RECRA LabNet

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0052616

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L333,335,344
SDG# : H0566
SAF# : B99-078

W.O. # : 10985-001-001-9999-00
Dates Received: 10-9,11,12-99

RECEIVED FEB 28 2000 EDMC

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 indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate Nitrite.

4. The cooler temperatures were recorded on the chain-of-custodies.

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% RPD control limit.

7. The matrix spike recoveries were within the 75-125% control limits. The matrix spike duplicates were within the 20% Relative Percent Difference (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

11-15-99
Date

njp\i10-333,335,344

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 ~~36~~ pages.
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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: Ammonia **Method:** EPA 350.3

Other: Nitrate Nitrite **Method** EPA 353.2

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

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 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY1	% Solids	93.4		%	0.01	1.0
		Chloride by IC	1.3	u	MG/KG	1.3	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	67		MG/KG	6.7	5.0
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	101		MG/KG	6.7	5.0
		Nitrate Nitrite	17.7		MG/KG	1.0	5.0
		Ammonia, as N	2.1		MG/KG	1.3	1.0
		pH	7.3		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-002	B0WKY2	% Solids	93.5		%	0.01	1.0
		Chloride by IC	1.9		MG/KG	1.3	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	18		MG/KG	1.3	1.0
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	2.5		MG/KG	1.3	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	81.4		MG/KG	2.7	2.0
		Nitrate Nitrite	4.2		MG/KG	0.19	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.3		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-004	B0WKY4	% Solids	95.0		%	0.01	1.0
		Chloride by IC	5.0		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	18		MG/KG	1.3	1.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	1.7		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	140		MG/KG	6.6	5.0
		Nitrate Nitrite	4.0		MG/KG	0.20	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.9		PH UNITS	0.01	1.0

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RECRA LOT #: 9910L333

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B0WKY4	Sulfide	2.1	u	MG/KG	2.1	1.0
-005	B0WKY5	% Solids	95.7		%	0.01	1.0
		Chloride by IC	3.9		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	13		MG/KG	1.3	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	96.5		MG/KG	6.5	5.0
		Nitrate Nitrite	4.0		MG/KG	0.20	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.1		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LXC091-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	99LIC092-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	99LC118-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI072-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3052-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM041-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LSDA55-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0
BLANK10	99LSD057-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0

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INORGANICS ACCURACY REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKY1	Chloride by IC	27.6	1.3	26.8	98.3	1.0
		Fluoride by IC	59.3	0.0	53.5	110.8	1.0
		Nitrite by IC	28	1.3 u	27	104.8	1.0
		Nitrate by IC	200	67	130	102.1	5.0
		Phosphate by IC	27.0	1.3 u	26.8	100.7	1.0
		Sulfate by IC	243	101	134	105.9	5.0
		Nitrate Nitrite	23.2	17.7	5.3	103.1	10.0
		Ammonia, as N	75.1	2.1	71.7	101.8	1.0
-005	B0WKY5	Cyanide, Total	4.8	0.52u	5.2	91.4	1.0
		Soluble Chromium VI	4.3	0.42u	4.2	103.2	1.0
		Insoluble Chromium VI	1230	0.42u	1180	104.3	100
		Sulfide	346	0.0	404	85.5	1.0
		Sulfide MSD	330	0.0	402	81.9	1.0
BLANK10	99LXC091-MB1	Chloride by IC	23.5	1.2 u	25.0	94.1	1.0
		Fluoride by IC	53.3	2.5 u	50.0	106.7	1.0
		Nitrite by IC	24	1.2 u	25	96.0	1.0
		Nitrate by IC	24	1.2 u	25	96.0	1.0
		Phosphate by IC	25.0	1.2 u	25.0	100.2	1.0
		Sulfate by IC	23.3	1.2 u	25.0	93.3	1.0
BLANK10	99LIC092-MB1	Chloride by IC	23.5	1.2 u	25.0	93.9	1.0
		Fluoride by IC	53.0	2.5 u	50.0	106.0	1.0
		Nitrite by IC	25	1.2 u	25	99.5	1.0
		Nitrate by IC	24	1.2 u	25	96.6	1.0
		Phosphate by IC	24.5	1.2 u	25.0	97.9	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.2	1.0
BLANK10	99LVI072-MB1	Soluble Chromium VI	4.3	0.40u	4.0	106.7	1.0
		Insoluble Chromium VI	1190	0.40u	1160	102.0	100
BLANK10	99LN3052-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.4	1.0
		Nitrate Nitrite MSD	5.4	0.20u	5.0	107.6	1.0
BLANK10	99LAM041-MB1	Ammonia, as N	52.2	1.2 u	50.0	104.5	1.0
		Ammonia, as N MSD	51.0	1.2 u	50.0	102.0	1.0
BLANK10	99LSDA55-MB1	Sulfide	9.4	2.0 u	10.0	94.0	1.0
BLANK10	99LSD057-MB1	Sulfide	8.4	2.0 u	10.0	84.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-005	B0WKY5	Sulfide	85.5	81.9.	4.2
BLANK10	99LN3052-MB1	Nitrate Nitrite	103.4	107.6	4.0
BLANK10	99LAM041-MB1	Ammonia, as N	104.5	102.0	2.4

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INORGANICS PRECISION REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKY1	Chloride by IC	1.3 u	1.3 u	NC	1.0
		Fluoride by IC	2.7 u	2.7 u	NC	1.0
		Nitrite by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	67	70	3.2	5.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	101	102	1.3	5.0
		Nitrate Nitrite	17.7	16.4	7.8	5.0
		Ammonia, as N	2.1	1.9	7.6	1.0
-003REP	B0WKY3	Nitrate Nitrite	u	0.24u	NC	1.0
-005REP	B0WKY5	% Solids	95.7	95.5	0.20	1.0
		Cyanide, Total	0.52u	0.52u	NC	1.0
		Chromium VI	0.42u	0.42u	NC	1.0
		Sulfide	2.1 u	2.1 u	NC	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC118-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	99.8
LCS2	99LC118-LC2	Cyanide, Total LCS	8.9	10	MG/KG	88.6

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INORGANICS DATA SUMMARY REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY6	% Solids	96.8		%	0.01	1.0
		Chloride by IC	5.3		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	14		MG/KG	1.3	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	68.3		MG/KG	2.6	2.0
		Nitrate Nitrite	3.2		MG/KG	0.20	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-002	B0WKY7	% Solids	97.3		%	0.01	1.0
		Chloride by IC	7.7		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	14		MG/KG	1.3	1.0
		Cyanide, Total	0.51	u	MG/KG	0.51	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	40.1		MG/KG	1.3	1.0
		Nitrate Nitrite	3.2		MG/KG	0.20	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	4.1		MG/KG	2.1	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LXC091-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	99LC119B-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI075-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LIC092-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	99LN3052-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM042-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LSD057-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKY6	Cyanide, Total	5.4	0.52u	5.2	104.9	1.0
-002	B0WKY7	Soluble Chromium VI	4.2	0.41u	4.1	100.2	1.0
		Insoluble Chromium VI	1130	0.41u	1180	96.3	100
		Sulfide	338	4.1	360	92.8	1.0
		Sulfide MSD	331	4.1	360	90.9	1.0
BLANK10	99LXC091-MB1	Chloride by IC	23.5	1.2 u	25.0	94.1	1.0
		Fluoride by IC	53.3	2.5 u	50.0	106.7	1.0
		Nitrite by IC	24	1.2 u	25	96.0	1.0
		Nitrate by IC	24	1.2 u	25	96.0	1.0
		Phosphate by IC	25.0	1.2 u	25.0	100.2	1.0
		Sulfate by IC	23.3	1.2 u	25.0	93.3	1.0
BLANK10	99LVI075-MB1	Soluble Chromium VI	4.0	0.40u	4.0	100.7	1.0
		Insoluble Chromium VI	1080	0.40u	1160	92.4	100
BLANK10	99LIC092-MB1	Chloride by IC	23.5	1.2 u	25.0	93.9	1.0
		Fluoride by IC	53.0	2.5 u	50.0	106.0	1.0
		Nitrite by IC	25	1.2 u	25	99.5	1.0
		Nitrate by IC	24	1.2 u	25	96.6	1.0
		Phosphate by IC	24.5	1.2 u	25.0	97.9	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.2	1.0
BLANK10	99LN3052-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.4	1.0
		Nitrate Nitrite MSD	5.4	0.20u	5.0	107.6	1.0
BLANK10	99LAM042-MB1	Ammonia, as N	49.8	1.2 u	50.0	99.5	1.0
		Ammonia, as N MSD	50.4	1.2 u	50.0	100.8	1.0
BLANK10	99LSD057-MB1	Sulfide	8.4	2.0 u	10.0	84.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-002	B0WKY7	Sulfide	92.8	90.9	2.1
BLANK10	99LN3052-MB1	Nitrate Nitrite	103.4	107.6	4.0
BLANK10	99LAM042-MB1	Ammonia, as N	99.5	100.8	1.2

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKY6	% Solids	96.8	97.6	0.85	1.0
		Cyanide, Total	0.52u	0.52u	NC	1.0
		pH	8.3	8.4	0.6	1.0
-002REP	B0WKY7	Chromium VI	0.41u	0.41u	NC	1.0
		Sulfide	4.1	4.0	3.3	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS10	99LC119B-LC1	Cyanide, Total LCS	2.2	2.0	MG/KG	111.2
LCS20	99LC119B-LC2	Cyanide, Total LCS	9.9	10	MG/KG	99.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY3	% Solids	94.0		%	0.01	1.0
		Chloride by IC	1.8		MG/KG	1.3	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	20		MG/KG	1.3	1.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	2.3		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	92.4		MG/KG	2.7	2.0
		Nitrate Nitrite	4.5		MG/KG	0.21	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.7		SOIL PH	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LXC091-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	99LC118-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI075-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LIC092-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	99LN3052-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM042-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LSD058-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0

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INORGANICS ACCURACY REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKY3	Cyanide, Total	4.7	0.53u	5.3	88.2	1.0
		Soluble Chromium VI	4.3	0.09	4.3	98.4	1.0
		Insoluble Chromium VI	1140	0.09	1180	96.7	100
		Sulfide	355	0.0	415	85.6	1.0
		Sulfide MSD	378	0.0	415	91.1	1.0
BLANK10	99LXC091-MB1	Chloride by IC	23.5	1.2 u	25.0	94.1	1.0
		Fluoride by IC	53.3	2.5 u	50.0	106.7	1.0
		Nitrite by IC	24	1.2 u	25	96.0	1.0
		Nitrate by IC	24	1.2 u	25	96.0	1.0
		Phosphate by IC	25.0	1.2 u	25.0	100.2	1.0
		Sulfate by IC	23.3	1.2 u	25.0	93.3	1.0
BLANK10	99LVI075-MB1	Soluble Chromium VI	4.0	0.40u	4.0	100.7	1.0
		Insoluble Chromium VI	1080	0.40u	1160	92.4	100
BLANK10	99LIC092-MB1	Chloride by IC	23.5	1.2 u	25.0	93.9	1.0
		Fluoride by IC	53.0	2.5 u	50.0	106.0	1.0
		Nitrite by IC	25	1.2 u	25	99.5	1.0
		Nitrate by IC	24	1.2 u	25	96.6	1.0
		Phosphate by IC	24.5	1.2 u	25.0	97.9	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.2	1.0
BLANK10	99LN3052-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.4	1.0
		Nitrate Nitrite MSD	5.4	0.20u	5.0	107.6	1.0
BLANK10	99LAM042-MB1	Ammonia, as N	49.8	1.2 u	50.0	99.5	1.0
		Ammonia, as N MSD	50.4	1.2 u	50.0	100.8	1.0
BLANK10	99LSD058-MB1	Sulfide	9.3	2.0 u	10.0	93.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B0WKY3	Sulfide	85.6	91.1	6.1
BLANK10	99LN3052-MB1	Nitrate Nitrite	103.4	107.6	4.0
BLANK10	99LAM042-MB1	Ammonia, as N	99.5	100.8	1.2

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INORGANICS PRECISION REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKY3	% Solids	94.0	94.0	0.085	1.0
		Cyanide, Total	0.53u	0.53u	NC	1.0
		Chromium VI	0.42u	0.42u	NC	1.0
		pH	7.7	7.8	1.5	1.0
		Sulfide	2.1 u	2.1 u	NC	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/15/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC118-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	99.8
LCS2	99LC118-LC2	Cyanide, Total LCS	8.9	10	MG/KG	88.6

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1						
% SOLIDS	001	S	99L%S136	10/07/99	10/15/99	10/17/99
CHLORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
CHLORIDE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
CHLORIDE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
FLUORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
FLUORIDE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRITE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRITE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE BY IC	001	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
TOTAL CYANIDE	001	S	99LC118	10/07/99	10/18/99	10/18/99
PHOSPHATE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
PHOSPHATE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
PHOSPHATE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
CHROMIUM VI	001	S	99LVI072	10/07/99	10/12/99	10/12/99
SULFATE BY IC	001	S	99LIC092	10/07/99	11/04/99	11/04/99
SULFATE BY IC	001 REP	S	99LIC092	10/07/99	11/04/99	11/04/99
SULFATE BY IC	001 MS	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	001	S	99LN3052	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	001 REP	S	99LN3052	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	001 MS	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	001	S	99LAM041	10/07/99	10/26/99	10/26/99
AMMONIA	001 REP	S	99LAM041	10/07/99	10/26/99	10/26/99
AMMONIA	001 MS	S	99LAM041	10/07/99	10/26/99	10/26/99
PH	001	S	99LPH109	10/07/99	10/12/99	10/12/99
SULFIDE	001	S	99LSDA55	10/07/99	10/14/99	10/14/99
B0WKY2						
% SOLIDS	002	S	99L%S136	10/07/99	10/15/99	10/17/99
CHLORIDE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	002	S	99LC118	10/07/99	10/18/99	10/18/99
PHOSPHATE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	002	S	99LVI072	10/07/99	10/12/99	10/12/99
SULFATE BY IC	002	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	002	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	002	S	99LAM041	10/07/99	10/26/99	10/26/99
PH	002	S	99LPH109	10/07/99	10/12/99	10/12/99
SULFIDE	002	S	99LSDA55	10/07/99	10/14/99	10/14/99
B0WKY3						
NITRATE NITRITE	003 REP	S	99LN3052	10/07/99	11/04/99	11/04/99
B0WKY4						
% SOLIDS	004	S	99L%S136	10/07/99	10/15/99	10/17/99
CHLORIDE BY IC	004	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	004	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	004	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE BY IC	004	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	004	S	99LC118	10/07/99	10/18/99	10/18/99
PHOSPHATE BY IC	004	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	004	S	99LVI072	10/07/99	10/12/99	10/12/99
SULFATE BY IC	004	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	004	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	004	S	99LAM041	10/07/99	10/26/99	10/26/99
PH	004	S	99LPH109	10/07/99	10/12/99	10/12/99
SULFIDE	004	S	99LSDA55	10/07/99	10/14/99	10/14/99
B0WKY5						
% SOLIDS	005	S	99L%S136	10/07/99	10/15/99	10/17/99
% SOLIDS	005 REP	S	99L%S136	10/07/99	10/15/99	10/17/99
CHLORIDE BY IC	005	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	005	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	005	S	99LXC091	10/07/99	11/03/99	11/03/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	005	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	005	S	99LC118	10/07/99	10/18/99	10/18/99
TOTAL CYANIDE	005 REP	S	99LC118	10/07/99	10/18/99	10/18/99
TOTAL CYANIDE	005 MS	S	99LC118	10/07/99	10/18/99	10/18/99
PHOSPHATE BY IC	005	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	005	S	99LVI072	10/07/99	10/12/99	10/12/99
CHROMIUM VI	005 REP	S	99LVI072	10/07/99	10/12/99	10/12/99
CHROMIUM VI	005 MS	S	99LVI072	10/07/99	10/12/99	10/12/99
CHROMIUM VI	005 MSD	S	99LVI072	10/07/99	10/12/99	10/12/99
SULFATE BY IC	005	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	005	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	005	S	99LAM041	10/07/99	10/26/99	10/26/99
PH	005	S	99LPH109	10/07/99	10/12/99	10/12/99
SULFIDE	005	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	005 REP	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	005 MS	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	005 MSD	S	99LSD057	10/07/99	10/17/99	10/17/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
CHLORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
CHLORIDE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
CHLORIDE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
FLUORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
FLUORIDE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
NITRITE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
NITRITE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
NITRATE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
NITRATE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
TOTAL CYANIDE	LC1 L	S	99LC118	N/A	10/18/99	10/18/99
TOTAL CYANIDE	LC2 L	S	99LC118	N/A	10/18/99	10/18/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL CYANIDE	MB1	S	99LC118	N/A	10/18/99	10/18/99
PHOSPHATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
PHOSPHATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
PHOSPHATE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
PHOSPHATE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
CHROMIUM VI	MB1	S	99LVI072	N/A	10/12/99	10/12/99
CHROMIUM VI	MB1 BS	S	99LVI072	N/A	10/12/99	10/12/99
CHROMIUM VI	MB1 BSD	S	99LVI072	N/A	10/12/99	10/12/99
SULFATE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
SULFATE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BS	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BSD	S	99LN3052	N/A	11/04/99	11/04/99
AMMONIA	MB1	S	99LAM041	N/A	10/26/99	10/26/99
AMMONIA	MB1 BS	S	99LAM041	N/A	10/26/99	10/26/99
AMMONIA	MB1 BSD	S	99LAM041	N/A	10/26/99	10/26/99
SULFIDE	MB1	S	99LSDA55	N/A	10/14/99	10/14/99
SULFIDE	MB1 BS	S	99LSDA55	N/A	10/14/99	10/14/99
SULFIDE	MB1	S	99LSD057	N/A	10/17/99	10/17/99
SULFIDE	MB1 BS	S	99LSD057	N/A	10/17/99	10/17/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6						
% SOLIDS	001	S	99L%S137	10/07/99	10/18/99	10/19/99
% SOLIDS	001 REP	S	99L%S137	10/07/99	10/18/99	10/19/99
CHLORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	001	S	99LC119B	10/07/99	10/21/99	10/24/99
TOTAL CYANIDE	001 REP	S	99LC119B	10/07/99	10/21/99	10/24/99
TOTAL CYANIDE	001 MS	S	99LC119B	10/07/99	10/21/99	10/24/99
PHOSPHATE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	001	S	99LVI075	10/07/99	10/18/99	10/18/99
SULFATE BY IC	001	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	001	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	001	S	99LAM042	10/07/99	11/02/99	11/02/99
PH	001	S	99LPH112	10/07/99	10/15/99	10/15/99
PH	001 REP	S	99LPH112	10/07/99	10/15/99	10/15/99
SULFIDE	001	S	99LSD057	10/07/99	10/17/99	10/17/99
B0WKY7						
% SOLIDS	002	S	99L%S137	10/07/99	10/18/99	10/19/99
CHLORIDE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	002	S	99LC119B	10/07/99	10/21/99	10/24/99
PHOSPHATE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	002	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	002 REP	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	002 MS	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	002 MSD	S	99LVI075	10/07/99	10/18/99	10/18/99
SULFATE BY IC	002	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE NITRITE	002	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	002	S	99LAM042	10/07/99	11/02/99	11/02/99
PH	002	S	99LPH112	10/07/99	10/15/99	10/15/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	002	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	002 REP	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	002 MS	S	99LSD057	10/07/99	10/17/99	10/17/99
SULFIDE	002 MSD	S	99LSD057	10/07/99	10/17/99	10/17/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
CHLORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
TOTAL CYANIDE	LC1 L	S	99LC119B	N/A	10/21/99	10/24/99
TOTAL CYANIDE	LC2 L	S	99LC119B	N/A	10/21/99	10/24/99
TOTAL CYANIDE	MB1	S	99LC119B	N/A	10/21/99	10/24/99
PHOSPHATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
PHOSPHATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
CHROMIUM VI	MB1	S	99LVI075	N/A	10/18/99	10/18/99
CHROMIUM VI	MB1 BS	S	99LVI075	N/A	10/18/99	10/18/99
CHROMIUM VI	MB1 BSD	S	99LVI075	N/A	10/18/99	10/18/99
SULFATE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
SULFATE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BS	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BSD	S	99LN3052	N/A	11/04/99	11/04/99
AMMONIA	MB1	S	99LAM042	N/A	11/02/99	11/02/99
AMMONIA	MB1 BS	S	99LAM042	N/A	11/02/99	11/02/99
AMMONIA	MB1 BSD	S	99LAM042	N/A	11/02/99	11/02/99
SULFIDE	MB1	S	99LSD057	N/A	10/17/99	10/17/99
SULFIDE	MB1 BS	S	99LSD057	N/A	10/17/99	10/17/99
SULFATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
SULFATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3						
% SOLIDS	001	S	99L%S137	10/07/99	10/18/99	10/19/99
% SOLIDS	001 REP	S	99L%S137	10/07/99	10/18/99	10/19/99
CHLORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
FLUORIDE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRITE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
NITRATE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
TOTAL CYANIDE	001	S	99LC118	10/07/99	10/18/99	10/18/99
TOTAL CYANIDE	001 REP	S	99LC118	10/07/99	10/18/99	10/18/99
TOTAL CYANIDE	001 MS	S	99LC118	10/07/99	10/18/99	10/18/99
PHOSPHATE BY IC	001	S	99LXC091	10/07/99	11/03/99	11/03/99
CHROMIUM VI	001	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	001 REP	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	001 MS	S	99LVI075	10/07/99	10/18/99	10/18/99
CHROMIUM VI	001 MSD	S	99LVI075	10/07/99	10/18/99	10/18/99
SULFATE BY IC	001	S	99LIC092	10/07/99	11/04/99	11/04/99
NITRATE NITRITE	001	S	99LN3052	10/07/99	11/04/99	11/04/99
AMMONIA	001	S	99LAM042	10/07/99	11/02/99	11/02/99
PH	001	S	99LPH112	10/07/99	10/15/99	10/15/99
PH	001 REP	S	99LPH112	10/07/99	10/15/99	10/15/99
SULFIDE	001	S	99LSD058	10/07/99	10/18/99	10/18/99
SULFIDE	001 REP	S	99LSD058	10/07/99	10/18/99	10/18/99
SULFIDE	001 MS	S	99LSD058	10/07/99	10/18/99	10/18/99
SULFIDE	001 MSD	S	99LSD058	10/07/99	10/18/99	10/18/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
CHLORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
FLUORIDE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRITE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
NITRATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
TOTAL CYANIDE	LC1 L	S	99LC118	N/A	10/18/99	10/18/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL CYANIDE	LC2 L	S	99LC118	N/A	10/18/99	10/18/99
TOTAL CYANIDE	MB1	S	99LC118	N/A	10/18/99	10/18/99
PHOSPHATE BY IC	MB1	S	99LXC091	N/A	11/03/99	11/03/99
PHOSPHATE BY IC	MB1 BS	S	99LXC091	N/A	11/03/99	11/03/99
CHROMIUM VI	MB1	S	99LVI075	N/A	10/18/99	10/18/99
CHROMIUM VI	MB1 BS	S	99LVI075	N/A	10/18/99	10/18/99
CHROMIUM VI	MB1 BSD	S	99LVI075	N/A	10/18/99	10/18/99
SULFATE BY IC	MB1	S	99LIC092	N/A	11/04/99	11/04/99
SULFATE BY IC	MB1 BS	S	99LIC092	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BS	S	99LN3052	N/A	11/04/99	11/04/99
NITRATE NITRITE	MB1 BSD	S	99LN3052	N/A	11/04/99	11/04/99
AMMONIA	MB1	S	99LAM042	N/A	11/02/99	11/02/99
AMMONIA	MB1 BS	S	99LAM042	N/A	11/02/99	11/02/99
AMMONIA	MB1 BSD	S	99LAM042	N/A	11/02/99	11/02/99
SULFIDE	MB1	S	99LSD058	N/A	10/18/99	10/18/99
SULFIDE	MB1 BS	S	99LSD058	N/A	10/18/99	10/18/99

RECRA LabNet Use Only

9910C333

Custody Transfer Record/Lab Work Request

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All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone wet lab

RECRA LabNet

031

Client: INU-Hanford B99-078

Est. Final Proj. Sampling Date:

Project #: 109185-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 10/9/99 Date Due: 11/8/99

Account #:

Refrigerator #		1	2	2					2	2	2				
#/Type Container	Liquid														
	Solid	1g	1g						1g	1g	1g				
Volume	Liquid														
	Solid	250	500						500	250	LTY				
Preservatives															
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8024H 8260C	8625H	8DRO 8PCB					Met①	ICNTO	IPH	Ang①				
001	BOWKY1			S	10/7/99	0801	✓	✓	✓					✓	✓	✓	✓				
002	2					0813	✓	✓	✓					✓	✓	✓	✓				
003	3					~~0822~~	~~✓~~	10/9/99													
004	4					0835	✓	✓	✓					✓	✓	✓	✓				
005	5					0854	✓	✓	✓					✓	✓	✓	✓				

RECRA LabNet Use Only

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:

#003 1. Samples not Rec'd.

2. Run matrix QC

Met① = RCRA + Be, Cu, Ni, V, Zn

Ang①4 = ICCL, ICFL, ICNO2, ICNO3, ICPO4,

5. ICSO4, ISFD, INH3N, ICNTO,

6. IN3N2 (ICR6 added 10/13/99)

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 3.5 °C

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

NOTES:

42357953 0289

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	09-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235195 30289
			COA: B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.			
Sample No.	Matrix * / Sample Date / Sample Time										
BOWKY1	Soil / 10/7/99 / 0801		X	X	X	X	X				
BOWKY2	Soil / 10/7/99 / 0813		X	X	X	X	X				
BOWKY3	Soil / 10/7/99 / 0822		X	X	X	X	X				
BOWKY4	Soil / 10/7/99 / 0835		X	X	X	X	X				
BOWKY5	Soil / 10/7/99 / 0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers / Doug Bowers	Date/Time: 10-7-99/1130	Received By: B of 1B	Date/Time: 10-7-99/1130
Relinquished By: Fed Ex #1B	Date/Time: 10/8/99 0948	Received By: R. Nielson / R. Nielson	Date/Time: 10/8/99 0948
Relinquished By: R. Nielson / R. Nielson	Date/Time: 10/8/99 1430	Received By: Federal Express	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-9-99 0945	Received By: [illegible]	Date/Time: 10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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

Temp 3.5

RECRA LabNet Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone metals QC MS VOA Semvol BNA, PCB

Client: TTU Hanford B99-078

Est. Final Proj. Sampling Date:

Project #: 109185-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: Orlette Johnson

QC: spec Del: std TAT: 30 day

Date Rec'd: 10-11-99 Date Due: 11/10/99

Account #:

Refrigerator #		1	2							2						
#/Type Container	Liquid															
	Solid	1AG	1AG							1AG		1AG	1AG			
Volume	Liquid															
	Solid	250	500							500		250	1L			
Preservatives		-	-							-		-	-			
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb					INORG: Metal	CN						

RECRA LabNet Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 4H 8260 SC	8260 5H 8260 DRO	8082 PCB					Met (1)	ICN TR	IPH	Ang (1)				
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	BOWK96			S	10-7-99	0913	✓	✓	✓					✓	✓	✓	✓			
	002	BOWK97			↓	↓	0932	✓	✓	✓					✓	✓	✓	✓			

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

SDG w/ 9910L333

DATE/REVISIONS:

Met (1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,

2. Se, Ag, V, Zn, Hg, ICR6

Ang (1) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,

4. ICPO4, ICSO4, ISFD, INH3N, IPH

5. No matrix QC Required

10/13/99 ~~Run matrix QC~~

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 4235795530290
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. 5.2 °C

Relinquished by	Received by	Date	Time
FedEx	TTMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

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

NOTES:

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of ~~2~~ 1 RJN 10/7/99

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 90
			COA B20CW167C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.
Sample No.	Matrix * / Sample Date / Sample Time										
BOW KY6	Soil / 10/7/99 / 0913						X	X	X	X	X
BOW KY7	Soil / 10/7/99 / 0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers / Date/Time: 10-7-99/1130	Received By: RJB / Date/Time: 10-7-99/1130		
Relinquished By: Ref #LB 10/8/99 1030	Received By: R.Nielson 10/8/99 1030		
Relinquished By: R.Nielson 10/8/99 1430	Received By: Fed Ex		
Relinquished By: Fed Ex 10-11-99 0940	Received By: TTMurray 10-11-99 0940		

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

Tie to BØW8C1

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 Use Only
9910L344

Custody Transfer Record/Lab Work Request

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RECRA LabNet

035

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: Orlette Johnson
QC: spec Del: std TAT: 30 day
Date Rec'd: 10-11-99 Date Due: 11/11/99
Account #: 12 10/12/99

Refrigerator #		1	2							2							
#/Type Container	Liquid																
	Solid	1AG	1AG							1AG		1AG	1AG				
Volume	Liquid																
	Solid	250	500							500		250	1L				
Preservatives		-	-							-	-	-	-				
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb						INORG: Metal	CN	pH	Inorg				

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	8260 4H 8260C	8260H	8270 8PCB				Met①	ICNITC	IPH	Ang①				
001	BOLDK43			S	10-7-99	0820	✓	✓	✓				✓	✓	✓	✓				

RECRA LabNet Use Only

Special Instructions:

COMPOSITE WASTE

SDG with 9910L333

DATE/REVISIONS:
1. Met① = RCRA + Be, Cu, Ni, V, Zn
2. Ang① ICCL, ICFL, ICNO2, ICNO3, ICPO4, 10/12/99
3. ICSO4, ISFD, INH3N, ~~ICNITC~~, INBN2
4.
5. No matrix QC Required
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4235795300 90
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TMuney	10-12-99	0930
		10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

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

DEC 1999 Data Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L333,335,344
SDG/SAF# : H0566/B99-078

W.O.# : 10985-001-001-9999-00
Date Received: 10-9-99, 10-11-99 & 10-12-99

METALS CASE NARRATIVE

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

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

3. All analyses were performed within the required holding times.

4. 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 with the exception of 99C0307-LC1 for Mercury at 123.8%. Only samples BOWKY6 and BOWKY7 which were non-detect were reported. The remaining samples were redigested and reported from batch 99C0316. Refer to the Inorganics Laboratory Control Standards Report.

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

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 28 pages.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0WKY1	Antimony	500	108.2%

12. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-8-99
Date

alm/m10-333,335,344

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 99L0333, 335, 344

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 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY1	Silver, Total	0.80	MG/KG	0.08	1.0
		Arsenic, Total	3.0	MG/KG	0.28	1.0
		Barium, Total	65.1	MG/KG	0.03	1.0
		Beryllium, Total	0.31	MG/KG	0.008	1.0
		Cadmium, Total	2.9	MG/KG	0.03	1.0
		Chromium, Total	8.8	MG/KG	0.07	1.0
		Copper, Total	13.7	MG/KG	0.10	1.0
		Mercury, Total	0.73	MG/KG	0.02	1.0
		Nickel, Total	8.6	MG/KG	0.10	1.0
		Lead, Total	19.9	MG/KG	0.18	1.0
		Antimony, Total	0.23	MG/KG	0.21	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0
		Thallium, Total	0.45 u	MG/KG	0.45	1.0
		Vanadium, Total	60.9	MG/KG	0.05	1.0
		Zinc, Total	61.9	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	BOWKY2	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	3.2	MG/KG	0.27	1.0
		Barium, Total	87.5	MG/KG	0.02	1.0
		Beryllium, Total	0.39	MG/KG	0.008	1.0
		Cadmium, Total	0.61	MG/KG	0.02	1.0
		Chromium, Total	8.1	MG/KG	0.06	1.0
		Copper, Total	10.9	MG/KG	0.1	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.3	MG/KG	0.1	1.0
		Lead, Total	4.8	MG/KG	0.17	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.30 u	MG/KG	0.30	1.0
		Thallium, Total	0.43 u	MG/KG	0.43	1.0
		Vanadium, Total	54.9	MG/KG	0.05	1.0
		Zinc, Total	44.6	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B0WKY4	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	4.5	MG/KG	0.28	1.0
		Barium, Total	99.4	MG/KG	0.03	1.0
		Beryllium, Total	0.42	MG/KG	0.008	1.0
		Cadmium, Total	0.51	MG/KG	0.03	1.0
		Chromium, Total	4.3	MG/KG	0.07	1.0
		Copper, Total	15.4	MG/KG	0.10	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	7.4	MG/KG	0.10	1.0
		Lead, Total	5.1	MG/KG	0.18	1.0
		Antimony, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0
		Thallium, Total	0.49	MG/KG	0.44	1.0
		Vanadium, Total	64.5	MG/KG	0.05	1.0
		Zinc, Total	50.1	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0WKY5	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	2.5	MG/KG	0.31	1.0
		Barium, Total	63.2	MG/KG	0.03	1.0
		Beryllium, Total	0.36	MG/KG	0.009	1.0
		Cadmium, Total	0.05	MG/KG	0.03	1.0
		Chromium, Total	3.1	MG/KG	0.08	1.0
		Copper, Total	13.3	MG/KG	0.11	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	6.4	MG/KG	0.11	1.0
		Lead, Total	4.3	MG/KG	0.20	1.0
		Antimony, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Thallium, Total	0.51	MG/KG	0.50	1.0
		Vanadium, Total	51.8	MG/KG	0.06	1.0
		Zinc, Total	42.5	MG/KG	0.08	1.0

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INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY6	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Arsenic, Total	1.5	MG/KG	0.32	1.0
		Barium, Total	45.2	MG/KG	0.03	1.0
		Beryllium, Total	0.32	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	4.0	MG/KG	0.08	1.0
		Copper, Total	12.0	MG/KG	0.12	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	5.4	MG/KG	0.12	1.0
		Lead, Total	2.9	MG/KG	0.21	1.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Thallium, Total	0.57	MG/KG	0.52	1.0
		Vanadium, Total	55.2	MG/KG	0.06	1.0
		Zinc, Total	41.8	MG/KG	0.08	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L335

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0WKY7	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	1.0	MG/KG	0.26	1.0
		Barium, Total	48.8	MG/KG	0.02	1.0
		Beryllium, Total	0.26	MG/KG	0.008	1.0
		Cadmium, Total	0.06	MG/KG	0.02	1.0
		Chromium, Total	1.7	MG/KG	0.06	1.0
		Copper, Total	10.8	MG/KG	0.1	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	3.9	MG/KG	0.1	1.0
		Lead, Total	2.7	MG/KG	0.17	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.29 u	MG/KG	0.29	1.0
		Thallium, Total	0.42 u	MG/KG	0.42	1.0
		Vanadium, Total	34.6	MG/KG	0.05	1.0
		Zinc, Total	29.8	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L344

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKY3	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	3.8	MG/KG	0.29	1.0
		Barium, Total	93.4	MG/KG	0.03	1.0
		Beryllium, Total	0.44	MG/KG	0.009	1.0
		Cadmium, Total	1.1	MG/KG	0.03	1.0
		Chromium, Total	9.1	MG/KG	0.07	1.0
		Copper, Total	10.6	MG/KG	0.10	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.5	MG/KG	0.10	1.0
		Lead, Total	5.0	MG/KG	0.18	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Thallium, Total	0.70	MG/KG	0.46	1.0
		Vanadium, Total	57.0	MG/KG	0.05	1.0
		Zinc, Total	46.7	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/03/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L333, 335, + 344 DD 11/8/99

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0726-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	0.04	MG/KG	0.03	1.0
		Beryllium, Total	0.01	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	0.25	MG/KG	0.21	1.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.53 u	MG/KG	0.53	1.0
		Vanadium, Total	0.07	MG/KG	0.06	1.0
		Zinc, Total	0.22	MG/KG	0.08	1.0
BLANK1	99C0316-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	99C0307-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKY1	Silver, Total	4.5	0.80	4.2	88.0	1.0
		Arsenic, Total	159	3.0	170	92.0	1.0
		Barium, Total	222	65.1	170	92.5	1.0
		Beryllium, Total	4.2	0.31	4.2	92.7	1.0
		Cadmium, Total	6.7	2.9	4.2	90.5	1.0
		Chromium, Total	25.4	8.8	17.0	97.6	1.0
		Copper, Total	33.0	13.7	21.3	90.6	1.0
		Mercury, Total	0.69	0.73	0.18	-22. *	1.0
		Nickel, Total	47.6	8.6	42.5	91.8	1.0
		Lead, Total	56.7	19.9	42.5	86.6	1.0
		Antimony, Total	12.3	0.23	42.5	28.4	1.0
		Selenium, Total	151	0.31u	170	88.7	1.0
		Thallium, Total	149	0.45u	170	87.8	1.0
		Vanadium, Total	99.2	60.9	42.5	90.1	1.0
		Zinc, Total	103	61.9	42.5	96.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/03/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L333

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKY1	Silver, Total	0.80	1.2	39.6	1.0
		Arsenic, Total	3.0	2.7	10.5	1.0
		Barium, Total	65.1	67.3	3.3	1.0
		Beryllium, Total	0.31	0.32	4.1	1.0
		Cadmium, Total	2.9	2.8	3.5	1.0
		Chromium, Total	8.8	8.9	1.1	1.0
		Copper, Total	13.7	13.0	5.2	1.0
		Mercury, Total	0.73	1.1	39.3	1.0
		Nickel, Total	8.6	8.4	2.4	1.0
		Lead, Total	19.9	18.3	8.4	1.0
		Antimony, Total	0.23	0.21u	~~NC~~ 200	1.0
		Selenium, Total	0.31u	0.31u	NC	1.0
		Thallium, Total	0.45u	0.45u	NC	1.0
		Vanadium, Total	60.9	63.3	3.9	1.0
		Zinc, Total	61.9	64.4	4.0	1.0

ATM 11/5/99

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/08/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L333, 335, + 344 RJ 11/8/99

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0726-LC1	Silver, LCS	48.6	50.0	MG/KG	97.2
		Arsenic, LCS	951	1000	MG/KG	95.1
		Barium, LCS	502	500	MG/KG	100.4
		Beryllium, LCS	24.1	25.0	MG/KG	96.4
		Cadmium, LCS	24.1	25.0	MG/KG	96.4
		Chromium, LCS	49.5	50.0	MG/KG	99.0
		Copper, LCS	126	125	MG/KG	100.6
		Nickel, LCS	194	200	MG/KG	97.2
		Lead, LCS	241	250	MG/KG	96.4
		Antimony, LCS	293	300	MG/KG	97.8
		Selenium, LCS	922	1000	MG/KG	92.2
		Thallium, LCS	953	1000	MG/KG	95.3
		Vanadium, LCS	252	250	MG/KG	100.9
		Zinc, LCS	95.7	100	MG/KG	95.7
LCS1	99C0316-LC1	Mercury, LCS	1.0	1.0	MG/KG	100.9
LCS1	99C0307-LC1	Mercury, LCS	1.2	1.0	MG/KG	123.8

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1						
SILVER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
SILVER, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
SILVER, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	001	S	99C0316	10/07/99	10/28/99	10/29/99
MERCURY, TOTAL	001 REP	S	99C0316	10/07/99	10/28/99	10/29/99
MERCURY, TOTAL	001 MS	S	99C0316	10/07/99	10/28/99	10/29/99
NICKEL, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
NICKEL, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
NICKEL, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	001 REP	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	001 MS	S	99L0726	10/07/99	10/26/99	10/27/99
B0WKY2						
SILVER, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	002	S	99C0316	10/07/99	10/28/99	10/29/99
NICKEL, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
B0WKY4						
SILVER, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	004	S	99C0307	10/07/99	10/21/99	10/22/99
NICKEL, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	004	S	99L0726	10/07/99	10/26/99	10/27/99
B0WKY5						
SILVER, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	005	S	99C0307	10/07/99	10/21/99	10/22/99
NICKEL, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	005	S	99L0726	10/07/99	10/26/99	10/27/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
SILVER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BARIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BARIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CADMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
COPPER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
COPPER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
MERCURY LABORATORY	LC1 BS	S	99C0316	N/A	10/28/99	10/29/99
MERCURY, TOTAL	MB1	S	99C0316	N/A	10/28/99	10/29/99
NICKEL LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
NICKEL, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
LEAD LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
LEAD, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ZINC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ZINC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
MERCURY LABORATORY	LC1 BS	S	99C0307	N/A	10/21/99	10/22/99
MERCURY, TOTAL	MB1	S	99C0307	N/A	10/21/99	10/22/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6						
SILVER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
CHROMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	001	S	99C0307	10/07/99	10/21/99	10/22/99
NICKEL, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
B0WKY7						
SILVER, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/28/99
CHROMIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	002	S	99C0307	10/07/99	10/21/99	10/22/99
NICKEL, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	002	S	99L0726	10/07/99	10/26/99	10/27/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BARIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BARIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CADMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
CADMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
COPPER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
COPPER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
MERCURY LABORATORY	LC1 BS	S	99C0307	N/A	10/21/99	10/22/99
MERCURY, TOTAL	MB1	S	99C0307	N/A	10/21/99	10/22/99
NICKEL LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
NICKEL, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
LEAD LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
LEAD, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ZINC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ZINC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3						
SILVER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ARSENIC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BARIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
BERYLLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
CADMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/28/99
CHROMIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
COPPER, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
MERCURY, TOTAL	001	S	99C0316	10/07/99	10/28/99	10/29/99
NICKEL, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
LEAD, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ANTIMONY, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
SELENIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
THALLIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
VANADIUM, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99
ZINC, TOTAL	001	S	99L0726	10/07/99	10/26/99	10/27/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
SILVER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ARSENIC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BARIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BARIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
BERYLLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CADMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
CADMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
CHROMIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
COPPER LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
COPPER, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
MERCURY LABORATORY	LC1 BS	S	99C0316	N/A	10/28/99	10/29/99
MERCURY, TOTAL	MB1	S	99C0316	N/A	10/28/99	10/29/99
NICKEL LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
LEAD LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
LEAD, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ANTIMONY, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
SELENIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
THALLIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
VANADIUM, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99
ZINC LABORATORY	LC1 BS	S	99L0726	N/A	10/26/99	10/27/99
ZINC, TOTAL	MB1	S	99L0726	N/A	10/26/99	10/27/99

RECRA LabNet Use Only

9910C333

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone wet lab

Client: INU-Hanford B99-078

Est. Final Proj. Sampling Date:

Project #: 109185-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 day

Date Rec'd: 10/9/99 Date Due: 11/8/99

Account #:

Refrigerator #		1	2	2					2	2	2					
#/Type Container	Liquid															
	Solid	1g	1g						1g	1g	1g					
Volume	Liquid															
	Solid	250	500						500	250	1tr					
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 24H 8260SC	8625H	8DRO 8PCB					Met(1)	ICNTO	IPH	Ang(1)				
001	BOWKY1			S	10/7/99	0801	✓	✓	✓					✓	✓	✓	✓				
002	2					0813	✓	✓	✓					✓	✓	✓	✓				
~~003~~	~~3~~					~~0822~~		10/9/99													
004	4					0835	✓	✓	✓					✓	✓	✓	✓				
005	5					0854	✓	✓	✓					✓	✓	✓	✓				

RECRA LabNet Use Only

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
#003 1. Samples not Rec'd.
2. Run matrix QC
Met(1) = RCRA + Be, Cu, Ni, V, Zn
Ang(1) = ICCl, ICFl, ICNO2, ICNO3, ICPO4,
5. ICSO4, ISFD, INH3N, ICNTO,
6. IN3N2 (ICR6 added 10/13/99)

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package ✓ or N
2) Unbroken on Outer Package ✓ or N
3) Present on Sample ✓ or N
4) Unbroken on Sample ✓ or N
COC Record Present Upon Sample Rec't ✓ or N
Cooler Temp. 3.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10-9-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or ✓ N

NOTES:
4235 7953 0289

029

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1

Collector: Bowers/Trice	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: 200 B pond 2151		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 89
			COA: B20CW167/C

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

Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X				
BOWKY2	SOIL	10/7/99	0813		X	X	X	X	X				
BOWKY3	SOIL	10/7/99	0822		X	X	X	X	X				
BOWKY4	SOIL	10/7/99	0835		X	X	X	X	X				
BOWKY5	SOIL	10/7/99	0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers / Doug Bowers	Date/Time: 10-7-99/1130	Received By: A of 1B	Date/Time: 10-7-99/1130
Relinquished By: Ker #1B	Date/Time: 10/8/99 0948	Received By: R. Nielson / R. Nielson	Date/Time: 10/8/99 0948
Relinquished By: R. Nielson / R. Nielson	Date/Time: 10/8/99 1430	Received By: Federal Express	Date/Time:
Relinquished By: [illegible]	Date/Time: 10-8-99 0945	Received By: [illegible]	Date/Time: 10-8-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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

020

RECRA LabNet Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone metals

QC MS VOA Semvol BNA, PCB

RECRA LabNet

Client TMU Hanford B99-078

Est. Final Proj. Sampling Date

Project # 109185-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager Orlette Johnson

QC spec Del std TAT 30 days

Date Rec'd 10-11-99 Date Due 11/10/99

Account #

Refrigerator #		1	2						2						
#/Type Container	Liquid														
	Solid	1PG	1PG						1PG		1PG	1PG			
Volume	Liquid														
	Solid	250	500						500		250	1L			
Preservatives		-	-						-		-	-			
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN	pH				
		RECRA LabNet Use Only													
		0624H 0SCSC	0625H 0DRO	0PCB					Met(1)	ICNTO	IPH	Ang(1)			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H 0SCSC	0625H 0DRO	0PCB					Met(1)	ICNTO	IPH	Ang(1)				
001	BOW496			S	10-7-99	0913	✓	✓	✓					✓	✓	✓	✓				
002	BOW497			↓	↓	0932	✓	✓	✓					✓	✓	✓	✓				

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

SDG w/ 9910L333

DATE/REVISIONS:

Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,
2. Se, Ag, V, Zn, Hg, ICR6
Ang(1) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, IPH
5. No matrix QC Required
10/13/99 ~~Run matrix QC~~

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 4235795300 90
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

920

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 90
			COA: B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
BOW KY6	Soil	10/7/99	0913						X	X	X	X	X
BOW KY7	Soil	10/7/99	0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time		Date/Time
Relinquished By	Doug Bowers	10-7-99/1130	Received By: Ref 1B	10-7-99/1130
Relinquished By: Ref # 1B	10/8/99	1030	Received By: R. Nielson	10/8/99 1030
Relinquished By: R. Nielson	10/8/99	1430	Received By: Fed Ex	
Relinquished By: Fed Ex	10-11-99	0940	Received By: TM Murray	10-11-99 0940

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

Tie to BØW8C1

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

RECRA LabNet Use Only
9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: Orlette Johnson
QC: spec Del: std TAT: 30 day
Date Rec'd: 10-~~11~~-99 Date Due: 11/11/99
Account #: 12 ~~8~~ 10/12/99

Refrigerator #		1	2	1					2	1		1				
#/Type Container	Liquid															
	Solid	1AG	1AG	1					1AG	1		1AG	1AG			
Volume	Liquid															
	Solid	250	500	1					500	1		250	1L			
Preservatives		-	-						-	-		-	-			
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN		TPH	Ang			

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	0024H 0GCSC	0025H	0DRO 0PCB				Met①	1CNITU	1PH	Ang①				
001	BOOK43			S	10-7-99	0822	✓	✓	✓				✓	✓	✓	✓				

RECRA LabNet Use Only

Special Instructions:

COMPOSITE WASTE

SDG with ✓ 9910L333

DATE/REVISIONS:

1. Met① = RCRA + Be, Cu, Ni, V, Zn
2. Ang① ICCL, ICFL, ICNO2, ICNO3, ICPO4, ~~8~~ 10/12/99
3. ICSO4, ISFD, INH3N, ~~1CNO2~~, IN3N2
4.
5. No matrix QC Required
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 4235795300290
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TMuray	12 10-~~11~~-99	0930
		~~8~~ 10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

RECRA ENVIRONMENTAL INC.
Chemical and Environmental Measurement Information

DEC 1999 RECEIVED Data Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L333, 9910L335, 9910L344
SDG/SAF#: H0566/B99-078

W.O #: 10985-001-001-9999-00
Date Received: 10-09,11,12-99

DIESEL RANGE ORGANICS

The set of samples consisted of seven (7) soil samples collected on 10-07,-99.

The samples and their associated QC samples were prepared on 10-19,21-99 and analyzed by methodology based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 10-26,27-99. 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. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-9-99
Date

R:\SHARE\LC\GCSCAN\10-333d.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 12 pages.

GLOSSARY OF DIESEL DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates spiked compound.

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 11/04/99 15:05

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

003

	Cust ID:	B0WKY1	B0WKY1	B0WKY1	B0WKY2	B0WKY4	B0WKY5
Sample Information	RFW#:	001	001 MS	001 MSD	002	004	005
	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	70 %	121 %	92 %	93 %	92 %	107 %
Diesel Range Organics		4.3 U	101 %	71 %	4.2 U	4.2 U	4.2 U

	Cust ID:	B0WKY6	B0WKY7	B0WKY3	BLK	BLK BS	BLK
Sample Information	RFW#:	335-001	335-002	344-001	99LE1267-MB1	99LE1267-MB1	99LE1279-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surrogate:	p-Terphenyl	88 %	104 %	116 %	98 %	96 %	93 %
Diesel Range Organics		4.1 U	4.1 U	4.2 U	4.0 U	93 %	4.0 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.

11/9/99

004

Cust ID: **BLK BS**

Sample Information

RFW#: **99LE1279-MB1**
Matrix: SOIL
D.F.: 1.00
Units: mg/kg

Surrogate:	p-Terphenyl	105	%
Diesel Range Organics		95	%

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: 10/09/99 RFW LOT # :9910L333

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1	001	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY1	001 MS	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY1	001 MSD	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY2	002	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY4	004	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY5	005	S	99LE1267	10/07/99	10/19/99	10/26/99

LAB QC:

BLK	MB1	S	99LE1267	N/A	10/19/99	10/26/99
BLK	MB1 BS	S	99LE1267	N/A	10/19/99	10/26/99

OK 11/8/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6	001	S	99LE1267	10/07/99	10/19/99	10/26/99
B0WKY7	002	S	99LE1267	10/07/99	10/19/99	10/26/99
LAB QC:						
BLK	MB1	S	99LE1267	N/A	10/19/99	10/26/99
BLK	MB1 BS	S	99LE1267	N/A	10/19/99	10/26/99

11/8/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3	001	S	99LE1279	10/07/99	10/21/99	10/27/99

LAB QC:

BLK	MB1	S	99LE1279	N/A	10/21/99	10/27/99
BLK	MB1 BS	S	99LE1279	N/A	10/21/99	10/27/99

11/8/99

RECRA LabNet Use Only: 99106333

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 #: 109185-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 10/9/99 Date Due: 11/8/99
Account #:

Refrigerator #		1	2	2					2	1	2	2				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g	1	1g	1g				
Volume	Liquid															
	Solid	250	500	1					500	1	250	1 qt				
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
		8024H 8015C	8025H	8DRO 8PCB					Met①	ICNTO	IPH	Ang①				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Metal	CN	IPH	Ang
001	BOWKY 1			S	10/7/99	0801	✓	✓	✓	✓	✓	✓	✓
002	2					0813	✓	✓	✓	✓	✓	✓	✓
003	3					~~0822~~	X	10/9/99					
004	4					0835	✓	✓	✓	✓	✓	✓	✓
005	5					0854	✓	✓	✓	✓	✓	✓	✓

Special Instructions:
Sub # B99-078

COMPOSITE WASTE

DATE/REVISIONS:
#003 1. Samples not Rec'd.
2. Run matrix QC
Met① = RCRA + Be, Cu, Ni, V, Zn
Ang① = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
5. ICSO4, ISFD, INH3N, ICNTO,
6. IN3N2

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 3.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10-9-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7953 0289

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078	
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 89	
			COA B20CW167/C	

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

Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X				
BOWKY2	Soil	10/7/99	0813		X	X	X	X	X				
BOWKY3	Soil	10/7/99	0822		X	X	X	X	X				
BOWKY4	Soil	10/7/99	0835		X	X	X	X	X				
BOWKY5	Soil	10/7/99	0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 10-7-99/1130	Received By: R of 1B	Date/Time: 10-7-99/1130
Relinquished By: R of 1B	Date/Time: 10/8/99 0948	Received By: R. Nielson	Date/Time: 10/8/99 0948
Relinquished By: R. Nielson	Date/Time: 10/8/99 1430	Received By: Federal Express	Date/Time:
Relinquished By: FedEx	Date/Time: 10-9-99 0945	Received By: [illegible]	Date/Time: 10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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 Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TRU Hanford B99-078

Est. Final Proj. Sampling Date:

Project #: 109185-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: Orlette Johnson

QC: spec Del: std TAT: 30 days

Date Rec'd: 10-11-99 Date Due: 11/10/99

Account #:

Refrigerator #		1	2	1					2	1								
#/Type Container	Liquid																	
	Solid	1PG	1PG	1					1PG	1	1PG	1PG						
Volume	Liquid																	
	Solid	250	500	1					500	1	250	1L						
Preservatives		–	–						–		–	–						
ANALYSES REQUESTED		ORGANIC							INORG									
		VOA	BNA	Pest/PCB	Herb				Metal	CN	PH							

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24H OSCS	OC25H ODRO	OPCB					Metal	ICNTO	IPH	Ang				
001	BOW496			S	10-7-99	0913	✓	✓	✓					✓	✓	✓	✓				
002	BOW497			↓	↓	0930	✓	✓	✓					✓	✓	✓	✓				

Special Instructions:

Saf.# B99-078

COMPOSITE WASTE

DATE/REVISIONS:

Met (1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,

2. Se, Ag, V, Zn, Hg, ICR6

Ang (3) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,

4. ICPO4, ICSO4, ISFD, INH3N, IPH

5.

6. Run matrix QC

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 423579530090
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of 1 RJN 10/7/9

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 90
			COA: B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
BOW KY6	Soil	10/7/99	0913						X	X	X	X	X
BOW KY7	Soil	10/7/99	0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: Doug Bowers 10-7-99/1130	Received By: Ref 1B	Date/Time: 10-7-99/1130
Relinquished By: Ref #1B	Date/Time: 10/8/99 1030	Received By: R. Nielson/R. Nielson	Date/Time: 1030 10/8/99
Relinquished By: R. Nielson/R. Nielson	Date/Time: 1430 10/8/99	Received By: Fed Ex	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-11-99 0940	Received By: T Murray	Date/Time: 10-11-99 0940

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

Tie to BØW8C1

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 Use Only

9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU-Hanford B99-078

Est. Final Proj. Sampling Date:

Project #: 109985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: Orlette Johnson

QC: spec Del: std TAT: 30 day

Date Rec'd: 10-~~28~~-99 12 Date Due: 11/11/99

Account #: 88 10/12/99

Refrigerator #		1	2	1					2	1							
#/Type Container	Liquid																
	Solid	1AG	1AG	1					1AG	1	1AG	1AG					
Volume	Liquid																
	Solid	250	500	1					500	1	250	1L					
Preservatives		-	-						-	-	-	-					
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN	TPH	Inorg					
		RECRA LabNet Use Only															
		0624H 0625C	0625H	0DRO 0PCB					Met①	ICNUTC	1PH	Ang①					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	BOWK93			S	10-7-99	0820	✓	✓	✓					✓	✓	✓	✓				

Special Instructions:

COMPOSITE WASTE

with SDG 9910L333

DATE/REVISIONS:

Met① = RCRA1 Be, Cd, Ni, V, Zn

Ang① 2. ICCL, ICFL, ICNO2, ICNO3, ICPO4, 88 10/12/99

3. ICSO4, ISFD, INH3N, ~~ICNPO~~, INSN2

4.

5. No matrix QC Required

6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 4235795 30290

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. 5.2 °C

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

NOTES:

Relinquished by	Received by	Date	Time
FedEx	TMurray	12 10-~~28~~-99	0930
		88 10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

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

DEC 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-078
RFW#: 9910L333/335/344
SDG/SAF#: H0566/B99-078

W.O.#: 10985-001-001-9999-00
Date Received: 10-09,11,12-99

PCB

The set of samples consisted of seven (7) soil samples collected on 10-07-99.

The samples and their associated QC samples were extracted on 10-19-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 10-29-99 and 11-01,02-99. 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-custodies.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received sulfuric acid and sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-15-99
Date

pefvr:\group\data\pest\10L333.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 14 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: 11/10/99 18:06

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1

004

	Cust ID:	B0WKY1	B0WKY1	B0WKY1	B0WKY2	B0WKY4	B0WKY5
Sample Information	RFW#:	001	001 MS	001 MSD	002	004	005
	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 %	98 %	108 %	105 %	100 %	105 %
	Decachlorobiphenyl	99 %	100 %	100 %	106 %	103 %	103 %
Aroclor-1016		36 U	35 U	36 U	36 U	35 U	35 U
Aroclor-1221		71 U	70 U	71 U	71 U	70 U	69 U
Aroclor-1232		36 U	35 U	36 U	36 U	35 U	35 U
Aroclor-1242		36 U	35 U	36 U	36 U	35 U	35 U
Aroclor-1248		36 U	35 U	36 U	36 U	35 U	35 U
Aroclor-1254		36 U	103 %	109 %	36 U	35 U	35 U
Aroclor-1260		36 U	35 U	36 U	36 U	35 U	35 U

	Cust ID:	PBLKXJ	PBLKXJ BS
Sample Information	RFW#:	99LE1273-MB1	99LE1273-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	102 %	82 %
	Decachlorobiphenyl	110 %	87 %
Aroclor-1016		33 U	33 U
Aroclor-1221		67 U	67 U
Aroclor-1232		33 U	33 U
Aroclor-1242		33 U	33 U
Aroclor-1248		33 U	33 U
Aroclor-1254		33 U	74 %
Aroclor-1260		33 U	33 U

11-11-99

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

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 11/04/99 14:25

RFW Batch Number: **9910L335** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1

005

	Cust ID:	B0WKY6	B0WKY7	PBLKXJ	PBLKXJ BS
Sample Information	RFW#:	001	002	99LE1273-MB1	99LE1273-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	108 %	105 %	102 %	82 %
	Decachlorobiphenyl	102 %	97 %	110 %	87 %
Aroclor-1016		34 U	33 U	33 U	33 U
Aroclor-1221		68 U	67 U	67 U	67 U
Aroclor-1232		34 U	33 U	33 U	33 U
Aroclor-1242		34 U	33 U	33 U	33 U
Aroclor-1248		34 U	33 U	33 U	33 U
Aroclor-1254		34 U	33 U	33 U	74 %
Aroclor-1260		34 U	33 U	33 U	33 U

11-11-99

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

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 11/10/99 17:44

RFW Batch Number: **9910L344** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1

006

	Cust ID:	**B0WKY3**	**PBLKXJ**	**PBLKXJ BS**
Sample Information	RFW#:	**001**	**99LE1273-MB1**	**99LE1273-MB1**
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		95 %	102 %	82 %
Decachlorobiphenyl		99 %	110 %	87 %
Aroclor-1016		35 U	33 U	33 U
Aroclor-1221		71 U	67 U	67 U
Aroclor-1232		35 U	33 U	33 U
Aroclor-1242		35 U	33 U	33 U
Aroclor-1248		35 U	33 U	33 U
Aroclor-1254		35 U	33 U	74 %
Aroclor-1260		35 U	33 U	33 U

11-11-99

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

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1	001	S	99LE1273	10/07/99	10/19/99	11/02/99
B0WKY1	001 MS	S	99LE1273	10/07/99	10/19/99	11/02/99
B0WKY1	001 MSD	S	99LE1273	10/07/99	10/19/99	11/02/99
B0WKY2	002	S	99LE1273	10/07/99	10/19/99	11/02/99
B0WKY4	004	S	99LE1273	10/07/99	10/19/99	11/02/99
B0WKY5	005	S	99LE1273	10/07/99	10/19/99	11/02/99
LAB QC:						
PBLKXJ	MB1	S	99LE1273	N/A	10/19/99	10/29/99
PBLKXJ	MB1 BS	S	99LE1273	N/A	10/19/99	10/29/99

11-11-99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6	001	S	99LE1273	10/07/99	10/19/99	11/01/99
B0WKY7	002	S	99LE1273	10/07/99	10/19/99	11/01/99
LAB QC:						
PBLKXJ	MB1	S	99LE1273	N/A	10/19/99	10/29/99
PBLKXJ	MB1 BS	S	99LE1273	N/A	10/19/99	10/29/99

gw 11-11-99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3	001	S	99LE1273	10/07/99	10/19/99	11/02/99
LAB QC:						
PBLKXJ	MB1	S	99LE1273	N/A	10/19/99	10/29/99
PBLKXJ	MB1 BS	S	99LE1273	N/A	10/19/99	10/29/99

11-11-99

RECRA LabNet Use Only
9910C333

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INU-Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 109185-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 10/9/99 Date Due: 11/8/99
Account #:

Refrigerator #		1	2	2					2	1	2	2				
#/Type Container	Liquid															
	Solid	1g	1g	1					1g	1	1g	1g				
Volume	Liquid															
	Solid	250	500	1					500	1	250	1ty				
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

RECRA LabNet Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8024H 8015C	8025H	8DRO 8PCB				Met(1)	ICNTO	IPH	Ang(1)				
S - Soil	001	BOWKY1			S	10/9/99	0801	✓	✓	✓				✓	✓	✓	✓				
SE - Sediment	002	2					0813	✓	✓	✓				✓	✓	✓	✓				
SO - Solid	003	3					~~0822~~	10/9/99													
SL - Sludge	004	4					0835	✓	✓	✓				✓	✓	✓	✓				
W - Water	005	5					0854	✓	✓	✓				✓	✓	✓	✓				
O - Oil																					
A - Air																					
DS - Drum Solids																					
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

Special Instructions:
Sal# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
#003 1. Samples not Rec'd.
2. Run matrix QC
Met(1) = RCRA + Be, Cu, Ni, Vi, Zn
Ang(1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
5. ICSO4, ISFD, INH3N, ICNTO,
6. IN3N2

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 3.5 °C

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	10-9-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
42357953 0289

RECRA LabNet Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone metals QC MS VOA Semvol BNA, PCB

RECRA LabNet

Client TMU Hanford B99-078

Est. Final Proj. Sampling Date

Project # 109185-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager Orlette Johnson

QC spec Del std TAT 30 day

Date Rec'd 10-11-99 Date Due 11/10/99

Account #

Refrigerator #		1	2							2						
#/Type Container	Liquid															
	Solid	1PG	1PG							1PG		1PG	1PG			
Volume	Liquid															
	Solid	250	500							500		250	16			
Preservatives		-	-							-		-	-			
ANALYSES REQUESTED →		ORGANIC								INORG						
		VOA	BNA	Pest/PCB	Herb					Metal	CN	pH				

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	8260 GC/MS	8270 SH ODRO	8082 PCB				Metals	ICP/MS	IPH	Ang
001	BOWK96			S	10-7-99	0913	✓	✓	✓				✓	✓	✓	✓
002	BOWK97			↓	↓	0932	✓	✓	✓				✓	✓	✓	✓

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

SDG w/ 9910L333

DATE/REVISIONS:

Met (1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,

2. Se, Ag, V, Zn, Hg, ICR6

Ang (1) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,

4. ICPO4, ICSO4, ISFD, INH3N, IPH

5. No matrix QC Required

10/13/99 ~~Run matrix QC~~

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 4235795308 90
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA LabNet Use Only
9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TTU-Hanford B99-078

Est. Final Proj. Sampling Date

Project # 109185-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager Orlette Johnson

QC spec Del std TAT 30 day

Date Rec'd 10-~~11~~-99 Date Due 11/11/99

Account # 12 ~~10~~ 10/12/99

Refrigerator #		1	2 — 1					2 — 1							01
#/Type Container	Liquid														
	Solid	1AG	1AG — 1					1AG — 1		1AG	1AG				
Volume	Liquid														
	Solid	250	500 — 1					500 — 1		250	1L				
Preservatives		-	-					-	-	-	-				
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN	PH	Fnog				
		RECRA LabNet Use Only													
		0026H 0626C	0625H	0RO 0PCB				Met①	1CNTU	1PH	Ang①				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0026H 0626C	0625H	0RO 0PCB					Met①	1CNTU	1PH	Ang①				
001	BOUK93			S	10-7-99	0820	✓	✓	✓					✓	✓	✓	✓				

Special Instructions:

COMPOSITE WASTE

with SDG 9910L333

DATE/REVISIONS:

Met① = RCRA + Be, Cu, Ni, V, Zn

Ang① 2. ICCL, ICFL, ICNO2, ICNO3, ICPO4,

3. ICSO4, ISFD, INH3N, ~~ICNTO~~ ~~10/12/99~~, INO2N

4.

5. No matrix QC Required

6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 4235579580290
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. 5.2 °C

Relinquished by	Received by	Date	Time
FedEx	TTMurray	12 10-~~11~~-99	0930
		~~10~~ 10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

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

NOTES:

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 89
			COA: B20CW167/C

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

Sample No.	Matrix *	Sample Date	Sample Time									
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X			
BOWKY2	SOIL	10/7/99	0813		X	X	X	X	X			
BOWKY3	SOIL	10/7/99	0822		X	X	X	X	X			
BOWKY4	SOIL	10/7/99	0835		X	X	X	X	X			
BOWKY5	SOIL	10/7/99	0854		X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Doug Bowers	10-7-99 1130	Received By: A of 1B	10-7-99 1130
Relinquished By	Kel #1B	10/8/99 0948	Received By: R. Nielson	10/8/99 0948
Relinquished By	R. Nielson	10/8/99 1430	Received By: Federal Express	
Relinquished By	FedEx	10-9-99 0945	Received By	10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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

Time 2.5

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of ~~2~~ 1 RJN 10/7/9

Collector: Bowers/Trice	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: 200 B pond	SAF No.: B99-078	
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA — RECRA	Offsite Property No.: A990293	Bill of Lading/Air Bill No.: 4235795302 90	
		COA: B20CW167C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
BOW KY6	Soil	10/7/99	0913						X	X	X	X	X
BOW KY7	Soil	10/7/99	0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers — Date/Time: 10-7-99/1130	Received By: RJB — Date/Time: 10-7-99/1130		
Relinquished By: Ref # LB 10/8/99 1030	Received By: R.Nielson 10/8/99 — Date/Time: 1030		
Relinquished By: R.Nielson 10/8/99 — Date/Time: 1430	Received By: Fed Ex — Date/Time:		
Relinquished By: Fed Ex 10-11-99 0940	Received By: TMurray 10-11-99 0940		

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

Tie to BØW8C1

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

DEC 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW # : 9910L333, 9910L335, 9910L344
SDG/SAF #: H0566/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 10-09,11,12-99

SEMIVOLATILE

Seven (7) soil samples were collected on 10-07-99.

The samples and their associated QC samples were extracted on 10-19-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 10-22,24-99.

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-custodies.

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. The samples were spectrally searched for Butylated Hydroxytoluene; however, it was not identified in the samples.

By J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-16-99
Date

som\gorup\data\bna\tnu0s333.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 27 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

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

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

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

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.bna

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Report Date: 11/03/99 13:54 Page: 1a

	Cust ID:	B0WKY1		B0WKY1		B0WKY1		B0WKY2		B0WKY4		B0WKY5	
Sample Information	RFW#:	001		001 MS		001 MSD		002		004		005	
	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	69	%	68	%	59	%	68	%	31	%	69	%
	2-Fluorobiphenyl	71	%	69	%	60	%	68	%	33	%	67	%
	Terphenyl-d14	67	%	65	%	58	%	69	%	35	%	86	%
	Phenol-d5	60	%	62	%	53	%	60	%	27	%	71	%
	2-Fluorophenol	66	%	65	%	56	%	64	%	30	%	64	%
	2,4,6-Tribromophenol	63	%	65	%	56	%	58	%	21	%	70	%
			fl		fl		fl		fl		fl		fl
Phenol		360	U	61	%	53	%	360	U	350	U	350	U
bis(2-Chloroethyl)ether		360	U	360	U	360	U	360	U	350	U	350	U
2-Chlorophenol		360	U	63	%	56	%	360	U	350	U	350	U
1,3-Dichlorobenzene		360	U	360	U	360	U	360	U	350	U	350	U
1,4-Dichlorobenzene		360	U	63	%	56	%	360	U	350	U	350	U
1,2-Dichlorobenzene		360	U	360	U	360	U	360	U	350	U	350	U
2-Methylphenol		360	U	360	U	360	U	360	U	350	U	350	U
2,2'-oxybis(1-Chloropropane)		360	U	360	U	360	U	360	U	350	U	350	U
4-Methylphenol		360	U	360	U	360	U	360	U	350	U	350	U
N-Nitroso-di-n-propylamine		360	U	72	%	59	%	360	U	350	U	350	U
Hexachloroethane		360	U	360	U	360	U	360	U	350	U	350	U
Nitrobenzene		360	U	360	U	360	U	360	U	350	U	350	U
Isophorone		360	U	360	U	360	U	360	U	350	U	350	U
2-Nitrophenol		360	U	360	U	360	U	360	U	350	U	350	U
2,4-Dimethylphenol		360	U	360	U	360	U	360	U	350	U	350	U
bis(2-Chloroethoxy)methane		360	U	360	U	360	U	360	U	350	U	350	U
2,4-Dichlorophenol		360	U	360	U	360	U	360	U	350	U	350	U
1,2,4-Trichlorobenzene		360	U	68	%	61	%	360	U	350	U	350	U
Naphthalene		360	U	360	U	360	U	360	U	350	U	350	U
4-Chloroaniline		360	U	360	U	360	U	360	U	350	U	350	U
Hexachlorobutadiene		360	U	360	U	360	U	360	U	350	U	350	U
4-Chloro-3-methylphenol		360	U	62	%	55	%	360	U	350	U	350	U
2-Methylnaphthalene		360	U	360	U	360	U	360	U	350	U	350	U
Hexachlorocyclopentadiene		360	U	360	U	360	U	360	U	350	U	350	U
2,4,6-Trichlorophenol		360	U	360	U	360	U	360	U	350	U	350	U
2,4,5-Trichlorophenol		890	U	890	U	890	U	890	U	860	U	870	U

*= Outside of EPA CLP QC limits.

RIW Batch Number: 9910L333 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Page: 1b

Cust ID:	B0WKY1		B0WKY1		B0WKY1		B0WKY2		B0WKY4		B0WKY5	
RFW#:	001		001 MS		001 MSD		002		004		005	
2-Chloronaphthalene	360	U	360	U	360	U	360	U	350	U	350	U
2-Nitroaniline	890	U	890	U	890	U	890	U	860	U	870	U
Dimethylphthalate	360	U	360	U	360	U	360	U	350	U	350	U
Acenaphthylene	360	U	360	U	360	U	360	U	350	U	350	U
2,6-Dinitrotoluene	360	U	360	U	360	U	360	U	350	U	350	U
3-Nitroaniline	890	U	890	U	890	U	890	U	860	U	870	U
Acenaphthene	360	U	69	%	63	%	360	U	350	U	350	U
2,4-Dinitrophenol	890	U	890	U	890	U	890	U	860	U	870	U
4-Nitrophenol	890	U	67	%	60	%	890	U	860	U	870	U
Dibenzofuran	360	U	360	U	360	U	360	U	350	U	350	U
2,4-Dinitrotoluene	360	U	63	%	56	%	360	U	350	U	350	U
Diethylphthalate	360	U	360	U	360	U	360	U	350	U	350	U
4-Chlorophenyl-phenylether	360	U	360	U	360	U	360	U	350	U	350	U
Fluorene	360	U	360	U	360	U	360	U	350	U	350	U
4-Nitroaniline	890	U	890	U	890	U	890	U	860	U	870	U
4,6-Dinitro-2-methylphenol	890	U	890	U	890	U	890	U	860	U	870	U
N-Nitrosodiphenylamine (1)	360	U	360	U	360	U	360	U	350	U	350	U
4-Bromophenyl-phenylether	360	U	360	U	360	U	360	U	350	U	350	U
Hexachlorobenzene	360	U	360	U	360	U	360	U	350	U	350	U
Pentachlorophenol	890	U	72	%	63	%	890	U	860	U	870	U
Phenanthrene	360	U	360	U	360	U	360	U	350	U	350	U
Anthracene	360	U	360	U	360	U	360	U	350	U	350	U
Carbazole	360	U	360	U	360	U	360	U	350	U	350	U
Di-n-butylphthalate	360	U	360	U	360	U	360	U	350	U	350	U
Fluoranthene	360	U	360	U	360	U	360	U	350	U	350	U
Pyrene	360	U	70	%	63	%	360	U	350	U	350	U
Butylbenzylphthalate	360	U	360	U	360	U	360	U	350	U	350	U
3,3'-Dichlorobenzidine	360	U	360	U	360	U	360	U	350	U	350	U
Benzo(a)anthracene	360	U	360	U	360	U	360	U	350	U	350	U
Chrysene	360	U	360	U	360	U	360	U	350	U	350	U
bis(2-Ethylhexyl)phthalate	360	U	360	U	360	U	360	U	350	U	350	U
Di-n-octyl phthalate	360	U	360	U	360	U	360	U	350	U	350	U
Benzo(b)fluoranthene	360	U	360	U	360	U	360	U	350	U	350	U
Benzo(k)fluoranthene	360	U	360	U	360	U	360	U	350	U	350	U
Benzo(a)pyrene	360	U	360	U	360	U	360	U	350	U	350	U
Indeno(1,2,3-cd)pyrene	360	U	360	U	360	U	360	U	350	U	350	U
Dibenz(a,h)anthracene	360	U	360	U	360	U	360	U	350	U	350	U
Benzo(g,h,i)perylene	360	U	360	U	360	U	360	U	350	U	350	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: 11/03/99 13:54

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	**SBLKEU**		**SBLKEU BS**	
Sample Information	RFW#:	**99LE1275-MB1**		**99LE1275-MB1**	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	80	%	76	%
	2-Fluorobiphenyl	79	%	76	%
	Terphenyl-d14	79	%	75	%
	Phenol-d5	73	%	72	%
	2-Fluorophenol	77	%	74	%
	2,4,6-Tribromophenol	69	%	76	%
Phenol		330	U	70	%
bis(2-Chloroethyl)ether		330	U	330	U
2-Chlorophenol		330	U	73	%
1,3-Dichlorobenzene		330	U	330	U
1,4-Dichlorobenzene		330	U	72	%
1,2-Dichlorobenzene		330	U	330	U
2-Methylphenol		330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U
4-Methylphenol		330	U	330	U
N-Nitroso-di-n-propylamine		330	U	79	%
Hexachloroethane		330	U	330	U
Nitrobenzene		330	U	330	U
Isophorone		330	U	330	U
2-Nitrophenol		330	U	330	U
2,4-Dimethylphenol		330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U
2,4-Dichlorophenol		330	U	330	U
1,2,4-Trichlorobenzene		330	U	77	%
Naphthalene		330	U	330	U
4-Chloroaniline		330	U	330	U
Hexachlorobutadiene		330	U	330	U
4-Chloro-3-methylphenol		330	U	70	%
2-Methylnaphthalene		330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U
2,4,5-Trichlorophenol		840	U	840	U

*= Outside of EPA CLP QC limits.

	Cust ID: SBLKEU		SBLKEU BS	
	RFW#: 99LE1275-MB1		99LE1275-MB1	
2-Chloronaphthalene	330	U	330	U
2-Nitroaniline	840	U	840	U
Dimethylphthalate	330	U	330	U
Acenaphthylene	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U
3-Nitroaniline	840	U	840	U
Acenaphthene	330	U	76	%
2,4-Dinitrophenol	840	U	840	U
4-Nitrophenol	840	U	73	%
Dibenzofuran	330	U	330	U
2,4-Dinitrotoluene	330	U	71	%
Diethylphthalate	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U
Fluorene	330	U	330	U
4-Nitroaniline	840	U	840	U
4,6-Dinitro-2-methylphenol	840	U	840	U
N-Nitrosodiphenylamine (1)	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U
Hexachlorobenzene	330	U	330	U
Pentachlorophenol	840	U	81	%
Phenanthrene	330	U	330	U
Anthracene	330	U	330	U
Carbazole	330	U	330	U
Di-n-butylphthalate	330	U	330	U
Fluoranthene	330	U	330	U
Pyrene	330	U	75	%
Butylbenzylphthalate	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U
Benzo(a)anthracene	330	U	330	U
Chrysene	330	U	330	U
bis(2-Ethylhexyl)phthalate	330	U	330	U
Di-n-octyl phthalate	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U
Benzo(a)pyrene	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U
Dibenz(a,h)anthracene	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U

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

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

RFW Batch Number: 9910L335 Client: TNU-HANFORD B99-078 Work Order: 10985001001 Report Date: 11/03/99 14:29 Page: 1a

	Cust ID:	B0WKY6		B0WKY7		SBLKEU		SBLKEU BS	
Sample Information	RFW#:	001		002		99LE1275-MB1		99LE1275-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	74	%	71	%	80	%	76	%
	2-Fluorobiphenyl	71	%	70	%	79	%	76	%
	Terphenyl-d14	82	%	84	%	79	%	75	%
	Phenol-d5	71	%	72	%	73	%	72	%
	2-Fluorophenol	64	%	64	%	77	%	74	%
	2,4,6-Tribromophenol	63	%	63	%	69	%	76	%
Phenol		340	U	330	U	330	U	70	%
bis(2-Chloroethyl)ether		340	U	330	U	330	U	330	U
2-Chlorophenol		340	U	330	U	330	U	73	%
1,3-Dichlorobenzene		340	U	330	U	330	U	330	U
1,4-Dichlorobenzene		340	U	330	U	330	U	72	%
1,2-Dichlorobenzene		340	U	330	U	330	U	330	U
2-Methylphenol		340	U	330	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		340	U	330	U	330	U	330	U
4-Methylphenol		340	U	330	U	330	U	330	U
N-Nitroso-di-n-propylamine		340	U	330	U	330	U	79	%
Hexachloroethane		340	U	330	U	330	U	330	U
Nitrobenzene		340	U	330	U	330	U	330	U
Isophorone		340	U	330	U	330	U	330	U
2-Nitrophenol		340	U	330	U	330	U	330	U
2,4-Dimethylphenol		340	U	330	U	330	U	330	U
bis(2-Chloroethoxy)methane		340	U	330	U	330	U	330	U
2,4-Dichlorophenol		340	U	330	U	330	U	330	U
1,2,4-Trichlorobenzene		340	U	330	U	330	U	77	%
Naphthalene		340	U	330	U	330	U	330	U
4-Chloroaniline		340	U	330	U	330	U	330	U
Hexachlorobutadiene		340	U	330	U	330	U	330	U
4-Chloro-3-methylphenol		340	U	330	U	330	U	70	%
2-Methylnaphthalene		340	U	330	U	330	U	330	U
Hexachlorocyclopentadiene		340	U	330	U	330	U	330	U
2,4,6-Trichlorophenol		340	U	330	U	330	U	330	U
2,4,5-Trichlorophenol		860	U	840	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0WKY6		B0WKY7		SBLKEU		SBLKEU BS	
RFW#:	001		002		99LE1275-MB1		99LE1275-MB1	
2-Chloronaphthalene	340	U	330	U	330	U	330	U
2-Nitroaniline	860	U	840	U	840	U	840	U
Dimethylphthalate	340	U	330	U	330	U	330	U
Acenaphthylene	340	U	330	U	330	U	330	U
2,6-Dinitrotoluene	340	U	330	U	330	U	330	U
3-Nitroaniline	860	U	840	U	840	U	840	U
Acenaphthene	340	U	330	U	330	U	76	%
2,4-Dinitrophenol	860	U	840	U	840	U	840	U
4-Nitrophenol	860	U	840	U	840	U	73	%
Dibenzofuran	340	U	330	U	330	U	330	U
2,4-Dinitrotoluene	340	U	330	U	330	U	71	%
Diethylphthalate	340	U	330	U	330	U	330	U
4-Chlorophenyl-phenylether	340	U	330	U	330	U	330	U
Fluorene	340	U	330	U	330	U	330	U
4-Nitroaniline	860	U	840	U	840	U	840	U
4,6-Dinitro-2-methylphenol	860	U	840	U	840	U	840	U
N-Nitrosodiphenylamine (1)	340	U	330	U	330	U	330	U
4-Bromophenyl-phenylether	340	U	330	U	330	U	330	U
Hexachlorobenzene	340	U	330	U	330	U	330	U
Pentachlorophenol	860	U	840	U	840	U	81	%
Phenanthrene	340	U	330	U	330	U	330	U
Anthracene	340	U	330	U	330	U	330	U
Carbazole	340	U	330	U	330	U	330	U
Di-n-butylphthalate	340	U	330	U	330	U	330	U
Fluoranthene	340	U	330	U	330	U	330	U
Pyrene	340	U	330	U	330	U	75	%
Butylbenzylphthalate	340	U	330	U	330	U	330	U
3,3'-Dichlorobenzidine	340	U	330	U	330	U	330	U
Benzo(a)anthracene	340	U	330	U	330	U	330	U
Chrysene	340	U	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	340	U	330	U	330	U	330	U
Di-n-octyl phthalate	340	U	330	U	330	U	330	U
Benzo(b)fluoranthene	340	U	330	U	330	U	330	U
Benzo(k)fluoranthene	340	U	330	U	330	U	330	U
Benzo(a)pyrene	340	U	330	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	340	U	330	U	330	U	330	U
Dibenz(a,h)anthracene	340	U	330	U	330	U	330	U
Benzo(g,h,i)perylene	340	U	330	U	330	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

RFW Batch Number: **9910L344** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Report Date: 11/11/99 11:24 Page: 1a

	Cust ID:	B0WKY3		SBLKEU		SBLKEU BS	
Sample Information	RFW#:	001		99LE1275-MB1		99LE1275-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	74	%	80	%	76	%
	2-Fluorobiphenyl	73	%	79	%	76	%
	Terphenyl-d14	84	%	79	%	75	%
	Phenol-d5	72	%	73	%	72	%
	2-Fluorophenol	65	%	77	%	74	%
	2,4,6-Tribromophenol	69	%	69	%	76	%
Phenol		350	U	330	U	70	%
bis(2-Chloroethyl)ether		350	U	330	U	330	U
2-Chlorophenol		350	U	330	U	73	%
1,3-Dichlorobenzene		350	U	330	U	330	U
1,4-Dichlorobenzene		350	U	330	U	72	%
1,2-Dichlorobenzene		350	U	330	U	330	U
2-Methylphenol		350	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	330	U	330	U
4-Methylphenol		350	U	330	U	330	U
N-Nitroso-di-n-propylamine		350	U	330	U	79	%
Hexachloroethane		350	U	330	U	330	U
Nitrobenzene		350	U	330	U	330	U
Isophorone		350	U	330	U	330	U
2-Nitrophenol		350	U	330	U	330	U
2,4-Dimethylphenol		350	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	330	U	330	U
2,4-Dichlorophenol		350	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	330	U	77	%
Naphthalene		350	U	330	U	330	U
4-Chloroaniline		350	U	330	U	330	U
Hexachlorobutadiene		350	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	330	U	70	%
2-Methylnaphthalene		350	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	330	U	330	U
2,4,5-Trichlorophenol		880	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0WKY3		SBLKEU		SBLKEU BS	
RFW#:	001		99LE1275-MB1		99LE1275-MB1	
2-Chloronaphthalene	350	U	330	U	330	U
2-Nitroaniline	880	U	840	U	840	U
Dimethylphthalate	350	U	330	U	330	U
Acenaphthylene	350	U	330	U	330	U
2,6-Dinitrotoluene	350	U	330	U	330	U
3-Nitroaniline	880	U	840	U	840	U
Acenaphthene	350	U	330	U	76	%
2,4-Dinitrophenol	880	U	840	U	840	U
4-Nitrophenol	880	U	840	U	73	%
Dibenzofuran	350	U	330	U	330	U
2,4-Dinitrotoluene	350	U	330	U	71	%
Diethylphthalate	350	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	330	U	330	U
Fluorene	350	U	330	U	330	U
4-Nitroaniline	880	U	840	U	840	U
4,6-Dinitro-2-methylphenol	880	U	840	U	840	U
N-Nitrosodiphenylamine (1)	350	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	330	U	330	U
Hexachlorobenzene	350	U	330	U	330	U
Pentachlorophenol	880	U	840	U	81	%
Phenanthrene	350	U	330	U	330	U
Anthracene	350	U	330	U	330	U
Carbazole	350	U	330	U	330	U
Di-n-butylphthalate	350	U	330	U	330	U
Fluoranthene	350	U	330	U	330	U
Pyrene	350	U	330	U	75	%
Butylbenzylphthalate	350	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	330	U	330	U
Benzo(a)anthracene	350	U	330	U	330	U
Chrysene	350	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	330	U	330	U
Di-n-octyl phthalate	350	U	330	U	330	U
Benzo(b)fluoranthene	350	U	330	U	330	U
Benzo(k)fluoranthene	350	U	330	U	330	U
Benzo(a)pyrene	350	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	330	U	330	U
Dibenz(a,h)anthracene	350	U	330	U	330	U
Benzo(g,h,i)perylene	350	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.

B0WKY1

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: D102206

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: 7 decanted: (Y/N) __ Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/22/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 8 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	8.81	200	JA
2.	ALDOL CONDENSATE	9.59	90	JA
3.	ALDOL CONDENSATE	10.75	100	JA
4.	UNKNOWN	22.87	80	J
5.	UNKNOWN	24.79	100	J
6.	ALKANE	29.17	200	J
7.	ALKANE	32.92	100	J
8.	UNKNOWN	38.45	100	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKY2

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D102209

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: 7 decanted: (Y/N) __ Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/22/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.80	100	J
2.	UNKNOWN	27.24	70	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKY4

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-004

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D102210

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/22/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

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.

B0WKY5

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-005

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A102408

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: 4 decanted: (Y/N) __ Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/24/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

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.

B0WKY6

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L335-001

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A102409

Level: (low/med) LOW Date Received: 10/11/99

% Moisture: 3 decanted: (Y/N) Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/24/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

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.

B0WKY7

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L335-002

Sample wt/vol: 30.8 (g/mL) G Lab File ID: A102410

Level: (low/med) LOW Date Received: 10/11/99

% Moisture: 3 decanted: (Y/N) __ Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/24/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

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.

B0WKY3

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L344-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A102411

Level: (low/med) LOW Date Received: 10/12/99

% Moisture: 6 decanted: (Y/N) Date Extracted: 10/19/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/24/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.24	90	J

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1	001	S	99LE1275	10/07/99	10/19/99	10/22/99
B0WKY1	001 MS	S	99LE1275	10/07/99	10/19/99	10/22/99
B0WKY1	001 MSD	S	99LE1275	10/07/99	10/19/99	10/22/99
B0WKY2	002	S	99LE1275	10/07/99	10/19/99	10/22/99
B0WKY4	004	S	99LE1275	10/07/99	10/19/99	10/22/99
B0WKY5	005	S	99LE1275	10/07/99	10/19/99	10/24/99

LAB QC:

SBLKEU	MB1	S	99LE1275	N/A	10/19/99	10/22/99
SBLKEU	MB1 BS	S	99LE1275	N/A	10/19/99	10/22/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6	001	S	99LE1275	10/07/99	10/19/99	10/24/99
B0WKY7	002	S	99LE1275	10/07/99	10/19/99	10/24/99

LAB QC:

SBLKEU	MB1	S	99LE1275	N/A	10/19/99	10/22/99
SBLKEU	MB1 BS	S	99LE1275	N/A	10/19/99	10/22/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3	001	S	99LE1275	10/07/99	10/19/99	10/24/99
LAB QC:						
SBLKEU	MB1	S	99LE1275	N/A	10/19/99	10/22/99
SBLKEU	MB1 BS	S	99LE1275	N/A	10/19/99	10/22/99

RECRA LabNet Use Only

9910C333

Custody Transfer Record/Lab Work Request

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) ~~pesticide~~ ~~wet lab~~ metals

RECRA LabNet

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: 10/9/99 Date Due: 11/8/99

Account #:

Refrigerator #		1	2	2					2	1	2	2					
#/Type Container	Liquid																
	Solid	1g	1g	1					1g	1	1g	1g					
Volume	Liquid																
	Solid	250	500	1					500	1	250	1 qt					
Preservatives																	
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN							
		RECRA LabNet Use Only															
		0624H 0SCSC	0625H	0DRO 0PCB					Met①	ICNTO	IPH	Ang①					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H 0SCSC	0625H	0DRO 0PCB					Met①	ICNTO	IPH	Ang①				
001	BOWKY1			S	10/7/99	0801	✓	✓	✓					✓	✓	✓	✓				
002	2					0813	✓	✓	✓					✓	✓	✓	✓				
~~003~~	~~3~~					~~0822~~	~~✓~~	10/9/99													
004	4					0835	✓	✓	✓					✓	✓	✓	✓				
005	5					0854	✓	✓	✓					✓	✓	✓	✓				

11/3/99
SB and TL added to all metals samples per client

Special Instructions:
Sub# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
#003 1. Samples not Rec'd.
2. Run matrix QC
Met① = RCRA+ Be, Cu, Ni, V, Zn
Ang① = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
5. ICSO4, ISFD, INH3N, ICNTO,
6. IN3N2 (ICRG added 10/13/99)

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
42357953 0289

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	10-9-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 89
			COA B20CW167/C

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

Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X				
BOWKY2	SOIL	10/7/99	0813		X	X	X	X	X				
BOWKY3	SOIL	10/7/99	0822		X	X	X	X	X				
BOWKY4	SOIL	10/7/99	0835		X	X	X	X	X				
BOWKY5	SOIL	10/7/99	0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 10-7-99/1130	Received By: R of 1B	Date/Time: 10-7-99/1130
Relinquished By: Ker 1B	Date/Time: 10/8/99 0948	Received By: R. Nielson / R. Nielson	Date/Time: 10/8/99 0948
Relinquished By: R. Nielson / R. Nielson	Date/Time: 10/8/99 1430	Received By: Federal Express	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-9-99 0945	Received By: [illegible]	Date/Time: 10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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 Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TTU Hanford B99-078

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

RECRA Project Manager: Orlette Johnson

QC: Spec Del: std TAT: 30 day

Date Rec'd: 10-11-99 Date Due: 11/10/99

Account #:

Refrigerator #		1	2	1					2		1				
#/Type Container	Liquid														
	Solid	1PG	1PG	1					1PG	1	1PG	1PG			
Volume	Liquid														
	Solid	250	500	1					500	1	250	1L			
Preservatives		-	-						-		-	-			
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN					
RECRA LabNet Use Only		OLZAH OGCSC	OLZSH ODRO	OPCB					Meto	ICNITO	IPH	Ang			

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	OLZAH OGCSC	OLZSH ODRO	OPCB	Meto	ICNITO	IPH	Ang
001	BOW496			S	10-7-99	0913	✓	✓	✓	✓	✓	✓	✓
002	BOW497			↓	↓	0932	✓	✓	✓	✓	✓	✓	✓

Special Instructions:

Sch. # B99-078

COMPOSITE WASTE

DATE/REVISIONS:

Met (1.) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,

2. Se, Ag, V, Zn, Hg, ICR6

Ang (1.) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,

4. ICPO4, ICSO4, ISFD, INH3N, IPH

5.

6. Run matrix QC

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4235795308 90
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TTMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of 1 RJN 10/7/99

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078		
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex		
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 90		
			COA: B20CW167C		

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	40mL	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
BOW KY6	Soil	10/7/99	0913						X	X	X	X	X
BOW KY7	Soil	10/7/99	0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Doug Bowers	10-7-99/1130	Received By: RofB	10-7-99/1130
Relinquished By: RofB		10/8/99 1030	Received By: R. Nielson	10/8/99 1030
Relinquished By: R. Nielson		10/8/99 1430	Received By: Fed Ex	
Relinquished By: Fed Ex		10-11-99 0940	Received By: TMurray	10-11-99 0940

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

Tie to BOW8C1

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 Use Only
9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: Orlette Johnson
QC: spec Del: std TAT: 30 day
Date Rec'd: 10-~~18~~-99 Date Due: 11/11/99
Account #: 12 10/12/99

Refrigerator #		1	2	1					2	1					
#/Type Container	Liquid														
	Solid	1AG	1AG	1					1AG	1	1AG	1AG			
Volume	Liquid														
	Solid	250	500	1					500	1	250	1L			
Preservatives		-	-						-	-	-	-			
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN	TR	Inorg			
RECRA LabNet Use Only		0024H 0825C	0025H	0DRO 0PCB					Met①	1CNUTU	1PH	Ang①			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	BAUK93			S	10-7-99	0820	✓	✓	✓					✓	✓	✓	✓	

Special Instructions:

COMPOSITE WASTE

SDG with 9910L333

DATE/REVISIONS:

1. Met① = RCRA+ Be, Cu, Ni, V, Zn
2. Ang① ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N, ~~ICNTO~~, INBN2 10/12/99
4.
5. No matrix QC Required
6.

Relinquished by	Received by	Date	Time
FedEx	TMurray	12 10-~~18~~-99	0930
		10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 4235795360290
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. 5.2 °C

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

DEC 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU HANFORD B99-078
RFW #: 9910L333/9910L335/9910L344
SDG/SAF#: H0566/B99-078

W.O. #: #: 10985-001-001-9999-00
Date Received: 10-09,11,12-99

GC SCAN

The set of samples consisted of seven (7) soil samples collected on 10-07-99.

The samples and their associated QC samples were prepared on 10-14-99 and analyzed by methodology based on EPA Method 8015B for Ethanol and Butanol on 10-15,16-99.

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

5. Surrogates were not used for this analysis.

6. The blank spike recovery was within advisory control limits of 50%-150%.

7. All matrix spike recoveries were within advisory control limits of 50%-150%.

Pat G

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-5-99
Date

r:\share\lc\gcscan\10-333.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 - Lionville Laboratory

GC SCAN

Report Date: 11/03/99 13:42

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

	Cust ID:	B0WKY1	B0WKY1	B0WKY1	B0WKY2	B0WKY4	B0WKY5
Sample Information	RFW#:	001	001 MS	001 MSD	002	004	005
	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	93 %	94 %	5.5 U	3.4 U	3.0 U
Ethanol		5.0 U	3.8 U	4.6 U	5.5 U	3.4 U	3.0 U

	Cust ID:	BLK	BLK BS
Sample Information	RFW#:	99LLC156-MB1	99LLC156-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	mg/kg	mg/kg
n-Propyl Alcohol		5.0 U	57 %
Ethanol		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.

003

Recra LabNet - Lionville Laboratory

GC SCAN

Report Date: 11/03/99 13:43

RFW Batch Number: **9910L335** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

004

	Cust ID:	B0WKY6	B0WKY6	B0WKY6	B0WKY7	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	99LLC156-MB1	99LLC156-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		2.8 U	95 %	95 %	3.3 U	5.0 U	57 %
Ethanol		2.8 U	2.8 U	3.2 U	3.3 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.

Recra LabNet - Lionville Laboratory

GC SCAN

RFW Batch Number: **9910L344** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Report Date: 11/03/99 13:43 Page: 1

005

	Cust ID:	B0WKY3	B0WKY3	B0WKY3	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	99LLC156-MB1	99LLC156-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
n-Propyl Alcohol		4.6 U	95 %	97 %	5.0 U	57 %
Ethanol		4.6 U	4.8 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.

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1	001	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY1	001 MS	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY1	001 MSD	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY2	002	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY4	004	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY5	005	S	99LLC156	10/07/99	10/14/99	10/15/99
LAB QC:						
BLK	MB1	S	99LLC156	N/A	10/14/99	10/15/99
BLK	MB1 BS	S	99LLC156	N/A	10/14/99	10/15/99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6	001	S	99LLC156	10/07/99	10/14/99	10/15/99
B0WKY6	001 MS	S	99LLC156	10/07/99	10/14/99	10/16/99
B0WKY6	001 MSD	S	99LLC156	10/07/99	10/14/99	10/16/99
B0WKY7	002	S	99LLC156	10/07/99	10/14/99	10/16/99

LAB QC:

BLK	MB1	S	99LLC156	N/A	10/14/99	10/15/99
BLK	MB1 BS	S	99LLC156	N/A	10/14/99	10/15/99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3	001	S	99LLC156	10/07/99	10/14/99	10/16/99
B0WKY3	001 MS	S	99LLC156	10/07/99	10/14/99	10/16/99
B0WKY3	001 MSD	S	99LLC156	10/07/99	10/14/99	10/16/99

LAB QC:

BLK	MB1	S	99LLC156	N/A	10/14/99	10/15/99
BLK	MB1 BS	S	99LLC156	N/A	10/14/99	10/15/99

10/13/99

RECRA LabNet Use Only

99106333

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone wet lab

RECRA LabNet

Client: INU-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 days

Date Rec'd: 10/9/99 Date Due: 11/8/99

Account #:

Refrigerator #		1	2	2					2	2	2						
#/Type Container	Liquid																
	Solid	1g	1g						1g	1g	1g						
Volume	Liquid																
	Solid	250	500						500	250	1tr						
Preservatives																	
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb					INORG: Metal	CN							

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 4H 8260C	8260 5H	8015 DRO 8PCB					Met(1)	ICNTO	IPH	Ang(1)				
001	BOWKY1			S	10/7/99	0801	✓	✓	✓					✓	✓	✓	✓				
002	2					0813	✓	✓	✓					✓	✓	✓	✓				
003	3					~~0822~~	~~✓~~	10/9/99													
004	4					0835	✓	✓	✓					✓	✓	✓	✓				
005	5					0854	✓	✓	✓					✓	✓	✓	✓				

Special Instructions:

Sub # B99-078

COMPOSITE WASTE

DATE/REVISIONS:

#003 1. Samples not Rec'd.

2. Run matrix QC

Met(1) = RCRA + Be, Cu, Ni, V, Zn

Ang(1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,

5. ICSO4, ISFD, INH3N, ICNTO,

6. IN3N2 (ICR6 added 10/13/99)

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 3.5 C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10-9-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7953 0289

RECRA LabNet Use Only

9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone metals QC MS VOA Semvol BNA, PCB

RECRA LabNet

Client TTU Hanford B99-078

Est. Final Proj. Sampling Date

Project # 109185-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager Orlette Johnson

QC spec Del std TAT 30 day

Date Rec'd 10-11-99 Date Due 11/10/99

Account #

Refrigerator #		1	2							2						
#/Type Container	Liquid															
	Solid	1PG	1PG							1PG		1PG	1PG			
Volume	Liquid															
	Solid	250	500							500		250	1L			
Preservatives		–	–							–		–	–			
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb					INORG: Metal	CN	pH					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 4H 8260SC	8260 SH 8DRO	8PCB					Met (1)	ICP (1)	IPH	Ang (1)				
S - Soil	001	BOW496			S	10-7-99	0913	✓	✓	✓					✓	✓	✓	✓				
SE - Sediment	002	BOW497			↓	↓	0932	✓	✓	✓					✓	✓	✓	✓				
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

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

SDS w/ 9910L333

DATE/REVISIONS:

Met (1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,

2. Se, Ag, V, Zn, Hg, ICR6

Ang (1) 3. = IN3N2, ICCL, ICFL, ICNO2, ICNO3,

4. ICPO4, ICSO4, ISFD, INH3N, IPH

5. No matrix QC Required

10/13/99 ~~Run matrix QC~~

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 4235795306290
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. 5.2 °C

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

NOTES:

Relinquished by	Received by	Date	Time
FedEx	TTMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA LabNet Use Only

9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TMU-Hanford B99-078

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager Orlette Johnson

QC spec Del std TAT 30 day

Date Rec'd 10-~~11~~-99 12 Date Due 11/11/99

Account # 10/12/99

Refrigerator #		1	2	1					2	1						011
#/Type Container	Liquid															
	Solid	1AG	1AG	1					1AG	1	1AG	1AG				
Volume	Liquid															
	Solid	250	500	1					500	1	250	1L				
Preservatives		-	-						-	-	-	-				
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	TPH	Hg				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 8260C	8270 8270C	8080 8082				Met①	ICNTC	TPH	Ang①				
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	BOUK93			S	10-7-99	0820	✓	✓	✓				✓	✓	✓	✓				

RECRA LabNet Use Only

Special Instructions:

COMPOSITE WASTE

with SDG V9910L333

DATE/REVISIONS:

Met① = RCRA + Be, Cu, Ni, V, Zn

Ang① 2. ICCL, ICFL, ICNO2, ICNO3, ICPO4, 10/12/99

3. ICSO4, ISED, INH3N, ~~ICNO2~~, INO2N2

4.

5. No matrix QC Required

6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4235795380290
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. 5.2 °C

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

NOTES:

Relinquished by	Received by	Date	Time
FedEx	TMurray	10-12-99	0930
		10/12/99	

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of 1 RJN 10/7/99

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 423579530290
			COA B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions
Sample No.	Matrix * / Sample Date / Sample Time										
BOW KY6	Soil 10/7/99 0913						X	X	X	X	X
BOW KY7	Soil 10/7/99 0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 10-7-99/1130	Received By: Ref 1B	Date/Time: 10-7-99/1130
Relinquished By: Ref #1B	Date/Time: 10/8/99 1030	Received By: R.Nielson	Date/Time: 10/8/99 1030
Relinquished By: R.Nielson	Date/Time: 10/8/99 1430	Received By: Fed Ex	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-11-99 0940	Received By: TTMurray	Date/Time: 10-11-99 0940
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, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, 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

Tie to BØW8C1

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235195302 89
			COA: B20CW167/C

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

Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X				
BOWKY2	Soil	10/7/99	0813		X	X	X	X	X				
BOWKY3	Soil	10/7/99	0822		X	X	X	X	X				
BOWKY4	Soil	10/7/99	0835		X	X	X	X	X				
BOWKY5	Soil	10/7/99	0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 10-7-99/1130	Received By: B of IB	Date/Time: 10-7-99/1130
Relinquished By: Ker#1B	Date/Time: 10/8/99 0948	Received By: R. Nielson / R. Nielson	Date/Time: 10/8/99 0948
Relinquished By: R. Nielson / R. Nielson	Date/Time: 10/8/99 1430	Received By: Federal Express	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-9-99 0945	Received By: [signature]	Date/Time: 10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1

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

DEC 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L333, 9910L335, 9910L344
SDG/SAF #: H0566/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 10-09,11,12-99

GC/MS VOLATILE

Seven (7) soil samples were collected on 10-07-99.

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 10-19,20-99.

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. A non-target compound was detected in sample B0WKY5.

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 blanks contained the common laboratory contaminants Methylene Chloride and/or Acetone at levels less than 2x the CRQL.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-23-99
Date

som\group\data\voa\tnu0s333.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 27 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

mmz\10-94\gloss.voa

GLOSSARY OF VOA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.voa

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/20/99 23:04

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

	Cust ID:	B0WKY1		B0WKY1		B0WKY1		B0WKY2		B0WKY4		B0WKY5	
Sample Information	RFW#:	001		001 MS		001 MSD		002		004		005	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.893		1.00		0.962		0.893		0.877		0.980	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	99	%	95	%	91	%	101	%	94	%	109	%
	Bromofluorobenzene	94	%	91	%	89	%	97	%	90	%	105	%
	1,2-Dichloroethane-d4	91	%	90	%	88	%	91	%	88	%	101	%
Chloromethane		10	U	11	U	10	U	10	U	9	U	10	U
Bromomethane		10	U	11	U	10	U	10	U	9	U	10	U
Vinyl Chloride		10	U	11	U	10	U	10	U	9	U	10	U
Chloroethane		10	U	11	U	10	U	10	U	9	U	10	U
Methylene Chloride		6	B	7	B	7	B	6	B	5	B	6	B
Acetone		10	U	11	U	10	U	10	U	9	U	10	U
Carbon Disulfide		5	U	6	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	92	%	91	%	5	U	5	U	5	U
1,1-Dichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	5	U	5	U
Chloroform		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	11	U	10	U	10	U	9	U	10	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	92	%	89	%	5	U	5	U	5	U
Dibromochloromethane		5	U	6	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Benzene		5	U	102	%	99	%	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	5	U
Bromoform		5	U	6	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	11	U	10	U	10	U	9	U	10	U
2-Hexanone		10	U	11	U	10	U	10	U	9	U	10	U
Tetrachloroethene		5	U	6	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Toluene		5	U	98	%	97	%	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

gw 11-22-99

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1b

Cust ID:	B0WKY1	B0WKY1	B0WKY1	B0WKY2	B0WKY4	B0WKY5
RFW#:	001	001 MS	001 MSD	002	004	005
Chlorobenzene	5 U	94 %	92 %	5 U	5 U	5 U
Ethylbenzene	5 U	6 U	5 U	5 U	5 U	5 U
Styrene	5 U	6 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	6 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/20/99 23:04

RFW Batch Number: **9910L333** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	**VBLKXF**	**VBLKXF BS**
Sample Information	RFW#:	**99LVK441-MB1**	**99LVK441-MB1**
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG

Surrogate Recovery	Toluene-d8	101	%	100	%
	Bromofluorobenzene	105	%	101	%
	1,2-Dichloroethane-d4	102	%	95	%

Chloromethane	10	U	10	U
Bromomethane	10	U	10	U
Vinyl Chloride	10	U	10	U
Chloroethane	10	U	10	U
Methylene Chloride	6		8	B
Acetone	5	J	4	JB
Carbon Disulfide	5	U	5	U
1,1-Dichloroethene	5	U	101	%
1,1-Dichloroethane	5	U	5	U
1,2-Dichloroethene (total)	5	U	5	U
Chloroform	5	U	5	U
1,2-Dichloroethane	5	U	5	U
2-Butanone	10	U	10	U
1,1,1-Trichloroethane	5	U	5	U
Carbon Tetrachloride	5	U	5	U
Bromodichloromethane	5	U	5	U
1,2-Dichloropropane	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U
Trichloroethene	5	U	98	%
Dibromochloromethane	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U
Benzene	5	U	107	%
Trans-1,3-Dichloropropene	5	U	5	U
Bromoform	5	U	5	U
4-Methyl-2-pentanone	10	U	10	U
2-Hexanone	10	U	10	U
Tetrachloroethene	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U
Toluene	5	U	103	%

*= Outside of EPA CLP QC limits.

11-22-99

Cust ID:	**VBLKXF**	**VBLKXF BS**
RFW#:	**99LVK441-MB1**	**99LVK441-MB1**

Chlorobenzene	5	U	102	%
Ethylbenzene	5	U	5	U
Styrene	5	U	5	U
Xylene (total)	5	U	5	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/20/99 19:43

RFW Batch Number: **9910L335** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

	Cust ID:	B0WKY6		B0WKY7		VBLKYD	
Sample Information	RFW#:	001		002		99LVK446-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.06		0.926		1.00	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	107	%	109	%	110	%
	Bromofluorobenzene	105	%	105	%	114	%
	1,2-Dichloroethane-d4	104	%	105	%	111	%
Chloromethane		11	U	10	U	10	U
Bromomethane		11	U	10	U	10	U
Vinyl Chloride		11	U	10	U	10	U
Chloroethane		11	U	10	U	10	U
Methylene Chloride		13	B	12	B	13	
Acetone		11	U	2	J	10	U
Carbon Disulfide		6	U	5	U	5	U
1,1-Dichloroethene		6	U	5	U	5	U
1,1-Dichloroethane		6	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	5	U	5	U
Chloroform		6	U	5	U	5	U
1,2-Dichloroethane		6	U	5	U	5	U
2-Butanone		11	U	10	U	10	U
1,1,1-Trichloroethane		6	U	5	U	5	U
Carbon Tetrachloride		6	U	5	U	5	U
Bromodichloromethane		6	U	5	U	5	U
1,2-Dichloropropane		6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	5	U	5	U
Trichloroethene		6	U	5	U	5	U
Dibromochloromethane		6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	5	U	5	U
Benzene		6	U	5	U	5	U
Trans-1,3-Dichloropropene		6	U	5	U	5	U
Bromoform		6	U	5	U	5	U
4-Methyl-2-pentanone		11	U	10	U	10	U
2-Hexanone		11	U	10	U	10	U
Tetrachloroethene		6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	5	U	5	U
Toluene		6	U	5	U	5	U

*= Outside of EPA CLP QC limits.

AL 11-22-99

RFW Batch Number: **9910L335** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1b

Cust ID:	B0WKY6	B0WKY7	VBLKYD
RFW#:	001	002	99LVK446-MB1
Chlorobenzene	6 U	5 U	5 U
Ethylbenzene	6 U	5 U	5 U
Styrene	6 U	5 U	5 U
Xylene (total)	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/20/99 20:57

RFW Batch Number: **9910L344** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

10

	Cust ID:	**B0WKY3**	**VBLKYD**
Sample Information	RFW#:	**001**	**99LVK446-MB1**
	Matrix:	SOIL	SOIL
	D.F.:	0.877	1.00
	Units:	UG/KG	UG/KG

	Toluene-d8	91	%	110	%
Surrogate	Bromofluorobenzene	88	%	114	%
Recovery	1,2-Dichloroethane-d4	92	%	111	%

Chloromethane	9	U	10	U
Bromomethane	9	U	10	U
Vinyl Chloride	9	U	10	U
Chloroethane	9	U	10	U
Methylene Chloride	12	B	13	
Acetone	9	U	10	U
Carbon Disulfide	5	U	5	U
1,1-Dichloroethene	5	U	5	U
1,1-Dichloroethane	5	U	5	U
1,2-Dichloroethene (total)	5	U	5	U
Chloroform	5	U	5	U
1,2-Dichloroethane	5	U	5	U
2-Butanone	9	U	10	U
1,1,1-Trichloroethane	5	U	5	U
Carbon Tetrachloride	5	U	5	U
Bromodichloromethane	5	U	5	U
1,2-Dichloropropane	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U
Trichloroethene	5	U	5	U
Dibromochloromethane	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U
Benzene	5	U	5	U
Trans-1,3-Dichloropropene	5	U	5	U
Bromoform	5	U	5	U
4-Methyl-2-pentanone	9	U	10	U
2-Hexanone	9	U	10	U
Tetrachloroethene	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U
Toluene	5	U	5	U

*= Outside of EPA CLP QC limits.

AW 11-22-99

Cust ID:	**B0WKY3**	**VBLKYD**
RFW#:	**001**	**99LVK446-MB1**
Chlorobenzene	5 U	5 U
Ethylbenzene	5 U	5 U
Styrene	5 U	5 U
Xylene (total)	5 U	5 U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY1

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-001

Sample wt/vol: 5.60 (g/mL) G Lab File ID: k101915

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: not dec. 7 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 0.893

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY2

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-002

Sample wt/vol: 5.60 (g/mL) G Lab File ID: k101918

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: not dec. 7 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 0.893

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY4

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-004

Sample wt/vol: 5.70 (g/mL) G Lab File ID: k101919

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: not dec. 5 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 0.877

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY5

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L333-005

Sample wt/vol: 5.10 (g/mL) G Lab File ID: k101920

Level: (low/med) LOW Date Received: 10/09/99

% Moisture: not dec. 4 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 0.980

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.177	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKXF

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 99LVK441-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k101905

Level: (low/med) LOW Date Received: 10/19/99

% Moisture: not dec. 0 Date Analyzed: 10/19/99

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.158	20	J

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY6

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L335-001

Sample wt/vol: 4.70 (g/mL) G Lab File ID: k102022

Level: (low/med) LOW Date Received: 10/11/99

% Moisture: not dec. 3 Date Analyzed: 10/20/99

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

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKYD

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 99LVK446-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k102021

Level: (low/med) LOW Date Received: 10/20/99

% Moisture: not dec. 0 Date Analyzed: 10/20/99

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.173	20	J

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKY3

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L344-001

Sample wt/vol: 5.70 (g/mL) G Lab File ID: k102024

Level: (low/med) LOW Date Received: 10/12/99

% Moisture: not dec. 6 Date Analyzed: 10/20/99

Column: (pack/cap) CAP Dilution Factor: 0.877

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

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

DATE RECEIVED: 10/09/99 RFW LOT # :9910L333

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY1	001	S	99LVK441	10/07/99	N/A	10/19/99
B0WKY1	001 MS	S	99LVK441	10/07/99	N/A	10/19/99
B0WKY1	001 MSD	S	99LVK441	10/07/99	N/A	10/19/99
B0WKY2	002	S	99LVK441	10/07/99	N/A	10/19/99
B0WKY4	004	S	99LVK441	10/07/99	N/A	10/19/99
B0WKY5	005	S	99LVK441	10/07/99	N/A	10/19/99
LAB QC:						
VBLKXF	MB1	S	99LVK441	N/A	N/A	10/19/99
VBLKXF	MB1 BS	S	99LVK441	N/A	N/A	10/19/99

AW 11-22-99

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

DATE RECEIVED: 10/11/99 RFW LOT # :9910L335

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY6	001	S	99LVK446	10/07/99	N/A	10/20/99
B0WKY7	002	S	99LVK446	10/07/99	N/A	10/20/99

LAB QC:

VBLKYD	MB1	S	99LVK446	N/A	N/A	10/20/99

AW 11-22-99

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

DATE RECEIVED: 10/12/99 RFW LOT # :9910L344

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKY3	001	S	99LVK446	10/07/99	N/A	10/20/99
LAB QC:						
VBLKYD	MB1	S	99LVK446	N/A	N/A	10/20/99

gw 11-22-99

RECRA LabNet Use Only
9910C333

Custody Transfer Record/Lab Work Request

Page 1 of 1

All

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) ~~perrone~~ ~~wet lab~~ metals

RECRA LabNet

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: 10/9/99 Date Due: 11/8/99
Account #:

Refrigerator #		1	2	2					2	1	2	2					
#/Type Container	Liquid																
	Solid	1g	1g	1					1g	1	1g	1g					
Volume	Liquid																
	Solid	250	500	1					500	1	250	1 qt					
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260 4H 8015C	8625H	8DRO 8PCB					Met①	ICNTO	IPH	Ang①				
S - Soil	001	BOWKY1			S	10/7/99	0801	✓	✓	✓					✓	✓	✓	✓				
SE - Sediment	002	2					0813	✓	✓	✓					✓	✓	✓	✓				
SO - Solid	003	3					~~0822~~	X	10/9/99													
SL - Sludge	004	4					0835	✓	✓	✓					✓	✓	✓	✓				
W - Water	005	5					0854	✓	✓	✓					✓	✓	✓	✓				
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

RECRA LabNet Use Only

11/3/99
SB and TL added to all metals samples per client

Special Instructions:
Sub# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
#003 1. Samples not Rec'd.
2. Run matrix QC
Met① = RCRA + Be, Cu, Ni, V, Zn
Ang①4 = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
5. ICSO4, ISFD, INH3N, ICNTO,
6. IN3N2 (ICR6 added 10/13/99)

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 3.5 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
42357953 0289

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	09-99	0945

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC 96-059 / ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235195302 89
			COA: B20CW167/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS													
Preservation				None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None			
Type of Container				aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)				1	1	1	1	1	1	1			
Volume				60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY1	Soil	10/7/99	0801		X	X	X	X	X				
BOWKY2	SOIL	10/7/99	0813		X	X	X	X	X				
BOWKY3	SOIL	10/7/99	0822		X	X	X	X	X				
BOWKY4	SOIL	10/7/99	0835		X	X	X	X	X				
BOWKY5	SOIL	10/7/99	0854		X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	Doug Bowers	10-7-99 1130	Received By	R of 1B 10-7-99 1130
Relinquished By	R of 1B	10/8/99 0948	Received By	Renee Nielson / R. Nielson 10/8/99 0948
Relinquished By	Renee Nielson / R. Nielson	10/8/99 1430	Received By	Federal Express
Relinquished By	Fed Ex	10-9-99 0945	Received By	[illegible] 10-9-99 0945

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

Tie to BOW8C1
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

Tem 2.5

RECRA LabNet Use Only
9910L335

Custody Transfer Record/Lab Work Request

Page 1 of 1

All

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) ~~pesticide~~ metals ~~OC MS VOA Schedule BNA, PCB~~

RECRA LabNet

Client: TTU Hanford B99-078
Est. Final Proj. Sampling Date:
Project #: 109185-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: Orlette Johnson
QC: Spec Del: std TAT: 30 days
Date Rec'd: 10-11-99 Date Due: 11/10/99
Account #:

Refrigerator #		1	2						2						
#/Type Container	Liquid														
	Solid	1AG	1AG						1AG		1AG	1AG			
Volume	Liquid														
	Solid	250	500						500		250	1L			
Preservatives		–	–						–		–	–			
ANALYSES REQUESTED →		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal	CN	pH				

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	8024H 8260C	8025H 8DRO	8PCB					Met①	ICNTO	IPH	Ang①				
001	BAWK96			S	10-7-99	0913	✓	✓	✓					✓	✓	✓	✓				
002	BAWK97			↓	↓	0932	✓	✓	✓					✓	✓	✓	✓				

11/3/99
SB and TL added to all metals samples per client

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

SDG w/ 9910L333

DATE/REVISIONS:
Met① = As, Ba, Be, Cd, Cr, Cu, Pb, Ni,
2. Se, Ag, V, Zn, Hg, ICR6
Ang① = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, IPH
5. No matrix QC Required
10/13/99 ~~Run matrix QC~~

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4235795308 90
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. 5.2 °C

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

Relinquished by	Received by	Date	Time
FedEx	TTMurray	10-11-99	0940

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 1 of 1 RJN 10/7/99

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: ERC96-034	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990293		Bill of Lading/Air Bill No.: 4235795302 90
			COA B20CW167C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.
Sample No.	Matrix * / Sample Date / Sample Time										
BOW KY6	Soil 10/7/99 0913						X	X	X	X	X
BOW KY7	Soil 10/7/99 0932						X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By: Doug Bowers, Date/Time: 10-7-99/1130	Received By: R.J.B. 10-7-99/1130	
Relinquished By: Ref # 1B 10/8/99 1030	Received By: R.J. Nielson/R. Nielson 10/8/99 1030	
Relinquished By: R.J. Nielson/R. Nielson 10/8/99 1430	Received By: Fed Ex	
Relinquished By: Fed Ex 10-11-99 0940	Received By: T. Murray 10-11-99 0940	

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

Tie to BØW8C1

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 Use Only
9910L344

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) metals

Client TMU-Hanford B99-078
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager Orlette Johnson
QC spec Del std TAT 30 day
Date Rec'd 10-~~18~~-99 Date Due 11/11/99
Account # 12 10/12/99

Refrigerator #		1	2	1					2	1						
#/Type Container	Liquid															
	Solid	1AG	1AG	1					1AG	1	1AG	1AG				
Volume	Liquid															
	Solid	250	500	1					500	1	250	1L				
Preservatives		-	-						-	-	-	-				
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS	Inorg				
		RECRA LabNet Use Only														
		0024H 0SCSC	0025H	0DRO 0PCB					Met①	1CNUTU	1PH	Ang8①				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS	Inorg				
001	BOOK43			S	10-7-99	0820	✓	✓	✓					✓	✓	✓	✓				

11/3/99
SB and TL added to all metals samples per client

Special Instructions:

COMPOSITE WASTE

with SDG V9910L333

DATE/REVISIONS:
1. Met① = RCRA + Be, Cu, Ni, V, Zn
2. Ang① ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N, ~~ICNUTU~~, IN3N2
4.
5. No matrix QC Required
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4235795300 90
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. 5.2 °C

Relinquished by	Received by	Date	Time
FedEx	TMurray	10-~~18~~-99 12 / 10/12/99	0930

Relinquished by	Received by	Date	Time
ORIGINAL			
REWRITTEN			

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

H0566-TMA/RCRA

JAN 2000 RECEIVED Data Log In

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0566 was composed of seven solid 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 Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via facsimile on December 28, 1999 and January 5, 2000.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses. H samples were batched with SDG H0599 (7229).

2.2 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

The Tc samples and method blank contained a very small amount of beta contaminant at about one count per minute. Since it is consistent in all samples it is believed that the source is a long-lived Tc isotope in the tracer. There is no indication that the true Tc values are positive. The calculated answers are substantially below the RDL (15 pCi/g). To reflect this phenomenon, samples B0WKY6 (7235-06), B0WKY7 (7235-07), the method blank, and the sample duplicate are being reported as an upper limit value. The limiting value is calculated as the pCi/g result plus 1.65 standard deviations. The probability of the actual activity being less than this value is 95% assuming normal Gaussian statistics.

2.5 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.6 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

BHI did not request any of the samples be analyzed for Isotopic Uranium after reporting the Total Uranium results on November 3, 1999 via facsimile.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses. Np samples were batched with SDG H0599 (7229).

2.9 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.10 Americium-241 Analyses

Samples B0WKY4 and B0WKY7 had low yields. Sample B0WKY4 was reportable. Sample B0WKY7 (7235-07) was reworked in the laboratory. The yield on the rework also failed. Sample B0WKY7 was reanalyzed and the data reported though the yield still remained low; it is within the protocol limits. The Am reanalysis of sample B0WKY7 was batched with H0667 (7309). The sample duplicate is of a sample in SDG H0667. No other problems were encountered during the course of the analyses.

2.12 Gamma Spec Analyses

Sample results for B0WKY2 have been re-reported due to a correction made in the aliquot amount. No other problems were encountered during the course of the analyses.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0WKY1	200 B Pond	SOLID		N910071-01	B99-078	B99-078-135	10/07/99 08:01
B0WKY2	200 B Pond	SOLID		N910071-02	B99-078	B99-078-135	10/07/99 08:13
B0WKY3	200 B Pond	SOLID		N910071-03	B99-078	B99-078-135	10/07/99 08:22
B0WKY4	200 B Pond	SOLID		N910071-04	B99-078	B99-078-135	10/07/99 08:35
B0WKY5	200 B Pond	SOLID		N910071-05	B99-078	B99-078-135	10/07/99 08:54
B0WKY6	200 B Pond	SOLID		N910071-06	B99-078	B99-078-136	10/07/99 09:13
B0WKY7	200 B Pond	SOLID		N910071-07	B99-078	B99-078-136	10/07/99 09:32
Method Blank		SOLID		N910046-09	B99-078		
Method Blank		SOLID		N910071-09	B99-078		
Method Blank		SOLID		N910071-14	B99-078		
Method Blank		SOLID		N912055-04	B99-078		
Lab Control Sample		SOLID		N910046-08	B99-078		
Lab Control Sample		SOLID		N910071-08	B99-078		
Lab Control Sample		SOLID		N910071-13	B99-078		
Lab Control Sample		SOLID		N912055-03	B99-078		
Duplicate (N910071-01)	200 B Pond	SOLID		N910071-10	B99-078		10/07/99 08:01
Duplicate (N910071-01)	200 B Pond	SOLID		N910071-15	B99-078		10/07/99 08:01
Duplicate (N910071-06)	200 B Pond	SOLID		N910071-11	B99-078		10/07/99 09:13

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

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
7229		Method Blank	SOLID						N910046-09	7229-009
		Lab Control Sample	SOLID						N910046-08	7229-008
7235	B99-078-135	B0WKY1	SOLID	91.3			10/11/99	4	N910071-01	7235-001
		B0WKY2	SOLID	92.9			10/11/99	4	N910071-02	7235-002
		B0WKY3	SOLID	93.5			10/11/99	4	N910071-03	7235-003
		B0WKY4	SOLID	94.9			10/11/99	4	N910071-04	7235-004
		B0WKY5	SOLID	96.0			10/11/99	4	N910071-05	7235-005
	B99-078-136	B0WKY6	SOLID	96.8			10/11/99	4	N910071-06	7235-006
		B0WKY7	SOLID	97.1			10/11/99	4	N910071-07	7235-007
		Method Blank	SOLID						N910071-09	7235-009
		Method Blank	SOLID						N910071-14	7235-014
		Lab Control Sample	SOLID						N910071-08	7235-008
		Lab Control Sample	SOLID						N910071-13	7235-013
		Duplicate (N910071-01)	SOLID				10/11/99	4	N910071-10	7235-010
		Duplicate (N910071-01)	SOLID				10/11/99	4	N910071-15	7235-015
		Duplicate (N910071-06)	SOLID				10/11/99	4	N910071-11	7235-011
7309		Method Blank	SOLID						N912055-04	7309-004
		Lab Control Sample	SOLID						N912055-03	7309-003

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0566

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6904-087	5.0	6			1	1	1/1		
			6909-146	5.0	1			1	1			
NP	SOLID	Neptunium in Soil	6904-068	5.0	2			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6904-087	5.0	7			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6904-087	5.0	7			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6904-087	10.0	7			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6904-087	10.0	2			1	1	1/1		X
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6904-087	15.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6904-087	9.0	7			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6904-068	10.0	2			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6904-087	10.0	2			1	1	1/1		

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WKY1			N910071-01	7235-001	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-001	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-135	B99-078		10/11/99	7235-001	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-001	SR		11/30/99	12/27/99	NJV	Total Strontium in Soil
				7235-001	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-001	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
B0WKY2			N910071-02	7235-002	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-002	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-135	B99-078		10/11/99	7235-002	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-002	SR		11/26/99	12/27/99	NJV	Total Strontium in Soil
				7235-002	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-002	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
B0WKY3			N910071-03	7235-003	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-003	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-135	B99-078		10/11/99	7235-003	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-003	SR		12/01/99	12/27/99	NJV	Total Strontium in Soil
				7235-003	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-003	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
B0WKY4			N910071-04	7235-004	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-004	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-135	B99-078		10/11/99	7235-004	PU		12/13/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-004	SR		11/26/99	12/27/99	NJV	Total Strontium in Soil
				7235-004	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-004	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
B0WKY5			N910071-05	7235-005	AM		12/09/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-005	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-135	B99-078		10/11/99	7235-005	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-005	SR		11/26/99	12/27/99	NJV	Total Strontium in Soil
				7235-005	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-005	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WKY6			N910071-06	7235-006	AM		12/09/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-006	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-136	B99-078		10/11/99	7235-006	H		11/06/99	12/27/99	NJV	Tritium in Soil
				7235-006	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
				7235-006	NP		12/09/99	12/27/99	NJV	Neptunium in Soil
				7235-006	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-006	SR		12/01/99	12/27/99	NJV	Total Strontium in Soil
				7235-006	TC		12/10/99	12/27/99	NJV	Technetium 99 in Soil
				7235-006	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-006	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
B0WKY7			N910071-07	7235-007	AM	A1	01/10/00	01/15/00	MCM	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-007	GAM		11/22/99	12/27/99	NJV	Gamma Scan
B99-078-136	B99-078		10/11/99	7235-007	H		11/06/99	12/27/99	NJV	Tritium in Soil
				7235-007	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
				7235-007	NP		12/09/99	12/27/99	NJV	Neptunium in Soil
				7235-007	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-007	SR		11/27/99	12/27/99	NJV	Total Strontium in Soil
				7235-007	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil
				7235-007	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
				7235-007	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
Method Blank			N910046-09	7229-009	H		11/06/99	12/02/99	NJV	Tritium in Soil
		SOLID		7229-009	NP		11/24/99	12/02/99	NJV	Neptunium in Soil
	B99-078									
Method Blank			N910071-09	7235-009	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
		SOLID		7235-009	GAM		11/22/99	12/27/99	NJV	Gamma Scan
	B99-078			7235-009	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
				7235-009	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-009	SR		11/27/99	12/27/99	NJV	Total Strontium in Soil
				7235-009	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil
				7235-009	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
Method Blank			N910071-14	7235-014	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
		SOLID								
	B99-078									

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			N912055-04	7309-004	AM		01/10/00	01/15/00	MCM	Americium 241 in Soil
		SOLID								
	B99-078									
Lab Control Sample			N910046-08	7229-008	H		11/06/99	12/02/99	NJV	Tritium in Soil
		SOLID		7229-008	NP		11/24/99	12/02/99	NJV	Neptunium in Soil
	B99-078									
Lab Control Sample			N910071-08	7235-008	AM		12/09/99	12/27/99	NJV	Americium 241 in Soil
		SOLID		7235-008	GAM		11/22/99	12/27/99	NJV	Gamma Scan
	B99-078			7235-008	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
				7235-008	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-008	SR		11/27/99	12/27/99	NJV	Total Strontium in Soil
				7235-008	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil
				7235-008	TH		12/07/99	12/27/99	NJV	Thorium, Isotopic in Soil
Lab Control Sample			N910071-13	7235-013	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
		SOLID								
	B99-078									
Lab Control Sample			N912055-03	7309-003	AM		01/08/00	01/15/00	MCM	Americium 241 in Soil
		SOLID								
	B99-078									
Duplicate (N910071-01)			N910071-10	7235-010	AM		12/10/99	12/27/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/07/99	7235-010	GAM		11/22/99	12/27/99	NJV	Gamma Scan
	B99-078		10/11/99	7235-010	PU		12/03/99	12/27/99	NJV	Plutonium, Isotopic in Solids
				7235-010	SR		11/27/99	12/27/99	NJV	Total Strontium in Soil
				7235-010	TH		12/09/99	12/27/99	NJV	Thorium, Isotopic in Soil
Duplicate (N910071-01)			N910071-15	7235-015	U_T		10/25/99	12/27/99	NJV	Uranium, Total in Soil
200 B Pond		SOLID	10/07/99							
	B99-078		10/11/99							
Duplicate (N910071-06)			N910071-11	7235-011	H		11/06/99	12/27/99	NJV	Tritium in Soil
200 B Pond		SOLID	10/07/99	7235-011	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
	B99-078		10/11/99	7235-011	NP		12/09/99	12/27/99	NJV	Neptunium in Soil
				7235-011	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

SDG 7235
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SPB-207925
Case no SDG H0566

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			2	2	1	12
GAM	B99-078	Gamma Scan	GAMMAHI	7			1	1	1	10
H	B99-078	Tritium in Soil	EPA906.0	2			1	1	1	5
NI_L	B99-078	Nickel 63 in Soil	NI63LSC	2			1	1	1	5
NP	B99-078	Neptunium in Soil	NP237PLATE	2			1	1	1	5
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	2			1	1	1	5
TH	B99-078	Thorium, Isotopic in Soil	THPLATE	7			1	1	1	10
U_T	B99-078	Uranium, Total in Soil	UKPA	7			1	1	1	10
TOTALS				50			11	11	10	82

Lab id TMANC
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910046-09

Method Blank

METHOD BLANK

SDG	7235	Client/Case no	Hanford	SDG H0566	
Contact	Melissa C. Mannion	Contract	TRB-SRB-207925		
Lab sample id	N910046-09	Client sample id	Method Blank		
Dept sample id	7229-009	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	-0.010	0.041	0.071	400	U	H
Neptunium 237	13994-20-2	-0.013	0.027	0.068		U	NP
Plutonium 238	13981-16-3	N.A.			1.0		PU
Plutonium 239/240	PU-239/240	N.A.			1.0		PU
Nickel 63	13981-37-8	N.A.			30		NI_L
Americium 241	14596-10-2	N.A.			1.0		AM
Total Strontium	SR-RAD	N.A.			1.0		SR
Thorium 228	14274-82-9	N.A.			1.0		TH
Thorium 230	14269-63-7	N.A.			1.0		TH
Thorium 232	TH-232	N.A.			1.0		TH
Potassium 40	13966-00-2	N.A.					GAM
Cobalt 60	10198-40-0	N.A.			0.050		GAM
Cesium 137	10045-97-3	N.A.			0.10		GAM
Europium 152	14683-23-9	N.A.			0.10		GAM
Europium 154	15585-10-1	N.A.			0.10		GAM
Europium 155	14391-16-3	N.A.			0.10		GAM
Radium 226	13982-63-3	N.A.			0.10		GAM
Radium 228	15262-20-1	N.A.			0.20		GAM
Thorium 228	14274-82-9	N.A.					GAM
Thorium 232	TH-232	N.A.					GAM
Americium 241	14596-10-2	N.A.					GAM
Uranium 238	U-238	N.A.					GAM
Uranium 235	15117-96-1	N.A.					GAM

200 Area Source Chara.-200 B Pond

QC-BLANK 32135

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-09 Method Blank

METHOD BLANK

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-09	Client sample id	Method Blank
Dept sample id	7235-009	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
Technetium 99	14133-76-7	1.80			15	JX	TC
Plutonium 238	13981-16-3	0	0.022	0.045	1.0	U	PU
Plutonium 239/240	PU-239/240	0.007	0.007	0.028	1.0	U	PU
Nickel 63	13981-37-8	-0.071	1.2	2.1	30	U	NI_L
Americium 241	14596-10-2	0.007	0.020	0.032	1.0	U	AM
Total Strontium	SR-RAD	-0.011	0.080	0.11	1.0	U	SR
Thorium 228	14274-82-9	-0.032	0.097	0.18	1.0	U	TH
Thorium 230	14269-63-7	0.043	0.086	0.15	1.0	U	TH
Thorium 232	TH-232	0.005	0.022	0.041	1.0	U	TH
Potassium 40	13966-00-2	U		0.66		U	GAM
Cobalt 60	10198-40-0	U		0.051	0.050	U	GAM
Cesium 137	10045-97-3	U		0.037	0.10	U	GAM
Europium 152	14683-23-9	U		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	U		0.070	0.10	U	GAM
Radium 228	15262-20-1	U		0.17	0.20	U	GAM
Thorium 228	14274-82-9	U		0.053		U	GAM
Thorium 232	TH-232	U		0.17		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Uranium 235	15117-96-1	U		0.16		U	GAM

200 Area Source Chara.-200 B Pond

QC-BLANK 32480

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-14 Method Blank

METHOD BLANK

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-14	Client sample id	Method Blank
Dept sample id	7235-014	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
Total Uranium (ug/g)	7440-61-1	-0.008	0.002	0.004	1.0	U	U_T

200 Area Source Chara.-200 B Pond

QC-BLANK 32107

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N912055-04 Method Blank

METHOD BLANK

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SRB-207925
Lab sample id	N912055-04	Client sample id	Method Blank
Dept sample id	7309-004	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
Total Uranium (ug/g)	7440-61-1	N.A.			1.0		U_T
Plutonium 238	13981-16-3	N.A.			1.0		PU
Plutonium 239/240	PU-239/240	N.A.			1.0		PU
Americium 241	14596-10-2	-0.022	0.045	0.10	1.0	U	AM
Total Strontium	SR-RAD	N.A.			1.0		SR
Thorium 228	14274-82-9	N.A.			1.0		TH
Thorium 230	14269-63-7	N.A.			1.0		TH
Thorium 232	TH-232	N.A.			1.0		TH
Potassium 40	13966-00-2	N.A.					GAM
Cobalt 60	10198-40-0	N.A.			0.050		GAM
Cesium 137	10045-97-3	N.A.			0.10		GAM
Europium 152	14683-23-9	N.A.			0.10		GAM
Europium 154	15585-10-1	N.A.			0.10		GAM
Europium 155	14391-16-3	N.A.			0.10		GAM
Radium 226	13982-63-3	N.A.			0.10		GAM
Radium 228	15262-20-1	N.A.			0.20		GAM
Thorium 228	14274-82-9	N.A.					GAM
Thorium 232	TH-232	N.A.					GAM
Americium 241	14596-10-2	N.A.					GAM
Uranium 238	U-238	N.A.					GAM
Uranium 235	15117-96-1	N.A.					GAM

200 Area Source Chara.-200 B Pond

QC-BLANK #32880

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910046-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7235
Contact Melissa C. Mannion

Client/Case no Hanford SDG H0566
Case no TRB-SBB-207925

Lab sample id N910046-08
Dept sample id 7229-008

Client sample id Lab Control Sample
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	6.36	0.14	0.072	400	J	H	6.34	0.25	100	84-116	80-120
Neptunium 237	9.67	0.64	0.047			NP	13.2	0.53	73	89-111	
Plutonium 238	N.A.			1.0		PU					80-120
Plutonium 239/240	N.A.			1.0		PU					80-120
Nickel 63	N.A.			30		NI_L					
Americium 241	N.A.			1.0		AM					80-120
Total Strontium	N.A.			1.0		SR					
Thorium 230	N.A.			1.0		TH					
Cobalt 60	N.A.			0.050		GAM					80-120
Cesium 137	N.A.			0.10		GAM					80-120

200 Area Source Chara.-200 B Pond

QC-LCS 32134

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7235

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0566

Case no TRB-SBB-207925

Lab sample id N910071-08

Dept sample id 7235-008

Client sample id Lab Control Sample

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
Technetium 99	52.4	1.1	0.39	15	B	TC	55.6	2.2	94	84-116	80-120
Plutonium 238	10.9	0.72	0.037	1.0		PU	12.5	0.50	87	88-112	80-120
Plutonium 239/240	11.3	0.75	0.029	1.0		PU	13.2	0.53	86	88-112	80-120
Nickel 63	152	3.6	2.2	30		NI_L	147	5.9	103	83-117	
Americium 241	9.99	0.64	0.039	1.0		AM	11.5	0.46	87	88-112	80-120
Total Strontium	12.6	0.33	0.12	1.0		SR	12.4	0.50	102	83-117	
Thorium 228	-0.032	0.064	0.14	1.0	U	TH					
Thorium 230	23.5	1.1	0.15	1.0		TH	22.4	0.90	105	88-112	
Thorium 232	0.013	0.026	0.049	1.0	U	TH					
Potassium 40	U		0.59		U	GAM					
Cobalt 60	1.55	0.089	0.048	0.050		GAM	1.50	0.060	103	74-126	80-120
Cesium 137	1.76	0.082	0.060	0.10		GAM	1.66	0.066	106	74-126	80-120
Europium 152	U		0.12	0.10	U	GAM					
Europium 154	U		0.11	0.10	U	GAM					
Europium 155	U		0.12	0.10	U	GAM					
Radium 226	U		0.079	0.10	U	GAM					
Radium 228	U		0.22	0.20	U	GAM					
Thorium 228	U		0.059		U	GAM					
Thorium 232	U		0.22		U	GAM					
Americium 241	U		0.32		U	GAM					
Uranium 238	U		6.6		U	GAM					
Uranium 235	U		0.17		U	GAM					

200 Area Source Chara.-200 B Pond

QC-LCS 32479

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-13

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7235

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0566

Case no TRB-SPB-207925

Lab sample id N910071-13

Dept sample id 7235-013

Client sample id Lab Control Sample

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
Total Uranium (ug/g)	32.0	3.8	0.039	1.0		U_T	33.0	1.3	97	78-122	80-120

200 Area Source Chara.-200 B Pond

QC-LCS 32106

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N912055-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7235
Contact Melissa C. Mannion

Client/Case no Hanford SDG H0566
Case no TRB-SPB-207925

Lab sample id N912055-03
Dept sample id 7309-003

Client sample id Lab Control Sample
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
Total Uranium (ug/g)	N.A.			1.0		U_T					80-120
Plutonium 238	N.A.			1.0		PU					80-120
Plutonium 239/240	N.A.			1.0		PU					80-120
Americium 241	9.38	0.58	0.084	1.0		AM	9.58	0.38	98	87-113	80-120
Total Strontium	N.A.			1.0		SR					
Thorium 228	N.A.			1.0		TH					
Thorium 230	N.A.			1.0		TH					
Thorium 232	N.A.			1.0		TH					
Cobalt 60	N.A.			0.050		GAM					80-120
Cesium 137	N.A.			0.10		GAM					80-120

200 Area Source Chara.-200 B Pond

QC-LCS #32879

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-10 B0WKY1

DUPLICATE

SDG 7235		Client/Case no Hanford	SDG H0566
Contact Melissa C. Mannion		Case no TRB-SBB-207925	
DUPLICATE	ORIGINAL		
Lab sample id N910071-10	Lab sample id N910071-01	Client sample id B0WKY1	
Dept sample id 7235-010	Dept sample id 7235-001	Location/Matrix 200 B Pond	SOLID
	Received 10/11/99	Collected 10/07/99 08:01	
	% solids 91.3	Custody/SAF No B99-078-135	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
Plutonium 238	0.072	0.038	0.047	1.0	J	PU	0.056	0.028	0.031	J	25	111	
Plutonium 239/240	2.58	0.26	0.036	1.0		PU	2.61	0.23	0.027		1	23	
Americium 241	0.752	0.15	0.069	1.0	J	AM	0.732	0.13	0.056	J	3	42	
Total Strontium	0.258	0.093	0.11	1.0	J	SR	0.272	0.089	0.12	J	5	76	
Thorium 228	0.414	0.13	0.15	1.0	J	TH	0.389	0.10	0.097	J	6	62	
Thorium 230	0.316	0.13	0.15	1.0	J	TH	0.216	0.11	0.15	J	38	97	
Thorium 232	0.335	0.091	0.049	1.0	J	TH	0.313	0.092	0.044	J	7	61	
Potassium 40	13.8	0.70	0.15			GAM	14.0	0.83	0.41		1	34	
Cobalt 60	U		0.015	0.050	U	GAM	U		0.046	U	-		
Cesium 137	44.0	0.14	0.044	0.10		GAM	42.0	0.31	0.090		5	32	
Europium 152	U		0.11	0.10	U	GAM	U		0.31	U	-		
Europium 154	U		0.055	0.10	U	GAM	U		0.15	U	-		
Europium 155	U		0.11	0.10	U	GAM	U		0.17	U	-		
Radium 226	0.652	0.058	0.064	0.10		GAM	0.611	0.16	0.17		6	51	
Radium 228	0.853	0.073	0.064	0.20		GAM	0.803	0.19	0.19		6	49	
Thorium 228	0.771	0.036	0.049			GAM	0.876	0.14	0.17		13	41	
Thorium 232	0.853	0.073	0.064			GAM	0.803	0.19	0.19		6	49	
Americium 241	2.45	0.034	0.040			GAM	2.66	0.16	0.17		8	33	
Uranium 238	U		1.9		U	GAM	U		5.8	U	-		
Uranium 235	U		0.12		U	GAM	U		0.31	U	-		

200 Area Source Chara.-200 B Pond

QC-DUP#1 32481

Lab id TMANC
Protocol Hanford
Version Ver 1.0
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Version 3.06
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-15

B0WKY1

DUPLICATE

SDG	7235			Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL			
Lab sample id	N910071-15	Lab sample id	N910071-01	Client sample id	B0WKY1
Dept sample id	7235-015	Dept sample id	7235-001	Location/Matrix	200 B Pond SOLID
		Received	10/11/99	Collected	10/07/99 08:01
		% solids	91.3	Custody/SAF No	B99-078-135 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
Total Uranium (ug/g)	1.24	0.14	0.004	1.0		U_T	1.26	0.14	0.004		2	30	

200 Area Source Chara.-200 B Pond

QC-DUP#1 32108

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-11 B0WKY6

DUPLICATE

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Case no	TRB-SPB-207925
DUPLICATE		ORIGINAL	
Lab sample id	N910071-11	Lab sample id	N910071-06
Dept sample id	7235-011	Dept sample id	7235-006
		Received	10/11/99
		% solids	96.8
		Client sample id	B0WKY6
		Location/Matrix	200 B Pond SOLID
		Collected	10/07/99 09:13
		Custody/SAF No	B99-078-136 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
Tritium	-0.031	0.042	0.074	400	U	H	0.002	0.043	0.072	U	-	
Neptunium 237	0.030	0.034	0.047		U	NP	0.012	0.032	0.053	U	-	
Technetium 99	1.88			15	JBX	TC	1.59			JBX	17	21
Nickel 63	-0.294	1.4	2.3	30	U	NI_L	-1.43	1.3	2.2	U	-	

200 Area Source Chara.-200 B Pond

QC-DUP#6 32431

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-01 B0WKY1

DATA SHEET

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-01	Client sample id	B0WKY1
Dept sample id	7235-001	Location/Matrix	200 B Pond SOLID
Received	10/11/99	Collected	10/07/99 08:01
% solids	91.3	Custody/SAF No	B99-078-135 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	1.26	0.14	0.004	1.0		U_T
Plutonium 238	13981-16-3	0.056	0.028	0.031	1.0	J	PU
Plutonium 239/240	PU-239/240	2.61	0.23	0.027	1.0		PU
Americium 241	14596-10-2	0.732	0.13	0.056	1.0	J	AM
Total Strontium	SR-RAD	0.272	0.089	0.12	1.0	J	SR
Thorium 228	14274-82-9	0.389	0.10	0.097	1.0	J	TH
Thorium 230	14269-63-7	0.216	0.11	0.15	1.0	J	TH
Thorium 232	TH-232	0.313	0.092	0.044	1.0	J	TH
Potassium 40	13966-00-2	14.0	0.83	0.41			GAM
Cobalt 60	10198-40-0	U		0.046	0.050	U	GAM
Cesium 137	10045-97-3	42.0	0.31	0.090	0.10		GAM
Europium 152	14683-23-9	U		0.31	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.17	0.10	U	GAM
Radium 226	13982-63-3	0.611	0.16	0.17	0.10		GAM
Radium 228	15262-20-1	0.803	0.19	0.19	0.20		GAM
Thorium 228	14274-82-9	0.876	0.14	0.17			GAM
Thorium 232	TH-232	0.803	0.19	0.19			GAM
Americium 241	14596-10-2	2.66	0.16	0.17			GAM
Uranium 238	U-238	U		5.8		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
Protocol	Hanford
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Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-02 B0WKY2

DATA SHEET

SDG	7235	Client/Case no	Hanford	SDG H0566	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910071-02	Client sample id	B0WKY2		
Dept sample id	7235-002	Location/Matrix	200 B Pond	SOLID	
Received	10/11/99	Collected	10/07/99 08:13		
% solids	92.9	Custody/SAF No	B99-078-135	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0.513	0.058	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0	0.006	0.022	1.0	U	PU
Plutonium 239/240	PU-239/240	0.012	0.018	0.028	1.0	U	PU
Americium 241	14596-10-2	0.004	0.027	0.042	1.0	U	AM
Total Strontium	SR-RAD	0.884	0.12	0.11	1.0	J	SR
Thorium 228	14274-82-9	0.429	0.12	0.12	1.0	J	TH
Thorium 230	14269-63-7	0.393	0.13	0.15	1.0	J	TH
Thorium 232	TH-232	0.376	0.092	0.044	1.0	J	TH
Potassium 40	13966-00-2	13.5	0.81	0.46			GAM
Cobalt 60	10198-40-0	U		0.045	0.050	U	GAM
Cesium 137	10045-97-3	U		0.035	0.10	U	GAM
Europium 152	14683-23-9	U		0.095	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	0.614	0.073	0.074	0.10		GAM
Radium 228	15262-20-1	0.875	0.16	0.17	0.20		GAM
Thorium 228	14274-82-9	0.814	0.048	0.047			GAM
Thorium 232	TH-232	0.875	0.16	0.17			GAM
Americium 241	14596-10-2	U		0.15		U	GAM
Uranium 238	U-238	U		4.4		U	GAM
Uranium 235	15117-96-1	U		0.16		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-03 B0WKY3

DATA SHEET

SDG	7235	Client/Case no	Hanford	SDG H0566	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910071-03	Client sample id	B0WKY3		
Dept sample id	7235-003	Location/Matrix	200 B Pond	SOLID	
Received	10/11/99	Collected	10/07/99 08:22		
% solids	93.5	Custody/SAF No	B99-078-135	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0.653	0.073	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	-0.014	0.021	0.055	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.003	0.020	0.049	1.0	U	PU
Americium 241	14596-10-2	0.008	0.023	0.037	1.0	U	AM
Total Strontium	SR-RAD	0.921	0.13	0.14	1.0	J	SR
Thorium 228	14274-82-9	0.511	0.14	0.14	1.0	J	TH
Thorium 230	14269-63-7	0.598	0.17	0.16	1.0	J	TH
Thorium 232	TH-232	0.543	0.13	0.076	1.0	J	TH
Potassium 40	13966-00-2	13.9	0.48	0.22			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	0.103	0.021	0.022	0.10		GAM
Europium 152	14683-23-9	U		0.051	0.10	U	GAM
Europium 154	15585-10-1	U		0.075	0.10	U	GAM
Europium 155	14391-16-3	U		0.048	0.10	U	GAM
Radium 226	13982-63-3	0.593	0.043	0.038	0.10		GAM
Radium 228	15262-20-1	0.796	0.10	0.098	0.20		GAM
Thorium 228	14274-82-9	0.772	0.030	0.026			GAM
Thorium 232	TH-232	0.796	0.10	0.098			GAM
Americium 241	14596-10-2	U		0.067		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Uranium 235	15117-96-1	U		0.078		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-04 B0WKY4

DATA SHEET

SDG	7235	Client/Case no	Hanford	SDG H0566	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910071-04	Client sample id	B0WKY4		
Dept sample id	7235-004	Location/Matrix	200 B Pond	SOLID	
Received	10/11/99	Collected	10/07/99 08:35		
% solids	94.9	Custody/SAF No	B99-078-135	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0.611	0.068	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.003	0.014	0.033	1.0	U	PU
Plutonium 239/240	PU-239/240	0.017	0.020	0.038	1.0	U	PU
Americium 241	14596-10-2	0	0.020	0.038	1.0	U	AM
Total Strontium	SR-RAD	1.22	0.25	0.20	1.0		SR
Thorium 228	14274-82-9	0.240	0.096	0.13	1.0	J	TH
Thorium 230	14269-63-7	0.277	0.12	0.15	1.0	J	TH
Thorium 232	TH-232	0.277	0.075	0.041	1.0	J	TH
Potassium 40	13966-00-2	10.6	0.53	0.25			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.10	U	GAM
Europium 152	14683-23-9	U		0.062	0.10	U	GAM
Europium 154	15585-10-1	U		0.082	0.10	U	GAM
Europium 155	14391-16-3	U		0.080	0.10	U	GAM
Radium 226	13982-63-3	0.479	0.050	0.047	0.10		GAM
Radium 228	15262-20-1	0.632	0.11	0.11	0.20		GAM
Thorium 228	14274-82-9	0.633	0.034	0.034			GAM
Thorium 232	TH-232	0.632	0.11	0.11			GAM
Americium 241	14596-10-2	U		0.22		U	GAM
Uranium 238	U-238	U		2.9		U	GAM
Uranium 235	15117-96-1	U		0.11		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
Protocol	Hanford
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-05 B0WKY5

DATA SHEET

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-05	Client sample id	B0WKY5
Dept sample id	7235-005	Location/Matrix	200 B Pond SOLID
Received	10/11/99	Collected	10/07/99 08:54
% solids	96.0	Custody/SAF No	B99-078-135 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0.652	0.073	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	-0.003	0.012	0.028	1.0	U	PU
Plutonium 239/240	PU-239/240	0.006	0.018	0.036	1.0	U	PU
Americium 241	14596-10-2	-0.033	0.044	0.14	1.0	U	AM
Total Strontium	SR-RAD	37.6	0.78	0.32	1.0		SR
Thorium 228	14274-82-9	0.434	0.13	0.12	1.0	J	TH
Thorium 230	14269-63-7	0.376	0.13	0.14	1.0	J	TH
Thorium 232	TH-232	0.307	0.088	0.048	1.0	J	TH
Potassium 40	13966-00-2	10.7	0.65	0.21			GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 137	10045-97-3	0.039	0.022	0.024	0.10	J	GAM
Europium 152	14683-23-9	U		0.049	0.10	U	GAM
Europium 154	15585-10-1	U		0.062	0.10	U	GAM
Europium 155	14391-16-3	U		0.065	0.10	U	GAM
Radium 226	13982-63-3	0.418	0.041	0.037	0.10		GAM
Radium 228	15262-20-1	0.662	0.086	0.080	0.20		GAM
Thorium 228	14274-82-9	0.548	0.027	0.025			GAM
Thorium 232	TH-232	0.662	0.086	0.080			GAM
Americium 241	14596-10-2	U		0.039		U	GAM
Uranium 238	U-238	U		2.1		U	GAM
Uranium 235	15117-96-1	U		0.085		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-06 B0WKY6

DATA SHEET

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-06	Client sample id	B0WKY6
Dept sample id	7235-006	Location/Matrix	200 B Pond SOLID
Received	10/11/99	Collected	10/07/99 09:13
% solids	96.8	Custody/SAF No	B99-078-136 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
Neptunium 237	13994-20-2	0.012	0.032	0.053		U	NP
Technetium 99	14133-76-7	1.59			15	JBX	TC
Total Uranium (ug/g)	7440-61-1	0.438	0.049	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	-0.010	0.013	0.036	1.0	U	PU
Plutonium 239/240	PU-239/240	0.007	0.013	0.025	1.0	U	PU
Nickel 63	13981-37-8	-1.43	1.3	2.2	30	U	NI_L
Americium 241	14596-10-2	0.013	0.079	0.16	1.0	U	AM
Total Strontium	SR-RAD	32.9	1.9	0.91	1.0		SR
Thorium 228	14274-82-9	0.171	0.083	0.12	1.0	J	TH
Thorium 230	14269-63-7	0.347	0.13	0.16	1.0	J	TH
Thorium 232	TH-232	0.229	0.083	0.045	1.0	J	TH
Potassium 40	13966-00-2	10.6	0.49	0.22			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.021	0.10	U	GAM
Europium 152	14683-23-9	U		0.059	0.10	U	GAM
Europium 154	15585-10-1	U		0.074	0.10	U	GAM
Europium 155	14391-16-3	U		0.096	0.10	U	GAM
Radium 226	13982-63-3	0.396	0.039	0.038	0.10		GAM
Radium 228	15262-20-1	0.543	0.11	0.11	0.20		GAM
Thorium 228	14274-82-9	0.530	0.033	0.036			GAM
Thorium 232	TH-232	0.543	0.11	0.11			GAM
Americium 241	14596-10-2	U		0.25		U	GAM
Uranium 238	U-238	U		2.8		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

N910071-07 B0WKY7

DATA SHEET

SDG	7235	Client/Case no	Hanford SDG H0566
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910071-07	Client sample id	B0WKY7
Dept sample id	7235-007	Location/Matrix	200 B Pond SOLID
Received	10/11/99	Collected	10/07/99 09:32
% solids	97.1	Custody/SAF No	B99-078-136 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.005	0.041	0.070	400	U	H
Neptunium 237	13994-20-2	0.010	0.021	0.049		U	NP
Technetium 99	14133-76-7	1.76			15	JBX	TC
Total Uranium (ug/g)	7440-61-1	0.850	0.095	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.009	0.018	0.033	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.012	0.033	1.0	U	PU
Nickel 63	13981-37-8	-1.20	1.4	2.3	30	U	NI_L
Americium 241	14596-10-2	0.062	0.074	0.12	1.0	U	AM
Total Strontium	SR-RAD	9.04	0.27	0.11	1.0		SR
Thorium 228	14274-82-9	0.246	0.12	0.16	1.0	J	TH
Thorium 230	14269-63-7	0.444	0.13	0.14	1.0	J	TH
Thorium 232	TH-232	0.212	0.078	0.049	1.0	J	TH
Potassium 40	13966-00-2	10.4	0.25	0.10			GAM
Cobalt 60	10198-40-0	U		0.011	0.050	U	GAM
Cesium 137	10045-97-3	U		0.009	0.10	U	GAM
Europium 152	14683-23-9	U		0.025	0.10	U	GAM
Europium 154	15585-10-1	U		0.035	0.10	U	GAM
Europium 155	14391-16-3	U		0.026	0.10	U	GAM
Radium 226	13982-63-3	0.365	0.021	0.019	0.10		GAM
Radium 228	15262-20-1	0.523	0.046	0.043	0.20		GAM
Thorium 228	14274-82-9	0.486	0.015	0.013			GAM
Thorium 232	TH-232	0.523	0.046	0.043			GAM
Americium 241	14596-10-2	U		0.036		U	GAM
Uranium 238	U-238	U		1.2		U	GAM
Uranium 235	15117-96-1	U		0.041		U	GAM

200 Area Source Chara.-200 B Pond

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test AM Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6904-087					
B0WKY1	N910071-01			7235-001	0.732 J
B0WKY2	N910071-02			7235-002	U
B0WKY3	N910071-03			7235-003	U
B0WKY4	N910071-04			7235-004	U
B0WKY5	N910071-05			7235-005	U
B0WKY6	N910071-06			7235-006	U
BLK (QC ID=32480)	N910071-09			7235-009	U
LCS (QC ID=32479)	N910071-08			7235-008	LOW
Duplicate (N910071-01)	N910071-10			7235-010	ok J
Preparation batch 6909-146					
B0WKY7	N910071-07		A1	7235-007	U
BLK (QC ID=32880)	N912055-04			7309-004	U
LCS (QC ID=32879)	N912055-03			7309-003	ok

Nominal values and limits from method RDLs (pCi/g) 1.0
200 Area Source Chara.-200 B Pond

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test AM Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

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 6904-087	2σ prep error 5.0 %			Reference Lab Notebook 6904 pg. 087												
B0WKY1	N910071-01			0.056	0.500			60		860			64	12/07/99	12/10	SS-014
B0WKY2	N910071-02			0.042	0.500			65		860			64	12/07/99	12/10	SS-015
B0WKY3	N910071-03			0.037	0.500			72		860			64	12/07/99	12/10	SS-016
B0WKY4	N910071-04			0.038	0.500			61		774			64	12/07/99	12/10	SS-055
B0WKY5	N910071-05			0.14	0.500			28		755			63	12/07/99	12/09	SS-063
B0WKY6	N910071-06			0.16	0.500			23		755			63	12/07/99	12/09	SS-064
BLK (QC ID=32480)	N910071-09			0.032	0.500			83		860				12/07/99	12/10	SS-012
LCS (QC ID=32479)	N910071-08			0.039	0.500			99		754				12/07/99	12/09	SS-059
Duplicate (N910071-01) (QC ID=32481)	N910071-10			0.069	0.500			45		860			64	12/07/99	12/10	SS-013
Preparation batch 6909-146	2σ prep error 5.0 %			Reference Lab Notebook 6909 pg. 146												
B0WKY7	N910071-07		A1	0.12	0.500			27		728			95	01/10/00	01/10	SS-002
BLK (QC ID=32880)	N912055-04			0.10	0.500			60		711				01/08/00	01/10	SS-036
LCS (QC ID=32879)	N912055-03			0.084	0.500			76		1063				01/08/00	01/08	SS-040
Nominal values and limits from method				1.0	0.500			20-105		700	100		180			

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 FOR 12 SAMPLES
MDA 0.076 ± 0.089
YIELD 58 ± 47

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test NP	Matrix SOLID
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SPB-207925	
Case no SDG H0566	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6904-068						
B0WKY6	N910071-06			7235-006	U	
B0WKY7	N910071-07			7235-007	U	
BLK (QC ID=32135)	N910046-09			7229-009	U	
LCS (QC ID=32134)	N910046-08			7229-008	LOW	
Duplicate (N910071-06)	N910071-11			7235-011	-	U
Nominal values and limits from method				RDLs (pCi/g)		
200 Area Source Chara.-200 B Pond						

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 6904-068	2σ prep error 5.0 %				Reference Lab Notebook 6904 pg. 068											
B0WKY6	N910071-06			0.053	0.500			61		972			63	12/09/99	12/09	SS-14
B0WKY7	N910071-07			0.049	0.500			49		972			63	12/09/99	12/09	SS 15
BLK (QC ID=32135)	N910046-09			0.068	0.500			34		1094				11/24/99	11/24	SS 6
LCS (QC ID=32134)	N910046-08			0.047	0.500			35		1094				11/24/99	11/24	SS 5
Duplicate (N910071-06) (QC ID=32431)	N910071-11			0.047	0.500			58		972			63	12/09/99	12/09	SS 16
Nominal values and limits from method					0.500			20-105		100						

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	0.053	±	0.018
FOR 5 SAMPLES	YIELD	47	±	25

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

Test PU Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SEB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 6904-087						
B0WKY1	N910071-01			7235-001	0.056 J	2.61
B0WKY2	N910071-02			7235-002	U	U
B0WKY3	N910071-03			7235-003	U	U
B0WKY4	N910071-04			7235-004	U	U
B0WKY5	N910071-05			7235-005	U	U
B0WKY6	N910071-06			7235-006	U	U
B0WKY7	N910071-07			7235-007	U	U
BLK (QC ID=32480)	N910071-09			7235-009	U	U
LCS (QC ID=32479)	N910071-08			7235-008	LOW	LOW
Duplicate (N910071-01)	N910071-10			7235-010	ok J	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
200 Area Source Chara.-200 B Pond						

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 6904-087	2σ prep error 5.0 %				Reference Lab Notebook 6904 pg. 087											
B0WKY1	N910071-01			0.031	0.500			94		961			57	12/03/99	12/03	SS-015
B0WKY2	N910071-02			0.028	0.500			88		961			57	12/03/99	12/03	SS-016
B0WKY3	N910071-03			0.055	0.500			73		959			57	12/03/99	12/03	SS-057
B0WKY4	N910071-04			0.038	0.500			81		849			67	12/10/99	12/13	SS-012
B0WKY5	N910071-05			0.036	0.500			85		959			57	12/03/99	12/03	SS-058
B0WKY6	N910071-06			0.036	0.500			76		959			57	12/03/99	12/03	SS-059
B0WKY7	N910071-07			0.033	0.500			79		959			57	12/03/99	12/03	SS-061
BLK (QC ID=32480)	N910071-09			0.045	0.500			66		959				12/03/99	12/03	SS-062
LCS (QC ID=32479)	N910071-08			0.037	0.500			82		959				12/03/99	12/03	SS-056
Duplicate (N910071-01) (QC ID=32481)	N910071-10			0.047	0.500			63		959			57	12/03/99	12/03	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 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test PU Matrix SOLID	
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SPB-207925	
Case no SDG H0566	

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	0.039	±	0.016
FOR 10 SAMPLES	YIELD	79	±	19

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test TH	Matrix SOLID
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0566	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6904-087							
B0WKY1	N910071-01			7235-001	0.389 J	0.216 J	0.313 J
B0WKY2	N910071-02			7235-002	0.429 J	0.393 J	0.376 J
B0WKY3	N910071-03			7235-003	0.511 J	0.598 J	0.543 J
B0WKY4	N910071-04			7235-004	0.240 J	0.277 J	0.277 J
B0WKY5	N910071-05			7235-005	0.434 J	0.376 J	0.307 J
B0WKY6	N910071-06			7235-006	0.171 J	0.347 J	0.229 J
B0WKY7	N910071-07			7235-007	0.246 J	0.444 J	0.212 J
BLK (QC ID=32480)	N910071-09			7235-009	U	U	U
LCS (QC ID=32479)	N910071-08			7235-008	No data U	ok	No data U
Duplicate (N910071-01)	N910071-10			7235-010	ok J	ok J	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0
200 Area Source Chara.-200 B Pond							

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 6904-087	2σ prep error 5.0 %				Reference Lab Notebook 6904 pg. 087											
B0WKY1	N910071-01			0.15	0.250			90		933			61	12/07/99	12/07	SS-027
B0WKY2	N910071-02			0.15	0.250			86		933			61	12/07/99	12/07	SS-029
B0WKY3	N910071-03			0.16	0.250			71		932			61	12/07/99	12/07	SS-031
B0WKY4	N910071-04			0.15	0.250			93		932			61	12/07/99	12/07	SS-033
B0WKY5	N910071-05			0.14	0.250			80		932			61	12/07/99	12/07	SS-034
B0WKY6	N910071-06			0.16	0.250			87		932			61	12/07/99	12/07	SS-035
B0WKY7	N910071-07			0.16	0.250			79		932			61	12/07/99	12/07	SS-036
BLK (QC ID=32480)	N910071-09			0.18	0.250			95		934				12/07/99	12/07	SS-040
LCS (QC ID=32479)	N910071-08			0.15	0.250			81		932				12/07/99	12/07	SS-038
Duplicate (N910071-01) (QC ID=32481)	N910071-10			0.15	0.250			93		774			63	12/07/99	12/09	SS-033
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	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test	TH
Matrix	SOLID
SDG	7235
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0566

PROCEDURES	REFERENCE	TMPLATE
	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	0.16	±	0.022
FOR 10 SAMPLES	YIELD	86	±	15

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test SR	Matrix SOLID
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SPB-207925	
Case no SDG H0566	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6904-087					
B0WKY1	N910071-01			7235-001	0.272 J
B0WKY2	N910071-02			7235-002	0.884 J
B0WKY3	N910071-03			7235-003	0.921 J
B0WKY4	N910071-04			7235-004	1.22
B0WKY5	N910071-05			7235-005	37.6
B0WKY6	N910071-06			7235-006	32.9
B0WKY7	N910071-07			7235-007	9.04
BLK (QC ID=32480)	N910071-09			7235-009	U
LCS (QC ID=32479)	N910071-08			7235-008	ok
Duplicate (N910071-01)	N910071-10			7235-010	ok J
Nominal values and limits from method 200 Area Source Chara.-200 B Pond				RDLs (pCi/g)	1.0

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 6904-087 2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 087																
B0WKY1	N910071-01			0.12	1.00			96		200			54	11/25/99	11/30	GRB-230
B0WKY2	N910071-02			0.11	1.00			96		400			50	11/25/99	11/26	GRB-203
B0WKY3	N910071-03			0.14	1.00			97		400			55	11/25/99	12/01	GRB-207
B0WKY4	N910071-04			0.20	1.00			97		200			50	11/25/99	11/26	GRB-232
B0WKY5	N910071-05			0.32	1.00			98		400			50	11/25/99	11/26	GRB-211
B0WKY6	N910071-06			0.91	1.00			97		400			55	11/25/99	12/01	GRB-217
B0WKY7	N910071-07			0.11	1.00			96		400			51	11/25/99	11/27	GRB-218
BLK (QC ID=32480)	N910071-09			0.11	1.00			90		400				11/25/99	11/27	GRB-220
LCS (QC ID=32479)	N910071-08			0.12	1.00			88		400				11/25/99	11/27	GRB-219
Duplicate (N910071-01) (QC ID=32481)	N910071-10			0.11	1.00			97		400			51	11/25/99	11/27	GRB-221
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	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test SR	Matrix SOLID
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0566	

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	0.22	±	0.50
FOR 10 SAMPLES	YIELD	95	±	7

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Test TC Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SRB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6904-087						
B0WKY6	N910071-06			7235-006	1.59	JX
B0WKY7	N910071-07			7235-007	1.76	JX
BLK (QC ID=32480)	N910071-09			7235-009	1.80	JX
LCS (QC ID=32479)	N910071-08			7235-008	ok	
Duplicate (N910071-06)	N910071-11			7235-011	ok	JX
Nominal values and limits from method				RDLs (pCi/g)	15	
200 Area Source Chara.-200 B Pond						

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 6904-087	2σ prep error 10.0 %				Reference Lab Notebook 6904 pg. 087											
B0WKY6	N910071-06				1.01			78		101			64	12/02/99	12/10	GRB-229
B0WKY7	N910071-07				1.04			66		200			71	12/02/99	12/17	GRB-222
BLK (QC ID=32480)	N910071-09				1.02			63		122				12/02/99	12/17	GRB-217
LCS (QC ID=32479)	N910071-08			0.39	1.02			61		200				12/02/99	12/17	GRB-223
Duplicate (N910071-06) (QC ID=32431)	N910071-11				1.01			89		122			71	12/02/99	12/17	GRB-218
Nominal values and limits from method				15	1.02			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	0.39	±	
FOR 5 SAMPLES	YIELD	71	±	24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test GAM Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6904-087						
B0WKY1	N910071-01			7235-001	U	42.0
B0WKY2	N910071-02			7235-002	U	U
B0WKY3	N910071-03			7235-003	U	0.103
B0WKY4	N910071-04			7235-004	U	U
B0WKY5	N910071-05			7235-005	U	0.039 J
B0WKY6	N910071-06			7235-006	U	U
B0WKY7	N910071-07			7235-007	U	U
BLK (QC ID=32480)	N910071-09			7235-009	U	U
LCS (QC ID=32476)	N910071-08			7235-008	ok	ok
Duplicate (N910071-01)	N910071-10			7235-010	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
200 Area Source Chara.-200 B Pond						

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 6904-087	2σ prep error 15.0 % Reference Lab Notebook 6904 pg. 087															
B0WKY1	N910071-01			0.14	667					206			46	11/03/99	11/22	02,01,00
B0WKY2	N910071-02			0.11	651					206			46	11/03/99	11/22	02,03,00
B0WKY3	N910071-03			0.063	711					206			46	11/03/99	11/22	02,04,00
B0WKY4	N910071-04			0.066	787					206			46	11/03/99	11/22	MB,05,00
B0WKY5	N910071-05			0.058	828					206			46	11/03/99	11/22	MB,07,00
B0WKY6	N910071-06			0.061	850					214			46	11/03/99	11/22	MB,05,00
B0WKY7	N910071-07			0.032	836					506			46	11/03/99	11/22	02,04,00
BLK (QC ID=32480)	N910071-09			0.075	171					506				11/03/99	11/22	01,03,00
LCS (QC ID=32476)	N910071-08			0.10	171					506				11/03/99	11/22	MB,05,00
Duplicate (N910071-01) (QC ID=32482)	N910071-10			0.045	667					504			46	11/03/99	11/22	MB,07,00
Nominal values and limits from method				0.050	171					100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test GAM Matrix SOLID	
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford	
Contract TRB-SRB-207925	
Case no SDG H0566	

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

AVERAGES ± 2 SD	MDA	0.075 ± 0.065
FOR 10 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test U T Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6904-087					
B0WKY1	N910071-01			7235-001	1.26
B0WKY2	N910071-02			7235-002	0.513 J
B0WKY3	N910071-03			7235-003	0.653 J
B0WKY4	N910071-04			7235-004	0.611 J
B0WKY5	N910071-05			7235-005	0.652 J
B0WKY6	N910071-06			7235-006	0.438 J
B0WKY7	N910071-07			7235-007	0.850 J
BLK (QC ID=32107)	N910071-14			7235-014	U
LCS (QC ID=32106)	N910071-13			7235-013	ok
Duplicate (N910071-01)	N910071-15			7235-015	ok
Nominal values and limits from method				RDLs (ug/g)	1.0
200 Area Source Chara.-200 B Pond					

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 6904-087	2σ prep error 9.0 %			Reference Lab Notebook 6904 pg. 087												
B0WKY1	N910071-01			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY2	N910071-02			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY3	N910071-03			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY4	N910071-04			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY5	N910071-05			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY6	N910071-06			0.004	0.0500								18	10/25/99	10/25	KPA-001
B0WKY7	N910071-07			0.004	0.0500								18	10/25/99	10/25	KPA-001
BLK (QC ID=32107)	N910071-14			0.004	0.0500									10/25/99	10/25	KPA-001
LCS (QC ID=32106)	N910071-13			0.039	0.0500									10/25/99	10/25	KPA-001
Duplicate (N910071-01) (QC ID=32108)	N910071-15			0.004	0.0500								18	10/25/99	10/25	KPA-001
Nominal values and limits from method				1.0	0.0500								180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test U T	Matrix SOLID
SDG 7235	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0566	

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	0.008 ± 0.022
FOR 10 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Test H Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6904-068						
B0WKY6	N910071-06			7235-006	U	
B0WKY7	N910071-07			7235-007	U	
BLK (QC ID=32135)	N910046-09			7229-009	U	
LCS (QC ID=32134)	N910046-08			7229-008	ok	J
Duplicate (N910071-06)	N910071-11			7235-011	-	U

Nominal values and limits from method RDLs (pCi/g) 400
200 Area Source Chara.-200 B Pond

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 6904-068	2σ prep error 10.0 %				Reference Lab Notebook 6904 pg. 068											
B0WKY6	N910071-06			0.072	20.4			100		120			30	11/06/99	11/06	LSC-007
B0WKY7	N910071-07			0.070	20.9			100		120			30	11/06/99	11/06	LSC-007
BLK (QC ID=32135)	N910046-09			0.071	20.2			100		120				11/06/99	11/06	LSC-007
LCS (QC ID=32134)	N910046-08			0.072	20.2			100		120				11/06/99	11/06	LSC-007
Duplicate (N910071-06) (QC ID=32431)	N910071-11			0.074	20.1			100		120			30	11/06/99	11/06	LSC-007
Nominal values and limits from method				400	20.5					25			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.072 ± 0.003
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0566

Test NI L Matrix SOLID
SDG 7235
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0566

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6904-087						
B0WKY6	N910071-06			7235-006	U	
B0WKY7	N910071-07			7235-007	U	
BLK (QC ID=32480)	N910071-09			7235-009	U	
LCS (QC ID=32479)	N910071-08			7235-008	ok	
Duplicate (N910071-06)	N910071-11			7235-011	-	U

Nominal values and limits from method RDLs (pCi/g) 30
200 Area Source Chara.-200 B Pond

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 6904-087 2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 087																
B0WKY6	N910071-06			2.2	0.500			91		100			47	11/23/99	11/23	LSC-004
B0WKY7	N910071-07			2.3	0.500			91		100			47	11/23/99	11/23	LSC-004
BLK (QC ID=32480)	N910071-09			2.1	0.500			98		100				11/23/99	11/23	LSC-004
LCS (QC ID=32479)	N910071-08			2.2	0.500			96		100				11/23/99	11/23	LSC-004
Duplicate (N910071-06) (QC ID=32431)	N910071-11			2.3	0.500			89		100			47	11/23/99	11/23	LSC-004
Nominal values and limits from method				30	0.500					10			180			

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

AVERAGES ± 2 SD MDA 2.2 ± 0.17
FOR 5 SAMPLES YIELD 93 ± 8

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-135	Page 1 of 1

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: SML-510	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A9907292		Bill of Lading/Air Bill No.: 4235795303 04
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.			
Sample No.	Matrix * / Sample Date / Sample Time										
BOWKY1	Soil / 10/7/99 / 0801	X[6]						X[1]			
BOWKY2	Soil / 10/7/99 / 0813	X[6]						X[1]			
BOWKY3	Soil / 10/7/99 / 0822	X[6]						X[1]			
BOWKY4	Soil / 10/7/99 / 0835	X[6]						X[1]			
BOWKY5	Soil / 10/7/99 / 0854	X[6]						X[1]			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers / Doug Bowers 10-7-99/1130	Date/Time	Received By: B. F. B 10-7-99/1130	Date/Time
Relinquished By: Keff B 10/8/99 0900	Date/Time	Received By: R Nelson / R Nelson 10/8/99 0900	Date/Time
Relinquished By: R Nelson / R Nelson 10/8/99 1430	Date/Time	Received By: FedEx 10/8/99	Date/Time
Relinquished By: FedEx 10/11/99 10:00	Date/Time	Received By: TM McGoldenberg 10/11/99 10:00	Date/Time

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(2) 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

TIE TO BOWSC1
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	B99-078-136	Page 1 of 2

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: SML-510	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A9902912		Bill of Lading/Air Bill No.: 4235795530304
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	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	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (2) in Special Instructions.
Sample No. / Matrix * / Sample Date / Sample Time										
BOWKY6 / Soil / 10/7/99 / 0913	X	X	X	X	X					
BOWKY7 / Soil / 10/7/99 / 0932	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By: Doug Bowers / Doug Bowers — Date/Time: 10-7-99 / 1130	Received By: RCF#13 — Date/Time: 10-7-99 / 1130	
Relinquished By: RCF#13 — Date/Time: 10/8/99 0900	Received By: Kelly Nelson / R. Nelson — Date/Time: 10/8/99 0900	
Relinquished By: Kelly Nelson / R. Nelson — Date/Time: 10/8/99 1430	Received By: FedEx — Date/Time: 10/8/99	
Relinquished By: FedEx — Date/Time: 10/11/99 10:00	Received By: TMA M. Coldenberg — Date/Time: 10/11/99 10:00	
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, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, 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

Tie to BKW8C1

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-136	Page 2 of 2

Collector: Bowers/Trice	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: 200 B pond		SAF No.: B99-078
Ice Chest No.: SML-510	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A9W292		Bill of Lading/Air Bill No.: 4235795308 04
			COA: B20CW1 67C

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None										
	Type of Container	aG										
	No. of Container(s)	1										
Special Handling and/or Storage	Volume	1000mL										
SAMPLE ANALYSIS		See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
BOWKY6	Soil	10/7/99	0913	X									
BOWKY7	Soil	10/7/99	0932	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers / Doug Bowers	Date/Time: 10-7-99/1130	Received By: Ref 1B	Date/Time: 10-7-99/1130
Relinquished By: Ref #1B	Date/Time: 10/8/99 0900	Received By: R. Nielson / R. Nielson	Date/Time: 10/8/99 0900
Relinquished By: R. Nielson / R. Nielson	Date/Time: 10/8/99 1430	Received By: FedEx	Date/Time: 10/8/99
Relinquished By: FedEx	Date/Time: 10/11/99 10:00	Received By: TMU M. Goldenberg	Date/Time: 10/11/99 10:00

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

File to BOW8C1

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

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

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

CoC No. B99-078-135, 136

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
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: 10-11-99 Time: 10:00

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____