H0861

0053645

Recra LabNet Philadelphia
208 Welsh Pool Road
Lionville, PA19341-1333
Analytical Report

~~**Client:** TNU-HANFORD B99-093~~ ~~**W.O. #:** 10985-001-001-9999-00~~
RFW #: 0006L485 **Date Received:** 06-02-2000
SDG/SAF #: H0861/B99-093

RECEIVED
SEP 07 2000
EDMC

GC/MS VOLATILE

Nine (9) solid (logged as soil) samples were collected on 06-01-2000.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260B for the TCL Volatile target compounds on 06-13,14-2000.

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 the analysis was met.

3. Non-target compounds were detected for in the samples.

4. All samples required medium level analysis and additional dilution due to high levels of target compounds.

5. All surrogate recoveries were within EPA QC limits.

6. All matrix spike recoveries were within EPA QC limits.

   All blank spike recoveries were within EPA QC limits.

   The target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

7. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

by J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

JUL 2000 RECEIVED

07-10-00
Date

som\group\data\voa\tnu-hanford-06-485.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 2 3 pages.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

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GLOSSARY OF VOA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.voa

Recra LabNet - Lionville Laboratory
Volatiles By GC/MS, Special List

Report Date: 07/05/00 08:13

RFW Batch Number: **0006L485** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 1a

	Cust ID:	B0XV76	B0XV77	B0XV78	B0XV79	B0XV80	B0XV80
Sample Information	RFW#:	001	002	003	004	005	005 MS
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	205	108	97.6	200	5.26	5.26
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
	Level:	MED	MED	MED	MED	MED	MED
Surrogate Recovery	1,2-Dichloroethane-d4	103 %	101 %	99 %	92 %	114 %	97 %
	Toluene-d8	98 %	97 %	98 %	94 %	105 %	94 %
	Bromofluorobenzene	104 %	101 %	101 %	95 %	108 %	94 %
Carbon Tetrachloride		3600000	1700000	1900000	4400000	110000	99000

	Cust ID:	B0XV80	B0XV81	B0XV82	B0XV83	B0XV84	VBLKDI
Sample Information	RFW#:	005 MSD	006	007	008	009	00LVX113-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	5.26	103	1050	211	205	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
	Level:	MED	MED	MED	MED	MED	MED
Surrogate Recovery	1,2-Dichloroethane-d4	96 %	98 %	100 %	95 %	104 %	102 %
	Toluene-d8	99 %	98 %	96 %	96 %	99 %	94 %
	Bromofluorobenzene	98 %	101 %	100 %	97 %	103 %	100 %
Carbon Tetrachloride		100000	2000000	0.13E+08	5500000	4500000	620 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
Volatiles By GC/MS, Special List

Report Date: 07/05/00 08:13

RFW Batch Number: **0006L485** Client: **TNU-HANFORD B99-093** Work Order: 10985001001 Page: 2a

Sample Information				
	Cust ID:	**VBLKDI BS**	**VBLKDQ**	**VBLKDQ BS**
	RFW#:	**00LVX113-MB1**	**00LVX112-MB1**	**00LVX112-MB1**
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
	Level:	MED	MED	MED

Surrogate Recovery							
1,2-Dichloroethane-d4	101	%	97	%	100	%	
Toluene-d8	93	%	98	%	102	%	
Bromofluorobenzene	99	%	103	%	107	%	
Carbon Tetrachloride	620	U	620	U	620	U	

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV76

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-001

Sample wt/vol: 3.90 (g/mL) G Lab File ID: x061414

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 23 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 205

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.978	400000	NJ

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV77

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-002

Sample wt/vol: 3.70 (g/mL) G Lab File ID: x061416

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 11 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 108

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.977	90000	NJ

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV78

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-003

Sample wt/vol: 4.10 (g/mL) G Lab File ID: x061318

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 17 Date Analyzed: 06/13/00

Column: (pack/cap) CAP Dilution Factor: 97.6

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	12.007	80000	NJ
2.	UNKNOWN	15.108	100000	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV79

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-004

Sample wt/vol: 4.00 (g/mL) G Lab File ID: x061407

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 15 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 200

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.979	300000	NJ
2. 67663	CHLOROFORM	15.090	300000	NJ

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV80

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-005

Sample wt/vol: 3.80 (g/mL) G Lab File ID: x061412

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 20 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 5.26

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.978	10000	NJ

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV81

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-006

Sample wt/vol: 3.90 (g/mL) G Lab File ID: x061319

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 3 Date Analyzed: 06/13/00

Column: (pack/cap) CAP Dilution Factor: 103

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.987	80000	NJ
2. 67663	CHLOROFORM	15.118	100000	NJ

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV82

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-007

Sample wt/vol: 3.80 (g/mL) G Lab File ID: x061413

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 20 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 1050

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.977	2000000	NJ

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV83

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-008

Sample wt/vol: 3.80 (g/mL) G Lab File ID: x061408

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 19 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 211

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.989	400000	NJ
2. 67663	CHLOROFORM	15.110	200000	NJ

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0XV84

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 0006L485-009

Sample wt/vol: 3.90 (g/mL) G Lab File ID: x061415

Level: (low/med) MED Date Received: 06/02/00

% Moisture: not dec. 19 Date Analyzed: 06/14/00

Column: (pack/cap) CAP Dilution Factor: 205

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75092	METHYLENE CHLORIDE	11.979	400000	NJ

FORM 1 VOA-TIC 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKDI

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 00LVX113-MB1

Sample wt/vol: 4.00 (g/mL) G Lab File ID: x061406

Level: (low/med) MED Date Received: 06/14/00

% Moisture: not dec. 0 Date Analyzed: 06/14/00

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

Number TICs found: 0

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

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

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKDQ

Lab Name: Recra.LabNet Contract: 10985001001

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

Matrix: (soil/water) SOIL Lab Sample ID: 00LVX112-MB1

Sample wt/vol: 4.00 (g/mL) G Lab File ID: x061310

Level: (low/med) MED Date Received: 06/13/00

% Moisture: not dec. 0 Date Analyzed: 06/13/00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.181	900	J

FORM 1 VOA-TIC 1/87 Rev.

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 06L485

Matrix Spike - EPA Sample No.: B0XV80 Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	41252		27697	67	59-172
Trichloroethene	41252		39223	95	62-137
Benzene	41252		38069	92	66-142
Toluene	41252		38367	93	59-139
Chlorobenzene	41252		38755	94	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	41252	29873	72	7	22	59-172
Trichloroethene	41252	40007	97	2	24	62-137
Benzene	41252	38265	93	1	21	66-142
Toluene	41252	40664	98	5	21	59-139
Chlorobenzene	41252	41385	100	6	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

3B
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 06L485

Matrix Spike - EPA Sample No.: VBLKDQ Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	6250.0	0.0000	5607.6	90	61-145
Trichloroethene	6250.0	0.0000	6381.8	102	71-120
Benzene	6250.0	0.0000	6314.8	101	76-127
Toluene	6250.0	0.0000	6484.9	104	76-125
Chlorobenzene	6250.0	0.0000	6644.4	106	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

3B
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 06L485

Matrix Spike - EPA Sample No.: VBLKDI Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	6250.0	0.0000	4237.1	68	61-145
Trichloroethene	6250.0	0.0000	6157.8	98	71-120
Benzene	6250.0	0.0000	5857.7	94	76-127
Toluene	6250.0	0.0000	5720.8	92	76-125
Chlorobenzene	6250.0	0.0000	5961.5	95	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

Recra LabNet - Lionville Laboratory

VOA ANALYTICAL DATA PACKAGE FOR

TNU-HANFORD B99-093

DATE RECEIVED: 06/02/00 RFW LOT # :0006L485

CLIENT ID	RFW #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XV76	001	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV77	002	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV78	003	M1	S	00LVX112	06/01/00	N/A	06/13/00
B0XV79	004	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV80	005	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV80	005 MS	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV80	005 MSD	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV81	006	M1	S	00LVX112	06/01/00	N/A	06/13/00
B0XV82	007	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV83	008	M1	S	00LVX113	06/01/00	N/A	06/14/00
B0XV84	009	M1	S	00LVX113	06/01/00	N/A	06/14/00

LAB QC:

VBLKDI	MB1		S	00LVX113	N/A	N/A	06/14/00
VBLKDI	MB1 BS		S	00LVX113	N/A	N/A	06/14/00
VBLKDQ	MB1		S	00LVX112	N/A	N/A	06/13/00
VBLKDQ	MB1 BS		S	00LVX112	N/A	N/A	06/13/00

2

RECRA LabNet Use Only
0006L485

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (9) GCMS

RECRA LabNet

Client TNU HANFORD SAF# B99-93

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 6-2-00 Date Due 7-2-00

Account #

Refrigerator #		1
#/Type Container	Liquid	
	Solid	1AG
Volume	Liquid	
	Solid	250
Preservatives		–

ANALYSES REQUESTED → ORGANIC: TCL VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	~~0624H~~ 6-5-00	0624X							1%MST				
001	BOX V 76			SO	6/1/00	0907	1								✓				
002	77					0928	1								✓				
003	78					0950	1								✓				
004	79					0935	1								✓				
005	80					1004	1								✓				
006	81					0922	1								✓				
007	82					0943	1								✓				
008	83					0915	1								✓				
009	84					0958	1								✓				

Special Instructions:

DATE/REVISIONS:

6-5-00 1. 0624H changed to 0624X

2. % MOISTURE - 1%MST added

3.

4.

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See Below

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 4.0 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	6/2/00	1945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7953 6173

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B99-093-11	Page 1 of 2
Collector: TM Johansen	Company Contact: VJ Rohay	Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 9N; Data Turnaround: 45 Days
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200W		SAF No.: B99-093	Air Quality ☐
Ice Chest No.: ERC 99-067	Field Logbook No.: EL-1516	COA: R20ZP2DP60	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A000221		Bill of Lading/Air Bill No.: 42357953-6173	

POSSIBLE SAMPLE HAZARDS/REMARKS: NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	VOA - 8260A (TCL) (Carbon tetrachloride)										

	Sample No.	Matrix *	Sample Date	Sample Time										
1	B0XV76	Other Solid	06/01/00	0907	X									
2	B0XV77	Other Solid	06/01/00	0928	X									
3	B0XV78	Other Solid	06/01/00	0950	X									
4	B0XV79	Other Solid	06/01/00	0935	X									
5	B0XV80	Other Solid	06/01/00	1004	X									

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By: [signature]	Date/Time: 06/01/00 1130	Received By: R. Thoren	Date/Time: R. Thoren 6-1-00/1130
Relinquished By: R. Thoren	Date/Time: 6-1-00/1430	Received By: FED EX	Date/Time:
Relinquished By: FED EX	Date/Time: 6/2/00 0945	Received By: [signature]	Date/Time: 6/2/00 0945
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

Sample originated in non Rad Controlled area. <2000 pci/g. NO TA Required.

Matrix *: S=Soil, SE=Sediment, SO=Solid, S=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

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

(10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-093-11	Page 2 of 2

Collector: TM Johansen	Company Contact: VJ Rohay	Telephone No.: 372-9100	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200W	SAF No.: B99-093	
Ice Chest No.: ERC 99-067	Field Logbook No.: EL-1516	COA: R20ZP2DP60	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A000221	Bill of Lading/Air Bill No.: 42357953-6173	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	VOA - 8260A (TCL) (Carbon tetrachloride)										

	Sample No.	Matrix *	Sample Date	Sample Time										
6	B0XV81	Other Solid	06/01/00	0922	X									
7	B0XV82	Other Solid	06/01/00	0943	X									
8	B0XV83	Other Solid	06/01/00	0915	X									
9	B0XV84	Other Solid	06/01/00	0958	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: [illegible]	1130	Received By: R. Thoren	R. Thoren 6-1-00 / 1130
Relinquished By: R. Thoren	6-1-00 / 1430	Received By: FED EX	
Relinquished By: [illegible]	6/2/00 0945	Received By: [illegible]	6/2/00 0945
Relinquished By		Received By	
Relinquished By		Received By	
Relinquished By		Received By	

SPECIAL INSTRUCTIONS

Sample originated in non Rad controlled area. < 2000 pCi/g. NO TA Req

Matrix *: S=Soil, SE=Sediment, SO=Solid, S=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

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

BHI-EE-011 (10/99)

Recra LabNet Philadelphia
208 Welsh Pool Road
Lionville, PA 19341-1333

JUL 2000
RECEIVED

Analytical Report

Client : TNU-HANFORD B99-093
RFW# : 0006L485
SDG# : H0861
SAF# : B99-093

W.O. # : 10985-001-001-9999-00
Date Received: 06-02-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 9 water samples.

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

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

4. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

5. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

07-07-00
Date

njp\l06-485

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 10 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 Solids	__ 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)
Oxygen 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 Preparation Leach		__ 1312	
Paint Filter		9095A	

Other: **Method:**

Other: **Method**

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 06/15/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 0006L485

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0XV76	% Moisture	22.7	%	0.01	1.0
		% Solids	77.3	%	0.01	1.0
-002	B0XV77	% Moisture	11.0	%	0.01	1.0
		% Solids	89.0	%	0.01	1.0
-003	B0XV78	% Moisture	16.5	%	0.01	1.0
		% Solids	83.5	%	0.01	1.0
-004	B0XV79	% Moisture	15.5	%	0.01	1.0
		% Solids	84.5	%	0.01	1.0
-005	B0XV80	% Moisture	20.3	%	0.01	1.0
		% Solids	79.7	%	0.01	1.0
-006	B0XV81	% Moisture	3.2	%	0.01	1.0
		% Solids	96.8	%	0.01	1.0
-007	B0XV82	% Moisture	19.8	%	0.01	1.0
		% Solids	80.2	%	0.01	1.0
-008	B0XV83	% Moisture	19.4	%	0.01	1.0
		% Solids	80.6	%	0.01	1.0
-009	B0XV84	% Moisture	19.2	%	0.01	1.0
		% Solids	80.8	%	0.01	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 06/15/00

CLIENT: TNU-HANFORD B99-093 RECRA LOT #: 0006L485

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-009REP	B0XV84	% Moisture	19.2	18.8	2.0	1.0
		% Solids	80.8	81.2	0.47	1.0

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

DATE RECEIVED: 06/02/00 RFW LOT # :0006L485

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XV76						
% MOISTURE	001	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	001	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV77						
% MOISTURE	002	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	002	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV78						
% MOISTURE	003	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	003	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV79						
% MOISTURE	004	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	004	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV80						
% MOISTURE	005	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	005	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV81						
% MOISTURE	006	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	006	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV82						
% MOISTURE	007	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	007	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV83						
% MOISTURE	008	S	00L%S085	06/01/00	06/13/00	06/14/00

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

DATE RECEIVED: 06/02/00 RFW LOT # :0006L485

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
% SOLIDS	008	S	00L%S085	06/01/00	06/13/00	06/14/00
B0XV84						
% MOISTURE	009	S	00L%S085	06/01/00	06/13/00	06/14/00
% MOISTURE	009 REP	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	009	S	00L%S085	06/01/00	06/13/00	06/14/00
% SOLIDS	009 REP	S	00L%S085	06/01/00	06/13/00	06/14/00

RECRA LabNet Use Only
0006L485

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU HANFORD SAF# B99-93
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: 6-2-00 Date Due: 7-2-00
Account #:

Refrigerator #		1
#/Type Container	Liquid	
	Solid	1AG
Volume	Liquid	
	Solid	250
Preservatives		–

ANALYSES REQUESTED → ORGANIC: TCL VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	~~0624H~~ 6-5-00	0624X								1%MST					
001	BOX V 76			SO	6/1/00	0907	1									✓					
002	77					0928	1									✓					
003	78					0950	1									✓					
004	79					0935	1									✓					
005	80					1004	1									✓					
006	81					0922	1									✓					
007	82					0943	1									✓					
008	83					0915	1									✓					
009	84					0958	1									✓					

Special Instructions:

DATE/REVISIONS:
6-5-00 1. 0624H changed to 0624X
2. % MOISTURE - 1% MST added
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 4.0 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	6/2/00	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: 4235 7953 6173

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-093-11	Page 1 of 2

Collector: TM Johansen	Company Contact: VJ Rohay	Telephone No.: 372-9100	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200W	SAF No.: B99-093	
Ice Chest No.: ERC 99-067	Field Logbook No.: EL-1516	COA: R20ZP2DP60	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A000221		Bill of Lading/Air Bill No.: 42357953-6173

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	VOA - 8260A (TCL) (Carbon tetrachloride)										

	Sample No.	Matrix *	Sample Date	Sample Time										
1	B0XV76	Other Solid	06/01/00	0907	X									
2	B0XV77	Other Solid	06/01/00	0928	X									
3	B0XV78	Other Solid	06/01/00	0950	X									
4	B0XV79	Other Solid	06/01/00	0935	X									
5	B0XV80	Other Solid	06/01/00	1004	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	6/01/00 1130	R. Thoren	6-1-00/1130
R. Thoren	6-1-00/1430	FED EX	
FED EX	6/2/00 0945	[illegible]	6/2/00 0945

SPECIAL INSTRUCTIONS

Sample originated in non Rad Controlled area. < 2000 pCi/g. NO TA Required.

Matrix *
S=Soil
SE=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (10/99)

UUUUL 401

10

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-093-11	Page 2 of 2

Collector: TM Johansen	Company Contact: VJ Rohay	Telephone No.: 372-9100	Project Coordinator: TRENT, SJ
Price Code: 9N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200-ZP-2 Passive Soil Vapor Extraction - Other Solid	Sampling Location: 200W	SAF No.: B99-093	
Ice Chest No.: ERC 99-067	Field Logbook No.: EL-1516	COA: R20ZP2DP60	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A0000221		Bill of Lading/Air Bill No.: 42357953-6173

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	sG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	VOA - 8260A (TCL) (Carbon tetrachloride)										

	Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL) (Carbon tetrachloride)
6	B0XV81	Other Solid	06/01/00	0922	X
7	B0XV82	Other Solid	06/01/00	0943	X
8	B0XV83	Other Solid	06/01/00	0915	X
9	B0XV84	Other Solid	06/01/00	0958	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	06/01/00 1130	R. Thoren	R. Thoren 6-1-00 / 1130
R. Thoren	6-1-00 / 1430	FED EX	
FED EX	6/2/00 0945	[illegible]	6/2/00 0945

SPECIAL INSTRUCTIONS

Sample originated in non Rad controlled area. < 2000 pCi/g. NO TA Req

Matrix *
S=Soil
SE=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (10/99)

Form 24.0