H0616-TMA/RECRA

0052595

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-093
RFW# : 9911L600
SDG# : H0616
SAF# : B99-093

W.O. # : 10985-001-001-9999-00
Date Received: 11-03-99

RECEIVED
FEB 28 2000
EDMC

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of ~~9~~ 8 soil samples. 02/00

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 temperature was recorded on the chain-of-custody.

5. The method blanks (MB) were within method criteria; MB 99LZC099-MB2 and 99LXC100-MB2 represent the Oxygen Bomb preparation blanks.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recovery for Chloride was within the 75-125% control limits.

8. The replicate analysis for Percent Solids was within the 20% RPD control limit, however replicate analysis for Chloride was outside the control limit.

9. Results for Oxygen Bomb prepared Chloride samples are reported on a wet weight basis.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

JAN 2000

1-5-00
Date

njp\i11-600

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 16 pages.

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: Chloride **Method:** EPA 300.0

Other: **Method**

L-WI-034/B-06/99

Recra LabNet Philadelphia
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 01/04/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 9911L600

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WV17	% Solids	57.7	%	0.01	1.0
-002	B0WV18	% Solids	76.8	%	0.01	1.0
-003	B0WV19	% Solids	89.7	%	0.01	1.0
-004	B0WV20	% Solids	53.0	%	0.01	1.0
-005	B0WV21	% Solids	71.1	%	0.01	1.0
-006	B0WV22	% Solids	52.1	%	0.01	1.0
-007	B0WV23	% Solids	82.6	%	0.01	1.0
-008	B0WV24	% Solids	88.0	%	0.01	1.0
-009	B0WV17	Chloride by IC	105	MG/KG	21.7	1.0
-010	B0WV18	Chloride by IC	1630	MG/KG	125	10.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 9911L600

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B0WV19	Chloride by IC	1510	MG/KG	62.5	5.0
-012	B0WV20	Chloride by IC	357	MG/KG	23.6	1.0
-013	B0WV21	Chloride by IC	8260	MG/KG	625	50.0
-014	B0WV22	Chloride by IC	160	MG/KG	24.0	1.0
-015	B0WV23	Chloride by IC	1430	MG/KG	62.5	5.0
-016	B0WV24	Chloride by IC	1400	MG/KG	62.5	5.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/04/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 9911L600

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LZC099-MB1	Chloride by IC	12.5 u	MG/KG	12.5	1.0
BLANK20	99LZC099-MB2	Chloride by IC	31.2	MG/KG	12.5	1.0
BLANK10	99LXC100-MB1	Chloride by IC	12.5 u	MG/KG	12.5	1.0
BLANK20	99LXC100-MB2	Chloride by IC	40.8	MG/KG	12.5	1.0

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INORGANICS ACCURACY REPORT 01/04/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 9911L600

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-009	B0WV17	Chloride by IC	317	60.6	250	102.6	1.0
BLANK10	99LZC099-MB1	Chloride by IC	232	12.5 u	250	93.0	1.0
BLANK10	99LXC100-MB1	Chloride by IC	239	12.5 u	250	95.6	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/04/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 9911L600

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WV17	% Solids	57.7	57.7	0.017	1.0
-009REP	B0WV17	Chloride by IC	105	66.5	44.9	1.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-093

DATE RECEIVED: 11/03/99 RFW LOT # :9911L600

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WV17						
% SOLIDS	001	S	99L%S148	10/26/99	11/04/99	11/04/99
% SOLIDS	001 REP	S	99L%S148	10/26/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	001	S	99BOMB09	10/26/99	11/18/99	11/18/99
B0WV18						
% SOLIDS	002	S	99L%S148	10/26/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	002	S	99BOMB09	10/26/99	11/18/99	11/18/99
B0WV19						
% SOLIDS	003	S	99L%S148	10/28/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	003	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV20						
% SOLIDS	004	S	99L%S148	10/28/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	004	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV21						
% SOLIDS	005	S	99L%S148	10/28/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	005	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV22						
% SOLIDS	006	S	99L%S148	10/28/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	006	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV23						
% SOLIDS	007	S	99L%S148	10/28/99	11/04/99	11/04/99
CALORIMETER BOMB PRE	007	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV24						
% SOLIDS	008	S	99L%S148	10/28/99	11/04/99	11/04/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-093

DATE RECEIVED: 11/03/99 RFW LOT # :9911L600

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALORIMETER BOMB PRE	008	S	99BOMB09	10/28/99	11/18/99	11/18/99
B0WV17						
CHLORIDE BY IC	009	W	99LZC099	10/28/99	11/18/99	11/18/99
CHLORIDE BY IC	009 REP	W	99LZC099	10/28/99	11/18/99	11/18/99
CHLORIDE BY IC	009 MS	W	99LXC100	10/28/99	11/19/99	11/19/99
B0WV18						
CHLORIDE BY IC	010	W	99LXC100	10/28/99	11/19/99	11/19/99
B0WV19						
CHLORIDE BY IC	011	W	99LXC100	10/28/99	11/19/99	11/19/99
B0WV20						
CHLORIDE BY IC	012	W	99LZC099	10/28/99	11/18/99	11/18/99
B0WV21						
CHLORIDE BY IC	013	W	99LXC100	10/28/99	11/19/99	11/19/99
B0WV22						
CHLORIDE BY IC	014	W	99LZC099	10/28/99	11/18/99	11/18/99
B0WV23						
CHLORIDE BY IC	015	W	99LXC100	10/28/99	11/19/99	11/19/99
B0WV24						
CHLORIDE BY IC	016	W	99LXC100	10/28/99	11/19/99	11/19/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LZC099	N/A	11/18/99	11/18/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-093

DATE RECEIVED: 11/03/99 RFW LOT # :9911L600

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1 BS	S	99LZC099	N/A	11/18/99	11/18/99
CHLORIDE BY IC	MB2	S	99LZC099	N/A	11/18/99	11/18/99
CHLORIDE BY IC	MB1	S	99LXC100	N/A	11/19/99	11/19/99
CHLORIDE BY IC	MB1 BS	S	99LXC100	N/A	11/19/99	11/19/99
CHLORIDE BY IC	MB2	S	99LXC100	N/A	11/19/99	11/19/99

RECRA LabNet Use Only
9911L600

Custody Transfer Record/Lab Work Request

Page 1 of 2

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

012

Client: TNU-Hanford B99-093
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: 11/3/99 Date Due: 12/3/99
Account #:

Refrigerator #		1									2					
#/Type Container	Liquid															
	Solid	1g									1g					
Volume	Liquid															
	Solid	250									60					
Preservatives																
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN						
		RECRA LabNet Use Only														
		0624H									1BOXHB	1CCL				

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									1BOXHB	1CCL				
001	BØWV17			S	10/26/99	1442	✓									✓					
2	18					1546	✓									✓					
3	19				10/28/99	0850	✓									✓					
4	20					1000	✓									✓					
5	21					1020	✓									✓					
6	22					1130	✓									✓					
7	23					1225	✓									✓					
8	24 X 11/3/99					1300	✓									✓					
9	17 ~~[illegible]~~ Bomb of 001			W	*	-											✓				
010	18		2			-											✓				

Special Instructions:
saf # B99-093

COMPOSITE WASTE

DATE/REVISIONS:
*1. see labchron
2. Run matrix QC
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	Janson	11/3/99	0915

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: *423579531296

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. 4.0 °C

RECRA LabNet Use Only
9911L600

Custody Transfer Record/Lab Work Request

Page 2 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

013

Client: TNU-Hanford B99-093

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #:

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives:

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	Bomb

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	ICCL
011	BØWV19 Bomb of 00 3			W	*	–	✓
12	20 4						✓
13	21 5						✓
14	22 6						✓
15	23 7						✓
16	24 8						✓

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	Janson	11/3/99	0915

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

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. ___ °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-093-01	Page 1 of 1

Collector Fahlberg	Company Contact V Rohay	Telephone No. 372-9098	Project Coordinator TRENT, SJ	Price Code 9N	Data Turnaround 45 Days
Project Designation 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location 200 West ZP2		SAF No. B99-093		
Ice Chest No. ER.40	Field Logbook No. EL 1435		Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RE 10.26.99	Offsite Property No. AØØØØ22		Bill of Lading/Air Bill No. 42357953 1296		
			COA R20ZP2DP60		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	250mL									
SAMPLE ANALYSIS	Total Chloride by Bomb Combustion	VOA - 8260A (TCL)									

Sample No.	Matrix *	Sample Date	Sample Time										
B0WV17	Other Solid	10-26-99	1442	X	X								B0WV37
B0WV18	Other Solid	10-26-99	1456	X	X								B0WV38
B0WV19 RE	Other Solid												
B0WV20 10-26-99	Other Solid												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time 1630	Received By	Date/Time 1630
R Fahlberg	R.Fahlberg 10-26-99	Ref 2.A	10-26-99
Relinquished By	Date/Time	Received By	Date/Time
Ref 2.A	11.02.99/1040	Rikki Thorsen R. Thorsen	11.02.99/1040
Relinquished By	Date/Time	Received By	Date/Time
Rikki Thorsen R. Thorsen	11.02.99/1430	FedEx	
Relinquished By	Date/Time	Received By	Date/Time
FedEx			11/3/99 0930

SPECIAL INSTRUCTIONS

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	B99-093-01	Page 1 of 1

Collector Fahlberg	Company Contact V Rohay Telephone No. 372-9098	Project Coordinator TRENT, SJ	Price Code 9N Data Turnaround 45 Days
Project Designation 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location 200 West ZP2	SAF No. B99-093	
Ice Chest No. ER 40	Field Logbook No. EL 1435	Method of Shipment Fed Ex	
Shipped To ~~TMA~~/RECRA RF 10.28.99	Offsite Property No. A000022	Bill of Lading/Air Bill No. 42357953 1296	
		COA R20ZP2DP60	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C								
	Type of Container	aG	aG								
	No. of Container(s)	1	1								
Special Handling and/or Storage	Volume	60mL	250mL								
SAMPLE ANALYSIS		Total Chloride by Bomb Combustion	VOA - 8260A (TCL)								

Sample No.	Matrix *	Sample Date	Sample Time										
B0WV17 RF	Other Solid												
~~B0WV18~~ 10.28.99	Other Solid												
B0WV19	Other Solid	10.28.99	0850	X	X							BOWV39	
B0WV20	Other Solid	10.28.99	1000	X	X							BOWV40	

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: K. Fahlberg / R. Fahlberg — Date/Time: 1500 10.28.99	Received By: Ref Z.C — Date/Time: 1500 10.28.99		Soil Water Vapor Other Solid Other Liquid
Relinquished By: Ref Z.C. — Date/Time: 11.02.99/10.40	Received By: Rikki Thoren R. Thoren — Date/Time: 11.02.99/1040		
Relinquished By: Rikki Thoren R. Thoren — Date/Time: 11.2.99/1430	Received By: FEDEX — Date/Time:		
Relinquished By: FedEx — Date/Time:	Received By: [signature] — Date/Time: 11/3/99 0930		

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	B99-093-02	Page 1 of 1

Collector: Fahlberg	Company Contact: V Rohay — Telephone No.: 372-9098	Project Coordinator: TRENT, SJ	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200 West ZP2	SAF No.: B99-093	
Ice Chest No.: ER.40	Field Logbook No.: EL 1435	Method of Shipment: Federal express	
Shipped To: ~~TMA~~/RECRA RF. 10-28-99	Offsite Property No.: A000022	Bill of Lading/Air Bill No.: 42357953 1296	
		COA: R20 ZP2 DP60	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C								
	Type of Container	aG	aG								
	No. of Container(s)	1	1								
Special Handling and/or Storage	Volume	60mL	250mL								
SAMPLE ANALYSIS		Total Chloride by Bomb Combustion	VOA - 8260A (TCL)								

Sample No.	Matrix *	Sample Date	Sample Time									
B0WV21	Other Solid	10-28-99	1020	X	X							BOWV41
B0WV22	Other Solid	10-28-99	1130	X	X							BOWV42
B0WV23	Other Solid	10-28-99	1225	X	X							BOWV43
B0WV24	Other Solid	10-28-99	1300	X	X							BOWV44
~~BOWX44~~ RF 10-28	other solid 99											

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: R. Fahlberg / R. Fahlberg — Date/Time: 1500 10-28-99	Received By: Ref 2.C — Date/Time: 1500 10-28-99		Soil, Water, Vapor, Other Solid, Other Liquid
Relinquished By: Ref 2.C — Date/Time: 11.02.99/10.40	Received By: Rikki Thoren R. Thoren — Date/Time: 11.02.99/1040		
Relinquished By: Rikki Thoren R. Thoren — Date/Time: 11.2.99/1430	Received By: FEDEX — Date/Time:		
Relinquished By: FedEx — Date/Time:	Received By: Janson — Date/Time: 11/3/99 0930		

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 B99-093
RFW #: 9911L600
SDG/SAF #: H0616/B99-093

W.O. #: 10985-001-001-9999-00
Date Received: 11-03-99

GC/MS VOLATILE

Eight (8) soil samples were collected on 10-26,28-99.

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 11-09-99.

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 temperature upon receipt has been recorded on the chain-of-custody.

2. The required holding time for analysis was met.

3. Non-target compounds were not detected in the samples.

4. All samples required medium level analysis and additional dilutions due to high levels of target compounds and the charcoal nature of sample matrix. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

5. All obtainable surrogate recoveries were within EPA QC limits.

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 blanks contained the common laboratory contaminants Methylene Chloride, Acetone at levels less than 2x the CRQL and the target compound 2-Butanone at levels less than the CRQL.

JAN 2000
RECEIVED
Data
Log In

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-06-00
Date

som\group\data\voa\tnu11600.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 16 pages, including page 3A.

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

GLOSSARY OF VOA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.voa

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

mmz\10-94\gloss.voa

Recra LabNet Philadelphia **Sample Discrepancy Report (SDR)** SDR #: 99VT209

Initiator: DRychlak RFW Batch: 99111600 Parameter: 0624 Volatiles
Date: 11/10/99 Samples: 001MS Matrix: Soil
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: —
SDG H0616

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) All samples charcoal matrix - required Med level extraction and 100X to 250X dilutions for Carbon Tetrachloride - all surrogates were diluted out. For MS recovery of Chlorobenzene was 59% lower limit 60%. Also IN MS Tetrachloroethene was identified at around 11(ppb on column) in all likely hood due to port contamination since not identified in MSD or sample would like to narrate these issues.

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)

① report and narrate

4. Project Manager Instructions...signature/date: Preette J. 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: Beth Pulcino 1/5/00 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X 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
__	X QA (file): Racioppi	__	__ Log-in: Toder
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Schnell/Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-03/99

3A

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 01/05/00 16:02

RFW Batch Number: **9911L600** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 1a

	Cust ID:	B0WV17		B0WV17		B0WV17		B0WV18		B0WV19		B0WV20	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	100		100		100		100		100		100	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
	Level:	MED		MED		MED		MED		MED		MED	
Surrogate Recovery	Toluene-d8	D	%	D	%	D	%	D	%	D	%	D	%
	Bromofluorobenzene	D	%	D	%	D	%	D	%	D	%	D	%
	1,2-Dichloroethane-d4	D	%	D	%	D	%	D	%	D	%	D	%
			fl		fl		fl		fl		fl		fl
Chloromethane		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
Bromomethane		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
Vinyl Chloride		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
Chloroethane		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
Methylene Chloride		200000	B	420000	B	190000	B	160000	B	100000	B	170000	B
Acetone		220000	U	290000	B	220000	U	160000	U	52000	JB	240000	U
Carbon Disulfide		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
1,1-Dichloroethene		110000	U	121	%	125	%	81000	U	70000	U	120000	U
1,1-Dichloroethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
1,2-Dichloroethene (total)		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Chloroform		21000	J	22000	J	26000	J	55000	J	15000	J	38000	J
1,2-Dichloroethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
2-Butanone		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
1,1,1-Trichloroethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Carbon Tetrachloride		1100000		1200000		1500000		1800000		1500000		1600000	
Bromodichloromethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
1,2-Dichloropropane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
cis-1,3-Dichloropropene		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Trichloroethene		110000	U	101	%	105	%	16000	J	70000	U	120000	U
Dibromochloromethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
1,1,2-Trichloroethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Benzene		110000	U	95	%	101	%	81000	U	70000	U	120000	U
Trans-1,3-Dichloropropene		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Bromoform		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
4-Methyl-2-pentanone		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
2-Hexanone		220000	U	220000	U	220000	U	160000	U	140000	U	240000	U
Tetrachloroethene		110000	U	250000		110000	U	81000	U	70000	U	120000	U
1,1,2,2-Tetrachloroethane		110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Toluene		110000	U	134	%	102	%	81000	U	70000	U	120000	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9911L600** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 1b

05

Cust ID:	B0WV17		B0WV17		B0WV17		B0WV18		B0WV19		B0WV20	
RFW#:	001		001 MS		001 MSD		002		003		004	
Level:	MED		MED		MED		MED		MED		MED	
Chlorobenzene	110000	U	59 *	%	101	%	81000	U	70000	U	120000	U
Ethylbenzene	110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Styrene	110000	U	110000	U	110000	U	81000	U	70000	U	120000	U
Xylene (total)	110000	U	110000	U	110000	U	81000	U	70000	U	120000	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 01/05/00 16:02

RFW Batch Number: **9911L600** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 2a

	Cust ID:	B0WV21		B0WV22		B0WV23		B0WV24		VBLKFJ		VBLKFJ BS	
Sample Information	RFW#:	005		006		007		008		99LVH536-MB1		99LVH536-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	250		100		100		100		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
	Level:	MED		MED		MED		MED		MED		MED	
Surrogate Recovery	Toluene-d8	D	%	D	%	D	%	D	%	103	%	98	%
	Bromofluorobenzene	D	%	D	%	D	%	D	%	107	%	102	%
	1,2-Dichloroethane-d4	D	%	D	%	D	%	D	%	109	%	103	%
		fl		fl		fl		fl		fl		fl	
Chloromethane		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
Bromomethane		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
Vinyl Chloride		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
Chloroethane		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
Methylene Chloride		320000	B	170000	B	110000	B	120000	B	880		1300	B
Acetone		440000	U	240000	U	150000	U	140000	U	460	J	1200	U
Carbon Disulfide		220000	U	120000	U	76000	U	71000	U	620	U	620	U
1,1-Dichloroethene		220000	U	120000	U	76000	U	71000	U	620	U	95	%
1,1-Dichloroethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
1,2-Dichloroethene (total)		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Chloroform		83000	J	120000	U	15000	J	71000	U	620	U	620	U
1,2-Dichloroethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
2-Butanone		440000	U	240000	U	150000	U	140000	U	320	J	1200	U
1,1,1-Trichloroethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Carbon Tetrachloride		4600000		2200000		1600000		1200000		620	U	620	U
Bromodichloromethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
1,2-Dichloropropane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
cis-1,3-Dichloropropene		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Trichloroethene		220000	U	120000	U	76000	U	71000	U	620	U	78	%
Dibromochloromethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
1,1,2-Trichloroethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Benzene		220000	U	120000	U	76000	U	71000	U	620	U	76	%
Trans-1,3-Dichloropropene		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Bromoform		220000	U	120000	U	76000	U	71000	U	620	U	620	U
4-Methyl-2-pentanone		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
2-Hexanone		440000	U	240000	U	150000	U	140000	U	1200	U	1200	U
Tetrachloroethene		220000	U	120000	U	76000	U	71000	U	620	U	620	U
1,1,2,2-Tetrachloroethane		220000	U	120000	U	76000	U	71000	U	620	U	620	U
Toluene		220000	U	120000	U	76000	U	71000	U	620	U	77	%

*= Outside of EPA CLP QC limits.

Cust ID:	B0WV21		B0WV22		B0WV23		B0WV24		VBLKFJ		VBLKFJ BS	
RFW#:	005		006		007		008		99LVH536-MB1		99LVH536-MB1	
Level:	MED		MED		MED		MED		MED		MED	
Chlorobenzene	220000	U	120000	U	76000	U	71000	U	620	U	78	%
Ethylbenzene	220000	U	120000	U	76000	U	71000	U	620	U	620	U
Styrene	220000	U	120000	U	76000	U	71000	U	620	U	620	U
Xylene (total)	220000	U	120000	U	76000	U	71000	U	620	U	620	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 01/05/00 16:02

RFW Batch Number: **9911L600** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 3a

	Cust ID:	**VBLKFK**	**VBLKFK BS**
Sample Information	RFW#:	**99LVH537-MB1**	**99LVH537-MB1**
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
	Level:	MED	MED

	Toluene-d8	98	%	93 %
Surrogate	Bromofluorobenzene	101	%	97 %
Recovery	1,2-Dichloroethane-d4	99	%	96 %

Chloromethane	1200	U	1200	U
Bromomethane	1200	U	1200	U
Vinyl Chloride	1200	U	1200	U
Chloroethane	1200	U	1200	U
Methylene Chloride	790		1600	B
Acetone	1200	J	830	JB
Carbon Disulfide	620	U	620	U
1,1-Dichloroethene	620	U	125	%
1,1-Dichloroethane	620	U	620	U
1,2-Dichloroethene (total)	620	U	620	U
Chloroform	620	U	620	U
1,2-Dichloroethane	620	U	620	U
2-Butanone	300	J	1200	U
1,1,1-Trichloroethane	620	U	620	U
Carbon Tetrachloride	620	U	620	U
Bromodichloromethane	620	U	620	U
1,2-Dichloropropane	620	U	620	U
cis-1,3-Dichloropropene	620	U	620	U
Trichloroethene	620	U	102	%
Dibromochloromethane	620	U	620	U
1,1,2-Trichloroethane	620	U	620	U
Benzene	620	U	100	%
Trans-1,3-Dichloropropene	620	U	620	U
Bromoform	620	U	620	U
4-Methyl-2-pentanone	1200	U	1200	U
2-Hexanone	1200	U	1200	U
Tetrachloroethene	620	U	620	U
1,1,2,2-Tetrachloroethane	620	U	620	U
Toluene	620	U	98	%

*= Outside of EPA CLP QC limits.

60

Cust ID:	**VBLKFK**		**VBLKFK BS**	
RFW#:	**99LVH537-MB1**		**99LVH537-MB1**	
Level:	MED		MED	
Chlorobenzene	620	U	100	%
Ethylbenzene	620	U	620	U
Styrene	620	U	620	U
Xylene (total)	620	U	620	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-093

DATE RECEIVED: 11/03/99 RFW LOT # :9911L600

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WV17	001 M1	S	99LVH536	10/26/99	N/A	11/09/99
B0WV17	001 MS M1	S	99LVH537	10/26/99	N/A	11/09/99
B0WV17	001 MSD M1	S	99LVH537	10/26/99	N/A	11/09/99
B0WV18	002 M1	S	99LVH536	10/26/99	N/A	11/09/99
B0WV19	003 M1	S	99LVH536	10/28/99	N/A	11/09/99
B0WV20	004 M1	S	99LVH536	10/28/99	N/A	11/09/99
B0WV21	005 M1	S	99LVH536	10/28/99	N/A	11/09/99
B0WV22	006 M1	S	99LVH536	10/28/99	N/A	11/09/99
B0WV23	007 M1	S	99LVH536	10/28/99	N/A	11/09/99
B0WV24	008 M1	S	99LVH537	10/28/99	N/A	11/09/99

LAB QC:

VBLKFJ	MB1	S	99LVH536	N/A	N/A	11/09/99
VBLKFJ	MB1 BS	S	99LVH536	N/A	N/A	11/09/99
VBLKFK	MB1	S	99LVH537	N/A	N/A	11/09/99
VBLKFK	MB1 BS	S	99LVH537	N/A	N/A	11/09/99

RECRA LabNet Use Only
9911L600

Custody Transfer Record/Lab Work Request

Page 1 of 2

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-Hanford B99-093
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: 11/3/99 Date Due: 12/3/99
Account #:

Refrigerator #		1									2					
#/Type Container	Liquid															
	Solid	1g									1g					
Volume	Liquid															
	Solid	250									60					
Preservatives																
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H									1BOMB	1CCL				
001	BØWV17			S	10/26/99	1442	✓									✓					
2	18					1546	✓									✓					
3	19				10/28/99	0850	✓									✓					
4	20					1000	✓									✓					
5	21					1020	✓									✓					
6	22					1130	✓									✓					
7	23					1225	✓									✓					
8	24 ✗ 11/3/99					1300	✓									✓					
9	17 ~~[illegible]~~ Bomb of 001			W	*	-											✓				
010	18		2			-											✓				

Special Instructions:
saf # B99-093

COMPOSITE WASTE

DATE/REVISIONS:
*1. see labchron
2. Run matrix QC
3.
4.
5.
6.

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. 4.0 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	11/3/99	0915

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
*423579531296

RECRA LabNet Use Only
9911L600

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

12

Client: INW-Hanford B99-093

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN		Bomb					
		RECRA LabNet Use Only															
												100L					

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														
	Bombaboo																			
011	BØWV19 3			W	*	–										✓				
12	20 4															✓				
13	21 5															✓				
14	22 6															✓				
15	23 7															✓				
16	24 8															✓				

Special Instructions:

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	Janson	11/3/99	0915

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

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. ___ °C

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-093-01	Page 1 of 1 13

Collector Fahlberg	Company Contact V Rohay Telephone No. 372-9098	Project Coordinator TRENT, SJ	Price Code 9N Data Turnaround 45 Days
Project Designation 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location 200 West ZP2	SAF No. B99-093	
Ice Chest No. ER.40	Field Logbook No. EL 1435	Method of Shipment Fed Ex	
Shipped To ~~TMA~~/RECRA RE 10.26.99	Offsite Property No. A000022	Bill of Lading/Air Bill No. 42357953 1296	
		COA R20ZP2DP60	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C								
	Type of Container	aG	aG								
	No. of Container(s)	1	1								
Special Handling and/or Storage	Volume	60mL	250mL								
SAMPLE ANALYSIS		Total Chloride by Bomb Combustion	VOA - 8260A (TCL)								

Sample No.	Matrix *	Sample Date	Sample Time										
B0WV17	Other Solid	10-26-99	1442	X	X							BOWV37	
B0WV18	Other Solid	10-26-99	1456	X	X							BOWV38	
~~B0WV19~~ RE	~~Other Solid~~												
~~B0WV20~~ 10 26 99	Other Solid												

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: R Fahlberg / Date/Time: 10-26-99 1630	Received By: Ref 2.A / Date/Time: 10-26-99 1630		Soil Water Vapor Other Solid Other Liquid
Relinquished By: Ref 2.A / Date/Time: 11.02.99/1040	Received By: Rikki Thoren / Date/Time: R. Thoren 11.02.99/1040		
Relinquished By: Rikki Thoren / Date/Time: R. Thoren 11.02.99/1430	Received By: FedEx / Date/Time:		
Relinquished By: FedEx / Date/Time:	Received By: Jonson / Date/Time: 11/3/99 0930		

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	B99-093-01	Page 1 of 1

Collector Fahlberg	Company Contact V Rohay Telephone No. 372-9098	Project Coordinator TRENT, SJ	Price Code 9N Data Turnaround 45 Days
Project Designation 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location 200 West ZP2	SAF No. B99-093	
Ice Chest No. ER 40	Field Logbook No. EL 1435	Method of Shipment Fed Ex	
Shipped To ~~TMA~~/RECRA RF 10 28 99	Offsite Property No. A000022	Bill of Lading/Air Bill No. 42357953 1296	
		COA R20ZP2DP60	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C								
	Type of Container	aG	aG								
	No. of Container(s)	1	1								
Special Handling and/or Storage	Volume	60mL	250mL								
SAMPLE ANALYSIS		Total Chloride by Bomb Combustion	VOA - 8260A (TCL)								

Sample No.	Matrix *	Sample Date	Sample Time										
B0WV17 RF	Other Solid												
~~B0WV18~~ 10.28.99	Other Solid												
B0WV19	Other Solid	10.28.99	0850	X	X							Bowv 39	
B0WV20	Other Solid	10.28.99	1000	X	X							Bowv 40	

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: R. Fahlberg / R. Fahlberg — Date/Time: 1500 10.28.99	Received By: Ref Z.C — Date/Time: 1500 10.28.99		Soil Water Vapor Other Solid Other Liquid
Relinquished By: Ref Z.C. — Date/Time: 11.02.99/10.40	Received By: Rikki Thoren R. Thoren — Date/Time: 11.02.99/1040		
Relinquished By: Rikki Thoren R. Thoren — Date/Time: 11.2.99/1430	Received By: FEDEX — Date/Time:		
Relinquished By: FedEx — Date/Time:	Received By: [signature] — Date/Time: 11/3/99 0930		

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	B99-093-02	Page 1 of 1

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Collector: Fahlberg	Company Contact: V Rohay — Telephone No.: 372-9098	Project Coordinator: TRENT, SJ	Price Code: 9N — Data Turnaround: 45 Days
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200 West ZP2	SAF No.: B99-093	
Ice Chest No.: ER.40	Field Logbook No.: EL 1435	Method of Shipment: Federal express	
Shipped To: ~~TMA~~/RECRA RF. 10.28.99	Offsite Property No.: A000022	Bill of Lading/Air Bill No.: 42357953 1296	
		COA: R20 ZP2 DP60	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	250mL										
SAMPLE ANALYSIS	Total Chloride by Bomb Combustion	VOA - 8260A (TCL)										

Sample No.	Matrix *	Sample Date	Sample Time									
B0WV21	Other Solid	10.28.99	1020	X	X							BOWV41
B0WV22	Other Solid	10.28.99	1130	X	X							BOWV42
B0WV23	Other Solid	10.28.99	1225	X	X							BOWV43
B0WV24	Other Solid	10.28.99	1300	X	X							BOWV44
~~BOWX44~~ RF 10-28	other solid 99											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	10-28-99 1500	Ref 2.C	10-28-99 1500
Ref 2.C	11.02.99/10.40	R. Thoren / Rikki Thoren	11.02.99/1840
R. Thoren / Rikki Thoren	11-2-99/1430	FEDEX	
FedEx		Janson	11/3/99 0930

SPECIAL INSTRUCTIONS

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

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