0054705

H1181

JAN 2001 RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B112F0						
% SOLIDS	001	S	00L%S199	12/05/00	12/13/00	12/14/00
% SOLIDS	001 REP	S	00L%S199	12/05/00	12/13/00	12/14/00
NITRATE BY IC	001	S	00LXC080	12/05/00	12/15/00	12/15/00
NITRATE BY IC	001 REP	S	00LXC080	12/05/00	12/15/00	12/15/00
NITRATE BY IC	001 MS	S	00LXC080	12/05/00	12/15/00	12/15/00
TOTAL CYANIDE	001	S	00LC130	12/05/00	12/15/00	12/15/00
TOTAL CYANIDE	001 REP	S	00LC130	12/05/00	12/15/00	12/15/00
TOTAL CYANIDE	001 MS	S	00LC130	12/05/00	12/15/00	12/15/00
PHOSPHATE BY IC	001	S	00LYC080	12/05/00	12/15/00	12/15/00
PHOSPHATE BY IC	001 REP	S	00LYC080	12/05/00	12/15/00	12/15/00
PHOSPHATE BY IC	001 MS	S	00LYC080	12/05/00	12/15/00	12/15/00
SULFATE BY IC	001	S	00LYC080	12/05/00	12/15/00	12/15/00
SULFATE BY IC	001 REP	S	00LYC080	12/05/00	12/15/00	12/15/00
SULFATE BY IC	001 MS	S	00LYC080	12/05/00	12/15/00	12/15/00
AMMONIA	001	S	00LAM057	12/05/00	12/29/00	12/29/00
AMMONIA	001 REP	S	00LAM057	12/05/00	12/29/00	12/29/00
AMMONIA	001 MS	S	00LAM057	12/05/00	12/29/00	12/29/00
PH	001	S	00LPH101	12/05/00	12/13/00	12/13/00
SULFIDE	001	S	00LSDA58	12/05/00	12/10/00	12/10/00
B112D9						
% SOLIDS	002	S	00L%S199	12/05/00	12/13/00	12/14/00
NITRATE BY IC	002	S	00LXC080	12/05/00	12/15/00	12/15/00
TOTAL CYANIDE	002	S	00LC130	12/05/00	12/15/00	12/15/00
PHOSPHATE BY IC	002	S	00LYC080	12/05/00	12/15/00	12/15/00
SULFATE BY IC	002	S	00LYC080	12/05/00	12/15/00	12/15/00
AMMONIA	002	S	00LAM057	12/05/00	12/29/00	12/29/00
PH	002	S	00LPH101	12/05/00	12/13/00	12/13/00
SULFIDE	002	S	00LSDA58	12/05/00	12/10/00	12/10/00
SULFIDE	002 REP	S	00LSDA58	12/05/00	12/10/00	12/10/00
SULFIDE	002 MS	S	00LSDA58	12/05/00	12/10/00	12/10/00

LAB QC:

NITRATE BY IC	MB1	S	00LXC080	N/A	12/15/00	12/15/00

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Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	00LXC080	N/A	12/15/00	12/15/00
TOTAL CYANIDE	LCS L	S	00LC130	N/A	12/15/00	12/15/00
TOTAL CYANIDE	LCS L	S	00LC130	N/A	12/15/00	12/15/00
TOTAL CYANIDE	MB1	S	00LC130	N/A	12/15/00	12/15/00
PHOSPHATE BY IC	MB1	S	00LYC080	N/A	12/15/00	12/15/00
PHOSPHATE BY IC	MB1 BS	S	00LYC080	N/A	12/15/00	12/15/00
SULFATE BY IC	MB1	S	00LYC080	N/A	12/15/00	12/15/00
SULFATE BY IC	MB1 BS	S	00LYC080	N/A	12/15/00	12/15/00
AMMONIA	MB1	S	00LAM057	N/A	12/29/00	12/29/00
AMMONIA	MB1 BS	S	00LAM057	N/A	12/29/00	12/29/00
AMMONIA	MB1 BSD	S	00LAM057	N/A	12/29/00	12/29/00
SULFIDE	MB1	S	00LSDA58	N/A	12/10/00	12/10/00
SULFIDE	MB1 BS	S	00LSDA58	N/A	12/10/00	12/10/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-068 H1181
RFW# : 0012L534

W.O. # : 10985-001-001-9999-00
Date Received: 12-08-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

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

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

4. The cooler temperature was 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 for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike (MS) recoveries were within the 75-125% control limits with the exception of MS recovery for Ammonia which was above the control limit which may be attributed to sample inhomogeneity.

8. The replicate analyses were within the 20% RPD control limit with the exception of Nitrate and Sulfate: the replicate sample results for Nitrate and Sulfate were less than 10 times the reporting limits.

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

10. 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.

01-22-01
Date

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

njp\i12-534

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 14 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/9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
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 7.3/9030B	
Sulfide		✓ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		9095A	

Other: Nitrate, Phosphate, **Method:** EPA 300.0 (mod.)

Other: Sulfate **Method**

Ammonia EPA 350.3

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 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B112F0	% Solids	92.0	%	0.01	1.0
		Nitrate by IC	2.8	MG/KG	1.4	1.0
		Cyanide, Total	0.49 u	MG/KG	0.49	1.0
		Phosphate by IC	1.5	MG/KG	1.4	1.0
		Sulfate by IC	4.2	MG/KG	1.4	1.0
		Ammonia, as N	5.4 u	MG/KG	5.4	1.0
		pH	9.6	SOIL PH	0.01	1.0
		Sulfide	37.4 u	MG/KG	37.4	1.0
-002	B112D9	% Solids	87.9	%	0.01	1.0
		Nitrate by IC	1.4 u	MG/KG	1.4	1.0
		Cyanide, Total	0.54 u	MG/KG	0.54	1.0
		Phosphate by IC	1.6	MG/KG	1.4	1.0
		Sulfate by IC	5.7	MG/KG	1.4	1.0
		Ammonia, as N	29.0	MG/KG	5.7	1.0
		pH	9.4	SOIL PH	0.01	1.0
		Sulfide	42.8	MG/KG	42.8	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LXC080-MB1	Nitrate by IC	1.2	u	MG/KG	1.2	1.0
BLANK1	00LC130-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	00LYC080-MB1	Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LAM057-MB1	Ammonia, as N	5.0	u	MG/KG	5.0	1.0
BLANK10	00LSDA58-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

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INORGANICS ACCURACY REPORT 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B112F0	Nitrate by IC	28	2.8	27	92.6	1.0
		Cyanide, Total	5.1	0.49u	5.0	102.2	1.0
		Phosphate by IC	28.1	1.5	27.0	98.7	1.0
		Sulfate by IC	30.2	4.2	27.0	96.1	1.0
		Ammonia, as N	7.3	5.4 u	5.4	134.0	1.0
-002	B112D9	Sulfide	431	42.8	469	82.8	1.0
BLANK10	00LXC080-MB1	Nitrate by IC	24	1.2 u	25	96.8	1.0
BLANK10	00LYC080-MB1	Phosphate by IC	25.4	1.2 u	25.0	101.6	1.0
		Sulfate by IC	24.4	1.2 u	25.0	97.5	1.0
BLANK10	00LAM057-MB1	Ammonia, as N	180	5.0 u	200	90.0	1.0
		Ammonia, as N MSD	167	5.0 u	200	83.5	1.0
BLANK10	00LSDA58-MB1	Sulfide	381	40.0 u	418	91.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	00LAM057-MB1	Ammonia, as N	90.0	83.5	7.5

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B112F0	% Solids	92.0	95.7	3.9	1.0
		Nitrate by IC	2.8	2.2	24.4	1.0
		Cyanide, Total	0.49u	0.48u	NC	1.0
		Phosphate by IC	1.5	1.5	0.75	1.0
		Sulfate by IC	4.2	3.3	24.4	1.0
		Ammonia, as N	5.4 u	5.4 u	NC	1.0
-002REP	B112D9	Sulfide	42.8	44.3 u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/04/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	00LC130-LCS1	Cyanide, Total LCS	1.8	2.0	MG/KG	90.7
LCSS2	00LC130-LCS2	Cyanide, Total LCS	9.4	10	MG/KG	94.3

RECRA LabNet Use Only

0012L534

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

12

Client: TNU-Hanford B00-068

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-99990 0

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 12-8-00 Date Due: 12-29-00

Account #:

		A	B	C	D	E
Refrigerator #		1	5	5	5	5
#/Type Container	Liquid					
	Solid	1PG	1PG	1PG	1PG	1PG
Volume	Liquid					
	Solid	250	250	250	250	250
Preservatives		-	-	-	-	-

ANALYSES REQUESTED →

Matrix Codes	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	RECRA LabNet Use Only							
								0824H	0825H			RCRATO + DG		ICMS ICAH	ICSOH INHBN	ISFD ICNTO	IPH				
	001	B112F0			S	12500	1215	✓	✓			✓		✓	✓	✓	✓				
	002	1 D9			1	1	1125	✓	✓			✓		✓	✓	✓	✓				

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

Special Instructions: Saf B00-068
Run Matrix QC

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

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 5 °C

Relinquished by	Received by	Date	Time
FedEx	TBeppel	12800	1000

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL REWRITTEN

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

4235 7954 1161

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-114	Page 1 of 1

Collector	Company Contact: Dave Weeks Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L Data Turnaround: 21 Days Air Quality: [ ]
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling C3122	SAF No.: B00-068	
Ice Chest No.: ERC00-005Lab	Field Logbook No.: EL 1516 COA: JRCRA03200	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA TMT 12/05/00	Offsite Property No.: A010035	Bill of Lading/Air Bill No.: 4235 7953-1161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container			aG	aG	aG	aG	aG				
No. of Container(s)			1	1	1	1	1				
Volume			250mL	250mL	250mL	250mL	250mL				
SAMPLE ANALYSIS			See item (1) in Special Instructions	Semi-VOA - 8270A (TCL), Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	TIP TO:			
Sample No.	Matrix *	Sample Date	Sample Time								
B112F0	SOIL	12-5-00	1215	X	X	X	X	X	B1D20	10'	20000-00-0198

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	12-05-00 1417	R. Thoren	12.05.00 1417
R. Thoren	12.5.00 1430	[illegible]	12.5.00 1430
R. Thoren	12.7.00 0800	[illegible]	12.7.00 0800
R. Thoren	12.7.00 0800	FEDEX	
FedEx	12.8.00 1000	[illegible]	12.8.00 1000

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Nitrate, Phosphate, Sulfate}; Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010

(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) {Sodium}; Mercury - 7471 - (CV)

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)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-113	Page 1 of 1

Collector: M. Mandler	Company Contact: Dave Weeks; Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling; mT 133-0 C3312 C3331	SAF No.: B00-068	Air Quality ☐
Ice Chest No.: ERC00-0005 (1of1)	Field Logbook No.: EL 1516; COA: JRCRA03200	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA TMD/0-5-00	Offsite Property No.: A00035	Bill of Lading/Air Bill No.: 4255795 3-1161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS													
Preservation				Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container				aG	aG	aG	aG	aG					
No. of Container(s)				1	1	1	1	1					
Volume				250mL	250mL	250mL	250mL	250mL					
				See item (1) in Special Instructions	Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {m-Cresol}	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045					
Sample No.	Matrix *	Sample Date	Sample Time						Tie To:				
B112D9	SOIL	12-5-00	1125	X	X	X	X	X	B0W114	10'	200W-00-	0216	

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: [illegible] Date/Time 12/5/00 1417	Received By: R. Thorer Date/Time 12.5.00 1417	(1) IC Anions - 300.0 {Nitrate, Phosphate, Sulfate}; Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010	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
Relinquished By: R Thorer Date/Time 12.5.00 1430	Received By: [illegible] Date/Time 12.5.00 1430	(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) {Sodium}; Mercury - 7471 - (CV)	
Relinquished By: R. Thorer Date/Time 12.7.00 0800	Received By: Ref 2A 3725 12.7.00 0800		
Relinquished By: R Thorer Date/Time 12.7.00 0800	Received By: FEDEX Date/Time		
Relinquished By: FedEx 12-8-00 1000	Received By: Thepp 12-8-00 1000 Date/Time		
Relinquished By: Date/Time	Received By: Date/Time		

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

BHI-EE-011 (10/99)

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B112F0						
SILVER, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
SILVER, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
SILVER, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
ARSENIC, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
ARSENIC, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
ARSENIC, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
BARIUM, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
BARIUM, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
BARIUM, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
CADMIUM, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
CADMIUM, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
CADMIUM, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
CHROMIUM, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
CHROMIUM, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
CHROMIUM, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
MERCURY, TOTAL	001	S	00C0446	12/05/00	12/20/00	12/21/00
MERCURY, TOTAL	001 REP	S	00C0446	12/05/00	12/20/00	12/21/00
MERCURY, TOTAL	001 MS	S	00C0446	12/05/00	12/20/00	12/21/00
SODIUM, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
SODIUM, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
SODIUM, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
LEAD, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
LEAD, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
LEAD, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
SELENIUM, TOTAL	001	S	99L1813	12/05/00	12/14/00	12/19/00
SELENIUM, TOTAL	001 REP	S	99L1813	12/05/00	12/14/00	12/19/00
SELENIUM, TOTAL	001 MS	S	99L1813	12/05/00	12/14/00	12/19/00
B112D9						
SILVER, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
ARSENIC, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
BARIUM, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
CADMIUM, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
CHROMIUM, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	002	S	00C0446	12/05/00	12/20/00	12/21/00
SODIUM, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
LEAD, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00
SELENIUM, TOTAL	002	S	99L1813	12/05/00	12/14/00	12/19/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
SILVER, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
ARSENIC LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
ARSENIC, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
BARIUM LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
BARIUM, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
CADMIUM LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
CADMIUM, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
CHROMIUM LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
CHROMIUM, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
MERCURY LABORATORY	LC1 BS	S	00C0446	N/A	12/20/00	12/21/00
MERCURY, TOTAL	MB1	S	00C0446	N/A	12/20/00	12/21/00
SODIUM LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
SODIUM, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
LEAD LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
LEAD, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00
SELENIUM LABORATORY	LC1 BS	S	99L1813	N/A	12/14/00	12/19/00
SELENIUM, TOTAL	MB1	S	99L1813	N/A	12/14/00	12/19/00

RECRA
ENVIRONMENTAL
INC.
Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-068
RFW#: 0012L534
SDG/SAF#: H1181/B00-068

W.O.#: 10985-001-001-9999-00
Date Received: 12-08-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

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

3. All analyses were performed within the required holding times.

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the final CCV for Silver. There is no significant impact to the data as all samples are surrounded by CCVs that were in control.

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

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

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. 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.

for Pat E

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

gmb/m12-534

01-09-01
Date

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0012L534.

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/02/01

CLIENT: TNUHANFORD B00-068 H1181

RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B112F0	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	5.0	MG/KG	0.24	1.0
		Barium, Total	64.6	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	6.1	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Sodium, Total	477	MG/KG	0.42	1.0
		Lead, Total	4.3	MG/KG	0.21	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
-002	B112D9	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	5.0	MG/KG	0.24	1.0
		Barium, Total	72.8	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	7.5	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Sodium, Total	378	MG/KG	0.42	1.0
		Lead, Total	5.9	MG/KG	0.21	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/02/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1813-MB1	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.24 u	MG/KG	0.24	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.09	MG/KG	0.06	1.0
		Sodium, Total	1.4	MG/KG	0.41	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0
BLANK1	00C0446-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/02/01

CLIENT: TNUHANFORD B00-068 H1181

RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B112F0	Silver, Total	4.5	0.11u	5.1	88.2	1.0
		Arsenic, Total	196	5.0	203	94.0	1.0
		Barium, Total	251	64.6	203	91.8	1.0
		Cadmium, Total	4.7	0.03u	5.1	92.2	1.0
		Chromium, Total	26.7	6.1	20.3	101.5	1.0
		Mercury, Total	0.20	0.02u	0.18	116.0	1.0
		Sodium, Total	2910	477	2540	95.9	1.0
		Lead, Total	51.7	4.3	50.8	93.3	1.0
		Selenium, Total	188	0.34u	203	92.3	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/02/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B112F0	Silver, Total	0.11u	0.11u	NC	1.0
		Arsenic, Total	5.0	5.4	7.7	1.0
		Barium, Total	64.6	93.6	36.7	1.0
		Cadmium, Total	0.03u	0.03u	NC	1.0
		Chromium, Total	6.1	7.2	16.5	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Sodium, Total	477	503	5.3	1.0
		Lead, Total	4.3	4.7	8.9	1.0
		Selenium, Total	0.34u	0.34u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/02/01

CLIENT: TNUHANFORD B00-068 H1181 RECRA LOT #: 0012L534

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1813-LC1	Silver, LCS	48.8	50.0	MG/KG	97.6
		Arsenic, LCS	959	1000	MG/KG	95.9
		Barium, LCS	488	500	MG/KG	97.6
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
		Chromium, LCS	49.8	50.0	MG/KG	99.6
		Sodium, LCS	2370	2500	MG/KG	94.7
		Lead, LCS	242	250	MG/KG	97.0
		Selenium, LCS	945	1000	MG/KG	94.5
LCS1	00C0446-LC1	Mercury, LCS	0.81	0.7	MG/KG	114.3

RECRA LabNet Use Only

B012L534

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

AU

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B00-068

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-99990 U

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 12-8-00 Date Due: 12-29-00

Account #:

		A	B	C	D	E
Refrigerator #		1	5	5	5	5
#/Type Container	Liquid					
	Solid	1AG	1AG	1AG	1AG	1AG
Volume	Liquid					
	Solid	250	250	250	250	250
Preservatives		–	–	–	–	–
ANALYSES REQUESTED		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	INORG: Metal / INORG: 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	8240H	8250H						RCRA TC + TCG		ICP3	ICP4	ICS04	INHOC	ISFD	ICNTO	IPH		
001	B112E0			S	12500	1215	✓	✓						✓		✓	✓	✓	✓	✓	✓		
002	1 D9			1	1	1125	✓	✓						✓		✓	✓	✓	✓	✓	✓		

Special Instructions: Saf B00-068

Run Matrix QC

DATE/REVISIONS:

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

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 5 °C

Relinquished by	Received by	Date	Time
FedEx	TBoppel	12800	1000

Relinquished by	Received by	Date	Time

COMPOSITE ORIGINAL

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

4235 7954 1161

12

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-114	Page 1 of 1

Collector	Company Contact: Dave Weeks; Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling C3122	SAF No.: B00-068	Air Quality [ ]
Ice Chest No.: ERC00-005 (of)	Field Logbook No.: EL 5116; COA: JRCRA03200	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA TMT 12/05/00	Offsite Property No.: A010035	Bill of Lading/Air Bill No.: 4235579531161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container			aG	aG	aG	aG	aG				
No. of Container(s)			1	1	1	1	1				
Volume			250mL	250mL	250mL	250mL	250mL				
SAMPLE ANALYSIS			See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL). Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	TIE TO:			
Sample No.	Matrix *	Sample Date	Sample Time								
B112F0	SOIL	12-5-00	1215	X	X	X	X	X	B1B00	10'	20000-00-0198

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: [signature] Date/Time: 12-05-00 1417	Received By: R. Thoren Date/Time: 12.05.00 1417	(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010	S=Soil
Relinquished By: R. Thoren Date/Time: 12.5.00 1430	Received By: [signature] Date/Time: 12.5.00 1430	(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)	SE=Sediment
Relinquished By: [signature] Date/Time: 12.7.00 0800	Received By: R. Thoren Date/Time: 12.7.00 0800		SO=Solid
Relinquished By: R. Thoren Date/Time: 12.7.00 0800	Received By: FEDEX Date/Time:		S=Sludge
Relinquished By: FEDEX 12800 1000 Date/Time:	Received By: [signature] 12800 1000 Date/Time:		W=Water
Relinquished By: Date/Time:	Received By: Date/Time:		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)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-113	Page 1 of 1

Collector: M Thornden	Company Contact: Dave Weeks; Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling; MT 12-5-00 C3372 C3371	SAF No.: B00-068	Air Quality: [ ]
Ice Chest No.: ERC00-005 (1of1)	Field Logbook No.: CC 1516; COA: JRCRA03200	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA MT 12-5-00	Offsite Property No.: A010035	Bill of Lading/Air Bill No.: 4235 7953 1161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None					
Type of Container	aG	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL), Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	Tie To:				

Sample No.	Matrix *	Sample Date	Sample Time										
B112D9	SOIL	12-5-00	1125	X	X	X	X	X	B0YW04	10'	200W	-00-	0216

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: M Thornden; Date/Time: 12/05/00 1417	Received By: R. Thorne; Date/Time: 1417 12.5.00	(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010	S=Soil
Relinquished By: R Thorne; Date/Time: 1430 12.5.00	Received By: STORED IN Ref 2A 3725 12.5.00	(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)	SE=Sediment
RT 12.7.00 Relinquished By: Removed from Ref 2A 3725 12.7.00	Received By: R Thorne; Date/Time: 0900 12.7.00		SO=Solid
Relinquished By: R Thorne; Date/Time: 0900 12.7.00	Received By: FEDEX; Date/Time:		S=Sludge
Relinquished By: FEDEX; Date/Time: 12.8.00 1000	Received By: Thappel; Date/Time: 12.8.00 1000		W=Water
Relinquished By:	Received By:		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 - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B112F0	001	S	00LE1627	12/05/00	12/11/00	12/29/00
B112F0	001 MS	S	00LE1627	12/05/00	12/11/00	12/29/00
B112F0	001 MSD	S	00LE1627	12/05/00	12/11/00	12/29/00
B112D9	002	S	00LE1627	12/05/00	12/11/00	12/29/00
LAB QC:						
SBLKJZ	MB1	S	00LE1627	N/A	12/11/00	12/19/00
SBLKJZ	MB1 BS	S	00LE1627	N/A	12/11/00	12/19/00

JAN 2001
RECEIVED

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-068
RFW #: 0012L534
SDG/SAF #: H1181/B00-068

W.O. #: 10985-001-001-9999-00
Date Received: 12-08-2000

SEMIVOLATILE

Two (2) soil samples were collected on 12-05-2000.

The samples and their associated QC samples were extracted on 12-11-2000 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 12-19,29-2000.

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

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

2. The samples were extracted and analyzed within required holding times.

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

4. All surrogate recoveries were within acceptance criteria.

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

6. One (1) of twenty-two (22) matrix spike recoveries was outside EPA QC limits.

7. Internal standard area criteria were not met for samples B112F0 MS, B112F0 MSD and B112D9. The initial analysis fulfills the reanalysis requirement of B112F0 MS and B112F0 MSD. The GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate recoveries were within QC limits; consequently, sample B112D9 was not reanalyzed.

8. "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
V.P./Laboratory General Manager
Lionville Laboratory

01-19-01
Date

som\group\data\bna\tnu-hanford-12-534.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 1 2 pages.

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

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

mmz\10-94\gloss.bna

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 01/02/01 09:59

RFW Batch Number: **0012L534** Client: **TNUHANFORD B00-068 H1181** Work Order: 10985001001 Page: 1a

	Cust ID:	B112F0		B112F0		B112F0		B112D9		SBLKJZ		SBLKJZ BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		00LE1627-MB1		00LE1627-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	72	%	74	%	74	%	79	%	81	%	79	%
	2-Fluorobiphenyl	72	%	70	%	70	%	74	%	79	%	77	%
	Terphenyl-d14	89	%	94	%	91	%	94	%	106	%	108	%
	Phenol-d5	68	%	69	%	69	%	77	%	77	%	72	%
	2-Fluorophenol	62	%	65	%	64	%	69	%	76	%	73	%
	2,4,6-Tribromophenol	68	%	88	%	81	%	84	%	78	%	85	%
Phenol		360	U	63	%	61	%	380	U	330	U	73	%
bis(2-Chloroethyl)ether		360	U	360	U	360	U	380	U	330	U	330	U
2-Chlorophenol		360	U	77	%	72	%	380	U	330	U	74	%
1,3-Dichlorobenzene		360	U	360	U	360	U	380	U	330	U	330	U
1,4-Dichlorobenzene		360	U	75	%	74	%	380	U	330	U	68	%
1,2-Dichlorobenzene		360	U	360	U	360	U	380	U	330	U	330	U
2-Methylphenol		360	U	360	U	360	U	380	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		360	U	360	U	360	U	380	U	330	U	330	U
3- and/or 4-Methylphenol		360	U	360	U	360	U	380	U	330	U	330	U
N-Nitroso-di-n-propylamine		360	U	75	%	72	%	380	U	330	U	79	%
Hexachloroethane		360	U	360	U	360	U	380	U	330	U	330	U
Nitrobenzene		360	U	360	U	360	U	380	U	330	U	330	U
Isophorone		360	U	360	U	360	U	380	U	330	U	330	U
2-Nitrophenol		360	U	360	U	360	U	380	U	330	U	330	U
2,4-Dimethylphenol		360	U	360	U	360	U	380	U	330	U	330	U
bis(2-Chloroethoxy)methane		360	U	360	U	360	U	380	U	330	U	330	U
2,4-Dichlorophenol		360	U	360	U	360	U	380	U	330	U	330	U
1,2,4-Trichlorobenzene		360	U	70	%	68	%	380	U	330	U	75	%
Naphthalene		360	U	360	U	360	U	380	U	330	U	330	U
4-Chloroaniline		360	U	360	U	360	U	380	U	330	U	330	U
Hexachlorobutadiene		360	U	360	U	360	U	380	U	330	U	330	U
4-Chloro-3-methylphenol		360	U	81	%	73	%	380	U	330	U	76	%
2-Methylnaphthalene		360	U	360	U	360	U	380	U	330	U	330	U
Hexachlorocyclopentadiene		360	U	360	U	360	U	380	U	330	U	330	U
2,4,6-Trichlorophenol		360	U	360	U	360	U	380	U	330	U	330	U
2,4,5-Trichlorophenol		900	U	900	U	900	U	950	U	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0012L534** Client: **TNUHANFORD B00-068 H1181** Work Order: 10985001001 Page: 1b

Cust ID:	B112F0		B112F0		B112F0		B112D9		SBLKJZ		SBLKJZ BS	
RFW#:	001		001 MS		001 MSD		002		00LE1627-MB1		00LE1627-MB1	
2-Chloronaphthalene	360	U	360	U	360	U	380	U	330	U	330	U
2-Nitroaniline	900	U	900	U	900	U	950	U	830	U	830	U
Dimethylphthalate	360	U	360	U	360	U	380	U	330	U	330	U
Acenaphthylene	360	U	360	U	360	U	380	U	330	U	330	U
2,6-Dinitrotoluene	360	U	360	U	360	U	380	U	330	U	330	U
3-Nitroaniline	900	U	900	U	900	U	950	U	830	U	830	U
Acenaphthene	360	U	79	%	79	%	380	U	330	U	82	%
2,4-Dinitrophenol	900	U	900	U	900	U	950	U	830	U	830	U
4-Nitrophenol	900	U	101	%	88	%	950	U	830	U	71	%
Dibenzofuran	360	U	360	U	360	U	380	U	330	U	330	U
2,4-Dinitrotoluene	360	U	91 *	%	86	%	380	U	330	U	83	%
Diethylphthalate	360	U	360	U	360	U	380	U	330	U	330	U
4-Chlorophenyl-phenylether	360	U	360	U	360	U	380	U	330	U	330	U
Fluorene	360	U	360	U	360	U	380	U	330	U	330	U
4-Nitroaniline	900	U	900	U	900	U	950	U	830	U	830	U
4,6-Dinitro-2-methylphenol	900	U	900	U	900	U	950	U	830	U	830	U
N-Nitrosodiphenylamine (1)	360	U	360	U	360	U	380	U	330	U	330	U
4-Bromophenyl-phenylether	360	U	360	U	360	U	380	U	330	U	330	U
Hexachlorobenzene	360	U	360	U	360	U	380	U	330	U	330	U
Pentachlorophenol	900	U	90	%	85	%	950	U	830	U	85	%
Phenanthrene	360	U	360	U	360	U	380	U	330	U	330	U
Anthracene	360	U	360	U	360	U	380	U	330	U	330	U
Carbazole	360	U	360	U	360	U	380	U	330	U	330	U
Di-n-butylphthalate	360	U	360	U	360	U	380	U	330	U	330	U
Fluoranthene	360	U	360	U	360	U	380	U	330	U	330	U
Pyrene	360	U	73	%	71	%	380	U	330	U	96	%
Butylbenzylphthalate	360	U	360	U	360	U	380	U	330	U	330	U
3,3'-Dichlorobenzidine	360	U	360	U	360	U	380	U	330	U	330	U
Benzo(a)anthracene	360	U	360	U	360	U	380	U	330	U	330	U
Chrysene	360	U	360	U	360	U	380	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	35	J	92	J	30	J	380	U	330	U	330	U
Di-n-octyl phthalate	360	U	360	U	360	U	380	U	330	U	330	U
Benzo(b)fluoranthene	360	U	360	U	360	U	380	U	330	U	330	U
Benzo(k)fluoranthene	360	U	360	U	360	U	380	U	330	U	330	U
Benzo(a)pyrene	360	U	360	U	360	U	380	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	360	U	360	U	360	U	380	U	330	U	330	U
Dibenz(a,h)anthracene	360	U	360	U	360	U	380	U	330	U	330	U
Benzo(g,h,i)perylene	360	U	360	U	360	U	380	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B112F0

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: (soil/water) SOIL Lab Sample ID: 0012L534-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A122813

Level: (low/med) LOW Date Received: 12/08/00

% Moisture: 8 decanted: (Y/N)__ Date Extracted: 12/11/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/29/00

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.716	90	JAB
2.	ALDOL CONDENSATE	5.446	1000	JAB
3.	ALDOL CONDENSATE	6.780	200	JAB
4.	UNKNOWN	11.163	100	J
5.	UNKNOWN	23.256	90	J

7

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B112D9

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: (soil/water) SOIL Lab Sample ID: 0012L534-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A122816

Level: (low/med) LOW Date Received: 12/08/00

% Moisture: 12 decanted: (Y/N) __ Date Extracted: 12/11/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/29/00

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.723	100	JAB
2.	ALDOL CONDENSATE	5.453	2000	JAB
3.	ALDOL CONDENSATE	6.787	200	JAB
4.	UNKNOWN	22.269	100	J
5.	UNKNOWN	23.159	100	J
6.	UNKNOWN	23.258	90	J
7.	ALKANE	24.424	100	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKJZ

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: (soil/water) SOIL Lab Sample ID: 00LE1627-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D121905

Level: (low/med) LOW Date Received: 12/11/00

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 12/11/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/19/00

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.233	70	JA
2.	ALDOL CONDENSATE	7.946	1000	JA
3.	ALDOL CONDENSATE	9.294	100	JA

10

RECRA LabNet Use Only: 00121534

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B00-068
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-999900
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 12-8-00 Date Due: 12-29-00
Account #:

		A	B	C	D	E
Refrigerator #		1	5	5	5	5
#/Type Container	Liquid					
	Solid	1AG	1AG	1AG	1AG	1AG
Volume	Liquid					
	Solid	250	250	250	250	250
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	RCRA TO + DG	ICP03 ICP04	ICS01 ICH30	ISFD ICNTO	TPH
001	B112F0			S	12500	1215	✓	✓	✓	✓	✓	✓	✓
002	1 D9			1	1	1125	✓	✓	✓	✓	✓	✓	✓

Special Instructions: SAF B00-068
Run Matrix QC

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

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N
Cooler Temp. 5 °C

Relinquished by	Received by	Date	Time
FedEx	TBoppel	12800	1000

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

ORIGINAL DOCUMENT

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7954 1161

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-114	Page 1 of 1

Collector	Company Contact: Dave Weeks; Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling C3122	SAF No.: B00-068	Air Quality [ ]
Ice Chest No.: ERC00-005(d)	Field Logbook No.: EL 1516; COA: JRCRA03200	Method of Shipment: FED EX	
Shipped To: ~~TMA~~/RECRA TMT 12/05/00	Offsite Property No.: A010035	Bill of Lading/Air Bill No.: 4235 7953-1161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None						
Type of Container	aG	aG	aG	aG	aG						
No. of Container(s)	1	1	1	1	1						
Volume	250mL	250mL	250mL	250mL	250mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL), Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	TIE TO:					
Sample No.	Matrix *	Sample Date	Sample Time								
B112F0	SOIL	12-5-00	1215	X	X	X	X	X	B1D00	10'	200W-00-0198

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: [signature] Date/Time: 12-05-00 1417	Received By: R. Thoren Date/Time: 1417 12.05.00	(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010	S=Soil
Relinquished By: R. Thoren Date/Time: 1430 12.5.00	Received By: [signature] Date/Time: 1430 12.5.00	(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)	SE=Sediment
Relinquished By: [signature] Date/Time: 1800 12.7.00	Received By: R. Thoren Date/Time: 1800 12.7.00		SO=Solid
Relinquished By: R. Thoren Date/Time: 1800 12.7.00	Received By: FEDEX Date/Time:		S=Sludge
Relinquished By: FEDEX Date/Time: 12800 1000	Received By: [signature] Date/Time: 12800 1000		W=Water
Relinquished By: Date/Time:	Received By: Date/Time:		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)

12

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-068-113	Page 1 of 1
Collector: M Mansfield	Company Contact: Dave Weeks	Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling	mm 12-5-00 C3312 C3339	SAF No.: B00-068	Air Quality [ ]
Ice Chest No.: ERC00-005 (1 of 1)	Field Logbook No.: EC 1516	COA: JRCRA03200	Method of Shipment: FED EX	Data Turnaround: 21 Days
Shipped To: ~~TMA~~/RECRA TMM 12-5-00	Offsite Property No.: A010035		Bill of Lading/Air Bill No.: 4125579153-1161	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container			aG	aG	aG	aG	aG				
No. of Container(s)			1	1	1	1	1				
Volume			250mL	250mL	250mL	250mL	250mL				
SAMPLE ANALYSIS			See item (1) in Special Instructions	Semi-VOA - 8270A (TCL), Semi-VOA – 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	TIC TO:			
Sample No.	Matrix *	Sample Date	Sample Time								
B112D9	SOIL	12-5-00	1125	X	X	X	X	X	10'	2000-00-0216	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	M Mansfield	12/05/00 1417	R. Thorne	12.5.00 1417
Relinquished By	R Thorne	12.5.00 1430	Received By: STORED IN Bet-2A 3725	12.5.00 1430
Relinquished By	R. Thorne Bet-2A 3725	12.7.00 0800	Received By: R Thorne	12.7.00 0800
Relinquished By	R Thorne	12.7.00 0800	Received By: FEDEX	
Relinquished By: FedEx		12.8.00 1000	Received By: Thappel	12.8.00 1000
Relinquished By			Received By	

RT 12.7.00

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010

(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)

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 - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-068 H1181

DATE RECEIVED: 12/08/00 RFW LOT # :0012L534

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B112F0	001	S	00LVH548	12/05/00	N/A	12/18/00
B112F0	001 MS	S	00LVH548	12/05/00	N/A	12/18/00
B112F0	001 MSD	S	00LVH550	12/05/00	N/A	12/19/00
B112D9	002	S	00LVH566	12/05/00	N/A	12/29/00

LAB QC:

VBLKGH	MB1	S	00LVH548	N/A	N/A	12/18/00
VBLKGH	MB1 BS	S	00LVH548	N/A	N/A	12/18/00
VBLKGI	MB1	S	00LVH550	N/A	N/A	12/19/00
VBLKGI	MB1 BS	S	00LVH550	N/A	N/A	12/19/00
VBLKGJ	MB1	S	00LVH566	N/A	N/A	12/29/00
VBLKGJ	MB1 BS	S	00LVH566	N/A	N/A	12/29/00

JAN 2001
RECEIVED

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-068
RFW #: 0012L534
SDG/SAF #: H1181/B00-068

W.O. #: 10985-001-001-9999-00
Date Received: 12-08-2000

GC/MS VOLATILE

Two (2) soil samples were collected on 12-05-2000.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for client specified Volatile target compounds on 12-18,19,29-2000.

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 sample B112F0 was analyzed within holding time; however, sample B112D9 was inadvertently analyzed outside required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

4. All surrogate recoveries were within EPA QC limits.

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

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

7. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 2x the CRQL.

8. Internal standard area and retention time criteria were met.

9. "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
V.P./Laboratory General Manager
Lionville Laboratory

01-19-01
Date

som\group\data\vos\tnu-hanford-0012-534.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 1 8 pages.

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

RECRA Sample Discrepancy Report (SDR) SDR #: 00VT333

Initiator: Deb Kasdras Batch: 0012534 Parameter: 0624H
Date: 12/29/00 Samples: -001T, -002 Matrix: Soil
Client: INU Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 00LVH550

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) 12/29/01
~~-001T was run 1 day out of hold.~~ Sample -002 was never analyzed. It was missed by analyst

2. Known or Probable Causes(s) (To be used for trend analysis)

__ Lack of Organization
__ Lack of Training
__ Lack of Discipline
__ Lack of Resources
__ Lack of Time
__ Lack of Management Support
__ Other (Please explain):

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)

analyze -002 out of hold

4. Project Manager Instructions...signature/date: [signature] 12/29/00

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

5. Final Action...signature/date: [signature] 1/2/01 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 for distribution and filing.

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

L-WI-006/E-08/00

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

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 01/02/01 15:31

RFW Batch Number: **0012L534** Client: **TNUHANFORD B00-068 H1181** Work Order: 10985001001 Page: 1a

	Cust ID:	B112F0		B112F0		B112F0		B112D9		VBLKGH		VBLKGH BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		00LVH548-MB1		00LVH548-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.06		1.11		1.09		1.04		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	99	%	90	%	99	%	103	%	98	%	92	%
	Bromofluorobenzene	86	%	83	%	79	%	85	%	85	%	80	%
	1,2-Dichloroethane-d4	95	%	93	%	94	%	88	%	89	%	88	%
Chloromethane		16		12	U	12	U	12	U	10	U	10	U
Bromomethane		12	U	12	U	12	U	12	U	10	U	10	U
Vinyl Chloride		12	U	12	U	12	U	12	U	10	U	10	U
Chloroethane		12	U	12	U	12	U	12	U	10	U	10	U
Methylene Chloride		13	B	15	B	13	B	9	B	5		6	B
Acetone		12	U	12	U	12	U	11	J	10	U	10	U
Carbon Disulfide		6	U	6	U	6	U	6	U	5	U	5	U
1,1-Dichloroethene		6	U	116	%	91	%	6	U	5	U	104	%
1,1-Dichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	6	U	5	U	5	U
Chloroform		6	U	6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
2-Butanone		12	U	12	U	12	U	12	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	5	U	5	U
Bromodichloromethane		6	U	6	U	6	U	6	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	5	U	5	U
Trichloroethene		6	U	88	%	87	%	6	U	5	U	92	%
Dibromochloromethane		6	U	6	U	6	U	6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
Benzene		6	U	93	%	96	%	6	U	5	U	96	%
Trans-1,3-Dichloropropene		6	U	6	U	6	U	6	U	5	U	5	U
Bromoform		6	U	6	U	6	U	6	U	5	U	5	U
4-Methyl-2-pentanone		12	U	12	U	12	U	12	U	10	U	10	U
2-Hexanone		12	U	12	U	12	U	12	U	10	U	10	U
Tetrachloroethene		6	U	6	U	6	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	6	U	5	U	5	U
Toluene		6	U	94	%	102	%	1	J	5	U	99	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0012L534** Client: **TNUHANFORD B00-068 H1181** Work Order: 10985001001 Page: 1b

Cust ID:	B112F0	B112F0	B112F0	B112D9	VBLKGH	VBLKGH BS
RFW#:	001	001 MS	001 MSD	002	00LVH548-MB1	00LVH548-MB1
Chlorobenzene	6 U	93 %	101 %	6 U	5 U	97 %
Ethylbenzene	6 U	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 01/02/01 15:31

RFW Batch Number: **0012L534** Client: **TNUHANFORD B00-068 H1181** Work Order: 10985001001 Page: 2a

	Cust ID:	**VBLKGI**		**VBLKGI BS**		**VBLKGJ**		**VBLKGJ BS**	
Sample Information	RFW#:	**00LVH550-MB1**		**00LVH550-MB1**		**00LVH566-MB1**		**00LVH566-MB1**	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	116	%	100	%	98	%	96	%
	Bromofluorobenzene	90	%	78	%	87	%	86	%
	1,2-Dichloroethane-d4	88	%	88	%	84	%	88	%
Chloromethane		10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U
Methylene Chloride		7		8	B	3	J	3	JB
Acetone		10	U	10	U	10	U	38	
Carbon Disulfide		5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	88	%	5	U	77	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U
Trichloroethene		5	U	86	%	5	U	95	%
Dibromochloromethane		5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U
Benzene		5	U	95	%	5	U	100	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U
Toluene		5	U	104	%	5	U	106	%

*= Outside of EPA CLP QC limits.

Cust ID:	**VBLKGI**	**VBLKGI BS**	**VBLKGJ**	**VBLKGJ BS**
RFW#:	**00LVH550-MB1**	**00LVH550-MB1**	**00LVH566-MB1**	**00LVH566-MB1**
Chlorobenzene	5 U	103 %	5 U	103 %
Ethylbenzene	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B112F0

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: SOIL Lab Sample ID: 0012L534-001

Sample wt/vol: 4.70 (g/mL) G Lab File ID: h121817

Level: (low/med) LOW Date Received: 12/08/00

% Moisture: not dec. 8 Date Analyzed: 12/18/00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	22.355	20	J

FORM 1 VOA-TIC 12/88 Rev.

N

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B112D9

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: SOIL Lab Sample ID: 0012L534-002

Sample wt/vol: 4.80 (g/mL) G Lab File ID: h122918

Level: (low/med) LOW Date Received: 12/08/00

% Moisture: not dec. 12 Date Analyzed: 12/29/00

Column: (pack/cap) CAP Dilution Factor: 1.04

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.103	20	J
2.	SILOXANE	22.305	20	J
3.	UNKNOWN	25.563	10	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKGH

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: SOIL Lab Sample ID: 00LVH548-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h121806

Level: (low/med) LOW Date Received: 12/18/00

% Moisture: not dec. 0 Date Analyzed: 12/18/00

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 12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKGI

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: SOIL Lab Sample ID: 00LVH550-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h121910

Level: (low/med) LOW Date Received: 12/19/00

% Moisture: not dec. 0 Date Analyzed: 12/19/00

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 12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKGJ

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNUHANFORD B00-068 H1181

Matrix: SOIL Lab Sample ID: 00LVH566-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h122905

Level: (low/med) LOW Date Received: 12/29/00

% Moisture: not dec. 0 Date Analyzed: 12/29/00

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 12/88 Rev.

15

RECRA LabNet Use Only

B012L534

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B00-068

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-99990 0

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 12-8-00 Date Due: 12-29-00

Account #:

		A	B	C	D	E
Refrigerator #		1	5	5	5	5
#/Type Container	Liquid					
	Solid	1PG	1PG	1PG	1PG	1PG
Volume	Liquid					
	Solid	250	250	250	250	250
Preservatives		-	-	-	-	-
ANALYSES REQUESTED		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	INORG: Metal / INORG: CN
RECRA LabNet Use Only		8240H	8270H	RCRA TC + TCLP	ICP03 ICP04 ICS04 INH3N ISFD ICNTO IPH	

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Metal	CN	ICP03	ICP04	ICS04	INH3N	ISFD	ICNTO	IPH
S - Soil	001	B112F0			S	12-5-00	1215	✓	✓			✓		✓	✓	✓	✓			
SE - Sediment	002	⊥ D9			⊥	⊥	1125	✓	✓			✓		✓	✓	✓	✓			
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																				

Special Instructions: Saf B00-068
Run Matrix QC

DATE/REVISIONS:

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

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 5 °C

Relinquished by	Received by	Date	Time
FedEx	Thoppel	12-8-00	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

4235 7954 1161

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-114	Page 1 of 1

Collector	Company Contact: Dave Weeks; Telephone No.: 372-9524	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling C3122	SAF No.: B00-068	Air Quality ☐
Ice Chest No.: ERC00-005 (ed)	Field Logbook No.: EL 5116	COA: JRCRA03200	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA TMT 12/05/00	Offsite Property No.: A010035		Bill of Lading/Air Bill No.: 4235 7953-116

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	None	None				
Type of Container			aG	aG	aG	aG	aG				
No. of Container(s)			1	1	1	1	1				
Volume			250mL	250mL	250mL	250mL	250mL				
SAMPLE ANALYSIS			See item (1) in Special Instructions	Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045	TIE TO:			
Sample No.	Matrix *	Sample Date	Sample Time								
B112F0	SOIL	12-5-00	1215	X	X	X	X	X	B1200	10'	2000-00-0198

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By		12-05-00 1417	R. Thoren	12.05.00 1417
Relinquished By	R Thoren	12.5.00 1430	R Thoren	12.5.00 1430
Relinquished By	R Thoren	12.7.00 0800	R Thoren	12.7.00 0800
Relinquished By	R Thoren	12.7.00 0800	FEDEX	
Relinquished By	FedEx	12.8.00 1000		
Relinquished By			Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010

(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)

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)

16

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-068-113	Page 1 of 1

Collector: M Thornsberry	Company Contact: Dave Weeks	Telephone No.: 372-9524	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality: [ ]	
Project Designation: 200 Area Groundwater Well Drilling Waste Designation for	Sampling Location: 200 Area Groundwater Drilling	SAF No.: B00-068	
Ice Chest No.: ERC00-0005 (1of1)	Field Logbook No.: EL 1516	COA: JRCRA03200	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA TMT 12-5-00	Offsite Property No.: A010035		Bill of Lading/Air Bill No.: 4255753-1161

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS													
			Preservation	Cool 4C	Cool 4C	Cool 4C	None	None					
			Type of Container	aG	aG	aG	aG	aG					
			No. of Container(s)	1	1	1	1	1					
			Volume	250mL	250mL	250mL	250mL	250mL					
				See item (1) in Special Instructions	Semi-VOA - 8270A (TCL). Semi-VOA -- 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	See item (2) in Special Instructions	pH (Soil) - 9045					
Sample No.	Matrix *	Sample Date	Sample Time						TIE TO:				
B112D9	SOIL	12-5-00	1125	X	X	X	X	X	B0W4H4	10'	200W-00-	0216	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By: M Thornsberry	Date/Time: 12/5/00 1417	Received By: R. Thorne	Date/Time: 12.5.00 1417
Relinquished By: R Thorne	Date/Time: 12.5.00 1430	Received By: STORED IN Ref-2A 3725	Date/Time: 12.5.00 1430
Relinquished By: R. Thorne Ref 2A 3725	Date/Time: 12.7.00 0800	Received By: R Thorne	Date/Time: 12.7.00 0800
Relinquished By: R Thorne	Date/Time: 12.7.00 0800	Received By: FEDEX	Date/Time:
Relinquished By: FedEx	Date/Time: 12-8-00 1000	Received By: Thappel	Date/Time: 12-8-00 1000
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Nitrate, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; Total Cyanide - 9010

(2) ICP Metals - 6010A (Supertrace); ICP Metals - 6010A (Supertrace Add-On) (Sodium); Mercury - 7471 - (CV)

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)