H0499-TMA/RECRA

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

0052629

JAN 2000 RECEIVED Data Log In

Recra LabNet Philadelphia
Analytical Report
****REVISION****

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

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

RECEIVED FEB 28 2000 EDMC

INORGANIC CASE NARRATIVE

This report is revised to include matrix quality control analysis for Ammonia.

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

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

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

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

5. The method blanks were within method criteria.

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

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

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

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

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-14-00
Date

njp\i08-850r

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 23 pages.

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

Recra LabNet Philadelphia

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

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

Other: Ammonia **Method** EPA 350.3

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

L-WI-034/B-06/99

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METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W5P4	% Solids	95.3		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	65		MG/KG	5.2	4.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	86.7		MG/KG	5.2	4.0
		Nitrate Nitrite	17.2		MG/KG	1.0	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	8.2		MG/KG	0.63	1.0
-002	B0W5P2	% Solids	94.7		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	150		MG/KG	13	10
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	170		MG/KG	13.2	10.0
		Nitrate Nitrite	33.6		MG/KG	1.0	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	7.9		SOIL PH	0.01	1.0
		Sulfide	4.1		MG/KG	0.63	1.0
-003	B0W5M4	% Solids	92.2		%	0.01	1.0
		Chloride by IC	4.9		MG/KG	1.4	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.4	u	MG/KG	1.4	1.0
		Nitrate by IC	140		MG/KG	14	10
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	1.4	u	MG/KG	1.4	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	375		MG/KG	13.6	10.0
		Nitrate Nitrite	32.4		MG/KG	1.1	5.0
		Ammonia, as N	17.6		MG/KG	1.3	1.0
		pH	5.6		SOIL PH	0.01	1.0

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INORGANICS DATA SUMMARY REPORT 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W5M4	Sulfide	0.63 u	MG/KG	0.63	1.0
-004	B0W5P3	% Solids	94.8	%	0.01	1.0
		Chloride by IC	2.5	MG/KG	1.3	1.0
		Fluoride by IC	2.6 u	MG/KG	2.6	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	130	MG/KG	6.6	5.0
		Cyanide, Total	0.53 u	MG/KG	0.53	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	155	MG/KG	6.6	5.0
		Nitrate Nitrite	29.8	MG/KG	1.1	5.0
		Ammonia, as N	1.3 u	MG/KG	1.3	1.0
		pH	7.9	SOIL PH	0.01	1.0
		Sulfide	4.0	MG/KG	0.65	1.0
-005	B0W5M5	% Solids	95.0	%	0.01	1.0
		Chloride by IC	4.0	MG/KG	1.3	1.0
		Fluoride by IC	2.6 u	MG/KG	2.6	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	78	MG/KG	5.3	4.0
		Cyanide, Total	0.53 u	MG/KG	0.53	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	210	MG/KG	5.3	4.0
		Nitrate Nitrite	18.0	MG/KG	1.0	5.0
		Ammonia, as N	1.3 u	MG/KG	1.3	1.0
		pH	7.4	SOIL PH	0.01	1.0
		Sulfide	0.63 u	MG/KG	0.63	1.0
-006	B0W5P7	% Solids	99.8	%	0.01	1.0
		Chloride by IC	12.2	MG/KG	1.3	1.0
		Fluoride by IC	5.3	MG/KG	2.5	1.0
		Nitrite by IC	3.0	MG/KG	1.3	1.0
		Nitrate by IC	500	MG/KG	63	50
		Cyanide, Total	0.50 u	MG/KG	0.50	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
		Sulfate by IC	1890	MG/KG	62.6	50.0
		Nitrate Nitrite	132	MG/KG	4.9	25.0

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INORGANICS DATA SUMMARY REPORT 12/31/99

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

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

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

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LICA76-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK1	99LC096-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI058-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3044-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM033-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LAM050-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK10	99LSDA38-MB1	Sulfide	0.60	u	MG/KG	0.60	1.0

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INORGANICS ACCURACY REPORT 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0W5P4	Chloride by IC	27.7	2.0	26.2	97.8	1.0
		Chloride by IC MSD	29.5	2.0	26.2	104.5	1.0
		Fluoride by IC	59.4	0.77	52.5	111.8	1.0
		Fluoride by IC MSD	58.9	0.77	52.5	110.8	1.0
		Nitrite by IC	27	1.3 u	26	103.5	1.0
		Nitrite by IC MSD	27	1.3 u	26	104.2	1.0
		Nitrate by IC	180	65	100	106.8	4.0
		Nitrate by IC MSD	180	65	100	107.4	4.0
		Phosphate by IC	28.4	1.3 u	26.2	108.1	1.0
		Phosphate by IC MSD	28.9	1.3 u	26.2	110.2	1.0
		Sulfate by IC	202	86.7	105	109.6	4.0
		Sulfate by IC MSD	200	86.7	105	108.1	4.0
		Ammonia, as N	110	1.3 u	107	102.4	1.0
-002	B0W5P2	Nitrate Nitrite	40.4	33.6	5.2	129.9*	5.0
		Nitrate Nitrite MSD	39.6	33.6	5.3	114.0*	5.0
-007	B0W681	Cyanide, Total	6.2	0.60u	6.0	103.6	1.0
		Soluble Chromium VI	4.7	0.44u	4.8	98.7	1.0
		Insoluble Chromium VI	1330	0.44u	1180	113.3	100
		Sulfide	393	4.5	428	90.9	1.0
		Sulfide MSD	395	4.5	428	91.3	1.0
BLANK10	99LICA76-MB1	Chloride by IC	24.1	1.2 u	25.0	96.3	1.0
		Fluoride by IC	52.3	2.5 u	50.0	104.6	1.0
		Nitrite by IC	24	1.2 u	25	97.3	1.0
		Nitrate by IC	25	1.2 u	25	98.1	1.0
		Phosphate by IC	25.5	1.2 u	25.0	102.0	1.0
		Sulfate by IC	24.0	1.2 u	25.0	96.1	1.0
BLANK10	99LVI058-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.7	1.0
		Insoluble Chromium VI	1160	0.40u	1160	100	100
BLANK10	99LN3044-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100.4	1.0
		Nitrate Nitrite MSD	5.0	0.20u	5.0	100.6	1.0
BLANK10	99LAM033-MB1	Ammonia, as N	51.6	1.2 u	50.0	103.2	1.0
		Ammonia, as N MSD	51.8	1.2 u	50.0	103.5	1.0
BLANK10	99LAM050-MB1	Ammonia, as N	49.5	1.2 u	50.0	99.0	1.0
		Ammonia, as N MSD	50.2	1.2 u	50.0	100.5	1.0
BLANK10	99LSDA38-MB1	Sulfide	9.6	0.60u	10.0	96.0	1.0
		Sulfide MSD	9.5	0.60u	10.0	95.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B0W5P4	Chloride by IC	97.8	104.5	6.6
		Fluoride by IC	111.8	110.8	0.86
		Nitrite by IC	103.5	104.2	0.65
		Nitrate by IC	106.8	107.4	0.62
		Phosphate by IC	108.1	110.2	2.0
		Sulfate by IC	109.6	108.1	1.3
-002	B0W5P2	Nitrate Nitrite	129.9	114.0*	~~NC~~ 13.0
-007	B0W681	Sulfide	90.9	91.3	0.39
BLANK10	99LN3044-MB1	Nitrate Nitrite	100.4	100.6	0.20
BLANK10	99LAM033-MB1	Ammonia, as N	103.2	103.5	0.24
BLANK10	99LAM050-MB1	Ammonia, as N	99.0	100.5	1.5
BLANK10	99LSDA38-MB1	Sulfide	96.0	95.0	1.0

MP 1-14-00

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INORGANICS PRECISION REPORT 12/31/99

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

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0W5P4	% Solids	95.3	95.0	0.33	1.0
		Chloride by IC	2.0	1.8	12.9	1.0
		Fluoride by IC	2.6 u	2.6 u	NC	1.0
		Nitrite by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	65	66	0.56	4.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	86.7	86.9	0.20	4.0
		Ammonia, as N	1.3 u	1.3 u	NC	1.0
-002REP	B0W5P2	Nitrate Nitrite	33.6	34.4	2.3	5.0
-007REP	B0W681	Cyanide, Total	0.60u	0.60u	NC	1.0
		Chromium VI	0.48u	0.48u	NC	1.0
		pH	4.3	4.4	2.3	1.0
		Sulfide	4.5	4.4	1.5	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/31/99

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

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

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

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

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

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W5P4						
% SOLIDS	001	S	99L%S117	08/19/99	08/26/99	08/27/99
% SOLIDS	001 REP	S	99L%S117	08/19/99	08/26/99	08/27/99
CHLORIDE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRITE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
TOTAL CYANIDE	001	S	99LC096	08/19/99	08/31/99	09/01/99
PHOSPHATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
CHROMIUM VI	001	S	99LVI058	08/19/99	08/27/99	08/27/99
SULFATE BY IC	001	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 REP	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 MS	S	99LICA76	08/19/99	09/13/99	09/13/99
SULFATE BY IC	001 MSD	S	99LICA76	08/19/99	09/13/99	09/13/99
NITRATE NITRITE	001	S	99LN3044	08/19/99	09/08/99	09/09/99
AMMONIA	001	S	99LAM033	08/19/99	09/03/99	09/03/99
AMMONIA	001 REP	S	99LAM050	08/19/99	12/28/99	12/29/99
AMMONIA	001 MS	S	99LAM050	08/19/99	12/28/99	12/29/99
PH	001	S	99LPH093	08/19/99	08/31/99	08/31/99
SULFIDE	001	S	99LSDA38	08/19/99	08/26/99	08/26/99
B0W5P2						
% SOLIDS	002	S	99L%S117	08/19/99	08/26/99	08/27/99

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

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

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

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

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

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

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

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

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

LAB QC:

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

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

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

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
TOTAL CYANIDE	LC1 L	S	99LC096	N/A	08/31/99	09/01/99
TOTAL CYANIDE	LC2 L	S	99LC096	N/A	08/31/99	09/01/99
TOTAL CYANIDE	MB1	S	99LC096	N/A	08/31/99	09/01/99
PHOSPHATE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
PHOSPHATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
CHROMIUM VI	MB1	S	99LVI058	N/A	08/27/99	08/27/99
CHROMIUM VI	MB1 BS	S	99LVI058	N/A	08/27/99	08/27/99
CHROMIUM VI	MB1 BSD	S	99LVI058	N/A	08/27/99	08/27/99
SULFATE BY IC	MB1	S	99LICA76	N/A	09/13/99	09/13/99
SULFATE BY IC	MB1 BS	S	99LICA76	N/A	09/13/99	09/13/99
NITRATE NITRITE	MB1	S	99LN3044	N/A	09/08/99	09/09/99
NITRATE NITRITE	MB1 BS	S	99LN3044	N/A	09/08/99	09/09/99
NITRATE NITRITE	MB1 BSD	S	99LN3044	N/A	09/08/99	09/09/99
AMMONIA	MB1	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BS	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BSD	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1	S	99LAM050	N/A	12/28/99	12/29/99
AMMONIA	MB1 BS	S	99LAM050	N/A	12/28/99	12/29/99
AMMONIA	MB1 BSD	S	99LAM050	N/A	12/28/99	12/29/99
SULFIDE	MB1	S	99LSDA38	N/A	08/26/99	08/26/99
SULFIDE	MB1 BS	S	99LSDA38	N/A	08/26/99	08/26/99
SULFIDE	MB1 BSD	S	99LSDA38	N/A	08/26/99	08/26/99

RECRA LabNet Use Only: 99081850

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) metals

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

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

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260AH	8270SH	8PCB	8260C	8270D	7MetD	1PH	8NgD				
001	BOW SP4			S	8/19/99	1145	X	X	X	X	X	X	X	X				
2	SP2					1105												
3	SM4					1025												
4	SP3					1121												
5	SM5					1050												
6	SP7					0900												
7	681					0900												

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

Run matrix QC

Special Instructions:
saf# B99-078

COMPOSITE WASTE

DATE/REVISIONS:
Met(1) = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,
2. Ag, V, Zn, Hg, ICR6
Ang(1) 3. IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N, ICNTO
* 5. 423579528602-3.7°C
6. 423579528598-4.2°C

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 5.1 °C

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

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

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Bechtel Hanford Inc.	9-30	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-38	Page 1 of 2

Collector: Brent Porter	Company Contact: Chris Cearlock — Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 24 - 25	SAF No.: B99-078	
Ice Chest No.: 96-006	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA ATB 8-19-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 423579528602 - 3.7	
		COA: B20CW1 67/C	

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

Sample No.	Matrix *	Sample Date	Sample Time										
B0W5P4	Soil	8-19-99	1145						X	X	X	X	X
													B0W5P5

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

SPECIAL INSTRUCTIONS
See chain of custody comments on SAF B99-078

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

COLLECTOR UNAVAILABLE TO SIGN COC

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

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

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

Collector: Brent Porter	Company Contact: Chris Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 >15' bgs 17'-18'		SAF No.: B99-078
Ice Chest No.: 96-006	Field Logbook No.: EL 1511		Method of Shipment: Federal Express
Shipped To: ~~TMA~~/RECRA [illegible] 8-19-99	Offsite Property No.: A990223		Bill of Lading/Air Bill No.: 423579528602
			COA: B20CW1 67/C

Price Code: 8N

Data Turnaround: 45 Days

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

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

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Brent Porter	8/19/99 15:00	Refer IB	8/19/99 15:00
REF IB 82399	1100	SJGALE [illegible] 82399	1100
SJGALE [illegible] 82399	1100	FED EX	
[illegible]		Jansen	8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

COLLECTOR UNAVAILABLE TO SIGN COL

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

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

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

Collector: Brent Porter	Company Contact: Chris Cearlock — Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 12'-17'	SAF No.: B99-078	
Ice Chest No.: SML 185	Field Logbook No.: EL 1511	Method of Shipment: Federal Express	
Shipped To: ~~TMA~~/RECRA 870 8-19-99	Offsite Property No.: A990 ZZ3	Bill of Lading/Air Bill No.: 423579528598 -4.2	
		COA: B20CM 67/C	

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

Sample No.	Matrix *	Sample Date	Sample Time										
3 B0W5M4	Soil	8-19-99	1025			X	X	X	X	X			B0W5L7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter JB	Date/Time: 8/19/99 15:00
Relinquished By: REF IB	Date/Time: 82399 1100	Received By: SIGALE [signature]	Date/Time: 82399 1100
Relinquished By: SIGALE [signature]	Date/Time: 82399	Received By: FEDEX	Date/Time:
Relinquished By: Fedex	Date/Time:	Received By: Jonson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

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

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

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

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

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

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

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078

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

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

COLLECTOR UNAVAILABLE TO SIGN COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

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

Collector: Brent Porter	Company Contact: Chris Cearlock — Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source characterization - 200-CW-1 OU	Sampling Location: GP-3 <15' bgs 14' - 15'	SAF No.: B99-078	
Ice Chest No.: SML 185	Field Logbook No.: ELK11	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA B 8-19-99	Offsite Property No.: A990223	Bill of Lading/Air Bill No.: 4235795285 98	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1	1		
	Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS		Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) [1-Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL) TPH-Diesel Range - WTPH-D, PCBs - 8082	See item (1) in Special Instructions	See item (2) in Special Instructions	See item (3) in Special Instructions		
Sample No.	Matrix * / Sample Date / Sample Time										
B0W5M5	Soil / 8-19-99 / 1050			X	X	X	X	X			B0W5L8

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

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

COLLECTOR UNAVAILABLE TO SIGN COC

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-41	Page 1 of 1 2

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

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

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Brent Porter	Date/Time: 8/19/99 15:00	Received By: Peter 1B	Date/Time: 8/19/99 15:00
Relinquished By: REF 1B	Date/Time: 8239 9 0900	Received By: SJCARLE S/Sh	Date/Time: 82399 0900
Relinquished By: SJCARLE S/Sh	Date/Time: 82399 0900	Received By: FED EX	Date/Time:
Relinquished By: Jedley	Date/Time:	Received By: Jenson	Date/Time: 8/24/99 0930

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

COLLECTOR UNAVAILABLE TO SIGN COC.

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

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