RECRA LabNet
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Virtual Laboratories Everywhere

0052615

DEC 1999

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L313
SDG# : H0562
SAF# : B99-078

W.O. # : 10985-001-001-9999-00
Date Received: 10-08-99

INORGANIC CASE NARRATIVE

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

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

3. Sample holding times as required by the method and/or contract were me with the exception of Sulfide.

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

5. The method blanks were within method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits. The matrix spike duplicate for Sulfide was within the 20% RPD control limit.

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

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

RECEIVED
FEB 28 2000
EDMC

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-16-99
Date

njp\i10-313

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 19 pages.

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

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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.B

Other: Nitrate Nitrite **Method** EPA 353.2

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

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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 11/16/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKV1	% Solids	65.6		%	0.01	1.0
		Chloride by IC	108		MG/KG	9.5	5.0
		Fluoride by IC	3.8	u	MG/KG	3.8	1.0
		Nitrite by IC	1.9	u	MG/KG	1.9	1.0
		Nitrate by IC	14		MG/KG	1.9	1.0
		Cyanide, Total	0.76	u	MG/KG	0.76	1.0
		Phosphate by IC	1.9	u	MG/KG	1.9	1.0
		Chromium VI	0.61	u	MG/KG	0.61	1.0
		Sulfate by IC	1720		MG/KG	191	100
		Nitrate Nitrite	3.4		MG/KG	0.30	1.0
		Ammonia, as N	13.9		MG/KG	1.9	1.0
		pH	6.9		PH UNITS	0.01	1.0
		Sulfide	5.9		MG/KG	3.1	1.0
-002	B0WKV2	% Solids	79.0		%	0.01	1.0
		Chloride by IC	71.7		MG/KG	3.2	2.0
		Fluoride by IC	3.2	u	MG/KG	3.2	1.0
		Nitrite by IC	1.6	u	MG/KG	1.6	1.0
		Nitrate by IC	4.2		MG/KG	1.6	1.0
		Cyanide, Total	0.63	u	MG/KG	0.63	1.0
		Phosphate by IC	1.6	u	MG/KG	1.6	1.0
		Chromium VI	0.51	u	MG/KG	0.51	1.0
		Sulfate by IC	1150		MG/KG	79.1	50.0
		Nitrate Nitrite	1.7		MG/KG	0.24	1.0
		Ammonia, as N	13.3		MG/KG	1.5	1.0
		pH	7.3		PH UNITS	0.01	1.0
		Sulfide	5.0		MG/KG	2.5	1.0
-003	B0WKV3	% Solids	76.4		%	0.01	1.0
		Chloride by IC	27.2		MG/KG	1.6	1.0
		Fluoride by IC	3.3	u	MG/KG	3.3	1.0
		Nitrite by IC	1.6	u	MG/KG	1.6	1.0
		Nitrate by IC	1.6	u	MG/KG	1.6	1.0
		Cyanide, Total	0.65	u	MG/KG	0.65	1.0
		Phosphate by IC	1.6	u	MG/KG	1.6	1.0
		Chromium VI	0.52	u	MG/KG	0.52	1.0
		Sulfate by IC	58.2		MG/KG	1.6	1.0
		Nitrate Nitrite	0.25	u	MG/KG	0.25	1.0
		Ammonia, as N	23.3		MG/KG	1.6	1.0
		pH	7.1		PH UNITS	0.01	1.0

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CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0WKV3	Sulfide	2.6	u	MG/KG	2.6	1.0
-004	B0WKV4	% Solids	95.5		%	0.01	1.0
		Chloride by IC	1.4		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	4.6		MG/KG	1.3	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	2.5		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	5.6		MG/KG	1.3	1.0
		Nitrate Nitrite	1.2		MG/KG	0.21	1.0
		Ammonia, as N	1.4		MG/KG	1.3	1.0
		pH	7.0		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-005	B0WKV6	% Solids	97.1		%	0.01	1.0
		Chloride by IC	4.0		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	2.6		MG/KG	1.3	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	6.1		MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	4.4		MG/KG	1.3	1.0
		Nitrate Nitrite	0.67		MG/KG	0.21	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.9		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-006	B0WKV7	% Solids	97.2		%	0.01	1.0
		Chloride by IC	1.3	u	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	3.4		MG/KG	1.3	1.0
		Cyanide, Total	0.51	u	MG/KG	0.51	1.0
		Phosphate by IC	2.6		MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	3.6		MG/KG	1.3	1.0
		Nitrate Nitrite	0.88		MG/KG	0.20	1.0

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INORGANICS DATA SUMMARY REPORT 11/16/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B0WKV7	Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.5		PH UNITS	0.01	1.0
		Sulfide	2.1	u	MG/KG	2.1	1.0
-007	B0WKV8	% Solids	92.0		%	0.01	1.0
		Chloride by IC	4.1		MG/KG	1.4	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.4	u	MG/KG	1.4	1.0
		Nitrate by IC	6.7		MG/KG	1.4	1.0
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	1.6		MG/KG	1.4	1.0
		Chromium VI	0.44	u	MG/KG	0.44	1.0
		Sulfate by IC	21.0		MG/KG	1.4	1.0
		Nitrate Nitrite	1.5		MG/KG	0.21	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.8		PH UNITS	0.01	1.0
		Sulfide	4.0		MG/KG	2.2	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/16/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LICA88-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	99LC117-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
BLANK1	99LC118-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0

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INORGANICS ACCURACY REPORT 11/16/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKV1	Chloride by IC	309	108	191	105.6	5.0
		Fluoride by IC	83.7	1.8	76.2	107.4	1.0
		Nitrite by IC	35	1.9 u	38	91.2	1.0
		Nitrate by IC	53	14	38	102.3	1.0
		Phosphate by IC	36.7	1.9 u	38.1	96.4	1.0
		Sulfate by IC	5690	1720	3810	104.4	100
		Ammonia, as N	158	13.9	136	105.6	1.0
-003	B0WKV3	Nitrate Nitrite	6.3	0.25u	6.3	99.6	1.0
-006	B0WKV7	Cyanide, Total	4.8	0.51u	5.1	93.4	1.0
		Cyanide, Total MSD	4.7	0.51u	5.1	90.8	1.0
-007	B0WKV8	Soluble Chromium VI	4.6	0.44u	4.3	104.8	1.0
		Insoluble Chromium VI	1180	0.44u	1180	100.4	100
		Sulfide	384	4.0	435	87.4	1.0
		Sulfide MSD	352	4.0	435	80.0	1.0
BLANK10	99LICA88-MB1	Chloride by IC	24.3	1.2 u	25.0	97.1	1.0
		Fluoride by IC	53.3	2.5 u	50.0	106.5	1.0
		Nitrite by IC	25	1.2 u	25	99.2	1.0
		Nitrate by IC	24	1.2 u	25	96.1	1.0
		Phosphate by IC	24.8	1.2 u	25.0	99.2	1.0
		Sulfate by IC	23.6	1.2 u	25.0	94.4	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

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INORGANICS DUPLICATE SPIKE REPORT 11/16/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-006	B0WKV7	Cyanide, Total	93.4	90.8	2.8
-007	B0WKV8	Sulfide	87.4	80.0	8.8
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 11/16/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKV1	Chloride by IC	108	111	2.2	5.0
		Fluoride by IC	3.8 u	3.8 u	NC	1.0
		Nitrite by IC	1.9 u	1.9 u	NC	1.0
		Nitrate by IC	14	13	5.9	1.0
		Phosphate by IC	1.9 u	1.9 u	NC	1.0
		Sulfate by IC	1720	1680	2.2	100
		Ammonia, as N	13.9	15.7	12.3	1.0
		pH	6.9	6.9	0.3	1.0
-006REP	B0WKV7	Cyanide, Total	0.51u	0.51u	NC	1.0
-007REP	B0WKV8	% Solids	92.0	91.8	0.22	1.0
		Chromium VI	0.44u	0.44u	NC	1.0
		Sulfide	4.0	2.2 u	NC	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/16/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC117-LC1	Cyanide, Total LCS	2.1	2.0	MG/KG	103.1
LCS2	99LC117-LC2	Cyanide, Total LCS	9.9	10	MG/KG	98.5
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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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1						
% SOLIDS	001	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
CHLORIDE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
CHLORIDE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	001	S	99LC117	10/06/99	10/12/99	10/12/99
PHOSPHATE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
PHOSPHATE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
PHOSPHATE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	001	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	001	S	99LICA88	10/06/99	10/28/99	10/28/99
SULFATE BY IC	001 REP	S	99LICA88	10/06/99	10/28/99	10/28/99
SULFATE BY IC	001 MS	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	001	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	001	S	99LAM041	10/06/99	10/26/99	10/26/99
AMMONIA	001 REP	S	99LAM041	10/06/99	10/26/99	10/26/99
AMMONIA	001 MS	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	001	S	99LPH109	10/06/99	10/12/99	10/12/99
PH	001 REP	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	001	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV2						
% SOLIDS	002	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	002	S	99LC117	10/06/99	10/12/99	10/12/99
PHOSPHATE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	002	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	002	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	002	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	002	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	002	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	002	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV3						
% SOLIDS	003	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	003	S	99LC117	10/06/99	10/12/99	10/12/99
PHOSPHATE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	003	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	003	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	003	S	99LN3052	10/06/99	11/04/99	11/04/99
NITRATE NITRITE	003 MS	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	003	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	003	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	003	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV4						
% SOLIDS	004	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	004	S	99LC117	10/06/99	10/12/99	10/12/99
PHOSPHATE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	004	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	004	S	99LICA88	10/06/99	10/28/99	10/28/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE NITRITE	004	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	004	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	004	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	004	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV6						
% SOLIDS	005	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	005	S	99LC117	10/06/99	10/12/99	10/12/99
PHOSPHATE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	005	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	005	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	005	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	005	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	005	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	005	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV7						
% SOLIDS	006	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	006	S	99LC118	10/06/99	10/18/99	10/18/99
TOTAL CYANIDE	006 REP	S	99LC118	10/06/99	10/18/99	10/18/99
TOTAL CYANIDE	006 MS	S	99LC118	10/06/99	10/18/99	10/18/99
TOTAL CYANIDE	006 MSD	S	99LC118	10/06/99	10/18/99	10/18/99
PHOSPHATE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	006	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	006	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	006	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	006	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	006	S	99LPH109	10/06/99	10/12/99	10/12/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	006	S	99LSDA55	10/06/99	10/14/99	10/14/99
B0WKV8						
% SOLIDS	007	S	99L%S133	10/06/99	10/12/99	10/13/99
% SOLIDS	007 REP	S	99L%S133	10/06/99	10/12/99	10/13/99
CHLORIDE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
FLUORIDE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRITE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
TOTAL CYANIDE	007	S	99LC118	10/06/99	10/18/99	10/18/99
PHOSPHATE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
CHROMIUM VI	007	S	99LVI072	10/06/99	10/12/99	10/12/99
CHROMIUM VI	007 REP	S	99LVI072	10/06/99	10/12/99	10/12/99
CHROMIUM VI	007 MS	S	99LVI072	10/06/99	10/12/99	10/12/99
CHROMIUM VI	007 MSD	S	99LVI072	10/06/99	10/12/99	10/12/99
SULFATE BY IC	007	S	99LICA88	10/06/99	10/28/99	10/28/99
NITRATE NITRITE	007	S	99LN3052	10/06/99	11/04/99	11/04/99
AMMONIA	007	S	99LAM041	10/06/99	10/26/99	10/26/99
PH	007	S	99LPH109	10/06/99	10/12/99	10/12/99
SULFIDE	007	S	99LSDA55	10/06/99	10/14/99	10/14/99
SULFIDE	007 REP	S	99LSDA55	10/06/99	10/14/99	10/14/99
SULFIDE	007 MS	S	99LSDA55	10/06/99	10/14/99	10/14/99
SULFIDE	007 MSD	S	99LSDA55	10/06/99	10/14/99	10/14/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LICA88	N/A	10/28/99	10/28/99
CHLORIDE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
FLUORIDE BY IC	MB1	S	99LICA88	N/A	10/28/99	10/28/99
FLUORIDE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
NITRITE BY IC	MB1	S	99LICA88	N/A	10/28/99	10/28/99
NITRITE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
NITRATE BY IC	MB1	S	99LICA88	N/A	10/28/99	10/28/99
NITRATE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
TOTAL CYANIDE	LC1 L	S	99LC117	N/A	10/12/99	10/12/99
TOTAL CYANIDE	LC2 L	S	99LC117	N/A	10/12/99	10/12/99
TOTAL CYANIDE	MB1	S	99LC117	N/A	10/12/99	10/12/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1	S	99LICA88	N/A	10/28/99	10/28/99
PHOSPHATE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
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	99LICA88	N/A	10/28/99	10/28/99
SULFATE BY IC	MB1 BS	S	99LICA88	N/A	10/28/99	10/28/99
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
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
TOTAL CYANIDE	MB1	S	99LC118	N/A	10/18/99	10/18/99

RECRA LabNet Use Only
9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 30 day
Date Rec'd: 10/8/99 Date Due: 11/7/99
Account #:

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

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8024H 8015C	8254H	8080 8082			1PH		Met 1	ICNTO		Anes 1 INSNZ				
001	BOW KV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
002	2					0850	1	1	✓			1		1	✓		1				
003	3					0935	1	1	✓			1		1	✓		1				
004	4					0945	1	1	✓			1		1	✓		1				
005	6					1010	1	1	✓			1		1	✓		1				
006	7					1025	1	1	✓			1		1	✓		1				
007	8					1040	1	1	✓			1		1	✓		1				

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Run matrix QC
Anes (1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N
Met (1) = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
5. Cu, Ni, V, Zn, Hg, ICRC
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # Fed Ex
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. 3.2 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795 30234

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 4235795302 34
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	[signature]	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Rev #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[signature]	10-8-99 0900

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

Collector unavailable to relinquish samples

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	B99-078-134	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.: ~~3N~~ RN 10/7/99 SML-366	Field Logbook No.: EL-1511	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290	Bill of Lading/Air Bill No.: 42357953021 2	
		COA: B20C w/ 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BOWKV4~~	~~Soil~~	~~10/6/99~~	~~0954~~		~~N/A~~	~~10-6-99~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~BOW 8C3~~
BOWKV6	Soil	10/6/99	1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil	10/6/99	1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil	10/6/99	1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris 10/6/99	Date/Time: 1320	Received By: Ref 2C 10/6/99	Date/Time: 1320
Relinquished By: Ref #2C 10/7/99	Date/Time: 1000	Received By: R. Nielson R. Nielson 10/7/99	Date/Time: 1000
Relinquished By: R. Nielson/R. Nielson 10/7/99	Date/Time: 1430	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time: 10-8-99 0910	Received By: [illegible] 10-8-99 0910	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

Collector unavailable to relinquish samples.

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

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L313
SDG/SAF# : H0562/B99-078

W.O.# : 10985-001-001-9999-00
Date Received: 10-08-99

REVISION

METALS CASE NARRATIVE

This package has been revised to include the addition of Antimony and Thallium.

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. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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

10. The matrix spike (MS) recoveries for 4 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 20 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 levels:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0WKV1	Silver	500	104.5
	Lead	500	83.6
	Antimony	500	103.6

12. The duplicate analyses for 7 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-9-99
Date

mld/m10-313r

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9910L313

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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKV1	Silver, Total	9.6	MG/KG	0.15	1.0
		Arsenic, Total	6.0	MG/KG	0.48	1.0
		Barium, Total	113	MG/KG	0.04	1.0
		Beryllium, Total	0.22	MG/KG	0.01	1.0
		Cadmium, Total	7.3	MG/KG	0.04	1.0
		Chromium, Total	21.5	MG/KG	0.12	1.0
		Copper, Total	44.3	MG/KG	0.17	1.0
		Mercury, Total	11.9	MG/KG	0.24	10.0
		Nickel, Total	12.2	MG/KG	0.17	1.0
		Lead, Total	573	MG/KG	0.30	1.0
		Antimony, Total	0.36 u	MG/KG	0.36	1.0
		Selenium, Total	0.58	MG/KG	0.54	1.0
		Thallium, Total	0.89	MG/KG	0.77	1.0
		Vanadium, Total	60.6	MG/KG	0.09	1.0
		Zinc, Total	135	MG/KG	0.12	1.0
-002	B0WKV2	Silver, Total	8.1	MG/KG	0.12	1.0
		Arsenic, Total	4.1	MG/KG	0.41	1.0
		Barium, Total	89.6	MG/KG	0.04	1.0
		Beryllium, Total	0.16	MG/KG	0.01	1.0
		Cadmium, Total	3.6	MG/KG	0.04	1.0
		Chromium, Total	18.4	MG/KG	0.1	1.0
		Copper, Total	29.1	MG/KG	0.15	1.0
		Mercury, Total	5.8	MG/KG	0.21	10.0
		Nickel, Total	9.3	MG/KG	0.15	1.0
		Lead, Total	592	MG/KG	0.26	1.0
		Antimony, Total	0.48	MG/KG	0.31	1.0
		Selenium, Total	0.56	MG/KG	0.46	1.0
		Thallium, Total	1.1	MG/KG	0.66	1.0
		Vanadium, Total	51.5	MG/KG	0.07	1.0
		Zinc, Total	80.5	MG/KG	0.1	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0WKV3	Silver, Total	1.0	MG/KG	0.11	1.0
		Arsenic, Total	4.8	MG/KG	0.35	1.0
		Barium, Total	105	MG/KG	0.03	1.0
		Beryllium, Total	0.51	MG/KG	0.01	1.0
		Cadmium, Total	7.4	MG/KG	0.03	1.0
		Chromium, Total	23.6	MG/KG	0.09	1.0
		Copper, Total	28.7	MG/KG	0.13	1.0
		Mercury, Total	0.89	MG/KG	0.02	1.0
		Nickel, Total	15.6	MG/KG	0.13	1.0
		Lead, Total	213	MG/KG	0.23	1.0
		Antimony, Total	0.27 u	MG/KG	0.27	1.0
		Selenium, Total	0.40 u	MG/KG	0.40	1.0
		Thallium, Total	0.94	MG/KG	0.57	1.0
		Vanadium, Total	46.7	MG/KG	0.06	1.0
		Zinc, Total	86.3	MG/KG	0.09	1.0
-004	B0WKV4	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Arsenic, Total	3.1	MG/KG	0.24	1.0
		Barium, Total	80.6	MG/KG	0.02	1.0
		Beryllium, Total	0.19	MG/KG	0.007	1.0
		Cadmium, Total	0.32	MG/KG	0.02	1.0
		Chromium, Total	4.3	MG/KG	0.06	1.0
		Copper, Total	12.6	MG/KG	0.09	1.0
		Mercury, Total	0.05	MG/KG	0.02	1.0
		Nickel, Total	5.8	MG/KG	0.09	1.0
		Lead, Total	5.9	MG/KG	0.15	1.0
		Antimony, Total	0.18 u	MG/KG	0.18	1.0
		Selenium, Total	0.27 u	MG/KG	0.27	1.0
		Thallium, Total	0.65	MG/KG	0.39	1.0
		Vanadium, Total	52.4	MG/KG	0.04	1.0
		Zinc, Total	42.0	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0WKV6	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Arsenic, Total	2.8	MG/KG	0.31	1.0
		Barium, Total	114	MG/KG	0.03	1.0
		Beryllium, Total	0.15	MG/KG	0.01	1.0
		Cadmium, Total	0.13	MG/KG	0.03	1.0
		Chromium, Total	3.5	MG/KG	0.08	1.0
		Copper, Total	13.7	MG/KG	0.11	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.2	MG/KG	0.11	1.0
		Lead, Total	3.6	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 u	MG/KG	0.51	1.0
		Vanadium, Total	46.5	MG/KG	0.06	1.0
		Zinc, Total	35.6	MG/KG	0.08	1.0
-006	B0WKV7	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	2.2	MG/KG	0.33	1.0
		Barium, Total	78.2	MG/KG	0.03	1.0
		Beryllium, Total	0.20	MG/KG	0.01	1.0
		Cadmium, Total	0.04	MG/KG	0.03	1.0
		Chromium, Total	2.9	MG/KG	0.08	1.0
		Copper, Total	12.6	MG/KG	0.12	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	4.9	MG/KG	0.12	1.0
		Lead, Total	5.1	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	0.78	MG/KG	0.53	1.0
		Vanadium, Total	48.6	MG/KG	0.06	1.0
		Zinc, Total	37.5	MG/KG	0.08	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B0WKV8	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	3.7	MG/KG	0.30	1.0
		Barium, Total	103	MG/KG	0.03	1.0
		Beryllium, Total	0.36	MG/KG	0.009	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	5.5	MG/KG	0.07	1.0
		Copper, Total	16.4	MG/KG	0.11	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Nickel, Total	7.4	MG/KG	0.11	1.0
		Lead, Total	7.7	MG/KG	0.19	1.0
		Antimony, Total	0.23 u	MG/KG	0.23	1.0
		Selenium, Total	0.42	MG/KG	0.34	1.0
		Thallium, Total	1.0	MG/KG	0.48	1.0
		Vanadium, Total	87.1	MG/KG	0.05	1.0
		Zinc, Total	52.3	MG/KG	0.07	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/09/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0707-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	0.37	MG/KG	0.03	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.26	MG/KG	0.12	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.22	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	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.55	MG/KG	0.08	1.0
BLANK1	99C0300-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

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INORGANICS ACCURACY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKV1	Silver, Total	20.4	9.6	7.5	144.0	1.0
		Arsenic, Total	281	6.0	302	91.3	1.0
		Barium, Total	388	113	302	91.0	1.0
		Beryllium, Total	7.1	0.22	7.5	91.7	1.0
		Cadmium, Total	16.4	7.3	7.5	121.3	1.0
		Chromium, Total	48.4	21.5	30.2	89.1	1.0
		Copper, Total	85.7	44.3	37.7	109.8	1.0
		Mercury, Total	10.2	11.9	0.24	-700. *	10.0
		Nickel, Total	79.0	12.2	75.4	88.6	1.0
		Lead, Total	616	573	75.4	57.2*	1.0
		Antimony, Total	27.5	0.36u	75.4	36.5	1.0
		Selenium, Total	269	0.58	302	89.1	1.0
		Thallium, Total	269	0.89	302	89.0	1.0
		Vanadium, Total	125	60.6	75.4	85.0	1.0
		Zinc, Total	204	135	75.4	92.3	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKV1	Silver, Total	9.6	31.8	107.2	1.0
		Arsenic, Total	6.0	5.7	5.1	1.0
		Barium, Total	113	96.8	15.5	1.0
		Beryllium, Total	0.22	0.20	10.4	1.0
		Cadmium, Total	7.3	11.5	44.7	1.0
		Chromium, Total	21.5	29.8	32.4	1.0
		Copper, Total	44.3	70.7	45.9	1.0
		Mercury, Total	11.9	15.9	28.8	10.0
		Nickel, Total	12.2	12.0	1.7	1.0
		Lead, Total	573	564	1.6	1.0
		Antimony, Total	0.36u	0.29	~~ne~~ 200 acim n/a kg	1.0
		Selenium, Total	0.58	1.0	53.5	1.0
		Thallium, Total	0.89	0.96	7.2	1.0
		Vanadium, Total	60.6	51.6	16.0	1.0
		Zinc, Total	135	128	5.3	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9910L313

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0707-LC1	Silver, LCS	48.8	50.0	MG/KG	97.6
		Arsenic, LCS	969	1000	MG/KG	96.9
		Barium, LCS	496	500	MG/KG	99.1
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
		Chromium, LCS	50.4	50.0	MG/KG	100.8
		Copper, LCS	124	125	MG/KG	99.1
		Nickel, LCS	197	200	MG/KG	98.3
		Lead, LCS	245	250	MG/KG	97.9
		Antimony, LCS	291	300	MG/KG	97.0
		Selenium, LCS	935	1000	MG/KG	93.5
		Thallium, LCS	981	1000	MG/KG	98.1
		Vanadium, LCS	255	250	MG/KG	102.0
		Zinc, LCS	96.8	100	MG/KG	96.8
LCS1	99C0300-LC1	Mercury, LCS	1.1	1.0	MG/KG	105.8

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1						
SILVER, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
SILVER, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
SILVER, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	001	S	99C0300	10/06/99	10/18/99	10/19/99
MERCURY, TOTAL	001 REP	S	99C0300	10/06/99	10/18/99	10/19/99
MERCURY, TOTAL	001 MS	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
NICKEL, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
NICKEL, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	001	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	001 REP	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	001 MS	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV2						
SILVER, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	002	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	002	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV3						
SILVER, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	003	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	003	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV4						
SILVER, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	004	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	004	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV6						
SILVER, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	005	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	005	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV7						
SILVER, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	006	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
SELENIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	006	S	99L0707	10/06/99	10/20/99	10/20/99
B0WKV8						
SILVER, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
ARSENIC, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
BARIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
BERYLLIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
CADMIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
CHROMIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
COPPER, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
MERCURY, TOTAL	007	S	99C0300	10/06/99	10/18/99	10/19/99
NICKEL, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
LEAD, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
ANTIMONY, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
THALLIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
VANADIUM, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99
ZINC, TOTAL	007	S	99L0707	10/06/99	10/20/99	10/20/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
SILVER, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
ARSENIC LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
ARSENIC, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
BARIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
BARIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
BERYLLIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
CADMIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
CADMIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
CHROMIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
CHROMIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
COPPER LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
COPPER, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
MERCURY LABORATORY	LC1 BS	S	99C0300	N/A	10/18/99	10/19/99
MERCURY, TOTAL	MB1	S	99C0300	N/A	10/18/99	10/19/99
NICKEL LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
NICKEL, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
LEAD LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
LEAD, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
ANTIMONY LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
ANTIMONY, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
SELENIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
SELENIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
THALLIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
THALLIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
VANADIUM LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
VANADIUM, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99
ZINC LABORATORY	LC1 BS	S	99L0707	N/A	10/20/99	10/20/99
ZINC, TOTAL	MB1	S	99L0707	N/A	10/20/99	10/20/99

RECRA LabNet Use Only

9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD B99-078

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 10/8/99 Date Due: 11/7/99

Account #:

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

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OG24H	OGC25H	ODRO OPCB			IPH		MetD	ICNTD		AnegD INH3N2				
001	BOW KV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
002	2					0850	1	1	✓			1		1	✓		1				
003	3					0935	1	1	✓			1		1	✓		1				
004	4					0945	1	1	✓			1		1	✓		1				
005	6					1010	1	1	✓			1		1	✓		1				
006	7					1025	1	1	✓			1		1	✓		1				
007	8					1040	1	1	✓			1		1	✓		1				

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:

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

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill Fed Ex

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 3.2 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

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

NOTES: 4235795370234

018

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 4235795302 34
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	Rel 2C	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Rel #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[signature]	10-8-99 0900

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

Collector unavailable to relinquish samples

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

019

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-134	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.: ~~SAW~~ RN 10/7/99 SML-366	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 42357953021 2
			COA: B20C w/ 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
BOWKV4	Soil	10/6/99	0954		N/A	10-6-99		X	X	X	X	X	BOW 8C3
BOWKV6	Soil	10/6/99	1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil	10/6/99	1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil	10/6/99	1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris Date/Time: 10/6/99 1320	Received By: Ref 2C Date/Time: 10/6/99 1320		
Relinquished By: Ref #2C Date/Time: 10/7/99 1000	Received By: Renee Nielson/R. Nielson Date/Time: 10/7/99 1000		
Relinquished By: Renee Nielson/R. Nielson Date/Time: 10/7/99 1430	Received By: FedEx Date/Time:		
Relinquished By: FedEx Date/Time: 10-8-99 0910	Received By: [illegible] Date/Time: 10-8-99 0910		

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

Collector unavailable to relinquish samples.

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
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# : 9910L313
SDG/SAF #: H0562/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 10-08-99

GC/MS VOLATILE

Seven (7) soil samples were collected on 10-06-99.

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 10-15,19,20-99.

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. Non-target compounds were detected in the samples.

4. Sample B0WKV1 required a dilution due to high levels of target compounds.

5. Sixteen (16) of fifty-one (51) surrogate recoveries were outside EPA QC limits. The surrogate recovery criteria were not met for samples B0WKV1, B0WKV1 MS, B0WKV1 MSD, B0WKV2, and B0WKV7. Sample B0WKV1 was diluted, reanalyzed and reported to fulfill the reanalysis requirements for B0WKV1 and its associated matrix spike samples. All other samples were reanalyzed on 10-20-99 and reported.

6. One (1) of ten (10) matrix spike recoveries was outside EPA QC limits.

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

8. The method blank contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than the CRQL. The method blank 99LVK445-MB1 also contained the target compounds Toluene, Chlorobenzene, Styrene and Xylene at levels less than the CRQL.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-2-99
Date

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

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.

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GLOSSARY OF VOA DATA

ABBREVIATIONS

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

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Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/22/99 20:20

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

	Cust ID:	B0WKV1	B0WKV1	B0WKV1	B0WKV1	B0WKV2	B0WKV2
Sample Information	RFW#:	001	001 DL	001 MS	001 MSD	002	002
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.11	2.94	1.06	1.06	0.980	1.02
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG REPREP
Surrogate Recovery	Toluene-d8	129 * %	92 %	126 * %	123 * %	70 * %	45 * %
	Bromofluorobenzene	71 * %	80 %	64 * %	65 * %	53 * %	31 * %
	1,2-Dichloroethane-d4	133 * %	93 %	140 * %	138 * %	64 * %	50 * %
Chloromethane		17 U	45 U	16 U	16 U	12 U	13 U
Bromomethane		17 U	45 U	16 U	16 U	12 U	13 U
Vinyl Chloride		17 U	45 U	16 U	16 U	12 U	13 U
Chloroethane		17 U	45 U	16 U	16 U	12 U	13 U
Methylene Chloride		18 B	36 BD	15 B	15 B	9 B	16 B
Acetone		350 BE	210 BD	340 EB	360 BE	59 B	25 B
Carbon Disulfide		6 J	8 JD	6 J	7 J	1 J	6 U
1,1-Dichloroethene		8 U	22 U	81 %	76 %	6 U	6 U
1,1-Dichloroethane		8 U	22 U	8 U	8 U	6 U	6 U
1,2-Dichloroethene (total)		8 U	22 U	8 U	8 U	6 U	6 U
Chloroform		8 U	22 U	8 U	8 U	6 U	6 U
1,2-Dichloroethane		8 U	22 U	8 U	8 U	6 U	6 U
2-Butanone		69	55 D	64	72	11 J	13 U
1,1,1-Trichloroethane		8 U	22 U	8 U	8 U	6 U	6 U
Carbon Tetrachloride		8 U	22 U	8 U	8 U	6 U	6 U
Bromodichloromethane		8 U	22 U	8 U	8 U	6 U	6 U
1,2-Dichloropropane		8 U	22 U	8 U	8 U	6 U	6 U
cis-1,3-Dichloropropene		8 U	22 U	8 U	8 U	6 U	6 U
Trichloroethene		8 U	22 U	97 %	95 %	6 U	6 U
Dibromochloromethane		8 U	22 U	8 U	8 U	6 U	6 U
1,1,2-Trichloroethane		8 U	22 U	8 U	8 U	6 U	6 U
Benzene		8 U	22 U	119 %	117 %	6 U	6 U
Trans-1,3-Dichloropropene		8 U	22 U	8 U	8 U	6 U	6 U
Bromoform		8 U	22 U	8 U	8 U	6 U	6 U
4-Methyl-2-pentanone		17 U	45 U	16 U	16 U	12 U	13 U
2-Hexanone		17 U	45 U	16 U	16 U	12 U	13 U
Tetrachloroethene		8 U	22 U	8 U	8 U	6 U	6 U
1,1,2,2-Tetrachloroethane		8 U	22 U	8 U	8 U	6 U	6 U
Toluene		8 U	22 U	141 * %	138 %	6 U	6 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1b

Cust ID:	B0WKV1	B0WKV1	B0WKV1	B0WKV1	B0WKV2	B0WKV2
RFW#:	001	001 DL	001 MS	001 MSD	002	002 REPREP
Chlorobenzene	8 U	22 U	108 %	107 %	6 U	6 U
Ethylbenzene	8 U	22 U	8 U	8 U	6 U	6 U
Styrene	8 U	22 U	8 U	8 U	6 U	6 U
Xylene (total)	8 U	22 U	8 U	8 U	6 U	6 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/22/99 20:20

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	B0WKV3	B0WKV4	B0WKV6	B0WKV7	B0WKV7	B0WKV8
Sample Information	RFW#:	003	004	005	006	006	007
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.893	0.909	0.877	0.862	0.926	1.06
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG REPREP	UG/KG
Surrogate Recovery	Toluene-d8	100 %	98 %	94 %	80 * %	94 %	100 %
	Bromofluorobenzene	98 %	94 %	94 %	78 %	90 %	99 %
	1,2-Dichloroethane-d4	91 %	94 %	96 %	86 %	86 %	94 %
		fl	fl	fl	fl	fl	fl
Chloromethane		12 U	10 U	9 U	9 U	10 U	12 U
Bromomethane		12 U	10 U	9 U	9 U	10 U	12 U
Vinyl Chloride		12 U	10 U	9 U	9 U	10 U	12 U
Chloroethane		12 U	10 U	9 U	9 U	10 U	12 U
Methylene Chloride		7 B	5 JB	4 JB	4 B	8 B	6 JB
Acetone		75 B	10 U	9 U	9 U	10 U	12 U
Carbon Disulfide		6 U	5 U	4 U	4 U	5 U	6 U
1,1-Dichloroethene		6 U	5 U	4 U	4 U	5 U	6 U
1,1-Dichloroethane		6 U	5 U	4 U	4 U	5 U	6 U
1,2-Dichloroethene (total)		6 U	5 U	4 U	4 U	5 U	6 U
Chloroform		6 U	5 U	4 U	4 U	5 U	6 U
1,2-Dichloroethane		6 U	5 U	4 U	4 U	5 U	6 U
2-Butanone		12 U	10 U	9 U	9 U	10 U	12 U
1,1,1-Trichloroethane		6 U	5 U	4 U	4 U	5 U	6 U
Carbon Tetrachloride		6 U	5 U	4 U	4 U	5 U	6 U
Bromodichloromethane		6 U	5 U	4 U	4 U	5 U	6 U
1,2-Dichloropropane		6 U	5 U	4 U	4 U	5 U	6 U
cis-1,3-Dichloropropene		6 U	5 U	4 U	4 U	5 U	6 U
Trichloroethene		6 U	5 U	4 U	4 U	5 U	6 U
Dibromochloromethane		6 U	5 U	4 U	4 U	5 U	6 U
1,1,2-Trichloroethane		6 U	5 U	4 U	4 U	5 U	6 U
Benzene		6 U	5 U	4 U	4 U	5 U	6 U
Trans-1,3-Dichloropropene		6 U	5 U	4 U	4 U	5 U	6 U
Bromoform		6 U	5 U	4 U	4 U	5 U	6 U
4-Methyl-2-pentanone		12 U	10 U	9 U	9 U	10 U	12 U
2-Hexanone		12 U	10 U	9 U	9 U	10 U	12 U
Tetrachloroethene		6 U	5 U	4 U	4 U	5 U	6 U
1,1,2,2-Tetrachloroethane		6 U	5 U	4 U	4 U	5 U	6 U
Toluene		6 U	5 U	4 U	4 U	5 U	6 U

*= Outside of EPA CLP QC limits.

Cust ID:	B0WKV3	B0WKV4	B0WKV6	B0WKV7	B0WKV7	B0WKV8
RFW#:	003	004	005	006	006 REPREP	007
Chlorobenzene	6 U	5 U	4 U	4 U	5 U	6 U
Ethylbenzene	6 U	5 U	4 U	4 U	5 U	6 U
Styrene	6 U	5 U	4 U	4 U	5 U	6 U
Xylene (total)	6 U	5 U	4 U	4 U	5 U	6 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/22/99 20:20

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 3a

	Cust ID:	**VBLKTS**		**VBLKTS BS**		**VBLKXF**		**VBLKXF BS**		**VBLKYC**	
Sample Information	RFW#:	**99LVN340-MB1**		**99LVN340-MB1**		**99LVK441-MB1**		**99LVK441-MB1**		**99LVK445-MB1**	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	102	%	98	%	101	%	100	%	93	%
	Bromofluorobenzene	92	%	91	%	105	%	101	%	92	%
	1,2-Dichloroethane-d4	107	%	110	%	102	%	95	%	95	%
Chloromethane		10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U
Methylene Chloride		4	J	4	JB	6		8	B	16	
Acetone		4	J	3	JB	5	J	4	JB	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	81	%	5	U	101	%	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	100	%	5	U	98	%	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U
Benzene		5	U	103	%	5	U	107	%	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U
Toluene		5	U	109	%	5	U	103	%	1	J

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 3b

Cust ID:	VBLKTS		VBLKTS BS		VBLKXF		VBLKXF BS		VBLKYC	
RFW#:	99LVN340-MB1		99LVN340-MB1		99LVK441-MB1		99LVK441-MB1		99LVK445-MB1	
Chlorobenzene	5	U	103	%	5	U	102	%	1	J
Ethylbenzene	5	U	5	U	5	U	5	U	2	J
Styrene	5	U	5	U	5	U	5	U	1	J
Xylene (total)	5	U	5	U	5	U	5	U	2	J

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV1

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-001

Sample wt/vol: 4.50 (g/mL) G Lab File ID: n101512

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 34 Date Analyzed: 10/15/99

Column: (pack/cap) CAP Dilution Factor: 1.11

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	16.635	20	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV1DL

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-001 DL

Sample wt/vol: 1.70 (g/mL) G Lab File ID: k101914

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 34 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 2.94

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.180	30	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV2RE

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-002

Sample wt/vol: 4.90 (g/mL) G Lab File ID: k102019

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 21 Date Analyzed: 10/20/99

Column: (pack/cap) CAP Dilution Factor: 1.02

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.

B0WKV3

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-003

Sample wt/vol: 5.60 (g/mL) G Lab File ID: k101909

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 24 Date Analyzed: 10/19/99

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.168	9	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV4

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-004

Sample wt/vol: 5.50 (g/mL) G Lab File ID: k101910

Level: (low/med) LOW Date Received: 10/08/99

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

Column: (pack/cap) CAP Dilution Factor: 0.909

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.172	8	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV6

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-005

Sample wt/vol: 5.70 (g/mL) G Lab File ID: k101911

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 3 Date Analyzed: 10/19/99

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.183	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0WKV7

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-006

Sample wt/vol: 5.80 (g/mL) G Lab File ID: k101912

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 3 Date Analyzed: 10/19/99

Column: (pack/cap) CAP Dilution Factor: 0.862

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.

B0WKV7RE

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-006

Sample wt/vol: 5.40 (g/mL) G Lab File ID: k102020

Level: (low/med) LOW Date Received: 10/08/99

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

Column: (pack/cap) CAP Dilution Factor: 0.926

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.

B0WKV8

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-007

Sample wt/vol: 4.70 (g/mL) G Lab File ID: k101913

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: not dec. 8 Date Analyzed: 10/19/99

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.171	8	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKTS

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 99LVN340-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: n101504

Level: (low/med) LOW Date Received: 10/15/99

% Moisture: not dec. 0 Date Analyzed: 10/15/99

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.	UNKNOWN	16.620	6	J

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.

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1	001	S	99LVN340	10/06/99	N/A	10/15/99
B0WKV1	001 D1	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV1	001 MS	S	99LVN340	10/06/99	N/A	10/15/99
B0WKV1	001 MSD	S	99LVN340	10/06/99	N/A	10/15/99
B0WKV2	002	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV2	002 R1	S	99LVK445	10/06/99	N/A	10/20/99
B0WKV3	003	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV4	004	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV6	005	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV7	006	S	99LVK441	10/06/99	N/A	10/19/99
B0WKV7	006 R1	S	99LVK445	10/06/99	N/A	10/20/99
B0WKV8	007	S	99LVK441	10/06/99	N/A	10/19/99

LAB QC:

VBLKTS	MB1	S	99LVN340	N/A	N/A	10/15/99
VBLKTS	MB1 BS	S	99LVN340	N/A	N/A	10/15/99
VBLKXF	MB1	S	99LVK441	N/A	N/A	10/19/99
VBLKXF	MB1 BS	S	99LVK441	N/A	N/A	10/19/99
VBLKYC	MB1	S	99LVK445	N/A	N/A	10/20/99

AW 11-23-99

RECRA LabNet Use Only: 9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) metals

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: 10/8/99 Date Due: 11/7/99

Account #:

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

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OG24H OGCSC	OG25H	ODRO OPCB			IPH		MetO	ICNTO		AnegO INSN2				
001	BOW KV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
002	2					0850	1	1	✓			1		1	✓		1				
003	3					0935	1	1	✓			1		1	✓		1				
004	4					0945	1	1	✓			1		1	✓		1				
005	6					1010	1	1	✓			1		1	✓		1				
006	7					1025	1	1	✓			1		1	✓		1				
007	8					1040	1	1	✓			1		1	✓		1				

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

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Run matrix QC
Aneg(1)= ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N
Met(1)= As, Ba, Cd, Cr, Pb, Se, Ag, Be,
5. Cu, Ni, V, Zn, Hg, ICRC
6.

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

Use Only
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: 3.2 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 795 30234

2212

3.0

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	Page 1 of 1 23

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-382	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990270		Bill of Lading/Air Bill No.: 4235795302 34
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	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								
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X	BOW BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	V	BOW BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X	BOW BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X	BOW BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	Rel 2C	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Rel #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[signature]	10-8-99 0900

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

Collector unavailable to relinquish samples

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	B99-078-134	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.: ~~3N~~ RN 10/7/99 SIML 366	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 42357953021 2
			COA: B20C w/ 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BOWKV4~~	Soil	10/6/99	0954					X	X	X	X	X	BOW 8C3
BOWKV6	Soil	10/6/99	1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil	10/6/99	1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil	10/6/99	1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chrice	Date/Time: 10/6/99 1320	Received By: Ref 2C	Date/Time: 10/6/99 1320
Relinquished By: Ref #2C	Date/Time: 10/7/99 1000	Received By: R. Nielson	Date/Time: 10/7/99 1000
Relinquished By: R. Nielson/R. Nielson	Date/Time: 10/7/99 1430	Received By: Fed Ex	Date/Time:
Relinquished By: Fed Ex	Date/Time: 10-8-99 0910	Received By: [illegible]	Date/Time: 10-8-99 0910

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

Collector unavailable to relinquish samples.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU HANFORD B99-078
RFW #: 9910L313
SDG/SAF#: H0562/B99-078

W.O. #: #: 10985-001-001-9999-00
Date Received: 10-08-99

GC SCAN

The set of samples consisted of seven (7) soil samples collected on 10-06-99.

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 10-15-99.

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%.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-5-99
Date

r:\share\lc\gcscan\10-313.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 7 pages.

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

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 13:10

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

003

	Cust ID:	B0WKV1	B0WKV1	B0WKV1	B0WKV2	B0WKV3	B0WKV4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		7.5 U	75 %	75 %	6.0 U	5.5 U	5.0 U
Ethanol		7.5 U	7.5 U	7.5 U	6.0 U	5.5 U	5.0 U

	Cust ID:	B0WKV6	B0WKV7	B0WKV8	BLK	BLK BS
Sample Information	RFW#:	005	006	007	99LLC155-MB1	99LLC155-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		3.4 U	2.7 U	4.4 U	5.0 U	106 %
Ethanol		3.4 U	2.7 U	4.4 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.

11/3/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1	001	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV1	001 MS	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV1	001 MSD	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV2	002	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV3	003	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV4	004	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV6	005	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV7	006	S	99LLC155	10/06/99	10/14/99	10/15/99
B0WKV8	007	S	99LLC155	10/06/99	10/14/99	10/15/99

LAB QC:

BLK	MB1	S	99LLC155	N/A	10/14/99	10/15/99
BLK	MB1 BS	S	99LLC155	N/A	10/14/99	10/15/99

11/3/99

RECRA LabNet Use Only
9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 30 days
Date Rec'd: 10/8/99 Date Due: 11/7/99
Account #:

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

RECRA LabNet Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8240 8260C	8250	8080 8082			1PH		Met 1	ICN 1		Ang 1 INSN2				
S - Soil	001	BOW KV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
SE - Sediment	002	2					0850	1	1	✓			1		1	✓		1				
SO - Solid	003	3					0935	1	1	✓			1		1	✓		1				
SL - Sludge	004	4					0945	1	1	✓			1		1	✓		1				
W - Water	005	6					1010	1	1	✓			1		1	✓		1				
O - Oil	006	7					1025	1	1	✓			1		1	✓		1				
A - Air	007	8					1040	1	1	✓			1		1	✓		1				
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Run matrix QC
Ang (1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N
Met (1) = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
5. Cu, Ni, V, Zn, Hg, ICRC
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___
Airbill # Free Bill
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 3.2 °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 4235795 30234

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A990290	Bill of Lading/Air Bill No.: 4235795302 34	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Chris	10/6/99 1320	Rel 2C	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Rel #2C	10/7/99 0927	Nielson/R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
Nielson/R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[illegible]	10-8-99 0900

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

Collector unavailable to relinquish samples

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	B99-078-134	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.: ~~3N~~ RN 10/7/99 SML-366	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 42357953021 2
			COA: B20C w/ 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BDWKV4~~	Soil	10/6/99	0954					X	X	X	X	X	BDW 8C3
BDWKV6	Soil	10/6/99	1010					X	X	X	X	X	BDW 8C3
BDWKV7	Soil	10/6/99	1025					X	X	X	X	X	BDW 8C3
BDWKV8	Soil	10/6/99	1040					X	X	X	X	X	BDW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris 10/6/99 1320	Date/Time	Received By: Ref 2C 10/6/99 1320	Date/Time
Relinquished By: Ref #2C 10/7/99 1000	Date/Time	Received By: R. Nielson R. Nielson 10/7/99 1000	Date/Time
Relinquished By: R. Nielson/R. Nielson 10/7/99 1430	Date/Time	Received By: FedEx	Date/Time
Relinquished By: FedEx 10-8-99 0910	Date/Time	Received By: [illegible] 10-8-99 0910	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

Collector unavailable to relinquish samples.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L313
SDG/SAF#: H0562/B99-078

W.O #: 10985-001-001-9999-00
Date Received: 10-08-99

DIESEL RANGE ORGANICS

The set of samples consisted of seven (7) soil samples collected on 10-06-99.

The samples and their associated QC samples were prepared on 10-19-99 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. One (1) of eight (8) obtainable surrogate recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed in the data package.

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. The chromatographic fingerprint exhibited by sample B0WKV1 resembled a combination of both diesel fuel and lubricating oil and estimated quantities of each have been reported.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-9-99
Date

R:\SHARE\LC\GCSCAN\10-313.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 8 pages.

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

GLOSSARY OF DIESEL DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates spiked compound.

Recra LabNet Philadelphia Sample Discrepancy Report (SDR) SDR #: 99LC058

Initiator: C. Schnell RFW Batch: 9910L313 Parameter: OPRO
Date: 11/8/99 Samples: 002 Matrix: Soil
Client: INU Hartford Method: SW846/MCAWW/CLP/ Prep Batch: 99LE1267

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Low Surrogate recovery (15%).

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: [signature] 11/8/99

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 11/8/99 Other Explanation:

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

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

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

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 11/04/99 18:29

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: **10985-001-001-9999-00** Page: 1

	Cust ID:	B0WKV1	B0WKV1	B0WKV1	B0WKV2	B0WKV3	B0WKV4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surrogate:	p-Terphenyl	I % fl	I % fl	I % fl	15 * % fl	94 % fl	99 % fl
Diesel Range Organics		41	59 %	42 %	5.0 U	5.1 U	4.1 U
Motor Oil		450	530	300	53 U	54 U	43 U

	Cust ID:	B0WKV6	B0WKV7	B0WKV8	BLK	BLK BS
Sample Information	RFW#:	005	006	007	99LE1267-MB1	99LE1267-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surrogate:	p-Terphenyl	115 % fl	127 % fl	128 % fl	98 % fl	96 % fl
Diesel Range Organics		4.1 U	4.1 U	4.3 U	4.0 U	93 %
Motor Oil		43 U	43 U	46 U	42 U	42 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.

11/8/99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1	001	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV1	001 MS	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV1	001 MSD	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV2	002	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV3	003	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV4	004	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV6	005	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV7	006	S	99LE1267	10/06/99	10/19/99	10/27/99
B0WKV8	007	S	99LE1267	10/06/99	10/19/99	10/27/99

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

CL 11/8/99

RECRA LabNet Use Only
9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU - HANFORD B99-078
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 30 days
Date Rec'd: 10/8/99 Date Due: 11/7/99
Account #:

Refrigerator #		1	2	2			2		2	1		2				
#/Type Container	Liquid															
	Solid	1AG	1AG	1			1AG		1AG	1		1AG				
Volume	Liquid															
	Solid	250	500	1			250		500	1		1L				
Preservatives		—	—						—			—				
ANALYSES REQUESTED → ORGANIC: VOA							PH		INORG: TCLP Metal			CN				
ORGANIC: BNA																
ORGANIC: Pest/PCB																
ORGANIC: Herb																
RECRA LabNet Use Only		0624H 0625C	0625H	0DRO 0PCB			1PH		MetO	1CNTO		AnegO 1NH3N2				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H 0625C	0625H	0DRO 0PCB			1PH		MetO	1CNTO		AnegO 1NH3N2				
001	BOWKV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
002	2					0850	1	1	✓			1		1	✓		1				
003	3					0935	1	1	✓			1		1	✓		1				
004	4					0945	1	1	✓			1		1	✓		1				
005	6					1010	1	1	✓			1		1	✓		1				
006	7					1025	1	1	✓			1		1	✓		1				
007	8					1040	1	1	✓			1		1	✓		1				

Special Instructions:
Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Run matrix QC
Aneg (1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N
Met (1) = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
5. Cu, Ni, V, Zn, Hg, ICRC
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # Fed Ex
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: 3.2 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795 30234

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 4235795302 34
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	[signature]	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Per #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[signature]	10-8-99 0910

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

Collector unavailable to relinquish samples

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	B99-078-134	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. ~~3A~~ RN 10/7/99 SIML-366	Field Logbook No. EL-1511		Method of Shipment Fed Ex
Shipped To TMA/RECRA RECRA	Offsite Property No. A990290		Bill of Lading/Air Bill No. 42357953021 2
			COA B20C w/ 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BOWKV4~~	Soil	10/6/99	0954		N10	10-8-99		X	X	X	X	X	BOW 8C3
BOWKV6	Soil	10/6/99	1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil	10/6/99	1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil	10/6/99	1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Chris 10/6/99	Date/Time 1320	Received By Ref 2C 10/6/99	Date/Time 1320
Relinquished By Ref #2C 10/7/99	Date/Time 1000	Received By R. Nielson R. Nielson 10/7/99	Date/Time 1000
Relinquished By R. Nielson R. Nielson 10/7/99	Date/Time 1430	Received By FedEx	Date/Time
Relinquished By FedEx	Date/Time 10-8-99 0910	Received By [illegible] 10-8-99 0910	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

Collector unavailable to relinquish samples.

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
Data Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9910L313
SDG/SAF #: H0562/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 10-08-99

SEMIVOLATILE

Seven (7) soil samples were collected on 10-06-99.

The samples and their associated QC samples were extracted on 10-14-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 10-18,19,20,21-99.

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

1. The cooler temperatures upon receipt have been recorded on the chain-of-custody.
2. The required holding times for extraction and analysis were met.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The samples were spectrally searched for Butylated Hydroxytoluene; however, it was not identified in the samples.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-15-99
Date

som\gorup\data\bna\tnu10313.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 18 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

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

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

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Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 11/02/99 13:21

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1a

	Cust ID:	B0WKV1		B0WKV1		B0WKV1		B0WKV2		B0WKV3		B0WKV4	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	84	%	74	%	55	%	71	%	76	%	88	%
	2-Fluorobiphenyl	80	%	80	%	61	%	77	%	78	%	86	%
	Terphenyl-d14	93	%	81	%	64	%	77	%	75	%	92	%
	Phenol-d5	77	%	68	%	58	%	71	%	75	%	81	%
	2-Fluorophenol	68	%	72	%	58	%	66	%	67	%	72	%
	2,4,6-Tribromophenol	80	%	79	%	61	%	76	%	78	%	79	%
Phenol		510	U	61	%	56	%	420	U	440	U	350	U
bis(2-Chloroethyl)ether		510	U	510	U	510	U	420	U	440	U	350	U
2-Chlorophenol		510	U	64	%	56	%	420	U	440	U	350	U
1,3-Dichlorobenzene		510	U	510	U	510	U	420	U	440	U	350	U
1,4-Dichlorobenzene		510	U	70	%	59	%	420	U	440	U	350	U
1,2-Dichlorobenzene		510	U	510	U	510	U	420	U	440	U	350	U
2-Methylphenol		510	U	510	U	510	U	420	U	440	U	350	U
2,2'-oxybis(1-Chloropropane)		510	U	510	U	510	U	420	U	440	U	350	U
4-Methylphenol		510	U	510	U	510	U	420	U	440	U	350	U
N-Nitroso-di-n-propylamine		510	U	88	%	64	%	420	U	440	U	350	U
Hexachloroethane		510	U	510	U	510	U	420	U	440	U	350	U
Nitrobenzene		510	U	510	U	510	U	420	U	440	U	350	U
Isophorone		510	U	510	U	510	U	420	U	440	U	350	U
2-Nitrophenol		510	U	510	U	510	U	420	U	440	U	350	U
2,4-Dimethylphenol		510	U	510	U	510	U	420	U	440	U	350	U
bis(2-Chloroethoxy)methane		510	U	510	U	510	U	420	U	440	U	350	U
2,4-Dichlorophenol		510	U	510	U	510	U	420	U	440	U	350	U
1,2,4-Trichlorobenzene		510	U	72	%	58	%	420	U	440	U	350	U
Naphthalene		510	U	510	U	510	U	420	U	440	U	350	U
4-Chloroaniline		510	U	510	U	510	U	420	U	440	U	350	U
Hexachlorobutadiene		510	U	510	U	510	U	420	U	440	U	350	U
4-Chloro-3-methylphenol		510	U	75	%	56	%	420	U	440	U	350	U
2-Methylnaphthalene		510	U	510	U	510	U	420	U	440	U	350	U
Hexachlorocyclopentadiene		510	U	510	U	510	U	420	U	440	U	350	U
2,4,6-Trichlorophenol		510	U	510	U	510	U	420	U	440	U	350	U
2,4,5-Trichlorophenol		1300	U	1300	U	1300	U	1100	U	1100	U	880	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1b

Cust ID:	B0WKV1		B0WKV1		B0WKV1		B0WKV2		B0WKV3		B0WKV4	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	510	U	510	U	510	U	420	U	440	U	350	U
2-Nitroaniline	1300	U	1300	U	1300	U	1100	U	1100	U	880	U
Dimethylphthalate	510	U	510	U	510	U	420	U	440	U	350	U
Acenaphthylene	510	U	510	U	510	U	420	U	440	U	350	U
2,6-Dinitrotoluene	510	U	510	U	510	U	420	U	440	U	350	U
3-Nitroaniline	1300	U	1300	U	1300	U	1100	U	1100	U	880	U
Acenaphthene	510	U	74	%	60	%	420	U	440	U	350	U
2,4-Dinitrophenol	1300	U	1300	U	1300	U	1100	U	1100	U	880	U
4-Nitrophenol	1300	U	73	%	48	%	1100	U	1100	U	880	U
Dibenzofuran	510	U	510	U	510	U	420	U	440	U	350	U
2,4-Dinitrotoluene	510	U	83	%	55	%	420	U	440	U	350	U
Diethylphthalate	510	U	510	U	510	U	420	U	440	U	350	U
4-Chlorophenyl-phenylether	510	U	510	U	510	U	420	U	440	U	350	U
Fluorene	510	U	510	U	510	U	420	U	440	U	350	U
4-Nitroaniline	1300	U	1300	U	1300	U	1100	U	1100	U	880	U
4,6-Dinitro-2-methylphenol	1300	U	1300	U	1300	U	1100	U	1100	U	880	U
N-Nitrosodiphenylamine (1)	510	U	510	U	510	U	420	U	440	U	350	U
4-Bromophenyl-phenylether	510	U	510	U	510	U	420	U	440	U	350	U
Hexachlorobenzene	510	U	510	U	510	U	420	U	440	U	350	U
Pentachlorophenol	1300	U	72	%	59	%	1100	U	1100	U	880	U
Phenanthrene	510	U	510	U	510	U	420	U	440	U	350	U
Anthracene	510	U	510	U	510	U	420	U	440	U	350	U
Carbazole	510	U	510	U	510	U	420	U	440	U	350	U
Di-n-butylphthalate	28	J	33	J	510	U	31	J	26	J	350	U
Fluoranthene	510	U	510	U	510	U	420	U	440	U	350	U
Pyrene	510	U	87	%	66	%	420	U	440	U	350	U
Butylbenzylphthalate	510	U	510	U	510	U	420	U	440	U	350	U
3,3'-Dichlorobenzidine	510	U	510	U	510	U	420	U	440	U	350	U
Benzo(a)anthracene	510	U	510	U	510	U	420	U	440	U	350	U
Chrysene	510	U	510	U	510	U	420	U	440	U	350	U
bis(2-Ethylhexyl)phthalate	510	U	510	U	510	U	420	U	440	U	350	U
Di-n-octyl phthalate	510	U	510	U	510	U	420	U	440	U	350	U
Benzo(b)fluoranthene	510	U	510	U	510	U	420	U	440	U	350	U
Benzo(k)fluoranthene	510	U	510	U	510	U	420	U	440	U	350	U
Benzo(a)pyrene	510	U	510	U	510	U	420	U	440	U	350	U
Indeno(1,2,3-cd)pyrene	510	U	510	U	510	U	420	U	440	U	350	U
Dibenz(a,h)anthracene	510	U	510	U	510	U	420	U	440	U	350	U
Benzo(g,h,i)perylene	510	U	510	U	510	U	420	U	440	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: 11/02/99 13:21

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 2a

	Cust ID:	B0WKV6		B0WKV7		B0WKV8		SBLKEQ		SBLKEQ BS	
Sample Information	RFW#:	005		006		007		99LE1257-MB1		99LE1257-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	94	%	94	%	75	%	82	%	59	%
	2-Fluorobiphenyl	83	%	88	%	77	%	84	%	60	%
	Terphenyl-d14	86	%	89	%	90	%	100	%	71	%
	Phenol-d5	79	%	80	%	77	%	85	%	60	%
	2-Fluorophenol	70	%	69	%	67	%	84	%	59	%
	2,4,6-Tribromophenol	65	%	64	%	64	%	85	%	61	%
Phenol		340	U	340	U	360	U	330	U	56	%
bis(2-Chloroethyl)ether		340	U	340	U	360	U	330	U	330	U
2-Chlorophenol		340	U	340	U	360	U	330	U	59	%
1,3-Dichlorobenzene		340	U	340	U	360	U	330	U	330	U
1,4-Dichlorobenzene		340	U	340	U	360	U	330	U	57	%
1,2-Dichlorobenzene		340	U	340	U	360	U	330	U	330	U
2-Methylphenol		340	U	340	U	360	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		340	U	340	U	360	U	330	U	330	U
4-Methylphenol		340	U	340	U	360	U	330	U	330	U
N-Nitroso-di-n-propylamine		340	U	340	U	360	U	330	U	64	%
Hexachloroethane		340	U	340	U	360	U	330	U	330	U
Nitrobenzene		340	U	340	U	360	U	330	U	330	U
Isophorone		340	U	340	U	360	U	330	U	330	U
2-Nitrophenol		340	U	340	U	360	U	330	U	330	U
2,4-Dimethylphenol		340	U	340	U	360	U	330	U	330	U
bis(2-Chloroethoxy)methane		340	U	340	U	360	U	330	U	330	U
2,4-Dichlorophenol		340	U	340	U	360	U	330	U	330	U
1,2,4-Trichlorobenzene		340	U	340	U	360	U	330	U	61	%
Naphthalene		340	U	340	U	360	U	330	U	330	U
4-Chloroaniline		340	U	340	U	360	U	330	U	330	U
Hexachlorobutadiene		340	U	340	U	360	U	330	U	330	U
4-Chloro-3-methylphenol		340	U	340	U	360	U	330	U	57	%
2-Methylnaphthalene		340	U	340	U	360	U	330	U	330	U
Hexachlorocyclopentadiene		340	U	340	U	360	U	330	U	330	U
2,4,6-Trichlorophenol		340	U	340	U	360	U	330	U	330	U
2,4,5-Trichlorophenol		860	U	860	U	900	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0WKV6		B0WKV7		B0WKV8		SBLKEQ		SBLKEQ BS	
RFW#:	005		006		007		99LE1257-MB1		99LE1257-MB1	
2-Chloronaphthalene	340	U	340	U	360	U	330	U	330	U
2-Nitroaniline	860	U	860	U	900	U	840	U	840	U
Dimethylphthalate	340	U	340	U	360	U	330	U	330	U
Acenaphthylene	340	U	340	U	360	U	330	U	330	U
2,6-Dinitrotoluene	340	U	340	U	360	U	330	U	330	U
3-Nitroaniline	860	U	860	U	900	U	840	U	840	U
Acenaphthene	340	U	340	U	360	U	330	U	60	%
2,4-Dinitrophenol	860	U	860	U	900	U	840	U	840	U
4-Nitrophenol	860	U	860	U	900	U	840	U	50	%
Dibenzofuran	340	U	340	U	360	U	330	U	330	U
2,4-Dinitrotoluene	340	U	340	U	360	U	330	U	57	%
Diethylphthalate	340	U	340	U	360	U	330	U	330	U
4-Chlorophenyl-phenylether	340	U	340	U	360	U	330	U	330	U
Fluorene	340	U	340	U	360	U	330	U	330	U
4-Nitroaniline	860	U	860	U	900	U	840	U	840	U
4,6-Dinitro-2-methylphenol	860	U	860	U	900	U	840	U	840	U
N-Nitrosodiphenylamine (1)	340	U	340	U	360	U	330	U	330	U
4-Bromophenyl-phenylether	340	U	340	U	360	U	330	U	330	U
Hexachlorobenzene	340	U	340	U	360	U	330	U	330	U
Pentachlorophenol	860	U	860	U	900	U	840	U	61	%
Phenanthrene	340	U	340	U	360	U	330	U	330	U
Anthracene	340	U	340	U	360	U	330	U	330	U
Carbazole	340	U	340	U	360	U	330	U	330	U
Di-n-butylphthalate	340	U	340	U	360	U	330	U	19	J
Fluoranthene	340	U	340	U	360	U	330	U	330	U
Pyrene	340	U	340	U	360	U	330	U	71	%
Butylbenzylphthalate	340	U	340	U	360	U	330	U	330	U
3,3'-Dichlorobenzidine	340	U	340	U	360	U	330	U	330	U
Benzo(a)anthracene	340	U	340	U	360	U	330	U	330	U
Chrysene	340	U	340	U	360	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	340	U	340	U	360	U	330	U	330	U
Di-n-octyl phthalate	340	U	340	U	360	U	330	U	330	U
Benzo(b)fluoranthene	340	U	340	U	360	U	330	U	330	U
Benzo(k)fluoranthene	340	U	340	U	360	U	330	U	330	U
Benzo(a)pyrene	340	U	340	U	360	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	340	U	340	U	360	U	330	U	330	U
Dibenz(a,h)anthracene	340	U	340	U	360	U	330	U	330	U
Benzo(g,h,i)perylene	340	U	340	U	360	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.

B0WKV1

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A102020

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 34 decanted: (Y/N)__ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.54	600	J
2.	UNKNOWN	21.16	300	J
3.	UNKNOWN	23.35	300	J
4.	ALKANE	24.69	300	J
5.	ALKANE	26.52	400	J
6.	UNKNOWN	26.73	200	J
7.	UNKNOWN	33.67	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV2

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A102023

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 21 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/21/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	HEXADECANOIC ACID	20.43	300	J
2.	ALKANE	24.69	300	J
3.	UNKNOWN	25.70	300	J
4.	UNKNOWN	26.04	300	J
5.	UNKNOWN	34.77	300	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV3

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A102019

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 24 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	12.57	200	J
2.	ALKANE	12.69	300	J
3.	UNKNOWN	12.95	200	J
4.	ALKANE	13.76	200	J
5.	ALKANE	26.51	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV4

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A102018

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 5 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/20/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 0

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

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV6

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-005

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A101815

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 3 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/19/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	11.04	90	J
2.	UNKNOWN	13.65	800	J
3.	UNKNOWN	15.98	600	J
4.	UNKNOWN	18.04	100	J
5.	UNKNOWN	23.76	70	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV7

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-006

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A101816

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 3 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/19/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.81	70	J
2.	UNKNOWN	13.64	300	J
3.	UNKNOWN	15.97	300	J
4.	UNKNOWN	18.57	100	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0WKV8

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9910L313-007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A101817

Level: (low/med) LOW Date Received: 10/08/99

% Moisture: 8 decanted: (Y/N) __ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/19/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	13.64	200	J
2.	UNKNOWN	15.98	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKEQ

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 99LE1257-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D101804

Level: (low/med) LOW Date Received: 10/14/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 10/14/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/18/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

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

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1	001	S	99LE1257	10/06/99	10/14/99	10/20/99
B0WKV1	001 MS	S	99LE1257	10/06/99	10/14/99	10/21/99
B0WKV1	001 MSD	S	99LE1257	10/06/99	10/14/99	10/21/99
B0WKV2	002	S	99LE1257	10/06/99	10/14/99	10/21/99
B0WKV3	003	S	99LE1257	10/06/99	10/14/99	10/20/99
B0WKV4	004	S	99LE1257	10/06/99	10/14/99	10/20/99
B0WKV6	005	S	99LE1257	10/06/99	10/14/99	10/19/99
B0WKV7	006	S	99LE1257	10/06/99	10/14/99	10/19/99
B0WKV8	007	S	99LE1257	10/06/99	10/14/99	10/19/99

LAB QC:

SBLKEQ	MB1	S	99LE1257	N/A	10/14/99	10/18/99
SBLKEQ	MB1 BS	S	99LE1257	N/A	10/14/99	10/18/99

RECRA LabNet Use Only
9910L313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) metals

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: 10/8/99 Date Due: 11/7/99
Account #:

Refrigerator #		1	2	2			2		2			2				
#/Type Container	Liquid															
	Solid	1AG	1AG				1AG		1AG			1AG				
Volume	Liquid															
	Solid	250	500				250		500			1L				
Preservatives		—	—						—			—				
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb			PH		INORG: TP 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	VOA 24H	BNA 25H	PEST/PCB 8082	Herb		PH 1PH		Metal	ICP/MS		Anion 1N3N2				
001	BOW KV1			S	10-6-99	0840	1	1	✓			1		1	✓		1				
002	2					0850	1	1	✓			1		1	✓		1				
003	3					0935	1	1	✓			1		1	✓		1				
004	4					0945	1	1	✓			1		1	✓		1				
005	6					1010	1	1	✓			1		1	✓		1				
006	7					1025	1	1	✓			1		1	✓		1				
007	8					1040	1	1	✓			1		1	✓		1				

RECRA LabNet Use Only

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

Special Instructions:
Sap# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
1. Run Matrix QC
Anion (1) = ICCL, ICFL, ICNO2, ICNO3, ICPO4,
3. ICSO4, ISFD, INH3N
Met (1) = As, Ba, Cd, Cr, Pb, Se, Ag, Be,
5. Cu, Ni, V, Zn, Hg, ICRC
6.

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # Fed Ex
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

Use Only
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: 3.2 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235795 30234

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

0242 3.0

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: A990290	Bill of Lading/Air Bill No.: 4235795302 34	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	[signature]	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Per #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx	10-8-99 0910	[signature]	10-8-99 0900

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

Collector unavailable to relinquish samples.

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	B99-078-134	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.: ~~3H~~ RN 10/7/99 SML-366	Field Logbook No.: EL-1511	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290	Bill of Lading/Air Bill No.: 4235795302 12	
		COA: B20C w/ 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BOWKV4~~	Soil	10/6/99	0954					X	X	X	X	X	BOW 8C3
BOWKV6	Soil	10/6/99	1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil	10/6/99	1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil	10/6/99	1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chrice	Date/Time: 10/6/99 1320	Received By: Ref 2c	Date/Time: 10/6/99 1320
Relinquished By: Ref #2c	Date/Time: 10/7/99 1000	Received By: R. Nielson	Date/Time: 10/7/99 1000
Relinquished By: R. Nielson/R. Nielson	Date/Time: 10/7/99 1430	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time: 10-8-99 0910	Received By: [illegible]	Date/Time: 10-8-99 0910

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

Collector unavailable to relinquish samples.

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

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-078
RFW#: 9910L313
SDG/SAF#: H0562/B99-078

W.O.#: 10985-001-001-9999-00
Date Received: 10-08-99

PCB

The set of samples consisted of seven (7) soil samples collected on 10-06-99.

The samples and their associated QC samples were extracted on 10-18-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 11-02,03-99. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. All cooler temperatures have been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received sulfuric acid and sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. Eight (8) of twenty-two (22) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-15-99
Date

pefv:\group\data\pest\10L-313.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 9 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 Philadelphia **Sample Discrepancy Report (SDR)** SDR #: 99GC209

Initiator: B Astor RFW Batch: 99IOL 305, 313 Parameter: OPCB
Date: 11/10/99 Samples: 305-005, 007, 313-004, BS Matrix:
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: 99LE1265
H0559 + H0562

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Sampler 305-005 had high surr. of 135% + 125%
305-007 " " " " 140% + 123%
313-004 " " " " 138% + 123%
99LE1265-MB15 " " " " 145% + 134%
for TCX + DCB respectively
TCX QC limit = 118%
DCB QC limit = 122%

2. Known or Probable Causes(s) All BS, MS, + MSD recoveries were acceptable
No hits were found in these samples

3. Discussion and Proposed Action Other Description:

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

Report + narrate

4. Project Manager Instructions...signature/date: Arlette G. Johnson 11/10/99

✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
✓ Client Contacted: Date/Person Kevin Johnson 11/10/99
__ Add
__ Cancel

5. Final Action...signature/date: Billie Master Other Explanation:

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

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

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

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 11/10/99 17:11

RFW Batch Number: **9910L313** Client: **TNU-HANFORD B99-078** Work Order: 10985001001 Page: 1

	Cust ID:	B0WKV1	B0WKV1	B0WKV1	B0WKV2	B0WKV3	B0WKV4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	128 * %	125 * %	115 %	118 %	105 %	138 * %
	Decachlorobiphenyl	108 %	97 %	95 %	96 %	101 %	123 * %
Aroclor-1016		49 U	50 U	50 U	42 U	43 U	35 U
Aroclor-1221		99 U	100 U	99 U	84 U	87 U	70 U
Aroclor-1232		49 U	50 U	50 U	42 U	43 U	35 U
Aroclor-1242		49 U	50 U	50 U	42 U	43 U	35 U
Aroclor-1248		49 U	50 U	50 U	42 U	43 U	35 U
Aroclor-1254		230	82 %	62 %	94	43 U	35 U
Aroclor-1260		49 U	50 U	50 U	42 U	43 U	35 U

	Cust ID:	B0WKV6	B0WKV7	B0WKV8	PBLKXI	PBLKXI BS
Sample Information	RFW#:	005	006	007	99LE1265-MB1	99LE1265-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	115 %	125 * %	118 %	120 * %	145 * %
	Decachlorobiphenyl	103 %	122 %	118 %	113 %	134 * %
Aroclor-1016		34 U	33 U	36 U	33 U	33 U
Aroclor-1221		69 U	67 U	71 U	67 U	67 U
Aroclor-1232		34 U	33 U	36 U	33 U	33 U
Aroclor-1242		34 U	33 U	36 U	33 U	33 U
Aroclor-1248		34 U	33 U	36 U	33 U	33 U
Aroclor-1254		34 U	33 U	36 U	33 U	96 %
Aroclor-1260		34 U	33 U	36 U	33 U	33 U

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

11-11-99

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

DATE RECEIVED: 10/08/99 RFW LOT # :9910L313

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WKV1	001	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV1	001 MS	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV1	001 MSD	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV2	002	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV3	003	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV4	004	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV6	005	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV7	006	S	99LE1265	10/06/99	10/18/99	11/03/99
B0WKV8	007	S	99LE1265	10/06/99	10/18/99	11/03/99

LAB QC:

PBLKXI	MB1	S	99LE1265	N/A	10/18/99	11/02/99
PBLKXI	MB1 BS	S	99LE1265	N/A	10/18/99	11/02/99

11-11-99

RECRA LabNet Use Only

99IOL313

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU - HANFORD B99-078

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 10/8/99 Date Due 11/7/99

Account #

Refrigerator #		1	2	2			2		2	1		2				
#/Type Container	Liquid															
	Solid	1AG	1AG	1			1AG		1AG	1		1AG				
Volume	Liquid															
	Solid	250	500	1			250		500	1		1L				
Preservatives		—	—						—			—				
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb		PH		Total Metal	CN						
		RECRA LabNet Use Only														
		OG24H OGCSC	OG25H	ODRO OPCB			IPH		MetO	ICNTO		AnegO INSNJ				

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	OG24H OGCSC	OG25H	ODRO OPCB		IPH		MetO	ICNTO		AnegO INSNJ				
001	BOW KV1			S	10-6-99	0840	1	1	✓		1		1	✓		1				
002	2					0850	1	1	✓		1		1	✓		1				
003	3					0935	1	1	✓		1		1	✓		1				
004	4					0945	1	1	✓		1		1	✓		1				
005	6					1010	1	1	✓		1		1	✓		1				
006	7					1025	1	1	✓		1		1	✓		1				
007	8					1040	1	1	✓		1		1	✓		1				

Special Instructions:

Saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:

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

RECRA LabNet Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___

Airbill Free Bill

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 3.2 °C

Relinquished by	Received by	Date	Time
Ed Ep	[illegible]	10-8-99	0910

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

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

NOTES:

4235795 30234

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-382	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 4235795302 34
			COA: B20CW1 671C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0840			X	X	X	X	X		BOW	BC2
BOWKV2	Soil	10/6/99	0850			X	X	X	X	X		BOW	BC2
BOWKV3	Soil	10/6/99	0935			X	X	X	X	X		BOW	BC3
BOWKV4	Soil	10-6-99	0945			X	X	X	X	X		BOW	BC3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/6/99 1320	[signature]	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex #2C	10/7/99 0927	[signature] / R. Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
[signature] / R. Nielson	10/7/99 1432	Fed Ex	
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	10-8-99 0910	[signature]	10-8-99 0910

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

Collector unavailable to relinquish samples

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	B99-078-134	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.: ~~3A~~ RN 10/7/99 SIML 366	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A990290		Bill of Lading/Air Bill No.: 42357953021 2
			COA: B20C w/ 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
	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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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										
~~BOWKV4~~	~~Soil 10/6/99 0954~~					~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~BOW 8C3~~
BOWKV6	Soil 10/6/99 1010					X	X	X	X	X	BOW 8C3
BOWKV7	Soil 10/6/99 1025					X	X	X	X	X	BOW 8C3
BOWKV8	Soil 10/6/99 1040					X	X	X	X	X	BOW 8C2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris 10/6/99	Date/Time: 1320	Received By: Bef JC 10/6/99	Date/Time: 1320
Relinquished By: Bef #JC 10/7/99	Date/Time: 1000	Received By: R. Nielson 10/7/99	Date/Time: 1000
Relinquished By: R. Nielson/R. Nielson 10/7/99	Date/Time: 1430	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time: 10-8-99 0910	Received By: [illegible]	Date/Time: 10-8-99 0910

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

Collector unavailable to relinquish samples.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

H0562-TMH/LECRA

JAN 2000
RECEIVED
Data
Log In

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0562 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 9, 1999 and January 5 and 17, 2000.

2.0 ANALYSIS NOTES

2.1 Nickel-63 Analyses

No problems were encountered during the course of the analyses. Ni samples were batched with SDG H0566 (7235).

2.2 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.3 Technetium-99 Analyses

Tc samples were batched with SDG H0566 (7235). 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 B0WKV6 (7231-05), B0WKV7 (7231-06), B0WKV8 (7231-07), 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.

2.4 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.5 Total Uranium Analyses

No problems were encountered during the course of the analyses. The Total Uranium results were reported on November 3, 1999 via facsimile.

2.6 Isotopic Uranium Analyses

BHI requested samples B0WKV1, B0WKV2, and B0WKV3 be analyzed for Isotopic Uranium on January 3, 2000. No problems were encountered during the course of the analyses.

2.7 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.8 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.9 Americium-241 Analyses

Sample B0WKV1 (7231-06) had a low yield and was reworked in chemistry. The reworked sample data has been reported in this data report. No other problems were encountered during the course of the analyses.

2.10 Gamma Spec Analyses

No problems were encountered during the course of the analyses.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0562

SAMPLE SUMMARY

SDG 7231
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0WKV1	200 B Pond	SOLID		N910061-01	B99-078	B99-078-133	10/06/99 08:40
B0WKV2	200 B Pond	SOLID		N910061-02	B99-078	B99-078-133	10/06/99 08:50
B0WKV3	200 B Pond	SOLID		N910061-03	B99-078	B99-078-133	10/06/99 09:35
B0WKV4	200 B Pond	SOLID		N910061-04	B99-078	B99-078-133	10/06/99 09:45
B0WKV6	200 B Pond	SOLID		N910061-05	B99-078	B99-078-134	10/06/99 10:10
B0WKV7	200 B Pond	SOLID		N910061-06	B99-078	B99-078-134	10/06/99 10:25
B0WKV8	200 B Pond	SOLID		N910061-07	B99-078	B99-078-134	10/06/99 10:40
Method Blank		SOLID		N910061-09	B99-078		
Method Blank		SOLID		N910061-13	B99-078		
Method Blank		SOLID		N910061-16	B99-078		
Method Blank		SOLID		N910071-09	B99-078		
Lab Control Sample		SOLID		N910061-08	B99-078		
Lab Control Sample		SOLID		N910061-12	B99-078		
Lab Control Sample		SOLID		N910061-15	B99-078		
Lab Control Sample		SOLID		N910071-08	B99-078		
Duplicate (N910061-01)	200 B Pond	SOLID		N910061-10	B99-078		10/06/99 08:40
Duplicate (N910061-01)	200 B Pond	SOLID		N910061-14	B99-078		10/06/99 08:40
Duplicate (N910061-01)	200 B Pond	SOLID		N910061-17	B99-078		10/06/99 08:40
Duplicate (N910061-05)	200 B Pond	SOLID		N910061-11	B99-078		10/06/99 10:10

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 H0562

SDG 7231
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

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
7231	B99-078-133	B0WKV1	SOLID	67.9			10/08/99	2	N910061-01	7231-001
		B0WKV2	SOLID	73.2			10/08/99	2	N910061-02	7231-002
		B0WKV3	SOLID	75.2			10/08/99	2	N910061-03	7231-003
		B0WKV4	SOLID	95.6			10/08/99	2	N910061-04	7231-004
	B99-078-134	B0WKV6	SOLID	97.0			10/08/99	2	N910061-05	7231-005
		B0WKV7	SOLID	96.9			10/08/99	2	N910061-06	7231-006
		B0WKV8	SOLID	90.5			10/08/99	2	N910061-07	7231-007
		Method Blank	SOLID						N910061-09	7231-009
		Method Blank	SOLID						N910061-13	7231-013
		Method Blank	SOLID						N910061-16	7231-016
		Lab Control Sample	SOLID						N910061-08	7231-008
		Lab Control Sample	SOLID						N910061-12	7231-012
		Lab Control Sample	SOLID						N910061-15	7231-015
		Duplicate (N910061-01)	SOLID	67.9			10/08/99	2	N910061-10	7231-010
		Duplicate (N910061-01)	SOLID	67.9			10/08/99	2	N910061-14	7231-014
		Duplicate (N910061-01)	SOLID				10/08/99	2	N910061-17	7231-017
		Duplicate (N910061-05)	SOLID	97.0			10/08/99	2	N910061-11	7231-011
7235		Method Blank	SOLID						N910071-09	7235-009
		Lab Control Sample	SOLID						N910071-08	7235-008

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 H0562

SDG 7231
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6904-075	5.0	7			1	1	1/1		
NP	SOLID	Neptunium in Soil	6904-075	5.0	7			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6904-075	5.0	7			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6904-075	5.0	7			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6904-075	5.0	3			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6904-075	10.0	7			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6904-087	10.0	3			1	1	1/1		X
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6904-075	15.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6904-075	9.0	7			1	1	1/1		X
Liquid Scintillation Counting												
NI_L	SOLID	Nickel 63 in Soil	6904-087	10.0	3			1	1	1/1		

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

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0562

WORK SUMMARY

SDG 7231
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WKV1			N910061-01	7231-001	AM		12/02/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-001	GAM		10/30/99	12/09/99	NJV	Gamma Scan
B99-078-133	B99-078		10/08/99	7231-001	NP		12/09/99	12/09/99	NJV	Neptunium in Soil
				7231-001	PU		12/07/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-001	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-001	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-001	U		01/08/00	01/11/00	MCM	Uranium, Isotopic in Soil
				7231-001	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
B0WKV2			N910061-02	7231-002	AM		12/06/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-002	GAM		10/30/99	12/09/99	NJV	Gamma Scan
B99-078-133	B99-078		10/08/99	7231-002	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-002	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-002	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-002	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-002	U		01/09/00	01/11/00	MCM	Uranium, Isotopic in Soil
				7231-002	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
B0WKV3			N910061-03	7231-003	AM		12/02/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-003	GAM		10/29/99	12/09/99	NJV	Gamma Scan
B99-078-133	B99-078		10/08/99	7231-003	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-003	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-003	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-003	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-003	U		01/09/00	01/11/00	MCM	Uranium, Isotopic in Soil
				7231-003	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
B0WKV4			N910061-04	7231-004	AM		12/03/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-004	GAM		10/30/99	12/09/99	NJV	Gamma Scan
B99-078-133	B99-078		10/08/99	7231-004	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-004	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-004	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-004	TH		11/29/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-004	U_T		10/26/99	12/09/99	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 H0562

SDG 7231
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SRB-207925
Case no SDG H0562

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WKV6			N910061-05	7231-005	AM		12/03/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-005	GAM		11/03/99	12/09/99	NJV	Gamma Scan
B99-078-134	B99-078		10/08/99	7231-005	NI_L		11/23/99	01/15/00	MCM	Nickel 63 in Soil
				7231-005	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-005	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-005	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-005	TC		12/08/99	01/15/00	MCM	Technetium 99 in Soil
				7231-005	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-005	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
B0WKV7			N910061-06	7231-006	AM	A0R1	12/15/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-006	GAM		11/03/99	12/09/99	NJV	Gamma Scan
B99-078-134	B99-078		10/08/99	7231-006	NI_L		11/23/99	01/15/00	MCM	Nickel 63 in Soil
				7231-006	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-006	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-006	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-006	TC		12/08/99	01/15/00	MCM	Technetium 99 in Soil
				7231-006	TH		11/29/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-006	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
B0WKV8			N910061-07	7231-007	AM		12/06/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-007	GAM		11/03/99	12/09/99	NJV	Gamma Scan
B99-078-134	B99-078		10/08/99	7231-007	NI_L		11/23/99	01/15/00	MCM	Nickel 63 in Soil
				7231-007	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-007	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-007	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-007	TC		12/08/99	01/15/00	MCM	Technetium 99 in Soil
				7231-007	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
				7231-007	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
Method Blank			N910061-09	7231-009	AM		12/03/99	12/09/99	NJV	Americium 241 in Soil
		SOLID		7231-009	GAM		11/03/99	12/09/99	NJV	Gamma Scan
	B99-078			7231-009	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-009	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-009	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-009	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic 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 H0562

SDG 7231
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			N910061-13	7231-013	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
		SOLID								
	B99-078									
Method Blank			N910061-16	7231-016	U		01/09/00	01/11/00	MCM	Uranium, Isotopic in Soil
		SOLID								
	B99-078									
Method Blank			N910071-09	7235-009	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
		SOLID		7235-009	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil
	B99-078									
Lab Control Sample			N910061-08	7231-008	AM		12/02/99	12/09/99	NJV	Americium 241 in Soil
		SOLID		7231-008	GAM		11/01/99	12/09/99	NJV	Gamma Scan
	B99-078			7231-008	NP		12/07/99	12/09/99	NJV	Neptunium in Soil
				7231-008	PU		12/03/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-008	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-008	TH		11/24/99	12/09/99	NJV	Thorium, Isotopic in Soil
Lab Control Sample			N910061-12	7231-012	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
		SOLID								
	B99-078									
Lab Control Sample			N910061-15	7231-015	U		01/09/00	01/11/00	MCM	Uranium, Isotopic in Soil
		SOLID								
	B99-078									
Lab Control Sample			N910071-08	7235-008	NI_L		11/23/99	12/27/99	NJV	Nickel 63 in Soil
		SOLID		7235-008	TC		12/17/99	12/27/99	NJV	Technetium 99 in Soil
	B99-078									
Duplicate (N910061-01)			N910061-10	7231-010	AM		12/03/99	12/09/99	NJV	Americium 241 in Soil
200 B Pond		SOLID	10/06/99	7231-010	GAM		11/04/99	12/09/99	NJV	Gamma Scan
	B99-078		10/08/99	7231-010	NP		12/08/99	12/09/99	NJV	Neptunium in Soil
				7231-010	PU		12/02/99	12/09/99	NJV	Plutonium, Isotopic in Solids
				7231-010	SR		11/29/99	12/09/99	NJV	Total Strontium in Soil
				7231-010	TH		11/26/99	12/09/99	NJV	Thorium, Isotopic 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 H0562

SDG 7231
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (N910061-01)			N910061-14	7231-014	U_T		10/26/99	12/09/99	NJV	Uranium, Total in Soil
200 B Pond		SOLID	10/06/99							
	B99-078		10/08/99							
Duplicate (N910061-01)			N910061-17	7231-017	U		01/09/00	01/11/00	MCM	Uranium, Isotopic in Soil
200 B Pond		SOLID	10/06/99							
	B99-078		10/08/99							
Duplicate (N910061-05)			N910061-11	7231-011	NI_L		11/23/99	01/15/00	MCM	Nickel 63 in Soil
200 B Pond		SOLID	10/06/99	7231-011	TC		12/08/99	01/15/00	MCM	Technetium 99 in Soil
	B99-078		10/08/99							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B99-078	Americium 241 in Soil	AM/CMPLATE	7			1	1	1	10
GAM	B99-078	Gamma Scan	GAMMAHI	7			1	1	1	10
NI_L	B99-078	Nickel 63 in Soil	NI63LSC	3			1	1	1	6
NP	B99-078	Neptunium in Soil	NP237PLATE	7			1	1	1	10
PU	B99-078	Plutonium, Isotopic in Solids	PUPLATE	7			1	1	1	10
SR	B99-078	Total Strontium in Soil	SRTOTAL	7			1	1	1	10
TC	B99-078	Technetium 99 in Soil	TC99TRLSC	3			1	1	1	6
TH	B99-078	Thorium, Isotopic in Soil	THPLATE	7			1	1	1	10
U	B99-078	Uranium, Isotopic in Soil	UPLATE	3			1	1	1	6
U_T	B99-078	Uranium, Total in Soil	UKPA	7			1	1	1	10
TOTALS				58			10	10	10	88

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 H0562

N910061-09

Method Blank

METHOD BLANK

SDG	7231	Client/Case no	Hanford	SDG H0562	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910061-09	Client sample id	Method Blank		
Dept sample id	7231-009	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
Neptunium 237	13994-20-2	0.009	0.052	0.095		U	NP
Plutonium 238	13981-16-3	0.016	0.041	0.076	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.025	0.033	0.079	1.0	U	PU
Americium 241	14596-10-2	-0.041	0.062	0.15	1.0	U	AM
Total Strontium	SR-RAD	-0.044	0.11	0.16	1.0	U	SR
Thorium 228	14274-82-9	-0.009	0.036	0.065	1.0	U	TH
Thorium 230	14269-63-7	0.064	0.073	0.14	1.0	U	TH
Thorium 232	TH-232	0.002	0.014	0.025	1.0	U	TH
Potassium 40	13966-00-2	U		0.063		U	GAM
Cobalt 60	10198-40-0	U		0.005	0.050	U	GAM
Cesium 137	10045-97-3	U		0.005	0.10	U	GAM
Europium 152	14683-23-9	U		0.013	0.10	U	GAM
Europium 154	15585-10-1	U		0.016	0.10	U	GAM
Europium 155	14391-16-3	U		0.010	0.10	U	GAM
Radium 226	13982-63-3	U		0.014	0.10	U	GAM
Radium 228	15262-20-1	U		0.021	0.20	U	GAM
Thorium 228	14274-82-9	U		0.007		U	GAM
Thorium 232	TH-232	U		0.021		U	GAM
Americium 241	14596-10-2	U		0.011		U	GAM
Uranium 238	U-238	U		0.56		U	GAM
Uranium 235	15117-96-1	U		0.016		U	GAM

200 Area Source chrctztn-200-CW-1 OU

QC-BLANK 32208

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 H0562

N910061-13 Method Blank

METHOD BLANK

SDG	7231	Client/Case no	Hanford	SDG H0562	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910061-13	Client sample id	Method Blank		
Dept sample id	7231-013	Material/Matrix		SOLID	
		SAF No	B99-078		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0	0	0	1.0	J	U_T

200 Area Source chrctztn-200-CW-1 OU

QC-BLANK 32104

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 H0562

N910061-16 Method Blank

METHOD BLANK

SDG	7231	Client/Case no	Hanford	SDG H0562	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910061-16	Client sample id	Method Blank		
Dept sample id	7231-016	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
Uranium 233	U-233/234	0.007	0.013	0.020	1.0	U	U
Uranium 235	15117-96-1	-0.002	0.008	0.019	1.0	U	U
Uranium 238	U-238	-0.008	0.010	0.024	1.0	U	U

200 Area Source chrctztn-200-CW-1 OU

QC-BLANK 33027

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

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SAMPLE DELIVERY GROUP H0562

N910071-09 Method Blank

METHOD BLANK

SDG	7231	Client/Case no	Hanford SDG H0562
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	N.A.			1.0		PU
Plutonium 239/240	PU-239/240	N.A.			1.0		PU
Nickel 63	13981-37-8	-0.071	1.2	2.1	30	U	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 chrctztn-200-CW-1 OU

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 H0562

N910061-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7231

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0562

Case no TRB-SPB-207925

Lab sample id N910061-08

Dept sample id 7231-008

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
Neptunium 237	7.58	0.51	0.061			NP	10.6	0.42	72	89-111	
Plutonium 238	9.44	0.78	0.043	1.0		PU	10.0	0.40	94	85-115	80-120
Plutonium 239/240	10.2	0.84	0.049	1.0		PU	10.6	0.42	96	85-115	80-120
Americium 241	8.94	0.60	0.063	1.0		AM	9.58	0.38	93	87-113	80-120
Total Strontium	12.2	0.39	0.17	1.0		SR	11.3	0.45	108	82-118	
Thorium 230	21.6	0.66	0.14	1.0		TH	20.4	0.82	106	89-111	
Cobalt 60	0.428	0.028	0.013	0.050		GAM	0.392	0.016	109	73-127	80-120
Cesium 137	0.424	0.026	0.020	0.10		GAM	0.406	0.016	104	74-126	80-120

200 Area Source chrctztn-200-CW-1 OU

QC-LCS 32207

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 H0562

N910061-12

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7231

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0562

Case no TRB-SBB-207925

Lab sample id N910061-12

Dept sample id 7231-012

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)	1.96	0.23	0.002	1.0	X	U_T	2.06	0.082	95	78-122	80-120

200 Area Source chrctztn-200-CW-1 OU

QC-LCS 32103

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 H0562

N910061-15

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7231
Contact Melissa C. Mannion

Client/Case no Hanford SDG H0562
Case no TRB-SBB-207925

Lab sample id N910061-15
Dept sample id 7231-015

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
Uranium 233	4.92	0.26	0.12	1.0		U	4.64	0.19	106	87-113	80-120
Uranium 235	3.84	0.23	0.015	1.0		U	3.77	0.15	102	87-113	80-120
Uranium 238	4.93	0.26	0.11	1.0		U	5.04	0.20	98	88-112	80-120

200 Area Source chrctztn-200-CW-1 OU

QC-LCS 33026

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 H0562

N910071-08 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7231 Client/Case no Hanford SDG H0562

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

Lab sample id N910071-08 Client sample id Lab Control Sample

Dept sample id 7235-008 Material/Matrix SOLID

SAF No B99-078

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Technetium 99	52.4	1.1	0.39	15	B	TC	55.6	2.2	94	84-116	80-120
Plutonium 238	N.A.			1.0		PU					80-120
Plutonium 239/240	N.A.			1.0		PU					80-120
Nickel 63	152	3.6	2.2	30		NI_L	147	5.9	103	83-117	
Americium 241	N.A.			1.0		AM					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					
Potassium 40	N.A.					GAM					
Cobalt 60	N.A.			0.050		GAM					80-120
Cesium 137	N.A.			0.10		GAM					80-120
Europium 152	N.A.			0.10		GAM					
Europium 154	N.A.			0.10		GAM					
Europium 155	N.A.			0.10		GAM					
Radium 226	N.A.			0.10		GAM					
Radium 228	N.A.			0.20		GAM					
Thorium 228	N.A.					GAM					
Thorium 232	N.A.					GAM					
Americium 241	N.A.					GAM					
Uranium 238	N.A.					GAM					
Uranium 235	N.A.					GAM					

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-10 B0WKV1

DUPLICATE

SDG 7231		Client/Case no Hanford	SDG H0562
Contact Melissa C. Mannion		Case no TRB-SDB-207925	
DUPLICATE	ORIGINAL		
Lab sample id N910061-10	Lab sample id N910061-01	Client sample id B0WKV1	
Dept sample id 7231-010	Dept sample id 7231-001	Location/Matrix 200 B Pond	SOLID
	Received 10/08/99	Collected 10/06/99 08:40	
% solids 67.9	% solids 67.9	Custody/SAF No B99-078-133	B99-078

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Neptunium 237	0.099	0.044	0.017			NP	0.065	0.035	0.033		41	103
Plutonium 238	0.484	0.093	0.068	1.0	J	PU	0.563	0.084	0.040	J	15	37
Plutonium 239/240	26.5	1.7	0.058	1.0		PU	27.5	1.6	0.038		4	17
Americium 241	5.45	0.58	0.075	1.0		AM	4.96	0.35	0.046		9	22
Total Strontium	1.26	0.15	0.13	1.0		SR	1.31	0.17	0.16		4	34
Thorium 228	0.587	0.14	0.12	1.0	J	TH	0.596	0.082	0.068	J	2	42
Thorium 230	0.462	0.14	0.15	1.0	J	TH	0.407	0.090	0.14	J	13	58
Thorium 232	0.449	0.11	0.052	1.0	J	TH	0.364	0.060	0.031	J	21	47
Potassium 40	13.5	0.74	0.41			GAM	15.6	1.1	0.60		14	35
Cobalt 60	U		0.035	0.050	U	GAM	U		0.056	U	-	
Cesium 137	984	1.3	0.44	0.10		GAM	1000	1.9	0.65		2	32
Europium 152	U		1.2	0.10	U	GAM	U		1.8	U	-	
Europium 154	0.137	0.11	0.15	0.10	U	GAM	U		0.22	U	-	
Europium 155	U		0.83	0.10	U	GAM	U		1.2	U	-	
Radium 226	0.821	0.48	0.67	0.10		GAM	U		1.1	U	29	190
Radium 228	0.974	0.20	0.23	0.20		GAM	1.06	0.34	0.37		8	66
Thorium 228	0.774	0.36	0.53			GAM	0.979	0.60	0.83		23	124
Thorium 232	0.974	0.20	0.23			GAM	1.06	0.34	0.37		8	66
Americium 241	9.00	0.92	1.3			GAM	8.54	1.2	1.8		5	41
Uranium 238	U		6.2		U	GAM	U		9.3	U	-	
Uranium 235	U		1.2		U	GAM	U		1.7	U	-	

200 Area Source chrctztn-200-CW-1 OU

QC-DUP#1 32209

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 H0562

N910061-14 B0WKV1

DUPLICATE

SDG	7231			Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N910061-14	Lab sample id	N910061-01	Client sample id	B0WKV1
Dept sample id	7231-014	Dept sample id	7231-001	Location/Matrix	200 B Pond SOLID
		Received	10/08/99	Collected	10/06/99 08:40
% solids	67.9	% solids	67.9	Custody/SAF No	B99-078-133 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)	4.79	0.54	0.004	1.0		U_T	5.12	0.57	0.004		7	30	

200 Area Source chrctztn-200-CW-1 OU

QC-DUP#1 32105

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 H0562

N910061-17 B0WKV1

DUPLICATE

SDG	7231			Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL			
Lab sample id	N910061-17	Lab sample id	N910061-01	Client sample id	B0WKV1
Dept sample id	7231-017	Dept sample id	7231-001	Location/Matrix	200 B Pond SOLID
		Received	10/08/99	Collected	10/06/99 08:40
		% solids	67.9	Custody/SAF No	B99-078-133 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
Uranium 233	2.16	0.12	0.025	1.0		U	2.18	0.13	0.027		1	16	
Uranium 235	0.173	0.033	0.011	1.0	J	U	0.202	0.035	0.012	J	15	40	
Uranium 238	1.79	0.11	0.023	1.0		U	1.94	0.12	0.026		8	17	

200 Area Source chrctztn-200-CW-1 OU

QC-DUP#1 33028

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 H0562

N910061-11

B0WKV6

DUPLICATE

SDG	7231			Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N910061-11	Lab sample id	N910061-05	Client sample id	B0WKV6
Dept sample id	7231-011	Dept sample id	7231-005	Location/Matrix	200 B Pond SOLID
		Received	10/08/99	Collected	10/06/99 10:10
% solids	97.0	% solids	97.0	Custody/SAF No	B99-078-134 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
Technetium 99	1.98			15	JBX	TC	1.91			JBX	4	21	
Nickel 63	-0.411	1.3	2.2	30	U	NI_L	-0.114	1.3	2.2	U	-		

200 Area Source chrctztn-200-CW-1 OU

QC-DUP#5 32210

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 H0562

N910061-01 B0WKV1

DATA SHEET

SDG	7231	Client/Case no	Hanford	SDG H0562	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910061-01	Client sample id	B0WKV1		
Dept sample id	7231-001	Location/Matrix	200 B Pond	SOLID	
Received	10/08/99	Collected	10/06/99 08:40		
% solids	67.9	Custody/SAF No	B99-078-133	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.065	0.035	0.033			NP
Uranium 233	U-233/234	2.18	0.13	0.027	1.0		U
Uranium 235	15117-96-1	0.202	0.035	0.012	1.0	J	U
Uranium 238	U-238	1.94	0.12	0.026	1.0		U
Total Uranium (ug/g)	7440-61-1	5.12	0.57	0.004	1.0		U_T
Plutonium 238	13981-16-3	0.563	0.084	0.040	1.0	J	PU
Plutonium 239/240	PU-239/240	27.5	1.6	0.038	1.0		PU
Americium 241	14596-10-2	4.96	0.35	0.046	1.0		AM
Total Strontium	SR-RAD	1.31	0.17	0.16	1.0		SR
Thorium 228	14274-82-9	0.596	0.082	0.068	1.0	J	TH
Thorium 230	14269-63-7	0.407	0.090	0.14	1.0	J	TH
Thorium 232	TH-232	0.364	0.060	0.031	1.0	J	TH
Potassium 40	13966-00-2	15.6	1.1	0.60			GAM
Cobalt 60	10198-40-0	U		0.056	0.050	U	GAM
Cesium 137	10045-97-3	1000	1.9	0.65	0.10		GAM
Europium 152	14683-23-9	U		1.8	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		1.2	0.10	U	GAM
Radium 226	13982-63-3	U		1.1	0.10	U	GAM
Radium 228	15262-20-1	1.06	0.34	0.37	0.20		GAM
Thorium 228	14274-82-9	0.979	0.60	0.83			GAM
Thorium 232	TH-232	1.06	0.34	0.37			GAM
Americium 241	14596-10-2	8.54	1.2	1.8			GAM
Uranium 238	U-238	U		9.3		U	GAM
Uranium 235	15117-96-1	U		1.7		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-02 B0WKV2

DATA SHEET

SDG	7231	Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910061-02	Client sample id	B0WKV2
Dept sample id	7231-002	Location/Matrix	200 B Pond SOLID
Received	10/08/99	Collected	10/06/99 08:50
% solids	73.2	Custody/SAF No	B99-078-133 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.018	0.027	0.050		U	NP
Uranium 233	U-233/234	1.15	0.089	0.020	1.0		U
Uranium 235	15117-96-1	0.094	0.026	0.012	1.0	J	U
Uranium 238	U-238	1.02	0.082	0.020	1.0		U
Total Uranium (ug/g)	7440-61-1	4.03	0.48	0.038	1.0		U_T
Plutonium 238	13981-16-3	0.146	0.044	0.034	1.0	J	PU
Plutonium 239/240	PU-239/240	9.11	0.62	0.034	1.0		PU
Americium 241	14596-10-2	1.85	0.19	0.026	1.0		AM
Total Strontium	SR-RAD	0.760	0.13	0.14	1.0	J	SR
Thorium 228	14274-82-9	0.496	0.075	0.061	1.0	J	TH
Thorium 230	14269-63-7	0.523	0.098	0.14	1.0	J	TH
Thorium 232	TH-232	0.416	0.065	0.026	1.0	J	TH
Potassium 40	13966-00-2	16.2	0.66	0.30			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	485	0.80	0.19	0.10		GAM
Europium 152	14683-23-9	U		0.71	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.44	0.10	U	GAM
Radium 226	13982-63-3	0.521	0.20	0.28	0.10		GAM
Radium 228	15262-20-1	0.932	0.13	0.14	0.20		GAM
Thorium 228	14274-82-9	0.772	0.23	0.34			GAM
Thorium 232	TH-232	0.932	0.13	0.14			GAM
Americium 241	14596-10-2	3.56	0.45	0.64			GAM
Uranium 238	U-238	U		4.3		U	GAM
Uranium 235	15117-96-1	U		0.68		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-03 B0WKV3

DATA SHEET

SDG	7231	Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910061-03	Client sample id	B0WKV3
Dept sample id	7231-003	Location/Matrix	200 B Pond SOLID
Received	10/08/99	Collected	10/06/99 09:35
% solids	75.2	Custody/SAF No	B99-078-133 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.028	0.034	0.062		U	NP
Uranium 233	U-233/234	0.723	0.067	0.024	1.0	J	U
Uranium 235	15117-96-1	0.038	0.015	0.012	1.0	J	U
Uranium 238	U-238	0.679	0.062	0.015	1.0	J	U
Total Uranium (ug/g)	7440-61-1	4.08	0.48	0.038	1.0		U_T
Plutonium 238	13981-16-3	0.069	0.029	0.032	1.0	J	PU
Plutonium 239/240	PU-239/240	10.4	0.69	0.022	1.0		PU
Americium 241	14596-10-2	0.398	0.080	0.059	1.0	J	AM
Total Strontium	SR-RAD	1.99	0.20	0.16	1.0		SR
Thorium 228	14274-82-9	0.396	0.078	0.097	1.0	J	TH
Thorium 230	14269-63-7	0.300	0.082	0.13	1.0	J	TH
Thorium 232	TH-232	0.363	0.057	0.033	1.0	J	TH
Potassium 40	13966-00-2	17.7	0.53	0.22			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	89.1	0.28	0.085	0.10		GAM
Europium 152	14683-23-9	U		0.25	0.10	U	GAM
Europium 154	15585-10-1	U		0.085	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Radium 226	13982-63-3	0.754	0.11	0.13	0.10		GAM
Radium 228	15262-20-1	0.925	0.11	0.11	0.20		GAM
Thorium 228	14274-82-9	0.778	0.11	0.14			GAM
Thorium 232	TH-232	0.925	0.11	0.11			GAM
Americium 241	14596-10-2	0.444	0.40	0.63		U	GAM
Uranium 238	U-238	U		5.0		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-04 B0WKV4

DATA SHEET

SDG	7231	Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910061-04	Client sample id	B0WKV4
Dept sample id	7231-004	Location/Matrix	200 B Pond SOLID
Received	10/08/99	Collected	10/06/99 09:45
% solids	95.6	Custody/SAF No	B99-078-133 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.007	0.027	0.052		U	NP
Total Uranium (ug/g)	7440-61-1	0.570	0.065	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.013	0.020	0.040	1.0	U	PU
Plutonium 239/240	PU-239/240	1.26	0.15	0.031	1.0		PU
Americium 241	14596-10-2	0.032	0.030	0.040	1.0	U	AM
Total Strontium	SR-RAD	14.7	0.73	0.42	1.0		SR
Thorium 228	14274-82-9	0.230	0.11	0.13	1.0	J	TH
Thorium 230	14269-63-7	0.134	0.11	0.16	1.0	U	TH
Thorium 232	TH-232	0.205	0.071	0.056	1.0	J	TH
Potassium 40	13966-00-2	12.3	0.55	0.25			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	0.729	0.040	0.032	0.10		GAM
Europium 152	14683-23-9	U		0.066	0.10	U	GAM
Europium 154	15585-10-1	U		0.088	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Radium 226	13982-63-3	0.474	0.056	0.052	0.10		GAM
Radium 228	15262-20-1	0.647	0.10	0.10	0.20		GAM
Thorium 228	14274-82-9	0.557	0.035	0.038			GAM
Thorium 232	TH-232	0.647	0.10	0.10			GAM
Americium 241	14596-10-2	U		0.26		U	GAM
Uranium 238	U-238	U		3.1		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-05 B0WKV6

DATA SHEET

SDG	7231	Client/Case no	Hanford	SDG H0562	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N910061-05	Client sample id	B0WKV6		
Dept sample id	7231-005	Location/Matrix	200 B Pond	SOLID	
Received	10/08/99	Collected	10/06/99 10:10		
% solids	97.0	Custody/SAF No	B99-078-134	B99-078	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.005	0.022	0.041		U	NP
Technetium 99	14133-76-7	1.91			15	JBX	TC
Total Uranium (ug/g)	7440-61-1	0.566	0.065	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.014	0.021	0.044	1.0	U	PU
Plutonium 239/240	PU-239/240	1.04	0.14	0.039	1.0		PU
Nickel 63	13981-37-8	-0.114	1.3	2.2	30	U	NI_L
Americium 241	14596-10-2	0.028	0.043	0.068	1.0	U	AM
Total Strontium	SR-RAD	17.6	1.1	0.76	1.0		SR
Thorium 228	14274-82-9	0.317	0.061	0.062	1.0	J	TH
Thorium 230	14269-63-7	0.295	0.082	0.14	1.0	J	TH
Thorium 232	TH-232	0.295	0.052	0.016	1.0	J	TH
Potassium 40	13966-00-2	10.7	0.37	0.15			GAM
Cobalt 60	10198-40-0	U		0.016	0.050	U	GAM
Cesium 137	10045-97-3	0.225	0.024	0.022	0.10		GAM
Europium 152	14683-23-9	U		0.042	0.10	U	GAM
Europium 154	15585-10-1	U		0.058	0.10	U	GAM
Europium 155	14391-16-3	U		0.071	0.10	U	GAM
Radium 226	13982-63-3	0.398	0.031	0.030	0.10		GAM
Radium 228	15262-20-1	0.546	0.065	0.064	0.20		GAM
Thorium 228	14274-82-9	0.489	0.021	0.022			GAM
Thorium 232	TH-232	0.546	0.065	0.064			GAM
Americium 241	14596-10-2	U		0.17		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Uranium 235	15117-96-1	U		0.084		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-06 B0WKV7

DATA SHEET

SDG	7231	Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910061-06	Client sample id	B0WKV7
Dept sample id	7231-006	Location/Matrix	200 B Pond SOLID
Received	10/08/99	Collected	10/06/99 10:25
% solids	96.9	Custody/SAF No	B99-078-134 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.021	0.021	0.016			NP
Technetium 99	14133-76-7	1.87			15	JBX	TC
Total Uranium (ug/g)	7440-61-1	0.668	0.075	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.024	0.041	0.067	1.0	U	PU
Plutonium 239/240	PU-239/240	0.838	0.12	0.042	1.0	J	PU
Nickel 63	13981-37-8	-0.602	1.3	2.3	30	U	NI_L
Americium 241	14596-10-2	-0.014	0.027	0.10	1.0	U	AM
Total Strontium	SR-RAD	16.3	0.82	0.26	1.0		SR
Thorium 228	14274-82-9	0.451	0.13	0.14	1.0	J	TH
Thorium 230	14269-63-7	0.488	0.15	0.15	1.0	J	TH
Thorium 232	TH-232	0.382	0.11	0.050	1.0	J	TH
Potassium 40	13966-00-2	10.6	0.33	0.14			GAM
Cobalt 60	10198-40-0	U		0.015	0.050	U	GAM
Cesium 137	10045-97-3	0.045	0.016	0.017	0.10	J	GAM
Europium 152	14683-23-9	U		0.038	0.10	U	GAM
Europium 154	15585-10-1	U		0.050	0.10	U	GAM
Europium 155	14391-16-3	U		0.062	0.10	U	GAM
Radium 226	13982-63-3	0.423	0.034	0.031	0.10		GAM
Radium 228	15262-20-1	0.541	0.061	0.060	0.20		GAM
Thorium 228	14274-82-9	0.494	0.021	0.021			GAM
Thorium 232	TH-232	0.541	0.061	0.060			GAM
Americium 241	14596-10-2	U		0.15		U	GAM
Uranium 238	U-238	U		1.8		U	GAM
Uranium 235	15117-96-1	U		0.074		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

N910061-07

B0WKV8

DATA SHEET

SDG	7231	Client/Case no	Hanford SDG H0562
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N910061-07	Client sample id	B0WKV8
Dept sample id	7231-007	Location/Matrix	200 B Pond SOLID
Received	10/08/99	Collected	10/06/99 10:40
% solids	90.5	Custody/SAF No	B99-078-134 B99-078

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0.008	0.034	0.064		U	NP
Technetium 99	14133-76-7	1.97			15	JBX	TC
Total Uranium (ug/g)	7440-61-1	0.618	0.070	0.004	1.0	J	U_T
Plutonium 238	13981-16-3	0.036	0.032	0.043	1.0	U	PU
Plutonium 239/240	PU-239/240	0.630	0.098	0.040	1.0	J	PU
Nickel 63	13981-37-8	-0.178	1.4	2.3	30	U	NI_L
Americium 241	14596-10-2	-0.011	0.045	0.12	1.0	U	AM
Total Strontium	SR-RAD	99.9	3.2	0.43	1.0		SR
Thorium 228	14274-82-9	0.204	0.052	0.059	1.0	J	TH
Thorium 230	14269-63-7	0.243	0.080	0.14	1.0	J	TH
Thorium 232	TH-232	0.158	0.036	0.015	1.0	J	TH
Potassium 40	13966-00-2	10.5	0.60	0.16			GAM
Cobalt 60	10198-40-0	U		0.014	0.050	U	GAM
Cesium 137	10045-97-3	0.925	0.027	0.021	0.10		GAM
Europium 152	14683-23-9	U		0.046	0.10	U	GAM
Europium 154	15585-10-1	U		0.048	0.10	U	GAM
Europium 155	14391-16-3	U		0.069	0.10	U	GAM
Radium 226	13982-63-3	0.411	0.034	0.032	0.10		GAM
Radium 228	15262-20-1	0.563	0.072	0.072	0.20		GAM
Thorium 228	14274-82-9	0.568	0.026	0.023			GAM
Thorium 232	TH-232	0.563	0.072	0.072			GAM
Americium 241	14596-10-2	U		0.044		U	GAM
Uranium 238	U-238	U		1.8		U	GAM
Uranium 235	15117-96-1	U		0.084		U	GAM

200 Area Source chrctztn-200-CW-1 OU

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 H0562

Test AM	Matrix SOLID
SDG 7231	
Contact Melissa C. Mannion	

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0562	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6904-075					
B0WKV1	N910061-01			7231-001	4.96
B0WKV2	N910061-02			7231-002	1.85
B0WKV3	N910061-03			7231-003	0.398 J
B0WKV4	N910061-04			7231-004	U
B0WKV6	N910061-05			7231-005	U
B0WKV7	N910061-06		A0R1	7231-006	U
B0WKV8	N910061-07			7231-007	U
BLK (QC ID=32208)	N910061-09			7231-009	U
LCS (QC ID=32207)	N910061-08			7231-008	ok
Duplicate (N910061-01)	N910061-10			7231-010	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source chrctztn-200-CW-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075	2σ prep error 5.0 %			Reference Lab Notebook 6904 pg. 075												
B0WKV1	N910061-01			0.046	0.500			87		919			57	12/02/99	12/02	SS-066
B0WKV2	N910061-02			0.026	0.500			74		940			61	12/02/99	12/06	SS-002
B0WKV3	N910061-03			0.059	0.500			85		929			57	12/02/99	12/02	SS-050
B0WKV4	N910061-04			0.040	0.500			82		961			58	12/02/99	12/03	SS-010
B0WKV6	N910061-05			0.068	0.500			44		748			58	12/02/99	12/03	SS-006
B0WKV7	N910061-06		A0R1	0.10	0.500			23		765			70	12/11/99	12/15	SS-002
B0WKV8	N910061-07			0.12	0.500			23		940			61	12/02/99	12/06	SS-011
BLK (QC ID=32208)	N910061-09			0.15	0.500			25		961				12/02/99	12/03	SS-013
LCS (QC ID=32207)	N910061-08			0.063	0.500			80		934				12/02/99	12/02	SS-038
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.075	0.500			37		961			58	12/02/99	12/03	SS-014
Nominal values and limits from method				1.0	0.500			20-105		700	100		180			

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

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0562

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Test	AM
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

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

AVERAGES ± 2 SD	MDA	0.075	±	0.077
FOR 10 SAMPLES	YIELD	56	±	56

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 H0562

Test	NP
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SEB-207925
Case no	SDG H0562

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237
Preparation batch 6904-075					
B0WKV1	N910061-01			7231-001	0.065
B0WKV2	N910061-02			7231-002	U
B0WKV3	N910061-03			7231-003	U
B0WKV4	N910061-04			7231-004	U
B0WKV6	N910061-05			7231-005	U
B0WKV7	N910061-06			7231-006	0.021
B0WKV8	N910061-07			7231-007	U
BLK (QC ID=32208)	N910061-09			7231-009	U
LCS (QC ID=32207)	N910061-08			7231-008	LOW
Duplicate (N910061-01)	N910061-10			7231-010	ok

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

200 Area Source chrctztn-200-CW-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075 2σ prep error 5.0 % Reference Lab Notebook 6904 pg. 075																
B0WKV1	N910061-01			0.033	0.500			58		200			64	12/03/99	12/09	BETA
B0WKV2	N910061-02			0.050	0.500			53		200			62	12/03/99	12/07	BETA
B0WKV3	N910061-03			0.062	0.500			41		200			62	12/03/99	12/07	BETA
B0WKV4	N910061-04			0.052	0.500			36		200			62	12/03/99	12/07	BETA
B0WKV6	N910061-05			0.041	0.500			44		200			62	12/03/99	12/07	BETA
B0WKV7	N910061-06			0.016	0.500			46		200			62	12/03/99	12/07	BETA
B0WKV8	N910061-07			0.064	0.500			57		200			62	12/03/99	12/07	BETA
BLK (QC ID=32208)	N910061-09			0.095	0.500			28		200				12/03/99	12/07	BETA
LCS (QC ID=32207)	N910061-08			0.061	0.500			39		200				12/03/99	12/07	BETA
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.017	0.500			46		200			63	12/03/99	12/08	BETA
Nominal values and limits from method					0.500			20-105		100						

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 H0562

Test	NP
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

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	0.049	±	0.048
FOR 10 SAMPLES	YIELD	45	±	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 H0562

Test PU Matrix SOLID	Client Hanford
SDG 7231	Contract TRB-SRB-207925
Contact Melissa C. Mannion	Case no SDG H0562

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 6904-075						
B0WKV1	N910061-01			7231-001	0.563 J	27.5
B0WKV2	N910061-02			7231-002	0.146 J	9.11
B0WKV3	N910061-03			7231-003	0.069 J	10.4
B0WKV4	N910061-04			7231-004	U	1.26
B0WKV6	N910061-05			7231-005	U	1.04
B0WKV7	N910061-06			7231-006	U	0.838 J
B0WKV8	N910061-07			7231-007	U	0.630 J
BLK (QC ID=32208)	N910061-09			7231-009	U	U
LCS (QC ID=32207)	N910061-08			7231-008	ok	ok
Duplicate (N910061-01)	N910061-10			7231-010	ok J	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0
200 Area Source chrctztn-200-CW-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075	2σ prep error 5.0 %				Reference Lab Notebook 6904 pg. 075											
B0WKV1	N910061-01			0.040	0.500			92		1828			62	11/29/99	12/07	SS-052
B0WKV2	N910061-02			0.034	0.500			80		920			57	11/29/99	12/02	SS-061
B0WKV3	N910061-03			0.032	0.500			87		920			57	11/29/99	12/02	SS-062
B0WKV4	N910061-04			0.040	0.500			77		919			57	11/29/99	12/02	SS-063
B0WKV6	N910061-05			0.044	0.500			72		919			57	11/29/99	12/02	SS-065
B0WKV7	N910061-06			0.067	0.500			74		934			57	11/29/99	12/02	SS-033
B0WKV8	N910061-07			0.043	0.500			80		934			57	11/29/99	12/02	SS-035
BLK (QC ID=32208)	N910061-09			0.079	0.500			63		934				11/29/99	12/02	SS-036
LCS (QC ID=32207)	N910061-08			0.049	0.500			72		750				11/29/99	12/03	SS-058
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.068	0.500			77		936			57	11/29/99	12/02	SS-039
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 H0562

Test	PU
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

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	0.050	±	0.032
FOR 10 SAMPLES	YIELD	77	±	16

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 H0562

Test TH Matrix SOLID
SDG 7231
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6904-075							
B0WKV1	N910061-01			7231-001	0.596 J	0.407 J	0.364 J
B0WKV2	N910061-02			7231-002	0.496 J	0.523 J	0.416 J
B0WKV3	N910061-03			7231-003	0.396 J	0.300 J	0.363 J
B0WKV4	N910061-04			7231-004	0.230 J	U	0.205 J
B0WKV6	N910061-05			7231-005	0.317 J	0.295 J	0.295 J
B0WKV7	N910061-06			7231-006	0.451 J	0.488 J	0.382 J
B0WKV8	N910061-07			7231-007	0.204 J	0.243 J	0.158 J
BLK (QC ID=32208)	N910061-09			7231-009	U	U	U
LCS (QC ID=32207)	N910061-08			7231-008		ok	
Duplicate (N910061-01)	N910061-10			7231-010	ok J	ok J	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0
200 Area Source chrctztn-200-CW-1 OU							

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075	2σ prep error 5.0 %				Reference Lab Notebook 6904 pg. 075											
B0WKV1	N910061-01			0.14	0.250			91		2460			49	11/24/99	11/24	SS-036
B0WKV2	N910061-02			0.14	0.250			87		2460			49	11/24/99	11/24	SS-038
B0WKV3	N910061-03			0.13	0.250			92		2458			49	11/24/99	11/24	SS-040
B0WKV4	N910061-04			0.16	0.250			91		849			54	11/24/99	11/29	SS-048
B0WKV6	N910061-05			0.14	0.250			88		2455			49	11/24/99	11/24	SS-044
B0WKV7	N910061-06			0.15	0.250			84		849			54	11/24/99	11/29	SS-049
B0WKV8	N910061-07			0.14	0.250			94		2455			49	11/24/99	11/24	SS-048
BLK (QC ID=32208)	N910061-09			0.14	0.250			84		2455				11/24/99	11/24	SS-050
LCS (QC ID=32207)	N910061-08			0.14	0.250			77		2455				11/24/99	11/24	SS-049
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.15	0.250			83		874			51	11/24/99	11/26	SS-027
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 H0562

Test	TH
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

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

AVERAGES ± 2 SD	MDA	0.14	±	0.016
FOR 10 SAMPLES	YIELD	87	±	10

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 H0562

Test U Matrix SOLID
SDG 7231
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0562

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 6904-075											
B0WKV1	N910061-01			7231-001	2.18	0.202 J	1.94	112	10	10	2
B0WKV2	N910061-02			7231-002	1.15	0.094 J	1.02	113	13	9	3
B0WKV3	N910061-03			7231-003	0.723 J	0.038 J	0.679 J	106	14	6	2
BLK (QC ID=33027)	N910061-16			7231-016	U	U	U				
LCS (QC ID=33026)	N910061-15			7231-015	ok	ok	ok				
Duplicate (N910061-01)	N910061-17			7231-017	ok	ok J	ok	121	10	10	2
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200 Area Source chrctztn-200-CW-1 OU							Averages	113		9	

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 6904-075 2σ prep error 5.0 % Reference Lab Notebook 6904 pg. 075																
B0WKV1	N910061-01			0.027	1.00			84		1057			94	01/08/00	01/08	SS-050
B0WKV2	N910061-02			0.020	1.00			93		1005			95	01/08/00	01/09	SS-027
B0WKV3	N910061-03			0.024	1.00			95		1005			95	01/08/00	01/09	SS-032
BLK (QC ID=33027)	N910061-16			0.024	1.00			76		1005				01/08/00	01/09	SS-035
LCS (QC ID=33026)	N910061-15			0.12	1.00			73		1005				01/08/00	01/09	SS-033
Duplicate (N910061-01) (QC ID=33028)	N910061-17			0.025	1.00			95		1007			95	01/08/00	01/09	SS-039
Nominal values and limits from method				1.0	1.00			30-105		150	100		180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.040 ± 0.079
YIELD 86 ± 20

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 H0562

Test SR	Matrix SOLID
SDG 7231	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0562	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6904-075					
B0WKV1	N910061-01			7231-001	1.31
B0WKV2	N910061-02			7231-002	0.760 J
B0WKV3	N910061-03			7231-003	1.99
B0WKV4	N910061-04			7231-004	14.7
B0WKV6	N910061-05			7231-005	17.6
B0WKV7	N910061-06			7231-006	16.3
B0WKV8	N910061-07			7231-007	99.9
BLK (QC ID=32208)	N910061-09			7231-009	U
LCS (QC ID=32207)	N910061-08			7231-008	ok
Duplicate (N910061-01)	N910061-10			7231-010	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source chrctztn-200-CW-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075	2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 075															
B0WKV1	N910061-01			0.16	1.00			89		200			54	11/24/99	11/29	GRB-221
B0WKV2	N910061-02			0.14	1.00			84		200			54	11/24/99	11/29	GRB-223
B0WKV3	N910061-03			0.16	1.00			77		200			54	11/24/99	11/29	GRB-224
B0WKV4	N910061-04			0.42	1.00			89		400			54	11/24/99	11/29	GRB-204
B0WKV6	N910061-05			0.76	1.00			88		400			54	11/24/99	11/29	GRB-208
B0WKV7	N910061-06			0.26	1.00			80		67			54	11/24/99	11/29	GRB-218
B0WKV8	N910061-07			0.43	1.00			91		26			54	11/24/99	11/29	GRB-222
BLK (QC ID=32208)	N910061-09			0.16	1.00			87		400				11/24/99	11/29	GRB-218
LCS (QC ID=32207)	N910061-08			0.17	1.00			84		200				11/24/99	11/29	GRB-218
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.13	1.00			88		200			54	11/24/99	11/29	GRB-230
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 H0562

Test SR	Matrix SOLID
SDG 7231	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0562	

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	0.28	±	0.41
FOR 10 SAMPLES	YIELD	86	±	9

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 H0562

Test	TC
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6904-087						
B0WKV6	N910061-05			7231-005	1.91	JX
B0WKV7	N910061-06			7231-006	1.87	JX
B0WKV8	N910061-07			7231-007	1.97	JX
BLK (QC ID=32480)	N910071-09			7235-009	1.80	JX
LCS (QC ID=32479)	N910071-08			7235-008	ok	
Duplicate (N910061-05)	N910061-11			7231-011	ok	JX

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

200 Area Source chrctztn-200-CW-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-087	2σ prep error 10.0 %				Reference Lab Notebook 6904 pg. 087											
B0WKV6	N910061-05				1.00			75		101			63	12/02/99	12/08	GRB-221
B0WKV7	N910061-06				1.02			78		101			63	12/02/99	12/08	GRB-222
B0WKV8	N910061-07				1.00			80		101			63	12/02/99	12/08	GRB-223
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 (N910061-05) (QC ID=32210)	N910061-11				1.00			82		101			63	12/02/99	12/08	GRB-224
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 6 SAMPLES	YIELD	73	±	18

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 H0562

Test GAM Matrix SOLID	Client Hanford
SDG 7231	Contract TRB-SBB-207925
Contact Melissa C. Mannion	Case no SDG H0562

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6904-075						
B0WKV1	N910061-01			7231-001	U	1000
B0WKV2	N910061-02			7231-002	U	485
B0WKV3	N910061-03			7231-003	U	89.1
B0WKV4	N910061-04			7231-004	U	0.729
B0WKV6	N910061-05			7231-005	U	0.225
B0WKV7	N910061-06			7231-006	U	0.045 J
B0WKV8	N910061-07			7231-007	U	0.925
BLK (QC ID=32208)	N910061-09			7231-009	U	U
LCS (QC ID=32207)	N910061-08			7231-008	ok	ok
Duplicate (N910061-01)	N910061-10			7231-010	- U	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
200 Area Source chrctztn-200-CW-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075 2σ prep error 15.0 % Reference Lab Notebook 6904 pg. 075																
B0WKV1	N910061-01			0.17	389					217			24	10/22/99	10/30	02,03,00
B0WKV2	N910061-02			0.083	448					217			24	10/22/99	10/30	02,04,00
B0WKV3	N910061-03			0.064	542					467			23	10/22/99	10/29	MB,05,00
B0WKV4	N910061-04			0.066	779					219			24	10/22/99	10/30	MB,05,00
B0WKV6	N910061-05			0.043	830					407			28	10/22/99	11/03	MB,05,00
B0WKV7	N910061-06			0.040	810					492			28	10/22/99	11/03	MB,05,00
B0WKV8	N910061-07			0.032	648					492			28	10/22/99	11/03	MB,07,00
BLK (QC ID=32208)	N910061-09			0.010	635					492				10/22/99	11/03	01,04,00
LCS (QC ID=32207)	N910061-08			0.013	635					373				10/22/99	11/01	MB,05,00
Duplicate (N910061-01) (QC ID=32209)	N910061-10			0.11	389					468			29	10/22/99	11/04	02,03,00
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 H0562

Test	GAM
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

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

AVERAGES ± 2 SD	MDA	0.063 ± 0.097
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 H0562

Test U T Matrix SOLID	Client Hanford
SDG 7231	Contract TRB-SBB-207925
Contact Melissa C. Mannion	Case no SDG H0562

METHOD SUMMARY

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6904-075					
B0WKV1	N910061-01			7231-001	5.12
B0WKV2	N910061-02			7231-002	4.03
B0WKV3	N910061-03			7231-003	4.08
B0WKV4	N910061-04			7231-004	0.570 J
B0WKV6	N910061-05			7231-005	0.566 J
B0WKV7	N910061-06			7231-006	0.668 J
B0WKV8	N910061-07			7231-007	0.618 J
BLK (QC ID=32104)	N910061-13			7231-013	0 J
LCS (QC ID=32103)	N910061-12			7231-012	ok X
Duplicate (N910061-01)	N910061-14			7231-014	ok
Nominal values and limits from method			RDLs (ug/g)		1.0
200 Area Source chrctztn-200-CW-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-075	2σ prep error 9.0 %			Reference Lab Notebook 6904 pg. 075												
B0WKV1	N910061-01			0.004	0.0500								20	10/26/99	10/26	KPA-001
B0WKV2	N910061-02			0.038	0.0500								20	10/26/99	10/26	KPA-001
B0WKV3	N910061-03			0.038	0.0500								20	10/26/99	10/26	KPA-001
B0WKV4	N910061-04			0.004	0.0500								20	10/26/99	10/26	KPA-001
B0WKV6	N910061-05			0.004	0.0500								20	10/26/99	10/26	KPA-001
B0WKV7	N910061-06			0.004	0.0500								20	10/26/99	10/26	KPA-001
B0WKV8	N910061-07			0.004	0.0500								20	10/26/99	10/26	KPA-001
BLK (QC ID=32104)	N910061-13			0	0.0500									10/26/99	10/26	KPA-001
LCS (QC ID=32103)	N910061-12			0.002	0.0500									10/26/99	10/26	KPA-001
Duplicate (N910061-01) (QC ID=32105)	N910061-14			0.004	0.0500								20	10/26/99	10/26	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 H0562

Test U T Matrix SOLID	
SDG 7231	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0562	

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	0.010 ± 0.029
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 H0562

Test	NI L
Matrix	SOLID
SDG	7231
Contact	Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0562

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6904-087						
B0WKV6	N910061-05			7231-005	U	
B0WKV7	N910061-06			7231-006	U	
B0WKV8	N910061-07			7231-007	U	
BLK (QC ID=32480)	N910071-09			7235-009	U	
LCS (QC ID=32479)	N910071-08			7235-008	ok	
Duplicate (N910061-05)	N910061-11			7231-011	-	U

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

200 Area Source chrctztn-200-CW-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6904-087	2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 087															
B0WKV6	N910061-05			2.2	0.500			92		100			48	11/23/99	11/23	LSC-004
B0WKV7	N910061-06			2.3	0.500			93		100			48	11/23/99	11/23	LSC-004
B0WKV8	N910061-07			2.3	0.500			90		100			48	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 (N910061-05) (QC ID=32210)	N910061-11			2.2	0.500			93		100			48	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	±	0.15
FOR 6 SAMPLES	YIELD	94	±	6

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	B99-078-133	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-962	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A990289		Bill of Lading/Air Bill No.: 4235719530256
			COA B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
	No. of Container(s)	1	1	1	1	1	1	1	1		
Special Handling and/or Storage	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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								
BOWKV1	Soil	10/6/99	0940	X	X				X	BOW	8C2
BOWKV2	Soil	10/6/99	0950	X	X				X	BOW	8C2
BOWKV3	Soil	10/6/99	0935	X	X				X	BOW	8C3
BOWKV4	Soil	10-6-99	0945	X	X				X	BOW	8C3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris	Date/Time: 10/6/99 1320	Received By: Bel 2C	Date/Time: 10/6/99 1320
Relinquished By: Bel 2C	Date/Time: 10/7/99 0927	Received By: Kelly Nelson / R Nielson	Date/Time: 10/7/99 0927
Relinquished By: Kelly Nelson / R Nielson	Date/Time: 10/7/99 1430	Received By: Fed Ex	Date/Time: 10/7/99
Relinquished By: Fed Ex	Date/Time: 10/8/99 10:00	Received By: TNV M. Goldenberg	Date/Time: 10/8/99 10:00

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

Collector unavailable to relinquish samples.

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	B99-078-134	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-462	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A990289		Bill of Lading/Air Bill No.: 423579530256
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
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	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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	
~~BOWKV4~~	~~Soil~~	~~10/6/99~~	~~0954~~	X	X	X	X	~~B20~~ 10-6-99					X	B2 8C
BOWKV6	SOIL	10/6/99	1010	X	X	X	X						X	B2 8C
BOW KV 7	SOIL	10/6/99	1025	X	X	X	X						X	B2 8C
BOW KV 8	SOIL	10/6/99	1040	X	X	X	X						X	Soil 8C

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	Cyline	10/6/99 1320
Received By	Ref 2C	10/6/99 1320
Relinquished By	Ref 2C	10/7/99 1000
Received By	Lynell Nielson / R. Nielson	10/7/99 1000
Relinquished By	Lynell Nielson / R Nielson	10/7/99 1430
Received By	FedEx	10/8/99
Relinquished By	FedEx	10/8/99
Received By	TNV M. Goldenberg	10/8/99 10:00

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

Collector unavailable to relinquish samples.

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 10-8-99 10:00

CoC No. ~~SML-962~~ B99-078-133, 134

Container I.D. No. SML-962 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: 7
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: 10-8-99 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 _____

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-133	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-962	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A990289		Bill of Lading/Air Bill No.: 4235795302 56
			COA: B20CW1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
BOWKV1	Soil	10/6/99	0940	X	X						X	BOW	8C2
BOWKV2	Soil	10/6/99	0950	X	X						X	BOW	8C2
BOWKV3	Soil	10/6/99	0935	X	X						X	BOW	8C3
BOWKV4	Soil	10-6-99	0945	X	X						X	BOW	8C3

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Cearlock	10/6/99 1320	Bel 2C	10/6/99 1320
Relinquished By	Date/Time	Received By	Date/Time
Bel #2C	10/7/99 0927	Kelly Nelson / R Nielson	10/7/99 0927
Relinquished By	Date/Time	Received By	Date/Time
Kelly Nelson / R Nielson	10/7/99 1430	Fed Ex	10/7/99
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	10/8/99 10:00	TNV M. Goldenberg	10/8/99 10:00

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

collector unavailable to relinquish samples.

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	B99-078-134	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-462	Field Logbook No.: EL-1511		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A990289		Bill of Lading/Air Bill No.: 4235795302560
			COA: B20cw1 67/C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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
Preservation	None	None	None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None
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	250mL	250mL	500mL	500mL	1000mL	1000mL

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	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	
~~BOWKV4~~	~~Soil~~	~~10/6/99~~	~~0954~~	~~X~~	~~X~~	~~X~~	~~X~~	~~B20 10-6-99~~					~~X~~	~~BOW BC~~
✓ BOWKV6	SOIL	10/6/99	1010	X	X	X	X						X	BOW BC
✓ BOW KV7	SOIL	10/6/99	1025	X	X	X	X						X	BOW BC
✓ BOW KV8	SOIL	10/6/99	1040	X	X	X	X						X	SOIL BC

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Chris 10/6/99 1320	Received By: Ref 2C 10/6/99 1320		
Relinquished By: Ref 2C 10/7/99 1000	Received By: Nielson/R.Nielson 10/7/99 1000		
Relinquished By: Nielson/R Nielson 10/7/99 1430	Received By: FedEx 10/8/99		
Relinquished By: FedEx 10/8/99	Received By: TNV M.Goldenberg 10/8/99 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
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Collector unavailable to relinquish samples.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 10-8-99 10:00

CoC No. ~~SML-962~~ B99-078-133 134

Container I.D. No. SML-962 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: 7
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: 10-8-99 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 _____

SDR # B00-035
Revision #: 0
Date Initiated: 10/25/99

SAMPLE DISPOSITION RECORD

SAF: B00-078
OU: 200-CW-1
Project ID: 200-CW-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CW-1 OU

Laboratory: TMA/RECRA

Task Manager: M. E. Todd

Sampling Information:
Number of Samples: 30
ID Numbers: See Attached
Matrix: Soil
Collection Date: 09/09/99 – 10/06/99

Issue Background:

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

Type: Addition of Analyses

Description: Addition of Thallium and Antimony Analyses

Disposition:

Description: The 200-CW-1 characterization project requested that thallium and antimony results be reported for the listed samples. ERC Sample Management requested the laboratory to report thallium and antimony results from the existing ICP analyses for the listed samples.

Justification: The project determined that thallium and antimony results were needed to meet the project data quality objectives.

Approval Signatures:

S. J. Trent 12/27/99
Project Coordinator (Print/Sign Name) Date

M. E. Todd
Task Manager (Print/Sign Name) Date