H0497- TMA/RECR

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0052628

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

Client : TNU-HANFORD B99-078
RFW# : 9908L821
SDG# : H0497
SAF# : B99-078

W.O. # : 10985-001-001-9999-00
Date Received: 08-30-99

RECEIVED FEB 28 2000 EDMC

INORGANIC CASE NARRATIVE

This package is revised to included matrix quality control analyses for Total Cyanide, Ammonia and Nitrate Nitrite.

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

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

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

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 (MS) recoveries were within the 75-125% control limits. 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 soil samples are reported on a dry weight basis.

Pat Q

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-17-00
Date

njp\i08-821r

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

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

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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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W646	% Solids	92.0		%	0.01	1.0
		Chloride by IC	3.1		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	78		MG/KG	5.4	4.0
		Cyanide, Total	0.54	u	MG/KG	0.54	1.0
		Phosphate by IC	3.0		MG/KG	1.4	1.0
		Chromium VI	0.44	u	MG/KG	0.44	1.0
		Sulfate by IC	33.7		MG/KG	1.4	1.0
		Nitrate Nitrite	20.2		MG/KG	1.1	5.0
		Ammonia, as N	1.4	u	MG/KG	1.4	1.0
		pH	9.6		SOIL PH	0.01	1.0
		Sulfide	8.3		MG/KG	1.1	1.0
-002	B0W647	% Solids	91.5		%	0.01	1.0
		Chloride by IC	4.3		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	100		MG/KG	5.5	4.0
		Cyanide, Total	0.55	u	MG/KG	0.55	1.0
		Phosphate by IC	3.4		MG/KG	1.4	1.0
		Chromium VI	0.44	u	MG/KG	0.44	1.0
		Sulfate by IC	46.6		MG/KG	1.4	1.0
		Nitrate Nitrite	23.4		MG/KG	1.1	5.0
		Ammonia, as N	2.2		MG/KG	1.4	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	12.4		MG/KG	1.1	1.0
-003	B0W649	% Solids	95.0		%	0.01	1.0
		Chloride by IC	1.9		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	33		MG/KG	1.3	1.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	1.8		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	8.2		MG/KG	1.3	1.0
		Nitrate Nitrite	7.6		MG/KG	0.21	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.9		SOIL PH	0.01	1.0

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INORGANICS DATA SUMMARY REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W649	Sulfide	4.1		MG/KG	1.1	1.0
-004	B0W650	% Solids	93.9		%	0.01	1.0
		Chloride by IC	6.6		MG/KG	1.3	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	150		MG/KG	13	10
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	2.4		MG/KG	1.3	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	37.5		MG/KG	1.3	1.0
		Nitrate Nitrite	27.5		MG/KG	1.1	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.9		SOIL PH	0.01	1.0
		Sulfide	4.1		MG/KG	1.1	1.0
-005	B0W651	% Solids	95.1		%	0.01	1.0
		Chloride by IC	4.9		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	96		MG/KG	5.3	4.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	2.0		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	50.2		MG/KG	5.3	4.0
		Nitrate Nitrite	26.4		MG/KG	1.0	5.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.9		SOIL PH	0.01	1.0
		Sulfide	1.1	u	MG/KG	1.1	1.0
-006	B0W652	% Solids	96.6		%	0.01	1.0
		Chloride by IC	2.7		MG/KG	1.3	1.0
		Fluoride by IC	2.6	u	MG/KG	2.6	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	62		MG/KG	2.6	2.0
		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	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	79.0		MG/KG	2.6	2.0
		Nitrate Nitrite	15.4		MG/KG	1.0	5.0

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INORGANICS DATA SUMMARY REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B0W652	Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.9		SOIL PH	0.01	1.0
		Sulfide	1.0	u	MG/KG	1.0	1.0
-007	B0W658	% Solids	94.8		%	0.01	1.0
		Chloride by IC	4.6		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	110		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	63.4		MG/KG	6.6	5.0
		Nitrate Nitrite	23.9		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	4.0		MG/KG	1.1	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC076-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	99LC095-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LC130A-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI059-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3C43-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	99LSD037-MB1	Sulfide	1.0	u	MG/KG	1.0	1.0
BLANK10	99LN3058-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAM050-MB1	Ammonia, as N	1.2	u	MG/KG	1.2	1.0
BLANK1	99LC096-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0

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INORGANICS ACCURACY REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0W646	Chloride by IC	34.3	3.1	27.2	114.7	1.0
		Chloride by IC MSD	34.2	3.1	27.2	114.5	1.0
		Fluoride by IC	67.4	0.91	54.3	122.3	1.0
		Fluoride by IC MSD	66.8	0.91	54.3	121.3	1.0
		Nitrite by IC	32	1.4 u	27	116.2	1.0
		Nitrite by IC MSD	31	1.4 u	27	115.5	1.0
		Nitrate by IC	190	78	110	106.0	4.0
		Nitrate by IC MSD	190	78	110	106.9	4.0
		Cyanide, Total	5.2	0.54u	5.4	96.2	1.0
		Phosphate by IC	35.4	3.0	27.2	119.3	1.0
		Phosphate by IC MSD	35.4	3.0	27.2	119.3	1.0
		Sulfate by IC	137	33.7	109	95.1	4.0
		Sulfate by IC MSD	137	33.7	109	95.2	4.0
-003	B0W649	Nitrate Nitrite	12.9	7.6	5.3	100.1	2.0
		Ammonia, as N	48.7	1.3 u	47.5	102.5	1.0
-007	B0W658	Soluble Chromium VI	3.7	0.42u	4.2	94.5	1.0
		Insoluble Chromium VI	1140	0.42u	1180	97.4	100
		Sulfide	389	4.0	409	94.0	1.0
		Sulfide MSD	377	4.0	409	91.2	1.0
BLANK10	99LIC076-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	99LVI059-MB1	Soluble Chromium VI	4.0	0.40u	4.0	99.5	1.0
		Insoluble Chromium VI	1080	0.40u	1160	92.3	100
BLANK10	99LN3C43-MB1	Nitrate Nitrite	4.9	0.20u	5.0	98.4	1.0
		Nitrate Nitrite MSD	4.9	0.20u	5.0	98.8	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	99LSD037-MB1	Sulfide	9.6	1.0 u	10.0	96.0	1.0
		Sulfide MSD	9.7	1.0 u	10.0	97.0	1.0
BLANK10	99LN3058-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100	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

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INORGANICS DUPLICATE SPIKE REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B0W646	Chloride by IC	114.7	114.5	0.16
		Fluoride by IC	122.3	121.3	0.85
		Nitrite by IC	116.2	115.5	0.67
		Nitrate by IC	106.0	106.9	0.92
		Phosphate by IC	119.3	119.3	0.034
		Sulfate by IC	95.1	95.2	0.073
-007	B0W658	Sulfide	94.0	91.2	3.0
BLANK10	99LN3C43-MB1	Nitrate Nitrite	98.4	98.8	0.41
BLANK10	99LAM033-MB1	Ammonia, as N	103.2	103.5	0.24
BLANK10	99LSD037-MB1	Sulfide	96.0	97.0	1.0
BLANK10	99LAM050-MB1	Ammonia, as N	99.0	100.5	1.5

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INORGANICS PRECISION REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0W646	Chloride by IC	3.1	3.2	1.8	1.0
		Fluoride by IC	2.7 u	2.7 u	NC	1.0
		Nitrite by IC	1.4 u	1.4 u	NC	1.0
		Nitrate by IC	78	77	0.99	4.0
		Cyanide, Total	0.54u	0.54u	NC	1.0
		Phosphate by IC	3.0	3.2	4.8	1.0
		Sulfate by IC	33.7	33.8	0.26	1.0
-003REP	B0W649	Nitrate Nitrite	7.6	7.6	0.039	1.0
		Ammonia, as N	1.3 u	1.2 u	NC	1.0
-007REP	B0W658	% Solids	94.8	94.7	0.16	1.0
		Chromium VI	0.42u	0.42u	NC	1.0
		pH	8.5	8.5	0.1	1.0
		Sulfide	4.0	4.0	0.38	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/31/99

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 9908L821

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC095-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	99.2
LCS2	99LC095-LC2	Cyanide, Total LCS	9.7	10	MG/KG	96.7
LCS10	99LC130A-LC1	Cyanide, Total LCS	2.0	2.0	MG/KG	98.4
LCS20	99LC130A-LC2	Cyanide, Total LCS	9.5	10	MG/KG	95.2
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: 08/20/99 RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W646						
% SOLIDS	001	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
CHLORIDE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
CHLORIDE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	001	S	99LC095	08/18/99	08/31/99	08/31/99
TOTAL CYANIDE	001 REP	S	99LC130A	08/18/99	12/07/99	12/08/99
TOTAL CYANIDE	001 MS	S	99LC130A	08/18/99	12/07/99	12/08/99
PHOSPHATE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
PHOSPHATE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	001	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	001	S	99LIC076	08/18/99	09/13/99	09/13/99
SULFATE BY IC	001 REP	S	99LIC076	08/18/99	09/13/99	09/13/99
SULFATE BY IC	001 MS	S	99LIC076	08/18/99	09/13/99	09/13/99
SULFATE BY IC	001 MSD	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	001	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	001	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	001	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	001	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W647						
% SOLIDS	002	S	99L%S116	08/18/99	08/24/99	08/25/99

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

DATE RECEIVED: 08/20/99 RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	002	S	99LC095	08/18/99	08/31/99	08/31/99
PHOSPHATE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	002	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	002	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	002	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	002	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	002	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	002	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W649						
% SOLIDS	003	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	003	S	99LC095	08/18/99	08/31/99	08/31/99
PHOSPHATE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	003	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	003	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	003	S	99LN3C43	08/18/99	08/31/99	08/31/99
NITRATE NITRITE	003 REP	S	99LN3058	08/18/99	12/07/99	12/07/99
NITRATE NITRITE	003 MS	S	99LN3058	08/18/99	12/07/99	12/07/99
AMMONIA	003	S	99LAM033	08/18/99	09/03/99	09/03/99
AMMONIA	003 REP	S	99LAM050	08/18/99	12/28/99	12/29/99
AMMONIA	003 MS	S	99LAM050	08/18/99	12/28/99	12/29/99
PH	003	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	003	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W650						
% SOLIDS	004	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99

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

DATE RECEIVED: 08/20/99 RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	004	S	99LC095	08/18/99	08/31/99	08/31/99
PHOSPHATE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	004	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	004	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	004	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	004	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	004	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	004	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W651						
% SOLIDS	005	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	005	S	99LC095	08/18/99	08/31/99	08/31/99
PHOSPHATE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	005	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	005	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	005	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	005	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	005	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	005	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W652						
% SOLIDS	006	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	006	S	99LC096	08/18/99	08/31/99	09/01/99
PHOSPHATE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	006	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	006	S	99LIC076	08/18/99	09/13/99	09/13/99

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

DATE RECEIVED: 08/20/99 RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE NITRITE	006	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	006	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	006	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	006	S	99LSD037	08/18/99	08/24/99	08/24/99
B0W658						
% SOLIDS	007	S	99L%S116	08/18/99	08/24/99	08/25/99
% SOLIDS	007 REP	S	99L%S116	08/18/99	08/24/99	08/25/99
CHLORIDE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
FLUORIDE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRITE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
TOTAL CYANIDE	007	S	99LC096	08/18/99	08/31/99	09/01/99
PHOSPHATE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
CHROMIUM VI	007	S	99LVI059	08/18/99	08/30/99	08/30/99
CHROMIUM VI	007 REP	S	99LVI059	08/18/99	08/30/99	08/30/99
CHROMIUM VI	007 MS	S	99LVI059	08/18/99	08/30/99	08/30/99
CHROMIUM VI	007 MSD	S	99LVI059	08/18/99	08/30/99	08/30/99
SULFATE BY IC	007	S	99LIC076	08/18/99	09/13/99	09/13/99
NITRATE NITRITE	007	S	99LN3C43	08/18/99	08/31/99	08/31/99
AMMONIA	007	S	99LAM033	08/18/99	09/03/99	09/03/99
PH	007	S	99LPH089	08/18/99	08/24/99	08/24/99
PH	007 REP	S	99LPH089	08/18/99	08/24/99	08/24/99
SULFIDE	007	S	99LSD037	08/18/99	08/24/99	08/24/99
SULFIDE	007 REP	S	99LSD037	08/18/99	08/24/99	08/24/99
SULFIDE	007 MS	S	99LSD037	08/18/99	08/24/99	08/24/99
SULFIDE	007 MSD	S	99LSD037	08/18/99	08/24/99	08/24/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99
CHLORIDE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
FLUORIDE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99
FLUORIDE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
NITRITE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99
NITRITE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
NITRATE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99

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

DATE RECEIVED: 08/20/99 RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
TOTAL CYANIDE	LC1 L	S	99LC095	N/A	08/31/99	08/31/99
TOTAL CYANIDE	LC2 L	S	99LC095	N/A	08/31/99	08/31/99
TOTAL CYANIDE	MB1	S	99LC095	N/A	08/31/99	08/31/99
TOTAL CYANIDE	LC1 L	S	99LC130A	N/A	12/07/99	12/08/99
TOTAL CYANIDE	LC2 L	S	99LC130A	N/A	12/07/99	12/08/99
TOTAL CYANIDE	MB1	S	99LC130A	N/A	12/07/99	12/08/99
PHOSPHATE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99
PHOSPHATE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
CHROMIUM VI	MB1	S	99LVI059	N/A	08/30/99	08/30/99
CHROMIUM VI	MB1 BS	S	99LVI059	N/A	08/30/99	08/30/99
CHROMIUM VI	MB1 BSD	S	99LVI059	N/A	08/30/99	08/30/99
SULFATE BY IC	MB1	S	99LIC076	N/A	09/13/99	09/13/99
SULFATE BY IC	MB1 BS	S	99LIC076	N/A	09/13/99	09/13/99
NITRATE NITRITE	MB1	S	99LN3C43	N/A	08/31/99	08/31/99
NITRATE NITRITE	MB1 BS	S	99LN3C43	N/A	08/31/99	08/31/99
NITRATE NITRITE	MB1 BSD	S	99LN3C43	N/A	08/31/99	08/31/99
AMMONIA	MB1	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BS	S	99LAM033	N/A	09/03/99	09/03/99
AMMONIA	MB1 BSD	S	99LAM033	N/A	09/03/99	09/03/99
SULFIDE	MB1	S	99LSD037	N/A	08/24/99	08/24/99
SULFIDE	MB1 BS	S	99LSD037	N/A	08/24/99	08/24/99
SULFIDE	MB1 BSD	S	99LSD037	N/A	08/24/99	08/24/99
NITRATE NITRITE	MB1	S	99LN3058	N/A	12/07/99	12/07/99
NITRATE NITRITE	MB1 BS	S	99LN3058	N/A	12/07/99	12/07/99
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
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

~~schnell~~ (8) ~~ta~~ metals ~~wet chem~~

RECRA LabNet Use Only: 9908L821

ALL

Custody Transfer Record/Lab Work Request

RECRA LabNet

017

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: 30DAY
Date Rec'd: 8/20/99 Date Due: 9/19/99
Account #: TNUHANFORD

Refrigerator #		1	6						6		6	6	6			
#/Type Container	Liquid															
	Solid	1g	1g	w/BNA		w/BNA			1g		1Ab	w/metals	1g			
Volume	Liquid															
	Solid	250	500						500		250		Ltr			
Preservatives									–		–					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb				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	0624H	0625H	ORCB		ODRO	OGCSC	Met ①		IPH	ICR6	INORG ①	
001	BØW646			S	8/18/99	0924	✓	✓	✓		✓	✓	✓		✓	✓	✓	
2	647					0930	✓	✓	✓		✓	✓	✓		✓	✓	✓	
3	649					0946	✓	✓	✓		✓	✓	✓		✓	✓	✓	
4	650					1003	✓	✓	✓		✓	✓	✓		✓	✓	✓	still logged
5	651					1015	✓	✓	✓		✓	✓	✓		✓	✓	✓	8/21/99
6	652					1030	✓	✓	✓		✓	✓	✓		✓	✓	✓	sample
007	658					1046	✓	✓	✓		✓	✓	✓		✓	✓	✓	broken

COMPOSITE WASTE

001 → no bottle rec'd for metals or CR6 take aliquots from other jars.

upon receipt take aliquots from other jars.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Saf # B99-078

Run Matrix QC
8/26/99 added OGCSC 1→7
OGCSC = ethanol + propanol

DATE/REVISIONS:
→ 1. Met ① = As, Ba, Be, Cd, Cr, Cu, Pb,
2. Ni, Se, Ag, V, Zn, Hg
→ 3. INORG ① = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ISFD, INH3N, ICNTO, ICSO4
5. K 423579528576 @ 4.1°C
6. K 423579528565 @ 4.3°C

RECRA LabNet Use Only

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

; Between les and ? Y or N

Relinquished by	Received by	Date	Time
FedEx	[signature]	8/20/99	

Relinquished by	Received by
ORIGINAL REWRITTEN	

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

Page 1 of 1

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-56	Page 1 of 1

Collector: R. Nielson/D. Bowers	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-4 <15' bgs 4.5'-5.5'	SAF No.: B99-078	
Ice Chest No.: ERC96-005	Field Logbook No.: EL-1511	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA D7B 8-18-99	Offsite Property No.: A990221	Bill of Lading/Air Bill No.: 423579528565	
		COA: B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1	1	1			
	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	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								
B0W646	Soil	8-18-99	0924		X	X	X	X	X	B0W565	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 8-18-99/1315	Received By: Reff IB	Date/Time: 8-18-99/1315
Relinquished By: Reff IB	Date/Time: 8/19/99 0900	Received By: R. Nielson / R. Nielson	Date/Time: 8/19/99 0900
Relinquished By: R. Nielson / R. Nielson	Date/Time: 8/19/99 1530	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time:	Received By: B Miller	Date/Time: 8/2/99 0930
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

(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

* Note: Material necessary for Item (1) analysis to be extracted from other sample material provided.

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-57	Page 1 of 1

Collector R. Nielson/D. Bowers	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-4 <15' bgs 7' - 8'		SAF No. B99-078	
Ice Chest No. ERC96-005	Field Logbook No. EL-1511		Method of Shipment Federal Express	
Shipped To ~~TMA~~/RECRA RSB 8-18-99	Offsite Property No. A990221		Bill of Lading/Air Bill No. 4235795285 65	
			COA D20CW7 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
B0W647	Soil	8-18-99	0930		X	X	X	X	X		B0W565		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers	Date/Time 8-18-99/1315	Received By BofID	Date/Time 8-18-99/1315
Relinquished By Ref#1B	Date/Time 8/19/99 0900	Received By Renee Nielson/R. Nielson	Date/Time 0900 8/19/99
Relinquished By Renee Nielson/R. Nielson	Date/Time 8/19/99 1330	Received By FedEx	Date/Time
Relinquished By FedEx	Date/Time	Received By B Mulley	Date/Time 8/20/99

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

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

*Note: if additional sample material is required for item (2) analysis use material from other sample material provided.

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	B99-078-58	Page 1 of 1

Collector R. Nielson/D. Bowers	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-4 <15' bgs 9.5' - 10.5'	SAF No. B99-078	
Ice Chest No. ERC96-005	Field Logbook No. EL-1511	Method of Shipment Federal Express	
Shipped To TMA/RECRA DZB 8-18-99	Offsite Property No. A990221	Bill of Lading/Air Bill No. 423579528565	
		COA B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
B0W649	Soil	8-18-99	0946		X	X	X	X	X		BOW5	L5	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers	Date/Time 8-18-99/1315	Received By Ref 1B	Date/Time 8-18-99/1315
Relinquished By Ref # 1B	Date/Time 8/19/99 0900	Received By R Nielson/R Nielson	Date/Time 8/19/99 0900
Relinquished By R Nielson/R Nielson	Date/Time 8/19/99 1330	Received By FedEx	Date/Time
Relinquished By FedEx	Date/Time	Received By B Milley	Date/Time 8/20/99 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

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	B99-078-59	Page 1 of 1

Collector R. Nielson/D. Bowers	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-4 <15' bgs 12' - 13'	SAF No. B99-078	
Ice Chest No. ERC96-005	Field Logbook No. EL-1511	Method of Shipment Federal Express	
Shipped To TMA/RECRA 8-18-99	Offsite Property No. A990221	Bill of Lading/Air Bill No. 423579528565	
		COA B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
	Type of Container	aG	aG	aG	aG	aG	aG	aG			
	No. of Container(s)	1	1	1	1	1	1	1			
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS		Isotopic Uranium	VOA - 8260A (TCL), VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	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										
B0W650	Soil	8-18-99	1003		X	X	X	X	X		B0W5L5		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers	Date/Time 8-18-99/1315	Received By Ref 1B	Date/Time 8-18-99/1315
Relinquished By Ref # 1B	Date/Time 8/19/99 0900	Received By Renee Nielson/R Nielson	Date/Time 8/19/99 0900
Relinquished By Renee Nielson/R Nielson	Date/Time 8/19/99 1330	Received By FedEx	Date/Time
Relinquished By FedEx	Date/Time	Received By [signature]	Date/Time 8/20/99 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

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	B99-078-60	Page 1 of 1

Collector R. Nielson/D. Bowers	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-4 <15' bgs 14' - 15'		SAF No. B99-078
Ice Chest No. SML-552	Field Logbook No. EL-1511		Method of Shipment Federal Express
Shipped To TMA/RECRA 8-18-99	Offsite Property No. A990221		Bill of Lading/Air Bill No. 4235795285 76

Price Code 8N

Data Turnaround: 45 Days

COA B20CW167C

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL			
SAMPLE ANALYSIS	Isotopic Uranium	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										
B0W651 / Soil / 8-18-99 / 1015		X	X	X	X	X		BOWSLS		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers	Date/Time 8-18-99/1315	Received By Ref 1B	Date/Time 8-18-99/1315
Relinquished By Ref #1B	Date/Time 8/19/99 0900	Received By Renee Nielson/R. Nielson	Date/Time 8/19/99 0900
Relinquished By Renee Nielson/R. Nielson	Date/Time 8/19/99 1330	Received By Fed Ex	Date/Time
Relinquished By FedEx	Date/Time	Received By B Millard	Date/Time 8/20/99

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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	B99-078-61	Page 1 of 1

Collector: R. Nielson/D. Bowers	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-4 >15' bgs 19.5' – 20.5'	SAF No.: B99-078	
Ice Chest No.: SML-552	Field Logbook No.: EL-1511	Method of Shipment: Federal Express	
Shipped To: ~~TMA~~/RECRA DXB 8-18-99	Offsite Property No.: A990221	Bill of Lading/Air Bill No.: 4235795285 76	
		COA: B20CW1 67/C	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	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	120mL	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	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.	See item (3) in Special Instructions.
Sample No.	Matrix * / Sample Date / Sample Time										
B0W652	Soil / 8-18-99 / 1030					X	X	X	X	X	
											B0W5L5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers, Doug Bowers	Date/Time: 8-18-99/1315	Received By: Bob Ib	Date/Time: 8-18-99/1315
Relinquished By: Bob Ib	Date/Time: 8/19/99 0900	Received By: Robert Nielson/R. Nielson	Date/Time: 8/19/99 0900
Relinquished By: Robert Nielson/R. Nielson	Date/Time: 8/19/99 1330	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time:	Received By: B Miller	Date/Time: 8/20/99

SPECIAL INSTRUCTIONS

See chain of custody comments on SAF B99-078.

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

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

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

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	B99-078-62	Page 1 of 1

Collector R. Nielson/D. Bowers	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-4 >15' bgs 24' -25'	SAF No. B99-078	
Ice Chest No. SML-552	Field Logbook No. EL-1511	Method of Shipment Federal Express	
Shipped To TMA/RECRA [illegible] 8-18-99	Offsite Property No. A990221	Bill of Lading/Air Bill No. 423579528576	
		COA B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	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	120mL	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS		Isotopic Uranium	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.	See item (3) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B0W658	Soil	8-18-99	1046					X	X	X	X	X	
													B0W5L5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers	Date/Time 8-18-99/1315	Received By B. of 1B	Date/Time 8-18-99/1315
Relinquished By Ref #1B	Date/Time 8/19/99 0900	Received By Renee Nielson/R. Nielson	Date/Time 8/19/99 0900
Relinquished By Renee Nielson/R. Nielson	Date/Time 8/19/99 1330	Received By Fed Ex	Date/Time
Relinquished By FedEx	Date/Time	Received By B Mulley	Date/Time 8/20/99 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

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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