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	5	U	5	U
Toluene		6	U	105	%	102	%	5	U	97	%

*= Outside of EPA CLP QC limits.

gw 09/28/99

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2b

Cust ID:	B0W681	B0W681	B0W681	VBLKPJ	VBLKPJ BS
RFW#:	007	007 MS	007 MSD	99LVH333-MB1	99LVH333-MB1
Chlorobenzene	6 U	102 %	101 %	5 U	97 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4	001	S	99LVH333	08/19/99	N/A	09/02/99
B0W5P2	002	S	99LVH333	08/19/99	N/A	09/02/99
B0W5M4	003	S	99LVH333	08/19/99	N/A	09/02/99
B0W5P3	004	S	99LVH333	08/19/99	N/A	09/02/99
B0W5M5	005	S	99LVH333	08/19/99	N/A	09/02/99
B0W5P7	006	S	99LVH333	08/19/99	N/A	09/02/99
B0W681	007	S	99LVH333	08/19/99	N/A	09/02/99
B0W681	007 MS	S	99LVH333	08/19/99	N/A	09/02/99
B0W681	007 MSD	S	99LVH333	08/19/99	N/A	09/02/99

LAB QC:

VBLKPJ	MB1	S	99LVH333	N/A	N/A	09/02/99
VBLKPJ	MB1 BS	S	99LVH333	N/A	N/A	09/02/99

gw 09-28-99

RECRA LabNet Use Only
99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TWU-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1					500		250	1000				
Preservatives																
ANALYSES REQUESTED →	ORGANIC: VOA								INORG: Metal							
	ORGANIC: BNA								INORG: CN							
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															

W/VOA W/BNA

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	0824H	0825H	0808		0826SC	0826D		9MetD		1PH	8AngD					
001	BOW SP4			S	8/19/99	1145	X	X	X		X	X		X		X	X					
2	SP2					1105																
3	SM4					1025																
4	SP3					1121																
5	SM5					1050																
6	SP7					0900																
7	681					0900																

Run matrix QC

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
AngD 3. = 1N3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 4235795286002-3.7°C
6. 4235795298598-4.2°C

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered ___
Airbill # *
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'd Y or N
Cooler Temp. 5.1 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU HANFORD B99-078
RFW #: 9908L850
SDG/SAF#: H0499/B99-078

W.O. #: #: 10985-001-001-9999-00
Date Received: 08-24-99

GC SCAN

The set of samples consisted of seven (7) soil samples collected on 08-19-99.

The samples and their associated QC samples were prepared on 08-31-99 and 09-02-99 and analyzed by methodology based on EPA Method 8015B for Ethanol and Butanol on 09-01,02,03-99.

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 samples were packaged and stored as specified in the method protocol; 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. Continuing calibration criteria (±15%) were exceeded for the continuing calibration verification standard analyzed prior to the sample extracts. Outlying standard(s) generally exhibited increased instrument response. However sample data were not impacted as target analytes were not detected in the associated samples analyzed immediately after such standard(s). A copy of the Sample Discrepancy Report (SDR) has been enclosed in the data package.

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%.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

9-20-99
Date

r:\share\lc\gcscan\08-850.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.

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 Philadelphia Sample Discrepancy Report (SDR) SDR #: [illegible]

Initiator: C Schnell
Date: 9/16/99
Client: TNU-Hanford

RFW Batch: 9908L821, 9908L851, 9908L850, 9908L931, 9908L886, 9908L863
Samples: 99091006
Method: SW846/MCAWW/CLP/

Parameter: OGCSC
Matrix:
Prep Batch: Multiple

1. Reason for SDR

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

b. General Discrepancy

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

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

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

CCV response somewhat erratic during sample analysis, most being high. In cases whereby instrument response decreased, the decrease did not exceed -20% Deviation.

2. Known or Probable Causes(s)

- Heavy analysis load combined with aqueous matrix contributes to reduced stability of instrument response compared to solvent type matrices.

3. Discussion and Proposed Action

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

Other Description:

- No positives found in any samples.
- The laboratory limit of ±15% Deviation is derived from common analyses and may not be applicable to extended runs of aqueous samples, where such criteria may not be readily achievable.

4. Project Manager Instructions...signature/date: [illegible] 9/16/99

__ 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: [illegible] 9/16/99

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
2	X Initiator	__	__ Metals: Doughty
	X Lab Manager: M. Taylor	__	__ Inorganic: Perrone
I	X Project Mgr: Stone/Carey/Schrenkel/Johnson	__	__ GC/LC: Schnell
	X Section Mgr: Wesson/Daniels	__	__ MS: LeMin/Taylor
4	X QA (file): Racioppi	__	__ Log-in: Toder
3	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Schnell/Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

GC SCAN

Report Date: 09/13/99 15:21

RFW Batch Number: **9908L850** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

004

	Cust ID:	B0W5P4	B0W5P2	B0W5M4	B0W5M4	B0W5M4	B0W5P3
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	004
	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		4.7 U	5.0 U	3.4 U	79 %	77 %	5.0 U
Ethanol		4.7 U	5.0 U	3.4 U	5.5 U	4.4 U	5.0 U

	Cust ID:	B0W5M5	B0W5P7	B0W681	BLK	BLK BS	BLK
Sample Information	RFW#:	005	006	007	99LLC128-MB1	99LLC128-MB1	99LLC133-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		5.0 U	4.0 U	4.4 U	5.0 U	95 %	5.0 U
Ethanol		5.0 U	4.0 U	4.4 U	5.0 U	5.0 U	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.

09/16/99

005

Cust ID: BLK BS

Sample Information

RFW#: 99LLC133-MB1
Matrix: SOIL
D.F.: 1.00
Units: mg/kg

n-Propyl Alcohol	95	%
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.

Recra LabNet - Lionville Laboratory
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/24/99 RFW LOT # :9908L850

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4	001	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W5P2	002	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W5M4	003	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W5M4	003 MS	S	99LLC133	08/19/99	09/02/99	09/03/99
B0W5M4	003 MSD	S	99LLC133	08/19/99	09/02/99	09/03/99
B0W5P3	004	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W5M5	005	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W5P7	006	S	99LLC128	08/19/99	08/31/99	09/02/99
B0W681	007	S	99LLC128	08/19/99	08/31/99	09/02/99

LAB QC:

BLK	MB1	S	99LLC128	N/A	08/31/99	09/01/99
BLK	MB1 BS	S	99LLC128	N/A	08/31/99	09/01/99
BLK	MB1	S	99LLC133	N/A	09/02/99	09/02/99
BLK	MB1 BS	S	99LLC133	N/A	09/02/99	09/03/99

04/13/99

RECRA LabNet Use Only: 99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B99-078
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: 8/24/99 Date Due: 9/23/99
Account #:

Refrigerator #		1	6						6		6	6				007
#/Type Container	Liquid															
	Solid	1g	1g	1					1g		1g	1g				
Volume	Liquid															
	Solid	250	500	1		w/VOA	w/BNA		500		250	1000				
Preservatives																
ANALYSES REQUESTED	ORGANIC: VOA								INORG: Metal							
	ORGANIC: BNA								INORG: CN							
	ORGANIC: Pest/PCB															
	ORGANIC: Herb															

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	08024H	08025H	0P08		09CSC	0D8D	9MET		1PH	Ang
001	BOW5P4			S	8/19/99	1145	X	X	X		X	X	X		X	X
2	5P2					1105										
3	5M4					1025										
4	5P3					1121										
5	5M5					1050										
6	5P7					0900										
7	681					0900										

Rerun matrix QC

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Met = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
3. Ang = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
5. * 423579528602-3.7°C
6. 423579528598-4.2°C

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # *
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. 5.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*4019645195

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25		SAF No.: B99-078
Ice Chest No.: 96-006	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 87B 8-19-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 4235749528602 - 3.7
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P4 / Soil / 8-19-99 / 1145						X	X	X	X	X
										B0W5LB

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter IB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: JSGALO	Date/Time: 82399 1100
Relinquished By: JSGALO	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jackson	Date/Time:	Received By: Jackson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-36	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 17'-18'		SAF No.: B99-078
Ice Chest No.: 96-006	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: TMA/RECRA 8-18-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 4235795286 02
			COA B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS												
Preservation				None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container				aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1	1	1	1
Volume				60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
				Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P2	Soil	8-19-99	1105						X	X	X	X	X
													B0W5C8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer 1B	Date/Time: 8/19/99 15:00
Relinquished By: REF 1B 82399	Date/Time: 1100	Received By: SJGarrett 82399	Date/Time: 1100
Relinquished By: SJGarrett 82399	Date/Time: 1100	Received By: FED EX	Date/Time:
Relinquished By: Jedrue	Date/Time:	Received By: Johnson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
- Soil
- Water
- Vapor
- Other Solid
- Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-31	Page 1 of 010

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'		SAF No.: B99-078
Ice Chest No.: SML 185	Field Logbook No.: FL 1511		Method of Shipment: Federal Express
Shipped To: ~~TMA~~/RECRA 870 8-13-99	Offsite Property No.: A990 223		Bill of Lading/Air Bill No.: 4235795 28598 -4.2
			COA: B20CM 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time											
3 B0W5M4 / Soil / 8-19-99 / 1025			X	X	X	X	X			BOWSL7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Refer JB	Date/Time: 8/19/99 15:00
Relinquished By: REF JB	Date/Time: 82399 1100	Received By: SIGNATURE	Date/Time: 82399 1100
Relinquished By: SIGNATURE	Date/Time: 82399	Received By: FEDEX	Date/Time:
Relinquished By: Fedex	Date/Time:	Received By: Jameson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-37	Page 1 of 1

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 19.5 20.5	SAF No.: B99-078	
Ice Chest No.: SML-185	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA 8-19-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235795259 8	
		COA: B20 CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P3 / Soil / 8-19-99 / 1128						X	X	X	X	X
										Bowsla

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Brent Porter	8/19/99 15:00	Peter LB	8/19/99 15:00
Relinquished By	REF LB	82399 1100	SJOHNSON	82399 1100
Relinquished By	SJOHNSON	82399 1100	FED EX	
Relinquished By	Jedue		Janson	8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-32	Page 1 of 012

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 14' - 15'	SAF No.: B99-078	
Ice Chest No.: SML 185	Field Logbook No.: FLK11	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA 8-12-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235795285 98	
		COA: B20CW167IC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS													
			Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
			Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
			No. of Container(s)	1	1	1	1	1	1	1	1		
			Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
				Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL), TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No.	Matrix *	Sample Date	Sample Time										
B0W5M5	Soil	8-19-99	1050			X	X	X	X	X			B0W5L8

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Kaler JB	Date/Time: 8/19/99 15:00
Relinquished By: REF 1-B	Date/Time: 82399 1100	Received By: Sigme Sfleck	Date/Time: 82399 1100
Relinquished By: Sigme Sfleck	Date/Time: 82399 1100	Received By: FED EX	Date/Time:
Relinquished By: Jed-ee	Date/Time:	Received By: Jenson	Date/Time: 8/23/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 3

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days		
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 9.5 - 10.5		SAF No.: B99-078
Ice Chest No.: SML-161	Field Logbook No.: EL1511		Method of Shipment: Federal Express
Shipped To: ~~TMA/RECRA~~ RECRA MD 8-19-99	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A 4019645195-5.1
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No. / Matrix * / Sample Date / Sample Time										
B0W5P7 / Soil / 8-19-99 / 0900			X	X	X	X	X			B0W5L6
B0W681 / Soil / 8-19-99 / 0900			X	X	X	X	X			B0W5L6

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: REF 1B	Date/Time: 82399 0900	Received By: SJ CARLEW/SJ	Date/Time: 82399 0900
Relinquished By: SJ CARLEW/SJ	Date/Time: 82399 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedeen	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241

COLLECTOR UNAVAILABLE TO SIGN COC.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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