H1103

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Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

DATE RECEIVED: 10/20/00 RFW LOT # :0010L994

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10KX7						
% SOLIDS	001	S	00L%S168	10/17/00	10/23/00	10/24/00
% SOLIDS	001 REP	S	00L%S168	10/17/00	10/23/00	10/24/00
NITRITE BY IC	001	S	00LCC070	10/17/00	11/13/00	11/13/00
NITRITE BY IC	001 REP	S	00LCC070	10/17/00	11/13/00	11/13/00
NITRITE BY IC	001 MS	S	00LCC071	10/17/00	11/14/00	11/14/00
NITRATE BY IC	001	S	00LBC070	10/17/00	11/13/00	11/13/00
NITRATE BY IC	001 REP	S	00LBC070	10/17/00	11/13/00	11/13/00
NITRATE BY IC	001 MS	S	00LBC071	10/17/00	11/14/00	11/14/00
CHROMIUM VI	001	S	00LVI063	10/17/00	10/30/00	10/30/00
SULFATE BY IC	001	S	00LICZ70	10/17/00	11/13/00	11/13/00
SULFATE BY IC	001 REP	S	00LICZ70	10/17/00	11/13/00	11/13/00
SULFATE BY IC	001 MS	S	00LICZ71	10/17/00	11/14/00	11/14/00
NITRATE NITRITE	001	S	00LF3054	10/17/00	10/27/00	10/27/00
NITRATE NITRITE	001 REP	S	00LF3054	10/17/00	10/27/00	10/27/00
NITRATE NITRITE	001 MS	S	00LF3054	10/17/00	10/27/00	10/27/00
PH	001	S	00LPH090	10/17/00	10/23/00	10/23/00
PH	001 REP	S	00LPH090	10/17/00	10/23/00	10/23/00
B10KX8						
% SOLIDS	002	S	00L%S168	10/17/00	10/23/00	10/24/00
NITRITE BY IC	002	S	00LCC070	10/17/00	11/13/00	11/13/00
NITRATE BY IC	002	S	00LBC070	10/17/00	11/13/00	11/13/00
CHROMIUM VI	002	S	00LVI063	10/17/00	10/30/00	10/30/00
SULFATE BY IC	002	S	00LICZ70	10/17/00	11/13/00	11/13/00
NITRATE NITRITE	002	S	00LF3054	10/17/00	10/27/00	10/27/00
PH	002	S	00LPH090	10/17/00	10/23/00	10/23/00
B10KX9						
% SOLIDS	003	S	00L%S168	10/17/00	10/23/00	10/24/00
NITRITE BY IC	003	S	00LCC070	10/17/00	11/13/00	11/13/00
NITRATE BY IC	003	S	00LBC070	10/17/00	11/13/00	11/13/00
CHROMIUM VI	003	S	00LVI063	10/17/00	10/30/00	10/30/00
SULFATE BY IC	003	S	00LICZ70	10/17/00	11/13/00	11/13/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE NITRITE	003	S	00LF3054	10/17/00	10/27/00	10/27/00
PH	003	S	00LPH090	10/17/00	10/23/00	10/23/00
B10KY0						
% SOLIDS	004	S	00L%S168	10/17/00	10/23/00	10/24/00
NITRITE BY IC	004	S	00LCC070	10/17/00	11/13/00	11/13/00
NITRATE BY IC	004	S	00LBC070	10/17/00	11/13/00	11/13/00
CHROMIUM VI	004	S	00LVI063	10/17/00	10/30/00	10/30/00
CHROMIUM VI	004 REP	S	00LVI063	10/17/00	10/30/00	10/30/00
CHROMIUM VI	004 MS	S	00LVI063	10/17/00	10/30/00	10/30/00
CHROMIUM VI	004 MSD	S	00LVI063	10/17/00	10/30/00	10/30/00
SULFATE BY IC	004	S	00LICZ70	10/17/00	11/13/00	11/13/00
NITRATE NITRITE	004	S	00LF3054	10/17/00	10/27/00	10/27/00
PH	004	S	00LPH090	10/17/00	10/23/00	10/23/00

LAB QC:

NITRITE BY IC	MB1	S	00LCC070	N/A	11/13/00	11/13/00
NITRITE BY IC	MB1 BS	S	00LCC070	N/A	11/13/00	11/13/00
NITRITE BY IC	MB1	S	00LCC071	N/A	11/14/00	11/14/00
NITRITE BY IC	MB1 BS	S	00LCC071	N/A	11/14/00	11/14/00
NITRATE BY IC	MB1	S	00LBC070	N/A	11/13/00	11/13/00
NITRATE BY IC	MB1 BS	S	00LBC070	N/A	11/13/00	11/13/00
NITRATE BY IC	MB1	S	00LBC071	N/A	11/14/00	11/14/00
NITRATE BY IC	MB1 BS	S	00LBC071	N/A	11/14/00	11/14/00
CHROMIUM VI	MB1	S	00LVI063	N/A	10/30/00	10/30/00
CHROMIUM VI	MB1 BS	S	00LVI063	N/A	10/30/00	10/30/00
CHROMIUM VI	MB1 BSD	S	00LVI063	N/A	10/30/00	10/30/00
SULFATE BY IC	MB1	S	00LICZ70	N/A	11/13/00	11/13/00
SULFATE BY IC	MB1 BS	S	00LICZ70	N/A	11/13/00	11/13/00
SULFATE BY IC	MB1	S	00LICZ71	N/A	11/14/00	11/14/00
SULFATE BY IC	MB1 BS	S	00LICZ71	N/A	11/14/00	11/14/00
NITRATE NITRITE	MB1	S	00LF3054	N/A	10/27/00	10/27/00
NITRATE NITRITE	MB1 BS	S	00LF3054	N/A	10/27/00	10/27/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-054 H1103
RFW# : 0010L994

W.O. # : 10985-001-001-9999-00
Date Received: 10-20-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 4 soil samples.

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

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

4. The cooler 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.

7. The matrix spike recoveries were within the 75-125% control limits.

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

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.

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

12-3-00
Date

njp\i10-994

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 11 pages.

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

Recra LabNet Philadelphia

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile 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 7.3/9014	
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, Nitrite - Sulfate **Method:** EPA 300.0

Other: Nitrate Nitrite **Method** EPA 353.2

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 11/29/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10KX7	% Solids	97.9	%	0.01	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	25	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	6.6	MG/KG	1.3	1.0
		Nitrate Nitrite	6.2	MG/KG	0.19	1.0
		pH	9.0	SOIL PH	0.01	1.0
-002	B10KX8	% Solids	98.0	%	0.01	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	28	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	7.2	MG/KG	1.3	1.0
		Nitrate Nitrite	6.2	MG/KG	0.20	1.0
		pH	8.9	SOIL PH	0.01	1.0
-003	B10KX9	% Solids	99.9	%	0.01	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
		Sulfate by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
		pH	7.5	SOIL PH	0.01	1.0
-004	B10KY0	% Solids	96.7	%	0.01	1.0
		Nitrite by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate by IC	15	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	43.8	MG/KG	1.3	1.0
		Nitrate Nitrite	3.8	MG/KG	0.20	1.0
		pH	8.6	SOIL PH	0.01	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/29/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LCC070-MB1	Nitrite by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LCC071-MB1	Nitrite by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LBC070-MB1	Nitrate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LBC071-MB1	Nitrate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LVI063-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	00LICZ70-MB1	Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LICZ71-MB1	Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	00LF3054-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0

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INORGANICS ACCURACY REPORT 11/29/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10KX7	Nitrite by IC	53	1.3 u	51	104.1	2.0
		Nitrate by IC	84	25	51	114.5	2.0
		Sulfate by IC	60.0	6.6	51.0	104.8	2.0
		Nitrate Nitrite	11.4	6.2	5.1	101.6	2.0
-004	B10KY0	Soluble Chromium VI	4.5	0.41u	4.1	106.5	1.0
		Insoluble Chromium VI	1310	0.41u	1130	115.9	100
BLANK10	00LCC070-MB1	Nitrite by IC	25	1.2 u	25	101.5	1.0
BLANK10	00LCC071-MB1	Nitrite by IC	25	1.2 u	25	100.4	1.0
BLANK10	00LBC070-MB1	Nitrate by IC	25	1.2 u	25	99.3	1.0
BLANK10	00LBC071-MB1	Nitrate by IC	24	1.2 u	25	97.2	1.0
BLANK10	00LVI063-MB1	Soluble Chromium VI	4.3	0.40u	4.0	107.6	1.0
		Insoluble Chromium VI	1190	0.40u	1160	102.4	100
BLANK10	00LICZ70-MB1	Sulfate by IC	24.2	1.2 u	25.0	97.0	1.0
BLANK10	00LICZ71-MB1	Sulfate by IC	24.0	1.2 u	25.0	95.8	1.0
BLANK10	00LF3054-MB1	Nitrate Nitrite	5.3	0.20u	5.0	106.4	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/29/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10KX7	% Solids	97.9	97.9	0.00	1.0
		Nitrite by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	25	25	0.44	1.0
		Sulfate by IC	6.6	6.6	0.53	1.0
		Nitrate Nitrite	6.2	6.1	2.6	1.0
		pH	9.0	9.0	0.7	1.0
-004REP	B10KY0	Chromium VI	0.41u	0.41u	NC	1.0

RECRA LabNet Use Only
00101994

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B00-054
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OS
QC: Spec Del: Std TAT: 15 day
Date Rec'd: 10-20-00 Date Due: 11-4-00
Account #:

		A	B										
Refrigerator #		N	N										
#Type Container	Liquid												
	Solid	1PG	1PG										
Volume	Liquid												
	Solid	250	250										
Preservatives													
ANALYSES REQUESTED →		ORGANIC: VOA, BNA, Pest/PCB, Herb							INORG: Metal, CN				
RECRA LabNet Use Only									Mct ①		ICNa2 ICNa3	ICSOH INa2	ICRLO IPH

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	Mct ①	ICNa2 ICNa3	ICSOH INa2	ICRLO IPH
001	B10KX7			S	10-17-00	0929	✓	✓	✓	✓
002	X8						✓	✓	✓	✓
003	X9						✓	✓	✓	✓
004	Y0					0945	✓	✓	✓	✓

Special Instructions: Saf B00-054

Run Matrix QC

DATE/REVISIONS:
Mct ① 1. Sb, Ba, Be, Cd, Cr, Cu, Mn, Ni, Ag,
1 2. V, Zn, As, Pb, Se, Tl, Hg
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See back
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. 3.5 °C

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FedEx	TKoppel	10-20-00	0920	COMPOSITE!	ORIGINAL!		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7953 9060

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-054-059	Page 1 of 1

Collector: Kerkow/Shea	Company Contact: R Kerkow	Telephone No.: 372-2187	Project Coordinator: TRENT, SJ
Price Code: 8K	Data Turnaround: 15 days	Air Quality ☐	
Project Designation: 100-NR-1 TSD Sites R. A. Sampling - Soil	Sampling Location: 100N-NR-1	SAF No.: B00-054	
Ice Chest No.: 3M1-463 (1 of 1)	Field Logbook No.: EL-1524	COA: R120N22600	Method of Shipment: FED EX
Shipped To: ~~TMA~~/RECRA	Offsite Property No.: AP10008	Bill of Lading/Air Bill No.: 4235795 3 9860	

RK 10/16/00

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE Samples originated in non Rad Controlled area. <2000 pci/g. NO TA Required.

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C ~~None~~ pH 10/16/00									
Type of Container	G	G									
No. of Container(s)	1	1									
Volume	250mL	250mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions	See item (2) in Special Instructions *ADD pH(soil)									

Sample No.	Matrix *	Sample Date	Sample Time										
B10KX7	SOIL	10/17/00	0929	X	X								
B10KX8	SOIL	10/17/00	0929	X	X								
B10KX9	SOIL	10/17/00	0929	X	X								
B10KY0	SOIL	10/17/00	0945	X	X								

Samples stored in Ref.# 28 at the 3728 Shipping Facility on 10/17/00
Collector not available to relinquish samples on 10/19/00 for shipment. RT 10/19/00

CHAIN OF POSSESSION — Sign/Print Names DWS

Relinquished By	Date/Time	Received By	Date/Time
DWSHEA	10/17/00 1500	Fridge 2B	10/17/00 1500
Removed from Ref 2B 3728	10/19/00 0900	R L Thoren	10/19/00 0900
R L Thoren	10/19/00 0900	FED EX	
FedEx	10-20-00 0920	Thygul	10 20 00 0920

SPECIAL INSTRUCTIONS

Lab COA: R120N2-2F00, pH ASAP, Samples originated outside of a radiologically controlled area, a TA is not required.

(1) ICP Metals - 6010A (TAL) {Antimony, Barium, Beryllium, Cadmium, Chromium, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium}; Mercury - 7471 - (CV)
(2) IC Anions - 300.0 {Nitrate, Nitrite, Sulfate}; NO2/NO3 - 353.1; Chromium Hex - 7196
*ADD - pH(soil) - 9045

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)

DEC 2000
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

DATE RECEIVED: 10/20/00 RFW LOT # :0010L994

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10KX7						
SILVER, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
SILVER, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
SILVER, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
BERYLLIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
BERYLLIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
BERYLLIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
MERCURY, TOTAL	001	S	00C0370	10/17/00	11/10/00	11/13/00
MERCURY, TOTAL	001 REP	S	00C0370	10/17/00	11/10/00	11/13/00
MERCURY, TOTAL	001 MS	S	00C0370	10/17/00	11/10/00	11/13/00
MANGANESE, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
MANGANESE, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
MANGANESE, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
ANTIMONY, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
ANTIMONY, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

DATE RECEIVED: 10/20/00 RFW LOT # :0010L994

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	001	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	001 REP	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	001 MS	S	99L1692	10/17/00	11/08/00	11/09/00
B10KX8						
SILVER, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
BERYLLIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
MERCURY, TOTAL	002	S	00C0370	10/17/00	11/10/00	11/13/00
MANGANESE, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
ANTIMONY, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	002	S	99L1692	10/17/00	11/08/00	11/09/00
B10KX9						
SILVER, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

DATE RECEIVED: 10/20/00 RFW LOT # :0010L994

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
MERCURY, TOTAL	003	S	00C0370	10/17/00	11/10/00	11/13/00
MANGANESE, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
ANTIMONY, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	003	S	99L1692	10/17/00	11/08/00	11/09/00
B10KY0						
SILVER, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
ARSENIC, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
BARIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
BERYLLIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
CADMIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
CHROMIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
COPPER, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
MERCURY, TOTAL	004	S	00C0370	10/17/00	11/10/00	11/13/00
MANGANESE, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
NICKEL, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
LEAD, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
ANTIMONY, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
SELENIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
THALLIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
VANADIUM, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00
ZINC, TOTAL	004	S	99L1692	10/17/00	11/08/00	11/09/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
SILVER, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
ARSENIC LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-054 H1103

DATE RECEIVED: 10/20/00 RFW LOT # :0010L994

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
BARIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
BARIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
BERYLLIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
BERYLLIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
CADMIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
CADMIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
CHROMIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
CHROMIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
COPPER LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
COPPER, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
MERCURY LABORATORY	LC1 BS	S	00C0370	N/A	11/10/00	11/13/00
MERCURY, TOTAL	MB1	S	00C0370	N/A	11/10/00	11/13/00
MANGANESE LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
MANGANESE, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
NICKEL LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
NICKEL, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
LEAD LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
LEAD, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
ANTIMONY LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
ANTIMONY, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
SELENIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
SELENIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
THALLIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
THALLIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
VANADIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
VANADIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
ZINC LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
ZINC, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-054
RFW#: 0010L994
SDG/SAF#: H1103/B00-054

W.O.#: 10985-001-001-9999-00
Date Received: 10-20-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 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).

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. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

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 18 pages.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B10KX7	Antimony	500	95.3

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

13. 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.

14. 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
VP, Laboratory General Manager
Lionville Laboratory

12-6-00
Date

gmb/m10-994

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0010L994

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	10/6/10 ✓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:_____

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 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10KX7	Silver, Total	0.25	u	MG/KG	0.25	1.0
		Arsenic, Total	2.8	u	MG/KG	2.8	1.0
		Barium, Total	63.5		MG/KG	0.24	1.0
		Beryllium, Total	0.29		MG/KG	0.01	1.0
		Cadmium, Total	0.47	u	MG/KG	0.47	1.0
		Chromium, Total	7.8		MG/KG	0.34	1.0
		Copper, Total	15.1		MG/KG	0.28	1.0
		Mercury, Total	0.02		MG/KG	0.02	1.0
		Manganese, Total	331		MG/KG	0.12	1.0
		Nickel, Total	10.1		MG/KG	1.4	1.0
		Lead, Total	3.6		MG/KG	2.2	1.0
		Antimony, Total	2.6	u	MG/KG	2.6	1.0
		Selenium, Total	5.0	u	MG/KG	5.0	1.0
		Thallium, Total	5.1	u	MG/KG	5.1	1.0
		Vanadium, Total	50.9		MG/KG	0.37	1.0
		Zinc, Total	41.4		MG/KG	0.23	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10KX8	Silver, Total	0.26	u	MG/KG	0.26	1.0
		Arsenic, Total	2.9	u	MG/KG	2.9	1.0
		Barium, Total	69.0		MG/KG	0.25	1.0
		Beryllium, Total	0.31		MG/KG	0.01	1.0
		Cadmium, Total	0.47	u	MG/KG	0.47	1.0
		Chromium, Total	8.3		MG/KG	0.34	1.0
		Copper, Total	16.0		MG/KG	0.28	1.0
		Mercury, Total	0.02		MG/KG	0.02	1.0
		Manganese, Total	342		MG/KG	0.12	1.0
		Nickel, Total	9.8		MG/KG	1.4	1.0
		Lead, Total	4.7		MG/KG	2.2	1.0
		Antimony, Total	2.6	u	MG/KG	2.6	1.0
		Selenium, Total	5.1	u	MG/KG	5.1	1.0
		Thallium, Total	5.1	u	MG/KG	5.1	1.0
		Vanadium, Total	55.5		MG/KG	0.37	1.0
		Zinc, Total	44.6		MG/KG	0.24	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10KX9	Silver, Total	0.25	u	MG/KG	0.25	1.0
		Arsenic, Total	2.8	u	MG/KG	2.8	1.0
		Barium, Total	1.2		MG/KG	0.24	1.0
		Beryllium, Total	0.02		MG/KG	0.01	1.0
		Cadmium, Total	0.46	u	MG/KG	0.46	1.0
		Chromium, Total	0.33	u	MG/KG	0.33	1.0
		Copper, Total	0.28	u	MG/KG	0.28	1.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	3.6		MG/KG	0.11	1.0
		Nickel, Total	1.3	u	MG/KG	1.3	1.0
		Lead, Total	2.1	u	MG/KG	2.1	1.0
		Antimony, Total	2.6	u	MG/KG	2.6	1.0
		Selenium, Total	4.9	u	MG/KG	4.9	1.0
		Thallium, Total	5.0	u	MG/KG	5.0	1.0
		Vanadium, Total	0.36	u	MG/KG	0.36	1.0
		Zinc, Total	1.1		MG/KG	0.23	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10KY0	Silver, Total	0.26	u	MG/KG	0.26	1.0
		Arsenic, Total	2.9	u	MG/KG	2.9	1.0
		Barium, Total	81.9		MG/KG	0.25	1.0
		Beryllium, Total	0.32		MG/KG	0.01	1.0
		Cadmium, Total	0.53		MG/KG	0.48	1.0
		Chromium, Total	9.9		MG/KG	0.35	1.0
		Copper, Total	16.2		MG/KG	0.29	1.0
		Mercury, Total	0.04		MG/KG	0.02	1.0
		Manganese, Total	376		MG/KG	0.12	1.0
		Nickel, Total	12.6		MG/KG	1.4	1.0
		Lead, Total	4.3		MG/KG	2.2	1.0
		Antimony, Total	2.7	u	MG/KG	2.7	1.0
		Selenium, Total	5.1	u	MG/KG	5.1	1.0
		Thallium, Total	5.2	u	MG/KG	5.2	1.0
		Vanadium, Total	58.3		MG/KG	0.38	1.0
		Zinc, Total	50.9		MG/KG	0.24	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1692-MB1	Silver, Total	0.26	u	MG/KG	0.26	1.0
		Arsenic, Total	2.9	u	MG/KG	2.9	1.0
		Barium, Total	0.25	u	MG/KG	0.25	1.0
		Beryllium, Total	0.01	u	MG/KG	0.01	1.0
		Cadmium, Total	0.48	u	MG/KG	0.48	1.0
		Chromium, Total	0.35	u	MG/KG	0.35	1.0
		Copper, Total	0.29	u	MG/KG	0.29	1.0
		Manganese, Total	0.12	u	MG/KG	0.12	1.0
		Nickel, Total	1.4	u	MG/KG	1.4	1.0
		Lead, Total	2.2	u	MG/KG	2.2	1.0
		Antimony, Total	2.7	u	MG/KG	2.7	1.0
		Selenium, Total	5.2	u	MG/KG	5.2	1.0
		Thallium, Total	5.2	u	MG/KG	5.2	1.0
		Vanadium, Total	0.38	u	MG/KG	0.38	1.0
		Zinc, Total	0.24	u	MG/KG	0.24	1.0
BLANK1	00C0370-MB1	Mercury, Total	0.02	u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10KX7	Silver, Total	4.9	0.25u	4.9	100	1.0
		Arsenic, Total	187	2.8 u	195	95.9	1.0
		Barium, Total	264	63.5	195	103.2	1.0
		Beryllium, Total	5.0	0.29	4.9	96.2	1.0
		Cadmium, Total	4.3	0.47u	4.9	87.8	1.0
		Chromium, Total	27.4	7.8	19.5	100.5	1.0
		Copper, Total	40.2	15.1	24.3	103.3	1.0
		Mercury, Total	0.20	0.02	0.16	113.8	1.0
		Manganese, Total	380	331	48.6	102.3*	1.0
		Nickel, Total	57.1	10.1	48.6	96.7	1.0
		Lead, Total	49.2	3.6	48.6	93.8	1.0
		Antimony, Total	32.9	2.6 u	48.6	67.7	1.0
		Selenium, Total	182	5.0 u	195	93.7	1.0
		Thallium, Total	172	5.1 u	195	88.2	1.0
		Vanadium, Total	102	50.9	48.6	104.9	1.0
		Zinc, Total	89.6	41.4	48.6	99.2	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10KX7	Silver, Total	0.25u	0.25u	NC	1.0
		Arsenic, Total	2.8 u	2.8 u	NC	1.0
		Barium, Total	63.5	66.7	4.9	1.0
		Beryllium, Total	0.29	0.32	11.2	1.0
		Cadmium, Total	0.47u	0.47u	NC	1.0
		Chromium, Total	7.8	8.2	5.0	1.0
		Copper, Total	15.1	16.4	8.3	1.0
		Mercury, Total	0.02	0.02	15.4	1.0
		Manganese, Total	331	331	0.030	1.0
		Nickel, Total	10.1	10.6	4.8	1.0
		Lead, Total	3.6	4.7	26.5	1.0
		Antimony, Total	2.6 u	2.6 u	NC	1.0
		Selenium, Total	5.0 u	5.0 u	NC	1.0
		Thallium, Total	5.1 u	5.1 u	NC	1.0
		Vanadium, Total	50.9	51.3	0.78	1.0
		Zinc, Total	41.4	43.3	4.5	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/14/00

CLIENT: TNUHANFORD B00-054 H1103 RECRA LOT #: 0010L994

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1692-LC1	Silver, LCS	46.8	50.0	MG/KG	93.6
		Arsenic, LCS	949	1000	MG/KG	94.9
		Barium, LCS	496	500	MG/KG	99.3
		Beryllium, LCS	24.0	25.0	MG/KG	96.0
		Cadmium, LCS	22.3	25.0	MG/KG	89.2
		Chromium, LCS	47.8	50.0	MG/KG	95.6
		Copper, LCS	120	125	MG/KG	96.2
		Manganese, LCS	72.2	75.0	MG/KG	96.3
		Nickel, LCS	193	200	MG/KG	96.4
		Lead, LCS	238	250	MG/KG	95.0
		Antimony, LCS	282	300	MG/KG	94.0
		Selenium, LCS	956	1000	MG/KG	95.6
		Thallium, LCS	936	1000	MG/KG	93.6
		Vanadium, LCS	244	250	MG/KG	97.7
		Zinc, LCS	92.9	100	MG/KG	92.9
LCS1	00C0370-LC1	Mercury, LCS	0.69	0.7	MG/KG	96.6

RECRA LabNet Use Only: 0010L994

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B00-054
Est. Final Proj. Sampling Date:
Project #: 10985.001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OS
QC: Spec Del: Std TAT: 15 day
Date Rec'd: 10-20-00 Date Due: 11-4-00
Account #:

		A	B
Refrigerator #		N	N
#/Type Container	Liquid		
	Solid	1AG	1AG
Volume	Liquid		
	Solid	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	Metal ①	CN	ICAP2 ICAP3	ICSOH INAN2	ICRLO HH
001	B10KX7			S	10-17-00	0929	✓		✓	✓	✓
002	X8						✓		✓	✓	✓
003	X9						✓		✓	✓	✓
004	Y0					0945	✓		✓	✓	✓

Special Instructions: Saf B00-054

Run Matrix QC

DATE/REVISIONS:
Mrt ① 1. Sb, Ba, Be, Cd, Cr, Cu, Mn, Ni, Ag,
1 2. V, Zn, As, Pb, Se, Tl, Hg
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 Out Package (Y) or N
3) Present on Samp (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Presen Upon Sample Rec't (Y) or N
Cooler Temp. 3.5 °C

Relinquished by	Received by	Date	Time
FedEx	TRoppel	102000	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL DOWNSTREAM		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
4235 7953 9868

28 1 Nov 00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-054-059	Page 1 of 1

Collector: Kerkow/Shea	Company Contact: R Kerkow — Telephone No.: 372-2187	Project Coordinator: TRENT, SJ	Price Code: 8K — Data Turnaround: 15 days
Project Designation: 100-NR-1 TSD Sites R. A. Sampling - Soil	Sampling Location: 100N-NR-1	SAF No.: B00-054	Air Quality ☐
Ice Chest No.: 3M1-463 (1 of 1)	Field Logbook No.: EL-1524 — COA: R120N22600	Method of Shipment: FED EX	
Shipped To: TMA/RECRA	Offsite Property No.: A010008	Bill of Lading/Air Bill No.: 4235 7953 9860	

RK 10/16/00

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE Samples originated in non Rad Controlled area. <2000 pci/g. NO TA Required.

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C (Done) RK 10/16/00									
Type of Container	G	G									
No. of Container(s)	1	1									
Volume	250mL	250mL									
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	See Item (2) in Special Instructions. *ADD pH(soil)									

Sample No.	Matrix *	Sample Date	Sample Time										
B10KX7	SOIL	10/17/00	0929	X	X								
B10KX8	SOIL	10/17/00	0929	X	X								
B10KX9	SOIL	10/17/00	0929	X	X								
B10KY0	SOIL	10/17/00	0945	X	X								

Samples stored in Ref.# 2B at the 3728 Shipping Facility on 10/17/00
Collector not available to relinquish samples on 10/19/00 for shipment.
RT 10/19/00

CHAIN OF POSSESSION — Sign/Print Names DWS

Relinquished By	Date/Time	Received By	Date/Time
DWSHEA	10/17/00 1560	Fridge 2B	10/17/00 1560
Removed from Ref 2B 3728	10/19/00 0900	R L Thoren	10/19/00 0900
R L Thoren	10/19/00 0900	FED EX	
FedEx	10 20 00 0920	Thygul	10 20 00 0920

RT 10/19/00

SPECIAL INSTRUCTIONS

Lab COA: R120N2-2F00, pH ASAP, Samples originated outside of a radiologically controlled area, a TA is not required.

(1) ICP Metals - 6010A (TAL) (Antimony, Barium, Beryllium, Cadmium, Chromium, Copper, Manganese, Nickel, Silver, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Thallium); Mercury - 7471 - (CV)
(2) IC Anions - 300.0 (Nitrate, Nitrite, Sulfate); NO2/NO3 - 353.1; Chromium Hex - 7196
*ADD - pH(soil) - 9045

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)