RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

0073038

APR 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-020
RFW# : 0002L528
SDG# : H0756
SAF# : B00-020

W.O. # : 10985-001-001-9999-00
Date Received: 02-23-00

RECEIVED
APR 25 2000
EDMC

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 9 solid 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 temperatures were recorded on the chain-of-custody.

5. The replicate analysis for pH was within the 20% Relative Percent Difference (RPD) control limit.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

03-30-00
Date

njp\i02-528

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

Recra LabNet Philadelphia

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Soilids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygne Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		__ Section 7.3	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Prpearation Leach		__ 1312	
Paint Filter		9095A	

Other: **Method:**

Other: **Method**

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

L-WI-034/D-6/99

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 03/29/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0XJM9	% Solids	85.0	%	0.01	1.0
		pH	2.9	SOIL PH	0.01	1.0
-002	B0XJN0	% Solids	89.7	%	0.01	1.0
		pH	2.9	SOIL PH	0.01	1.0
-003	B0XJN1	% Solids	93.1	%	0.01	1.0
		pH	2.8	SOIL PH	0.01	1.0
-004	B0XJN2	% Solids	83.8	%	0.01	1.0
		pH	1.1	SOIL PH	0.01	1.0
-005	B0XJN3	% Solids	89.6	%	0.01	1.0
		pH	2.6	SOIL PH	0.01	1.0
-006	B0XJN4	% Solids	74.2	%	0.01	1.0
		pH	2.7	SOIL PH	0.01	1.0
-007	B0XMD9	% Solids	68.1	%	0.01	1.0
-008	B0XJP1	% Solids	97.7	%	0.01	1.0
-009	B0XJP0	% Solids	96.7	%	0.01	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 03/29/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0XJM9	pH	2.9	2.8	2.1	1.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XJM9						
% SOLIDS	001	SO	00L%S030	02/16/00	03/03/00	03/03/00
PH	001	SO	00LPH015	02/16/00	02/25/00	02/25/00
PH	001 REP	SO	00LPH022	02/16/00	03/27/00	03/27/00
TCLP	001	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJN0						
% SOLIDS	002	SO	00L%S030	02/16/00	03/03/00	03/03/00
PH	002	SO	00LPH015	02/16/00	02/25/00	02/25/00
TCLP	002	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJN1						
% SOLIDS	003	SO	00L%S030	02/16/00	03/03/00	03/03/00
PH	003	SO	00LPH015	02/16/00	02/25/00	02/25/00
TCLP	003	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJN2						
% SOLIDS	004	SO	00L%S030	02/16/00	03/03/00	03/03/00
PH	004	SO	00LPH015	02/16/00	02/25/00	02/25/00
TCLP	004	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJN3						
% SOLIDS	005	SO	00L%S030	02/16/00	03/03/00	03/03/00
PH	005	SO	00LPH015	02/16/00	02/25/00	02/25/00
TCLP	005	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJN4						
% SOLIDS	006	SO	00L%S028	02/16/00	03/01/00	03/02/00
PH	006	SO	00LPH015	02/16/00	02/25/00	02/25/00
TCLP	006	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XMD9						
% SOLIDS	007	SO	00L%S030	02/17/00	03/03/00	03/03/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XJP1						
% SOLIDS	008	SO	00L%S028	02/16/00	03/01/00	03/02/00
TCLP	008	SO	00LTO019	02/16/00	02/28/00	02/29/00
B0XJP0						
% SOLIDS	009	SO	00L%S028	02/16/00	03/01/00	03/02/00
TCLP	009	SO	00LTO019	02/16/00	02/28/00	02/29/00

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

ALL

Client: Thu-Hanford B00-020

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 15 day

Date Rec'd: 2-23-00 Date Due: 3-9-00

Account #:

Refrigerator #				4					4			4				008
#/Type Container	Liquid										S					
	Solid			1AG				S	1AG			1AG				
Volume	Liquid															
	Solid			60					250			60				
Preservatives				—					—			—				
ANALYSES REQUESTED		ORGANIC VOA	ORGANIC BNA	ORGANIC ~~Pest~~/PCB	ORGANIC Herb			leachate	INORG Metal	INORG CN	S/metal					

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	SPCB	RCRATCLP	Met(1)	ITCLP	IPH
001	BØXJM9			SO	2-16-00	0935			✓	✓	✓
002	JN0					1000			✓	✓	✓
003	JN1					1020			✓	✓	✓
004	JN2					1130			✓	✓	✓
005	JN3					1140			✓	✓	✓
006	JN4					1200			✓	✓	✓
007	MD9				2-17-00	1250	✓				
008	JP1				2-16-00	1220			✓	✓	
009	JPØ					1100			✓	✓	
010	BØXJM9 tcp of 001			L	**	—		✓			

Special Instructions:

Saf to B00-020

COMPOSITE WASTE

DATE/REVISIONS:

1. Run Matrix QC
2. Met(1) Fe, Pb, Mg, Mn, Ni, K, Ag, Na, Sb, Ba,
3. Be, Cd, Cr, Co, Cu, V, Zn, Ca, Hg
4.
5.
6.

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Coolers Temp. See Bridge °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	2-23-00	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

8135560729 31-15.7°C 4235795341023-3.4°C

8164091005 2N-15.6°C

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

009

Client: TRU-Hanford B00-020

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #:

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives:

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

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	RCRATCLP
011	Box no top of 002			L	**	–	✓
012	n1 003					–	✓
013	n2 004					–	✓
014	n3 005					–	✓
015	n4 006					–	✓
016	P1 008					–	✓
017	P0 009					–	✓

Special Instructions:

DATE/REVISIONS:

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

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	2-23-00	0930

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-01	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K		SAF No.: B00-020
Ice Chest No.: IP3/F6	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: TMA/RECRA RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS
Corrosive/Acid/Solid

Special Handling and/or Storage

Preservation	None	None
Type of Container	aG	aG
No. of Container(s)	1	1
Volume	60mL	250mL
SAMPLE ANALYSIS	pH (Soil) - 9045	See Item (1) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJM9	Other Solid	2·16·00	0935	X	X							BOXJN5	
B0XJN0	Other Solid	2·16·00	1000	X	X							BOXJN5	
B0XJN1	Other Solid	2·16·00	1020	X	X							BOXJN5	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: RFahlberg	Received By: Reef 2-B	1400 2·16·00
Relinquished By: R 2-B	Received By: R.A. Thoren K. Thoren	2·23·00/0800
Relinquished By: R.A. Thoren R Thoren	Received By: FEDEX	2·23·00/1430
Relinquished By: Ted Ee	Received By: Ted Henry	2·23·00 0930
Relinquished By:	Received By:	
Relinquished By:	Received By:	

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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)

MPS 8164 0960 5214

Temp 15.6

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-02	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: IP3146	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: RF 2.16.00 ~~TMA~~/RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: Corrosive/Acid/Solid

Special Handling and/or Storage

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	250mL										
SAMPLE ANALYSIS	pH (Soil) - 9045	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time									
B0XJN2	Other Solid	2.16.00	1130	X	X						Box	JN6
B0XJN3	Other Solid	2.16.00	1140	X	X						Box	JN6
B0XJN4	Other Solid	2.16.00	1200	X	X						Box	JN6

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R. Fahlberg	2.16.00 1400	Received By: RF 2.B	2.16.00 1400
Relinquished By: RF 2.B		2.22.00/0800	Received By: R. Thomas RIKKI THOMAS	2.22.00/0800
Relinquished By: R. Thomas RIKKI THOMAS		2.22.00/1430	Received By: FEDEX	
Relinquished By: FedEx		2.23.00 0930	Received By	2.23.00 0930
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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)

81335007 2931 Temp: 15.7

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-10	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 9K — Data Turnaround: 15 Days
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 183 K East & West	SAF No.: B00-020	Air Quality ☐
Ice Chest No.: ERC99-069	Field Logbook No.: EL 1424 — COA: E120KF2W14	Method of Shipment: Fed EX	
Shipped To: ~~TMA~~/RECRA RF 2·17·00	Offsite Property No.: A00 0122	Bill of Lading/Air Bill No.: 42357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	PCBs - 8082										

Sample No.	Matrix *	Sample Date	Sample Time									
B0XMD9	Other Solid	2·17·00	1250	X								Box JN5

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By: R. Fahlberg / R Fahlberg — Date/Time: 1400 2·17·00	Received By: RaF 2·B — Date/Time: 1400 2·17·00	Sample originator [illegible] Controlled Delete [illegible] no [illegible] required. DAT 2·22·00
Relinquished By: R. 2·B — Date/Time: 2·22·00/0900	Received By: R.A Thoren / R Thoren — Date/Time: 2·22·00/0900	
Relinquished By: RA Thoren / R Thoren — Date/Time: 2·22·00/1430	Received By: FED EX — Date/Time:	
Relinquished By: Fed Ex — Date/Time: 2·23·00 0930	Received By: [illegible] — Date/Time: 2·23·00 0930	
Relinquished By: — Date/Time:	Received By: — Date/Time:	
Relinquished By: — Date/Time:	Received By: — Date/Time:	

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)

012

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-09	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality:	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: ERC 99-069	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 2-16-00	Offsite Property No.: A00122	Bill of Lading/Air Bill No.: 42357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJP1	Other Solid	2.16.00	1220		X							BOX JN6	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R. Fahlberg / R. Fahlberg	Date/Time: 1400 2.16.00	Received By: Rat 2.B.	Date/Time: 1400 2.16.00
Relinquished By: R. 2B	Date/Time: 2.22.00/0900	Received By: R. Thoren / RA Thoren	Date/Time: 2.22.00/0900
Relinquished By: RA Thoren / R. Thoren	Date/Time: 2.22.00/1430	Received By: [illegible]	Date/Time:
Relinquished By: Ed Ea	Date/Time: 2-23-00 0930	Received By: Kid Hen	Date/Time: 2-23-00 0930
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238);
(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Sample originated in non RAD controlled area, <200cpm/g
no TA Required

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

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

BHI-EE-011 (10/99)

013

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-08	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: ERC 99-069	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: AØØ0122		Bill of Lading/Air Bill No.: 42357953 4023

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions	See item (2) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time											
B0XJP0	Other Solid	2-16-00	1100		X	X							Box	JN5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R. Fahlberg / R Fahlberg	Date/Time: 2-16-00 1400	Received By: Ref 2B	Date/Time:
Relinquished By: Ref 2B	Date/Time: 2-22-00/0900	Received By: RA Thoren / RA Thoren	Date/Time: 2-22-00/0900
Relinquished By: RA Thoren / R Thoren	Date/Time: 2-22-00/1430	Received By: FEDEX	Date/Time:
Relinquished By: Ref 2B	Date/Time: 2-23-00 0930	Received By: [illegible]	Date/Time: 2-23-00 0930
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238}
(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Samples originated from [illegible] Controlled [illegible] RT 5-22-00 TA [illegible] NO

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
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

APR 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-020
RFW#: 0002L528
SDG/SAF#: H0756/B00-020

W.O.#: 10985-001-001-9999-00
Date Received: 02-23-00

PCB

One (1) solid sample was collected on 02-17-00.

The sample and its associated QC samples were extracted on 03-02-00 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 03-08,11-00. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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 has been recorded on the chain-of-custodies.

2. All required holding times for extraction and analysis have been met.

3. The sample and its associated QC samples received a sulfuric acid.

4. The method blank was below the reporting limits for all target compounds.

5. Two (2) of four (4) obtainable surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).

6. The blank spike recovery was within acceptance criteria.

7. Due to insufficient sample volume, matrix spike QC could not be performed on the sample in this data set. However, blank spike QC were performed with this sample to demonstrate that systems were in control.

8. The sample required a twenty-instrument dilution due high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

9. All initial calibrations associated with this data set were within acceptance criteria.

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 13 pages.

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

10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

03-13-02
Date

pef\r:\group\data\pest\tmu\02L528.pcb

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.

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

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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 = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P	=	This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 03/13/00 09:30

RFW Batch Number: **0002L528** Client: **TNU-HANFORD B00-020** Work Order: 10985001001 Page: 1

005

	Cust ID:	B0XMD9	PBLKHP	PBLKHP BS
Sample Information	RFW#:	007	00LE0212-MB1	00LE0212-MB1
	Matrix:	SOLID	SOIL	SOIL
	D.F.:	2.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		D %	112 %	112 %
Decachlorobiphenyl		D %	123 * %	124 * %
Aroclor-1016		980 U	33 U	33 U
Aroclor-1221		2000 U	67 U	67 U
Aroclor-1232		980 U	33 U	33 U
Aroclor-1242		980 U	33 U	33 U
Aroclor-1248		980 U	33 U	33 U
Aroclor-1254		6000	33 U	87 %
Aroclor-1260		980 U	33 U	33 U

ad 03 13 00

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Recra LabNet - Lionville Laboratory
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XMD9	007	SO	00LE0212	02/17/00	03/02/00	03/11/00
LAB QC:						
PBLKHP	MB1	S	00LE0212	N/A	03/02/00	03/08/00
PBLKHP	MB1 BS	S	00LE0212	N/A	03/02/00	03/08/00

gw 03-13-00

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

ALL

Client: TPU-Hanford B00-020

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: 2-23-00 Date Due: 3-9-00

Account #:

Refrigerator #				4					4			4				
#/Type Container	Liquid															
	Solid			1AG				S	1AG			1AG				
Volume	Liquid															
	Solid			60				leachate	250			60				
Preservatives				-					-			-				
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN						
RECRA LabNet Use Only				GPCB				RCRATCLP	Met①		ITCLP	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	GPCB	RCRATCLP	Met①	ITCLP	IPH
001	Box JM9			SO	2-16-00	0935			✓	✓	✓
002	JM0					1000			✓	✓	✓
003	JN1					1020			✓	✓	✓
004	JN2					1130			✓	✓	✓
005	JN3					1140			✓	✓	✓
006	JN4					1200			✓	✓	✓
007	MD9				2-17-00	1250	✓				
008	JP1				2-16-00	1220			✓	✓	
009	JP0					1100			✓	✓	
010	Box JM9 trip of 001			L	**	-		✓			

Special Instructions:

Saf# B00-020

ORCBA

COMPOSITE WASTE

DATE/REVISIONS:

1. Run Matrix QC
2. Met① Fe, Pb, Mg, Mn, Ni, K, Ag, Na, Sb, Ba,
3. Be, Cd, Cr, Co, Cu, V, Zn, Ca, Hg
4.
5.
6.

RECRA LabNet Use Only

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

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

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

8135560729 31-15.7°C 4235795340 23-3.4°C

Relinquished by	Received by	Date	Time
[signature]	[signature]	2-23-00	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TPU-Hanford B00-020

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #:

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives:

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

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	RECRA TCLP
011	B0X1no tclp of 002			L	**	–	✓
012	n1 003					–	✓
013	n2 004					–	✓
014	n3 005					–	✓
015	n4 006					–	✓
016	P1 008					–	✓
017	P0 009					–	✓

Special Instructions:

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

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Relinquished by	Received by	Date	Time
Fed Ex	V. Hamm	2-23-00	0930

Relinquished by	Received by	Date	Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-01	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: IP3/FG	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: TMA/RECRA RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS
Corrosive/Acid/Solid

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation	None	None								
Type of Container	aG	aG								
No. of Container(s)	1	1								
Volume	60mL	250mL								
	pH (Soil) - 9045	See item (1) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time									
B0XJM9	Other Solid	2·16·00	0935	X	X						BOXJ	N5
B0XJN0	Other Solid	2·16·00	1000	X	X						BOXJ	N5
B0XJN1	Other Solid	2·16·00	1020	X	X						BOXJ	N5

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	2.16.00 1400	Ref 2·B	2·16·00 1400
R 2·B	2·22·00 / 0800	R.A. Thoren / K. Thoren	2·22·00/0800
R.A. Thoren / R Thoren	2·22·00/1430	FEDEX	
FedEx	2·23·00 0930	[illegible]	2·23·00 0930

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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)

MPS 8164 0960 5214

Temp 15.6

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-02	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K		SAF No.: B00-020
Ice Chest No.: IP3/4G	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: RP ~ 1600 ~~TMA~~/RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Price Code: 9K

Air Quality ☐

Data Turnaround: 15 Days

010

POSSIBLE SAMPLE HAZARDS/REMARKS: Corrosive/Acid/Solid

Special Handling and/or Storage

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	250mL										
SAMPLE ANALYSIS	pH (Soil) - 9045	See item (1) in Special Instructions.										
Sample No. / Matrix * / Sample Date / Sample Time												
B0XJN2 / Other Solid / 2·16·00 / 1130	X	X									Box	JN6
B0XJN3 / Other Solid / 2·16·00 / 1140	X	X									Box	JN6
B0XJN4 / Other Solid / 2·16·00 / 1200	X	X									Box	JN6

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: R. Fahlberg / R. Fahlberg	Received By: Ref 2·B	2·16·00 1400
Relinquished By: Ref 2B	Received By: RIKKI THOMAS / R. Thomas	2·22·00/0800
Relinquished By: RIKKI THOMAS / R. Thomas	Received By: FED EX	2·22·00/1430
Relinquished By: FED EX	Received By: [illegible]	2·23·00 0930
Relinquished By:	Received By:	
Relinquished By:	Received By:	

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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)

8133500729 31 Temp · 15·7

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-10	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 183 K East & West		SAF No.: B00-020
Ice Chest No.: ERC99-069	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: RF ~~TMA~~/RECRA 2·17·00	Offsite Property No.: A00 0122		Bill of Lading/Air Bill No.: 4235 7953 4023

Price Code: 9K

Air Quality ☐

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	PCBs - 8082										

Sample No.	Matrix *	Sample Date	Sample Time										
B0XMD9	Other Solid	2·17·00	1250	X									Box JN5

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R Fahlberg	2·17·00 1400	RF 2·B	2·17·00 1400
R. 2·B	2·22·00/0900	R.A Thoren / R.A Thoren	2·22·00/0900
R A Thoren / R A Thoren	2·22·00/1430	FED EX	
Fed Ex	2·23·00 0930	[illegible]	2·23·00 0930

SPECIAL INSTRUCTIONS

Sample originated in non-RCRA Controlled Area. No TSD Required. 2·22·00 1/9.

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	B00-020-09	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 9K — Data Turnaround: 15 Days
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	Air Quality: —
Ice Chest No.: ERC 99-069	Field Logbook No.: EL 1424 — COA: E120KF2W14	Method of Shipment: Fed Ex	
Shipped To: ~~TMA~~/RECRA RF 2-16-00	Offsite Property No.: A00122	Bill of Lading/Air Bill No.: 42357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									
Sample No. / Matrix * / Sample Date / Sample Time											
B0XJP1 / Other Solid / 2.16.00 / 1220		X								BOX	JN6

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R. Fahlberg / R. Fahlberg	2.16.00 1400	Received By: Rat R.B.	2.16.00 1400
Relinquished By	R. RB	2.22.00 0900	Received By: R. Thoren	2.22.00 0900
Relinquished By	R.A. Thoren	2.22.00 1430	Received By: Fed Ex	
Relinquished By: Fed Ex		2.23.00 0930	Received By: Kirk Henry	2.23.00 0930
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238)
(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Sample originated in non RAD controlled area. <200cpm/g
No TA Required

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-08	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: ERC 99-0169	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: AØØ0122	Bill of Lading/Air Bill No.: 42357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									
Sample No.	Matrix *	Sample Date	Sample Time								
B0XJP0	Other Solid	2.16.00	1100	X	X					Box JN2	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R Fahlberg	2.16.00 1400	Ref 2B	
Ref 2B	2.22.00/0900	RA Thoren / R Thoren	2.22.00/0900
RA Thoren / R Thoren	2.22.00/1430	FED EX	
Ref 2B	2-23-00 0930	[illegible]	2-23-00 0930

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238}

(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Samples originated from [illegible] Controlled [illegible] TA [illegible] RT 2.22.00 . NO

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)

H0756-TMA/RECRA

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0756 was composed of four other solid samples designated under SAF No. B00-020 with a Project Designation of: 183-KW/KE Acid Pipes.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. Results were transmitted to BHI via e-fax on March 21, 2000.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

Due to method blank contamination activity in the gross beta analysis at 66 pCi/g and a failed LCS (121%) the samples were realiquoted in chemistry with new QC samples. No problems were encountered during the course of the reanalyses. The realiquoted sample data is reported herein.

BHI's client required lower RDLs of 5 pCi/g for the gross alpha analsysis and 10 pCi/g for the gross beta analysis for this group of the samples. Thermo Retec achieved the required RDLs.

2.2 Gamma Spec Analyses

The K-40 result was not reported for the duplicate analysis. Also note, that the Co-60 result is reported from the 1173 KeV peak instead of the usual 1332 KeV peak. These two abnormalities are an isolated incident only. No other problems were encountered during the course of the analyses.

MAR 2000
RECEIVED
Data
Log In

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

SAMPLE SUMMARY

SDG 7362
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0756

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0XJN7	100K	SOLID		R002161-01	B00-020	B00-020-05	02/16/00 10:30
B0XJN8	100K	SOLID		R002161-02	B00-020	B00-020-06	02/16/00 12:05
B0XJP0	100K	SOLID		R002161-03	B00-020	B00-020-08	02/16/00 11:00
B0XJP1	100K	SOLID		R002161-04	B00-020	B00-020-09	02/16/00 12:20
Method Blank		SOLID		R002161-06	B00-020		
Method Blank		SOLID		R002161-09	B00-020		
Lab Control Sample		SOLID		R002161-05	B00-020		
Lab Control Sample		SOLID		R002161-08	B00-020		
Duplicate (R002161-01)	100K	SOLID		R002161-07	B00-020		02/16/00 10:30
Duplicate (R002161-02)	100K	SOLID		R002161-10	B00-020		02/16/00 12:05

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

QC SUMMARY

SDG 7362
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0756

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7362	B00-020-05	B0XJN7	SOLID	100.0			02/23/00	7	R002161-01	7362-001
	B00-020-06	B0XJN8	SOLID	100.0			02/23/00	7	R002161-02	7362-002
	B00-020-08	B0XJP0	SOLID	100.0			02/23/00	7	R002161-03	7362-003
	B00-020-09	B0XJP1	SOLID	100.0			02/23/00	7	R002161-04	7362-004
		Method Blank	SOLID						R002161-06	7362-006
		Method Blank	SOLID						R002161-09	7362-009
		Lab Control Sample	SOLID						R002161-05	7362-005
		Lab Control Sample	SOLID						R002161-08	7362-008
		Duplicate (R002161-01)	SOLID				02/23/00	7	R002161-07	7362-007
		Duplicate (R002161-02)	SOLID				02/23/00	7	R002161-10	7362-010

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

SDG 7362
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0756

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
80A	SOLID	Gross Alpha in Soil	6914-133	20.0	4			1	1	1/1		
80B	SOLID	Gross Beta in Soil	6914-133	15.0	4			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6914-133	15.0	4			1	1	1/1		X

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

WORK SUMMARY

SDG 7362
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0756

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0XJN7			R002161-01	7362-001	80A/80	A1	03/20/00	03/21/00	MCM	Gross Alpha in Soil
100K		SOLID	02/16/00	7362-001	80B/80	A1	03/20/00	03/21/00	MCM	Gross Beta in Soil
B00-020-05	B00-020		02/23/00	7362-001	GAM		02/28/00	03/14/00	MCM	Gamma Scan
B0XJN8			R002161-02	7362-002	80A/80	A1	03/20/00	03/21/00	MCM	Gross Alpha in Soil
100K		SOLID	02/16/00	7362-002	80B/80	A1	03/20/00	03/21/00	MCM	Gross Beta in Soil
B00-020-06	B00-020		02/23/00	7362-002	GAM		02/28/00	03/14/00	MCM	Gamma Scan
B0XJP0			R002161-03	7362-003	80A/80	A1	03/20/00	03/21/00	MCM	Gross Alpha in Soil
100K		SOLID	02/16/00	7362-003	80B/80	A1	03/20/00	03/21/00	MCM	Gross Beta in Soil
B00-020-08	B00-020		02/23/00	7362-003	GAM		02/28/00	03/14/00	MCM	Gamma Scan
B0XJP1			R002161-04	7362-004	80A/80	A1	03/20/00	03/21/00	MCM	Gross Alpha in Soil
100K		SOLID	02/16/00	7362-004	80B/80	A1	03/20/00	03/21/00	MCM	Gross Beta in Soil
B00-020-09	B00-020		02/23/00	7362-004	GAM		02/28/00	03/14/00	MCM	Gamma Scan
Method Blank			R002161-06	7362-006	GAM		03/01/00	03/14/00	MCM	Gamma Scan
		SOLID								
	B00-020									
Method Blank			R002161-09	7362-009	80A/80		03/20/00	03/21/00	MCM	Gross Alpha in Soil
		SOLID		7362-009	80B/80		03/20/00	03/21/00	MCM	Gross Beta in Soil
	B00-020									
Lab Control Sample			R002161-05	7362-005	GAM		02/29/00	03/14/00	MCM	Gamma Scan
		SOLID								
	B00-020									
Lab Control Sample			R002161-08	7362-008	80A/80		03/20/00	03/21/00	MCM	Gross Alpha in Soil
		SOLID		7362-008	80B/80		03/20/00	03/21/00	MCM	Gross Beta in Soil
	B00-020									
Duplicate (R002161-01)			R002161-07	7362-007	GAM		03/01/00	03/14/00	MCM	Gamma Scan
100K		SOLID	02/16/00							
	B00-020		02/23/00							
Duplicate (R002161-02)			R002161-10	7362-010	80A/80		03/20/00	03/21/00	MCM	Gross Alpha in Soil
100K		SOLID	02/16/00	7362-010	80B/80		03/20/00	03/21/00	MCM	Gross Beta in Soil
	B00-020		02/23/00							

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

SDG 7362
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0756

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
80A/80	B00-020	Gross Alpha in Soil	EPA900.0	4			1	1	1	7
80B/80	B00-020	Gross Beta in Soil	EPA900.0	4			1	1	1	7
GAM	B00-020	Gamma Scan	GAMMAHI	4			1	1	1	7
TOTALS				12			3	3	3	21

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-06 Method Blank

METHOD BLANK

SDG	7362	Client/Case no	Hanford	SDG H0756	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	R002161-06	Client sample id	Method Blank		
Dept sample id	7362-006	Material/Matrix		SOLID	
		SAF No	B00-020		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Potassium 40	13966-00-2	U		14		U	GAM
Cobalt 60	10198-40-0	U		0.89	0.050	U	GAM
Cesium 137	10045-97-3	U		0.83	0.10	U	GAM
Europium 152	14683-23-9	U		2.2	0.10	U	GAM
Europium 154	15585-10-1	U		2.7	0.10	U	GAM
Europium 155	14391-16-3	U		2.1	0.10	U	GAM
Radium 226	13982-63-3	U		1.4	0.10	U	GAM
Radium 228	15262-20-1	U		3.3	0.20	U	GAM
Thorium 228	14274-82-9	U		1.1		U	GAM
Thorium 232	TH-232	U		3.3		U	GAM
Americium 241	14596-10-2	U		2.4		U	GAM
Uranium 238	U-238	U		87		U	GAM
Uranium 235	15117-96-1	U		2.7		U	GAM

183-KW/KE Acid Pipes

QC-BLANK 33589

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-09 Method Blank

METHOD BLANK

SDG	7362	Client/Case no	Hanford	SDG H0756	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	R002161-09	Client sample id	Method Blank		
Dept sample id	7362-009	Material/Matrix		SOLID	
		SAF No	B00-020		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.801	1.2	3.4	5.0	U	80A
Gross Beta	12587-47-2	0.581	3.6	6.2	10	U	80B

183-KW/KE Acid Pipes

QC-BLANK 33803

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-05

Lab Control Sample

LAB CONTROL SAMPLE

SDG	7362	Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion	Case no	TRB-SBB-207925
Lab sample id	R002161-05	Client sample id	Lab Control Sample
Dept sample id	7362-005	Material/Matrix	SOLID
		SAF No	B00-020

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Cobalt 60	55.2	3.6	2.0	0.050		GAM	62.6	2.5	88	78-122	80-120
Cesium 137	63.9	3.1	2.0	0.10		GAM	67.4	2.7	95	77-123	80-120

183-KW/KE Acid Pipes

QC-LCS 33588

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7362
Contact Melissa C. Mannion

Client/Case no Hanford SDG H0756
Case no TRB-SBB-207925

Lab sample id R002161-08
Dept sample id 7362-008

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-020

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	237	17	3.3	5.0		80A	215	8.6	110	64-136	70-130
Gross Beta	252	12	7.5	10		80B	246	9.8	102	75-125	70-130

183-KW/KE Acid Pipes

QC-LCS 33802

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-07 B0XJN7

DUPLICATE

SDG	7362	Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion	Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R002161-07	Lab sample id	R002161-01
Dept sample id	7362-007	Dept sample id	7362-001
		Received	02/23/00
		% solids	100.0
Client sample id	B0XJN7		
Location/Matrix	100K SOLID		
Collected	02/16/00 10:30		
Custody/SAF No	B00-020-05 B00-020		

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Potassium 40	U					GAM	U		1.7	U	0	212
Cobalt 60	U		0.14	0.050	UX	GAM	U		0.12	U	-	
Cesium 137	U		0.12	0.10	U	GAM	U		0.11	U	-	
Europium 152	U		0.25	0.10	U	GAM	U		0.27	U	-	
Europium 154	U		0.44	0.10	U	GAM	U		0.40	U	-	
Europium 155	U		0.14	0.10	U	GAM	U		0.26	U	-	
Radium 226	U		0.21	0.10	U	GAM	U		0.17	U	-	
Radium 228	U		0.52	0.20	U	GAM	U		0.48	U	-	
Thorium 228	U		0.13		U	GAM	U		0.15	U	-	
Thorium 232	U		0.52		U	GAM	U		0.48	U	-	
Americium 241	U		0.076		U	GAM	U		0.28	U	-	
Uranium 238	U		17		U	GAM	U		11	U	-	
Uranium 235	U		0.26		U	GAM	U		0.34	U	-	

183-KW/KE Acid Pipes

QC-DUP#1 33590

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-10 B0XJN8

DUPLICATE

SDG	7362			Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R002161-10	Lab sample id	R002161-02	Client sample id	B0XJN8
Dept sample id	7362-010	Dept sample id	7362-002	Location/Matrix	100K SOLID
		Received	02/23/00	Collected	02/16/00 12:05
		% solids	100.0	Custody/SAF No	B00-020-06 B00-020

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	3.86	3.0	3.8	5.0	J	80A	3.20	3.0	4.3	U	19	185	
Gross Beta	6.46	4.5	7.2	10	U	80B	3.88	4.1	6.6	U	-		

183-KW/KE Acid Pipes

QC-DUP#2A1 33804

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-01 B0XJN7

DATA SHEET

SDG	7362	Client/Case no	Hanford	SDG H0756	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	R002161-01	Client sample id	B0XJN7		
Dept sample id	7362-001	Location/Matrix	100K	SOLID	
Received	02/23/00	Collected	02/16/00 10:30		
% solids	100.0	Custody/SAF No	B00-020-05	B00-020	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.02	4.2	4.9	5.0		80A
Gross Beta	12587-47-2	9.08	4.1	6.0	10	J	80B
Potassium 40	13966-00-2	U		1.7		U	GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Europium 152	14683-23-9	U		0.27	0.10	U	GAM
Europium 154	15585-10-1	U		0.40	0.10	U	GAM
Europium 155	14391-16-3	U		0.26	0.10	U	GAM
Radium 226	13982-63-3	U		0.17	0.10	U	GAM
Radium 228	15262-20-1	U		0.48	0.20	U	GAM
Thorium 228	14274-82-9	U		0.15		U	GAM
Thorium 232	TH-232	U		0.48		U	GAM
Americium 241	14596-10-2	U		0.28		U	GAM
Uranium 238	U-238	U		11		U	GAM
Uranium 235	15117-96-1	U		0.34		U	GAM

183-KW/KE Acid Pipes

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-02 B0XJN8

DATA SHEET

SDG	7362	Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	R002161-02	Client sample id	B0XJN8
Dept sample id	7362-002	Location/Matrix	100K SOLID
Received	02/23/00	Collected	02/16/00 12:05
% solids	100.0	Custody/SAF No	B00-020-06 B00-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.20	3.0	4.3	5.0	U	80A
Gross Beta	12587-47-2	3.88	4.1	6.6	10	U	80B
Potassium 40	13966-00-2	U		1.5		U	GAM
Cobalt 60	10198-40-0	U		0.066	0.050	U	GAM
Cesium 137	10045-97-3	U		0.060	0.10	U	GAM
Europium 152	14683-23-9	U		0.16	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Radium 226	13982-63-3	U		0.12	0.10	U	GAM
Radium 228	15262-20-1	U		0.44	0.20	U	GAM
Thorium 228	14274-82-9	U		0.091		U	GAM
Thorium 232	TH-232	U		0.44		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM
Uranium 238	U-238	U		6.7		U	GAM
Uranium 235	15117-96-1	U		0.20		U	GAM

183-KW/KE Acid Pipes

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-03 B0XJP0

DATA SHEET

SDG	7362	Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	R002161-03	Client sample id	B0XJP0
Dept sample id	7362-003	Location/Matrix	100K SOLID
Received	02/23/00	Collected	02/16/00 11:00
% solids	100.0	Custody/SAF No	B00-020-08 B00-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	8.92	4.4	4.9	5.0		80A
Gross Beta	12587-47-2	10.6	4.0	5.8	10		80B
Potassium 40	13966-00-2	5.47	4.2	3.3			GAM
Cobalt 60	10198-40-0	U		0.52	0.050	U	GAM
Cesium 137	10045-97-3	0.548	0.39	0.46	0.10		GAM
Europium 152	14683-23-9	U		0.85	0.10	U	GAM
Europium 154	15585-10-1	U		1.1	0.10	U	GAM
Europium 155	14391-16-3	U		0.63	0.10	U	GAM
Radium 226	13982-63-3	U		0.74	0.10	U	GAM
Radium 228	15262-20-1	U		1.5	0.20	U	GAM
Thorium 228	14274-82-9	U		0.81		U	GAM
Thorium 232	TH-232	U		1.5		U	GAM
Americium 241	14596-10-2	U		0.71		U	GAM
Uranium 238	U-238	U		48		U	GAM
Uranium 235	15117-96-1	U		1.0		U	GAM

183-KW/KE Acid Pipes

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

R002161-04 B0XJP1

DATA SHEET

SDG	7362	Client/Case no	Hanford SDG H0756
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	R002161-04	Client sample id	B0XJP1
Dept sample id	7362-004	Location/Matrix	100K SOLID
Received	02/23/00	Collected	02/16/00 12:20
% solids	100.0	Custody/SAF No	B00-020-09 B00-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.20	3.9	4.3	5.0		80A
Gross Beta	12587-47-2	18.2	5.3	7.5	10		80B
Potassium 40	13966-00-2	3.56	2.9	2.8			GAM
Cobalt 60	10198-40-0	U		0.23	0.050	U	GAM
Cesium 137	10045-97-3	0.824	0.20	0.20	0.10		GAM
Europium 152	14683-23-9	U		0.42	0.10	U	GAM
Europium 154	15585-10-1	U		0.62	0.10	U	GAM
Europium 155	14391-16-3	U		0.32	0.10	U	GAM
Radium 226	13982-63-3	U		0.36	0.10	U	GAM
Radium 228	15262-20-1	U		0.76	0.20	U	GAM
Thorium 228	14274-82-9	U		0.35		U	GAM
Thorium 232	TH-232	U		0.76		U	GAM
Americium 241	14596-10-2	U		0.34		U	GAM
Uranium 238	U-238	U		32		U	GAM
Uranium 235	15117-96-1	U		0.48		U	GAM

183-KW/KE Acid Pipes

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/23/00

Test 80A Matrix SOLID
SDG 7362
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Contract SDG H0756

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6914-133						
B0XJN7	R002161-01	80	A1	7362-001	7.02	
B0XJN8	R002161-02	80	A1	7362-002	U	
B0XJP0	R002161-03	80	A1	7362-003	8.92	
B0XJP1	R002161-04	80	A1	7362-004	7.20	
BLK (QC ID=33803)	R002161-09	80		7362-009	U	
LCS (QC ID=33802)	R002161-08	80		7362-008	ok	
Duplicate (R002161-02)	R002161-10	80		7362-010	ok	J
Nominal values and limits from method 183-KW/KE Acid Pipes				RDLs (pCi/g)	5.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6914-133 2σ prep error 20.0 % Reference Lab Notebook 6914 pg. 133																
B0XJN7	R002161-01	80	A1	4.9	0.100			92		100			33	03/16/00	03/20	GRB-113
B0XJN8	R002161-02	80	A1	4.3	0.100			81		100			33	03/16/00	03/20	GRB-114
B0XJP0	R002161-03	80	A1	4.9	0.100			70		100			33	03/16/00	03/20	GRB-115
B0XJP1	R002161-04	80	A1	4.3	0.100			75		100			33	03/16/00	03/20	GRB-116
BLK (QC ID=33803)	R002161-09	80		3.4	0.100			38		100				03/16/00	03/20	GRB-111
LCS (QC ID=33802)	R002161-08	80		3.3	0.100			38		100				03/16/00	03/20	GRB-110
Duplicate (R002161-02) (QC ID=33804)	R002161-10	80		3.8	0.100			74		100			33	03/16/00	03/20	GRB-112
Nominal values and limits from method				5.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 4.1 ± 1.3
RESIDUE 67 ± 42

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

Test 80B Matrix SOLID
SDG 7362
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Contract SDG H0756

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta	
Preparation batch 6914-133						
B0XJN7	R002161-01	80	A1	7362-001	9.08	J
B0XJN8	R002161-02	80	A1	7362-002	U	
B0XJP0	R002161-03	80	A1	7362-003	10.6	
B0XJP1	R002161-04	80	A1	7362-004	18.2	
BLK (QC ID=33803)	R002161-09	80		7362-009	U	
LCS (QC ID=33802)	R002161-08	80		7362-008	ok	
Duplicate (R002161-02)	R002161-10	80		7362-010	-	U

Nominal values and limits from method RDLs (pCi/g) 10
183-KW/KE Acid Pipes

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6914-133	2σ prep error 15.0 % Reference Lab Notebook 6914 pg. 133															
B0XJN7	R002161-01	80	A1	6.0	0.100			92		100			33	03/16/00	03/20	GRB-113
B0XJN8	R002161-02	80	A1	6.6	0.100			81		100			33	03/16/00	03/20	GRB-114
B0XJP0	R002161-03	80	A1	5.8	0.100			70		100			33	03/16/00	03/20	GRB-115
B0XJP1	R002161-04	80	A1	7.5	0.100			75		100			33	03/16/00	03/20	GRB-116
BLK (QC ID=33803)	R002161-09	80		6.2	0.100			38		100				03/16/00	03/20	GRB-111
LCS (QC ID=33802)	R002161-08	80		7.5	0.100			38		100				03/16/00	03/20	GRB-110
Duplicate (R002161-02) (QC ID=33804)	R002161-10	80		7.2	0.100			74		100			33	03/16/00	03/20	GRB-112
Nominal values and limits from method				10	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 6.7 ± 1.4
RESIDUE 67 ± 42

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/23/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0756

Test GAM Matrix SOLID	Client Hanford
SDG 7362	Contract TRB-SBB-207925
Contact Melissa C. Mannion	Contract SDG H0756

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6914-133								
B0XJN7	R002161-01			7362-001	U		U	
B0XJN8	R002161-02			7362-002	U		U	
B0XJP0	R002161-03			7362-003	U		0.548	
B0XJP1	R002161-04			7362-004	U		0.824	
BLK (QC ID=33589)	R002161-06			7362-006	U		U	
LCS (QC ID=33588)	R002161-05			7362-005	ok		ok	
Duplicate (R002161-01)	R002161-07			7362-007	-	UX	-	U
Nominal values and limits from method 183-KW/KE Acid Pipes				RDLs (pCi/g)	0.050		0.10	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6914-133 2σ prep error 15.0 % Reference Lab Notebook 6914 pg. 133																
B0XJN7	R002161-01			0.22	40.2					413			12	02/25/00	02/28	PD,03,00
B0XJN8	R002161-02			0.11	43.2					971			12	02/25/00	02/28	PD,03,00
B0XJP0	R002161-03			0.83	3.83					413			12	02/25/00	02/28	SP,04,00
B0XJP1	R002161-04			0.44	5.06					971			12	02/25/00	02/28	SP,04,00
BLK (QC ID=33589)	R002161-06			1.5	3.80					679				02/25/00	03/01	PD,03,00
LCS (QC ID=33588)	R002161-05			2.0	3.80					405				02/25/00	02/29	PD,03,00
Duplicate (R002161-01) (QC ID=33590)	R002161-07			0.14	40.2					439			14	02/25/00	03/01	PD,01,00
Nominal values and limits from method				0.050	3.80					100			180			

PROCEDURES	REFERENCE	GAMMAHI
	CP-060	Soil Preparation, rev 2
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD	MDA 0.75	± 1.5
FOR 7 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/23/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-05	Page 1 of 1

Collector Fahlberg	Company Contact D Jacques	Telephone No. 373-5299	Project Coordinator TRENT, SJ	Price Code 9K Air Quality ☐	Data Turnaround 15 Days
Project Designation 183-KW/KE Acid Pipes	Sampling Location 100K H0756 (7362)		SAF No. B00-020		
Ice Chest No. IP3/F6	Field Logbook No. EL 1424	COA E120KF2W14	Method of Shipment Fed Ex		
Shipped To TMA/RECRA	Offsite Property No. NA		Bill of Lading/Air Bill No. NA		

POSSIBLE SAMPLE HAZARDS/REMARKS
Corrosive/ACID/Solid

Special Handling and/or Storage

Preservation	None										
Type of Container	nG										
No. of Container(s)	1										
Volume	120mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJN7	Other Solid	2-16-00	1030	X								BOX	JN5

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By / Date/Time 1400 R. Fahlberg / R. Fahlberg 2-16-00	Received By / Date/Time 1400 R.E.E. 2-B 2-16-00	** Close SDG upon receipt of samples. (1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238)
Relinquished By / Date/Time R. Fahlberg 2-22-00/0800	Received By / Date/Time R. Thorson 2-22-00/0800	
Relinquished By / Date/Time R. Thorson 2-22-00/1430	Received By / Date/Time FED EX 2-22-00	
Relinquished By / Date/Time FedEx 2-23-00 10:00	Received By / Date/Time TNV M. Goldenberg 2-23-00 10:00	
Relinquished By / Date/Time	Received By / Date/Time	
Relinquished By / Date/Time	Received By / Date/Time	

FAXED 2/24/00

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	B00-020-06	Page 1 of 1
Collector: Fahlberg	Company Contact: D Jacques; Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 9K; Data Turnaround: 15 Days
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K H0756 (7362)	SAF No.: B00-020	Air Quality ☐
Ice Chest No.: IP3 / FG	Field Logbook No.: EL 1424; COA: E120KF2W14	Method of Shipment: Fed Ex	
Shipped To: ~~TMA/RPCRA~~ R.F. 2·16·00	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS: Corrosive/ACID/solid

Special Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	120mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJN8	Other Solid	2·16·00	1205	X									BOXJN6

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R. Fahlberg	2·16·00 1400	R.F. 2·B	2·16·00 1400
Relinquished By	Date/Time	Received By	Date/Time
Rut 2·B	2·22·00/0800	R. Thoren	2·22·00/0800
Relinquished By	Date/Time	Received By	Date/Time
R. Thoren	2·22·00/0800 1430	FED EX	2-22-00
Relinquished By	Date/Time	Received By	Date/Time
FedEx	2-23-00	TW M. Goldenberg	2-23-00 10:00
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238)

FAXED 2/24/00

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	B00-020-08	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K H0576 (7362)	SAF No.: B00-020	
Ice Chest No.: ERC 99-010	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA TMA	Offsite Property No.: A-B00129	Bill of Lading/Air Bill No.: 4235 7953	

POSSIBLE SAMPLE HAZARDS/REMARKS
NONE

Special Handling and/or Storage

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJP0	Other Solid	2.16.00	1100	X	X							Box	JNS

COPY

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R. Fahlberg / R Fahlberg	Date/Time: 1400 2.16.00	Received By: Ref 2B	Date/Time:
Relinquished By: Ref 2B	Date/Time: 2.22.00/0900	Received By: R. Thorson	Date/Time: 2.22.00/0900
Relinquished By: R Thorson / R. Thorson	Date/Time: 2.22.00/1430	Received By: FEDEX	Date/Time: 2-22-00
Relinquished By: FedEx	Date/Time: 2-23-00 10:00	Received By: TNV M. Goldenberg	Date/Time: 2-23-00 10:00
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238)
~~(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470~~ RAT 2.17.00

FAXED 2/24/00

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	B00-020-09	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques — Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 9K — Data Turnaround: 15 Days
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K H0576 (7362)	SAF No.: B00-020	Air Quality ☐
Ice Chest No.: ERC99-010	Field Logbook No.: EL 1424 — COA: E120KF2W14	Method of Shipment: Fed Ex	
Shipped To: TMA/~~RECRA~~ RF 2-16-00	Offsite Property No.: A00129	Bill of Lading/Air Bill No.: 42357953	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJP1	Other Solid	2-16-00	1220	X									BOXJN6

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg R. Fahlberg	2-16-00 1400	RaF 2-B-	2-16-00 1400
Raf 2B	2-22-00 0900	R. Thorson	2-22-00 0900
R. Thorson	2-22-00 1430	FEDEX	2-22-00
FedEx	2-23-00 10:00	M Goldenberg TNU	2-23-00 10:00

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238}

(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

sample

FAXED 2/24/00

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)

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 2-23-00 10:00

CoC No. B00-020-08, 09

Container I.D. No. _____ Requested TAT (Days) 15 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 2
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by M. Goldenberg Date: 2-23-00 Time: 10:00

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

RECRA
ENVIRONMENTAL
INC.
Chemical and Environmental Measurement Information

APR 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-020
RFW# : 0002L528
SDG/SAF# : H0756/B00-020

W.O.# : 10985-001-001-9999-00
Date Received: 02-23-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 solid samples and 8 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. High indigenous Iron concentration levels in the samples precluded the proper application of interelement correction factors. Consequently, all of the total samples for ICP analysis required five and ten fold dilutions. With these high Iron concentrations, most of the TCLP leachate samples also required dilutions. The leachates requiring forty fold dilutions were rerun on the Trace ICP to help achieve lower reporting limits. For Mercury all of the samples, except B0XJP0, were reported with dilutions due to the high concentration of this analyte. Six of the TCLP leachates for Mercury were prepped with one hundred fold dilutions because the purple color was not maintained for fifteen minutes after the addition of potassium permanganate as per method criteria.

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

4. All cooler temperatures have 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 laboratory control limits. Refer to the Inorganics Laboratory Control Standards 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 48 pages.

10. The matrix spike (MS) recoveries for 6 analytes in the total sample were 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:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0XJM9	Copper	1,200	110.4
	Iron	55,000	91.6
	Manganese	1,200	107.5
	Sodium	20,000	101.4
	Lead	1,200	105.2

12. The duplicate analyses for 2 analytes for the total sample and 3 analytes for the TCLP leachate sample were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. The TCLP extract from sample B0XJM9 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

14. 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

03-27-00
Date

mld/m02-528

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0002L528

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:_____

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 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0XJM9	Silver, Total	1.0 u	MG/KG	1.0	10.0
		Barium, Total	53.6	MG/KG	1.6	5.0
		Beryllium, Total	0.12 u	MG/KG	0.12	5.0
		Calcium, Total	5390	MG/KG	19.9	5.0
		Cadmium, Total	1.0	MG/KG	0.35	10.0
		Cobalt, Total	12.5	MG/KG	0.92	10.0
		Chromium, Total	54.5	MG/KG	0.69	10.0
		Copper, Total	71.9	MG/KG	0.92	10.0
		Iron, Total	265000	MG/KG	16.8	10.0
		Mercury, Total	582	MG/KG	9.2	500
		Potassium, Total	493	MG/KG	22.7	10.0
		Magnesium, Total	537	MG/KG	16.2	5.0
		Manganese, Total	392	MG/KG	0.12	10.0
		Sodium, Total	33900	MG/KG	15.3	5.0
		Nickel, Total	19.4	MG/KG	1.6	10.0
		Lead, Total	259	MG/KG	2.7	10.0
		Antimony, Total	2.9	MG/KG	2.1	10.0
		Vanadium, Total	7.8	MG/KG	0.69	10.0
		Zinc, Total	51.1	MG/KG	1.4	5.0

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0XJN0	Silver, Total	0.96 u	MG/KG	0.96	10.0
		Barium, Total	3.3	MG/KG	1.5	5.0
		Beryllium, Total	0.11 u	MG/KG	0.11	5.0
		Calcium, Total	19.1	MG/KG	18.5	5.0
		Cadmium, Total	0.40	MG/KG	0.32	10.0
		Cobalt, Total	17.2	MG/KG	0.86	10.0
		Chromium, Total	37.9	MG/KG	0.64	10.0
		Copper, Total	61.3	MG/KG	0.86	10.0
		Iron, Total	317000	MG/KG	15.7	10.0
		Mercury, Total	194	MG/KG	3.6	200
		Potassium, Total	21.1 u	MG/KG	21.1	10.0
		Magnesium, Total	54.4	MG/KG	15.1	5.0
		Manganese, Total	2050	MG/KG	0.11	10.0
		Sodium, Total	62.4	MG/KG	14.3	5.0
		Nickel, Total	33.1	MG/KG	1.5	10.0
		Lead, Total	34.9	MG/KG	2.5	10.0
		Antimony, Total	1.9 u	MG/KG	1.9	10.0
		Vanadium, Total	4.1	MG/KG	0.64	10.0
		Zinc, Total	14.7	MG/KG	1.3	5.0

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CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0XJN1	Silver, Total	0.94	u	MG/KG	0.94	10.0
		Barium, Total	2.3		MG/KG	1.5	5.0
		Beryllium, Total	0.10	u	MG/KG	0.10	5.0
		Calcium, Total	18.0	u	MG/KG	18.0	5.0
		Cadmium, Total	0.37		MG/KG	0.31	10.0
		Cobalt, Total	18.8		MG/KG	0.83	10.0
		Chromium, Total	64.1		MG/KG	0.63	10.0
		Copper, Total	85.1		MG/KG	0.83	10.0
		Iron, Total	325000		MG/KG	15.2	10.0
		Mercury, Total	210		MG/KG	3.5	200
		Potassium, Total	29.1		MG/KG	20.5	10.0
		Magnesium, Total	63.4		MG/KG	14.7	5.0
		Manganese, Total	1300		MG/KG	0.10	10.0
		Sodium, Total	22.9		MG/KG	13.9	5.0
		Nickel, Total	46.9		MG/KG	1.5	10.0
		Lead, Total	4.9		MG/KG	2.4	10.0
		Antimony, Total	1.9	u	MG/KG	1.9	10.0
		Vanadium, Total	3.2		MG/KG	0.63	10.0
		Zinc, Total	18.8		MG/KG	1.3	5.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B0XJN2	Silver, Total	1.1	u	MG/KG	1.1	10.0
		Barium, Total	2.5		MG/KG	1.7	5.0
		Beryllium, Total	0.12	u	MG/KG	0.12	5.0
		Calcium, Total	20.4	u	MG/KG	20.4	5.0
		Cadmium, Total	0.35	u	MG/KG	0.35	10.0
		Cobalt, Total	17.0		MG/KG	0.95	10.0
		Chromium, Total	70.4		MG/KG	0.71	10.0
		Copper, Total	81.1		MG/KG	0.95	10.0
		Iron, Total	295000		MG/KG	17.3	10.0
		Mercury, Total	62.7		MG/KG	1.8	100
		Potassium, Total	23.3	u	MG/KG	23.3	10.0
		Magnesium, Total	63.2		MG/KG	16.6	5.0
		Manganese, Total	1400		MG/KG	0.12	10.0
		Sodium, Total	24.3		MG/KG	15.7	5.0
		Nickel, Total	41.5		MG/KG	1.7	10.0
		Lead, Total	15.8		MG/KG	2.7	10.0
		Antimony, Total	2.1	u	MG/KG	2.1	10.0
		Vanadium, Total	3.3		MG/KG	0.71	10.0
		Zinc, Total	6.8		MG/KG	1.5	5.0

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SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0XJN3	Silver, Total	0.92 u	MG/KG	0.92	10.0
		Barium, Total	2.9	MG/KG	1.4	5.0
		Beryllium, Total	0.11	MG/KG	0.10	5.0
		Calcium, Total	77.5	MG/KG	17.7	5.0
		Cadmium, Total	0.31 u	MG/KG	0.31	10.0
		Cobalt, Total	16.2	MG/KG	0.82	10.0
		Chromium, Total	59.5	MG/KG	0.61	10.0
		Copper, Total	73.8	MG/KG	0.82	10.0
		Iron, Total	318000	MG/KG	15.0	10.0
		Mercury, Total	131	MG/KG	1.7	100
		Potassium, Total	37.8	MG/KG	20.2	10.0
		Magnesium, Total	93.7	MG/KG	14.4	5.0
		Manganese, Total	1340	MG/KG	0.10	10.0
		Sodium, Total	45.4	MG/KG	13.6	5.0
		Nickel, Total	38.0	MG/KG	1.4	10.0
		Lead, Total	59.3	MG/KG	2.4	10.0
		Antimony, Total	2.3	MG/KG	1.8	10.0
		Vanadium, Total	3.4	MG/KG	0.61	10.0
		Zinc, Total	8.9	MG/KG	1.3	5.0

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SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B0XJN4	Silver, Total	1.1 u	MG/KG	1.1	10.0
		Barium, Total	3.7	MG/KG	1.7	5.0
		Beryllium, Total	0.12 u	MG/KG	0.12	5.0
		Calcium, Total	67.0	MG/KG	21.4	5.0
		Cadmium, Total	0.61	MG/KG	0.37	10.0
		Cobalt, Total	19.7	MG/KG	0.99	10.0
		Chromium, Total	43.7	MG/KG	0.74	10.0
		Copper, Total	250	MG/KG	0.99	10.0
		Iron, Total	441000	MG/KG	18.0	10.0
		Mercury, Total	74.3	MG/KG	2.2	100
		Potassium, Total	24.3 u	MG/KG	24.3	10.0
		Magnesium, Total	104	MG/KG	17.4	5.0
		Manganese, Total	1860	MG/KG	0.12	10.0
		Sodium, Total	48.0	MG/KG	16.4	5.0
		Nickel, Total	39.8	MG/KG	1.7	10.0
		Lead, Total	21.3	MG/KG	2.8	10.0
		Antimony, Total	4.2	MG/KG	2.2	10.0
		Vanadium, Total	6.9	MG/KG	0.74	10.0
		Zinc, Total	277	MG/KG	1.5	5.0

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SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B0XJP1	Silver, Total	0.91 u	MG/KG	0.91	10.0
		Barium, Total	1370	MG/KG	1.4	5.0
		Beryllium, Total	0.14	MG/KG	0.10	5.0
		Calcium, Total	17000	MG/KG	17.5	5.0
		Cadmium, Total	5.3	MG/KG	0.30	10.0
		Cobalt, Total	166	MG/KG	0.81	10.0
		Chromium, Total	30600	MG/KG	0.61	10.0
		Copper, Total	37.8	MG/KG	0.81	10.0
		Iron, Total	96300	MG/KG	14.8	10.0
		Mercury, Total	1.6	MG/KG	0.03	2.0
		Potassium, Total	4960	MG/KG	20.0	10.0
		Magnesium, Total	2570	MG/KG	14.2	5.0
		Manganese, Total	633	MG/KG	0.10	10.0
		Sodium, Total	567	MG/KG	13.5	5.0
		Nickel, Total	23.7	MG/KG	1.4	10.0
		Lead, Total	85600	MG/KG	2.3	10.0
		Antimony, Total	1.8 u	MG/KG	1.8	10.0
		Vanadium, Total	27.5	MG/KG	0.61	10.0
		Zinc, Total	20400	MG/KG	1.3	5.0

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SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B0XJP0	Silver, Total	0.92 u	MG/KG	0.92	10.0
		Barium, Total	430	MG/KG	1.4	5.0
		Beryllium, Total	0.10 u	MG/KG	0.10	5.0
		Calcium, Total	6120	MG/KG	17.7	5.0
		Cadmium, Total	2.1	MG/KG	0.31	10.0
		Cobalt, Total	128	MG/KG	0.82	10.0
		Chromium, Total	27900	MG/KG	0.61	10.0
		Copper, Total	60.5	MG/KG	0.82	10.0
		Iron, Total	110000	MG/KG	15.0	10.0
		Mercury, Total	0.89	MG/KG	0.02	1.0
		Potassium, Total	5350	MG/KG	20.2	10.0
		Magnesium, Total	2430	MG/KG	14.4	5.0
		Manganese, Total	692	MG/KG	0.10	10.0
		Sodium, Total	358	MG/KG	13.6	5.0
		Nickel, Total	26.7	MG/KG	1.4	10.0
		Lead, Total	70500	MG/KG	2.4	10.0
		Antimony, Total	1.8 u	MG/KG	1.8	10.0
		Vanadium, Total	23.5	MG/KG	0.61	10.0
		Zinc, Total	18100	MG/KG	1.3	5.0

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RECRA LOT #: 0002L528

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	B0XJM9	Silver, TCLP Leachate	3.7	u	UG/L	3.7	1.0
		Arsenic, TCLP Leachate	33.5		UG/L	22.9	1.0
		Barium, TCLP Leachate	6.8		UG/L	2.8	1.0
		Cadmium, TCLP Leachate	12.6		UG/L	4.1	1.0
		Chromium, TCLP Leachate	9.8		UG/L	3.4	1.0
		Mercury, TCLP Leachate	2.1		UG/L	0.10	1.0
		Lead, TCLP Leachate	26.6	u	UG/L	26.6	1.0
		Selenium, TCLP Leachate	49.7	u	UG/L	49.7	1.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B0XJN0	Silver, TCLP Leachate	36.0	u	UG/L	36.0	40.0
		Arsenic, TCLP Leachate	116	u	UG/L	116	40.0
		Barium, TCLP Leachate	86.9		UG/L	28.0	10.0
		Cadmium, TCLP Leachate	12.0	u	UG/L	12.0	40.0
		Chromium, TCLP Leachate	24.0	u	UG/L	24.0	40.0
		Mercury, TCLP Leachate	10.0	u	UG/L	10.0	100
		Lead, TCLP Leachate	92.0	u	UG/L	92.0	40.0
		Selenium, TCLP Leachate	176	u	UG/L	176	40.0

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-012	B0XJN1	Silver, TCLP Leachate	36.0	u	UG/L	36.0	40.0
		Arsenic, TCLP Leachate	116	u	UG/L	116	40.0
		Barium, TCLP Leachate	97.1		UG/L	28.0	10.0
		Cadmium, TCLP Leachate	12.0	u	UG/L	12.0	40.0
		Chromium, TCLP Leachate	24.0	u	UG/L	24.0	40.0
		Mercury, TCLP Leachate	10.0	u	UG/L	10.0	100
		Lead, TCLP Leachate	92.0	u	UG/L	92.0	40.0
		Selenium, TCLP Leachate	176	u	UG/L	176	40.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-013	B0XJN2	Silver, TCLP Leachate	36.0	u	UG/L	36.0	40.0
		Arsenic, TCLP Leachate	116	u	UG/L	116	40.0
		Barium, TCLP Leachate	90.7		UG/L	28.0	10.0
		Cadmium, TCLP Leachate	12.0	u	UG/L	12.0	40.0
		Chromium, TCLP Leachate	1380		UG/L	24.0	40.0
		Mercury, TCLP Leachate	10.0	u	UG/L	10.0	100
		Lead, TCLP Leachate	448		UG/L	92.0	40.0
		Selenium, TCLP Leachate	176	u	UG/L	176	40.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-014	B0XJN3	Silver, TCLP Leachate	36.0	u	UG/L	36.0	40.0
		Arsenic, TCLP Leachate	116	u	UG/L	116	40.0
		Barium, TCLP Leachate	80.5		UG/L	28.0	10.0
		Cadmium, TCLP Leachate	12.0	u	UG/L	12.0	40.0
		Chromium, TCLP Leachate	24.0	u	UG/L	24.0	40.0
		Mercury, TCLP Leachate	10.0	u	UG/L	10.0	100
		Lead, TCLP Leachate	92.0	u	UG/L	92.0	40.0
		Selenium, TCLP Leachate	176	u	UG/L	176	40.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-015	B0XJN4	Silver, TCLP Leachate	38.5		UG/L	37.0	10.0
		Arsenic, TCLP Leachate	229	u	UG/L	229	10.0
		Barium, TCLP Leachate	31.9		UG/L	28.0	10.0
		Cadmium, TCLP Leachate	41.0	u	UG/L	41.0	10.0
		Chromium, TCLP Leachate	34.0	u	UG/L	34.0	10.0
		Mercury, TCLP Leachate	1.0		UG/L	0.10	1.0
		Lead, TCLP Leachate	266	u	UG/L	266	10.0
		Selenium, TCLP Leachate	620		UG/L	497	10.0

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-016	B0XJP1	Silver, TCLP Leachate	3.7	u	UG/L	3.7	1.0
		Arsenic, TCLP Leachate	22.9	u	UG/L	22.9	1.0
		Barium, TCLP Leachate	66.1		UG/L	2.8	1.0
		Cadmium, TCLP Leachate	16.1		UG/L	4.1	1.0
		Chromium, TCLP Leachate	42900		UG/L	3.4	1.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Lead, TCLP Leachate	81.7		UG/L	26.6	1.0
		Selenium, TCLP Leachate	49.7	u	UG/L	49.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-017	B0XJP0	Silver, TCLP Leachate	3.7	u	UG/L	3.7	1.0
		Arsenic, TCLP Leachate	36.8		UG/L	22.9	1.0
		Barium, TCLP Leachate	68.2		UG/L	2.8	1.0
		Cadmium, TCLP Leachate	6.0		UG/L	4.1	1.0
		Chromium, TCLP Leachate	54600		UG/L	3.4	1.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Lead, TCLP Leachate	26.6	u	UG/L	26.6	1.0
		Selenium, TCLP Leachate	49.7	u	UG/L	49.7	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1024-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Barium, Total	0.28 u	MG/KG	0.28	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Calcium, Total	3.5 u	MG/KG	3.5	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.08 u	MG/KG	0.08	1.0
		Chromium, Total	0.22	MG/KG	0.06	1.0
		Copper, Total	0.08 u	MG/KG	0.08	1.0
		Iron, Total	4.8	MG/KG	1.5	1.0
		Potassium, Total	4.2	MG/KG	2.0	1.0
		Magnesium, Total	2.8 u	MG/KG	2.8	1.0
		Manganese, Total	0.03	MG/KG	0.01	1.0
		Sodium, Total	2.7 u	MG/KG	2.7	1.0
		Nickel, Total	0.14 u	MG/KG	0.14	1.0
		Lead, Total	0.61	MG/KG	0.23	1.0
		Antimony, Total	0.18 u	MG/KG	0.18	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.25 u	MG/KG	0.25	1.0
BLANK1	00C0056-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	99L1018-MB1	Silver, TCLP Leachate	3.7 u	UG/L	3.7	1.0
		Arsenic, TCLP Leachate	22.9 u	UG/L	22.9	1.0
		Barium, TCLP Leachate	2.8 u	UG/L	2.8	1.0
		Cadmium, TCLP Leachate	4.1 u	UG/L	4.1	1.0
		Chromium, TCLP Leachate	3.4 u	UG/L	3.4	1.0
		Lead, TCLP Leachate	26.6 u	UG/L	26.6	1.0
		Selenium, TCLP Leachate	49.7 u	UG/L	49.7	1.0
BLANK2	99L1018-MB2	Silver, TCLP Leachate	3.7 u	UG/L	3.7	1.0
		Arsenic, TCLP Leachate	22.9 u	UG/L	22.9	1.0
		Barium, TCLP Leachate	2.8 u	UG/L	2.8	1.0
		Cadmium, TCLP Leachate	4.1 u	UG/L	4.1	1.0
		Chromium, TCLP Leachate	3.4 u	UG/L	3.4	1.0
		Lead, TCLP Leachate	26.6 u	UG/L	26.6	1.0
		Selenium, TCLP Leachate	49.7 u	UG/L	49.7	1.0
BLANK1	00C0059-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	00C0059-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK3	00C0059-MB3	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK4	00C0059-MB4	Mercury, TCLP Leachate	10.0 u	UG/L	10.0	100

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INORGANICS ACCURACY REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0XJM9	Silver, Total	5.2	1.0 u	5.3	98.1	10.0
		Barium, Total	281	53.6	212	107.4	5.0
		Beryllium, Total	5.2	0.12u	5.3	98.1	5.0
		Calcium, Total	7840	5390	2650	92.6	5.0
		Cadmium, Total	6.3	1.0	5.3	100	10.0
		Cobalt, Total	66.4	12.5	53.0	101.7	10.0
		Chromium, Total	80.8	54.5	21.2	124.1	10.0
		Copper, Total	179	71.9	26.5	403.4	10.0
		Iron, Total	270000	265000	106	4627 *	10.0
		Mercury, Total	591	582	0.18	4935 *	500
		Potassium, Total	3200	493	2650	102.0	10.0
		Magnesium, Total	3120	537	2650	97.5	5.0
		Manganese, Total	509	392	53.0	221.5*	10.0
		Sodium, Total	35000	33900	2650	39.6*	5.0
		Nickel, Total	77.1	19.4	53.0	108.9	10.0
		Lead, Total	334	259	53.0	141.9*	10.0
		Antimony, Total	53.3	2.9	53.0	95.1	10.0
		Vanadium, Total	59.1	7.8	53.0	96.8	10.0
		Zinc, Total	114	51.1	53.0	117.9	5.0

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INORGANICS ACCURACY REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020

RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-010	B0XJM9	Silver, TCLP Leachate	4690	3.7 u	5000	93.9	1.0
		Arsenic, TCLP Leachate	4830	33.5	5000	95.9	1.0
		Barium, TCLP Leachate	60000	6.8	100000	60.0	1.0
		Cadmium, TCLP Leachate	932	12.6	1000	91.9	1.0
		Chromium, TCLP Leachat	4590	9.8	5000	91.6	1.0
		Lead, TCLP Leachate	4560	26.6 u	5000	91.1	1.0
		Selenium, TCLP Leachat	1000	49.7 u	1000	100.2	1.0

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INORGANICS ACCURACY REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-011	B0XJN0	Mercury, TCLP Leachate	208	10.0 u	200	104.2	100

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INORGANICS DUPLICATE SPIKE REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
LCS2	99L1018-LC2	Silver, LCS	98.2	92.9	5.5
		Arsenic, LCS	94.6	95.2	0.67
		Barium, LCS	96.8	94.6	2.2
		Cadmium, LCS	97.6	97.7	0.12
		Chromium, LCS	100	97.1	3.0
		Lead, LCS	97.6	96.8	0.80
		Selenium, LCS	94.3	95.7	1.4
LCS2	00C0059-LC2	Mercury, LCS	109.3	105.0	4.0

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INORGANICS PRECISION REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0XJM9	Silver, Total	1.0 u	0.87u	NC	10.0
		Barium, Total	53.6	61.2	13.2	5.0
		Beryllium, Total	0.12u	0.11	~~NC~~ 200	5.0
		Calcium, Total	5390	5280	2.0	5.0
		Cadmium, Total	1.0	1.0	0.00	10.0
		Cobalt, Total	12.5	13.2	5.4	10.0
		Chromium, Total	54.5	53.5	1.9	10.0
		Copper, Total	71.9	79.2	9.7	10.0
		Iron, Total	265000	266000	0.53	10.0
		Mercury, Total	582	520	11.3	500
		Potassium, Total	493	518	5.0	10.0
		Magnesium, Total	537	558	3.9	5.0
		Manganese, Total	392	411	4.8	10.0
		Sodium, Total	33900	34000	0.39	5.0
		Nickel, Total	19.4	22.6	15.2	10.0
		Lead, Total	259	272	5.0	10.0
		Antimony, Total	2.9	1.8	46.8	10.0
		Vanadium, Total	7.8	8.2	5.0	10.0
		Zinc, Total	51.1	61.2	18.0	5.0

Correction MMD 3/24/00

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INORGANICS PRECISION REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L52B

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-010REP	B0XJM9	Silver, TCLP Leachate	3.7 u	3.7 u	NC	1.0
		Arsenic, TCLP Leachate	33.5	22.9 u	~~NC~~ 200	1.0
		Barium, TCLP Leachate	6.8	7.0	2.9	1.0
		Cadmium, TCLP Leachate	12.6	8.9	34.4	1.0
		Chromium, TCLP Leachate	9.8	3.9	86.1	1.0
		Lead, TCLP Leachate	26.6 u	26.6 u	NC	1.0
		Selenium, TCLP Leachate	49.7 u	49.7 u	NC	1.0

Correction MD 3/24/00

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INORGANICS PRECISION REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-011REP	B0XJN0	Mercury, TCLP Leachate	10.0 u	10.0 u	NC	100

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/21/00

CLIENT: TNU-HANFORD B00-020 RECRA LOT #: 0002L528

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1024-LC1	Silver, LCS	49.1	50.0	MG/KG	98.2
		Barium, LCS	484	500	MG/KG	96.8
		Beryllium, LCS	23.0	25.0	MG/KG	92.0
		Calcium, LCS	2360	2500	MG/KG	94.4
		Cadmium, LCS	24.4	25.0	MG/KG	97.6
		Cobalt, LCS	244	250	MG/KG	97.8
		Chromium, LCS	50.0	50.0	MG/KG	100
		Copper, LCS	124	125	MG/KG	99.2
		Iron, LCS	498	500	MG/KG	99.6
		Potassium, LCS	2500	2500	MG/KG	100.1
		Magnesium, LCS	2320	2500	MG/KG	92.6
		Manganese, LCS	75.6	75.0	MG/KG	100.8
		Sodium, LCS	2390	2500	MG/KG	95.5
		Nickel, LCS	195	200	MG/KG	97.6
		Lead, LCS	244	250	MG/KG	97.6
		Antimony, LCS	286	300	MG/KG	95.4
		Vanadium, LCS	249	250	MG/KG	99.8
		Zinc, LCS	92.3	100	MG/KG	92.3
LCS1	00C0056-LC1	Mercury, LCS	0.98	1.0	MG/KG	97.7
LCS1	99L1018-LC1	Silver, LCS	465	500	UG/L	93.1
		Arsenic, LCS	9460	10000	UG/L	94.6
		Barium, LCS	4720	5000	UG/L	94.5
		Cadmium, LCS	244	250	UG/L	97.4
		Chromium, LCS	481	500	UG/L	96.1
		Lead, LCS	2420	2500	UG/L	96.6
		Selenium, LCS	9430	10000	UG/L	94.3
LCS2	99L1018-LC2	Silver, LCS	464	500	UG/L	92.9
		Arsenic, LCS	9520	10000	UG/L	95.2
		Barium, LCS	4730	5000	UG/L	94.6
		Cadmium, LCS	244	250	UG/L	97.7
		Chromium, LCS	485	500	UG/L	97.1
		Lead, LCS	2420	2500	UG/L	96.8
		Selenium, LCS	9570	10000	UG/L	95.7
LCS1	00C0059-LC1	Mercury, LCS	5.5	5.0	UG/L	109.3
LCS2	00C0059-LC2	Mercury, LCS	5.3	5.0	UG/L	105.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XJM9						
TCLP	001	SO	00LT0019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
SILVER, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
SILVER, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00
BARIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
BARIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
CADMIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
CADMIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	001	SO	00C0056	02/16/00	02/28/00	03/01/00
MERCURY, TOTAL	001 REP	SO	00C0056	02/16/00	02/28/00	03/01/00
MERCURY, TOTAL	001 MS	SO	00C0056	02/16/00	02/28/00	03/01/00
POTASSIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
POTASSIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
POTASSIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
MAGNESIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
MANGANESE, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
MANGANESE, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00
SODIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
SODIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
NICKEL, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
NICKEL, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	001	SO	99L1024	02/16/00	03/01/00	03/02/00
ZINC, TOTAL	001 REP	SO	99L1024	02/16/00	03/01/00	03/02/00
ZINC, TOTAL	001 MS	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJN0						
TCLP	002	SO	00LT0019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	002	SO	00C0056	02/16/00	02/28/00	03/01/00
POTASSIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	002	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJN1						
TCLP	003	SO	00LTO019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	003	SO	00C0056	02/16/00	02/28/00	03/01/00
POTASSIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	003	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJN2						
TCLP	004	SO	00LTO019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	004	SO	00C0056	02/16/00	02/28/00	02/29/00
POTASSIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	004	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJN3						
TCLP	005	SO	00LTO019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	005	SO	00C0056	02/16/00	02/28/00	02/29/00
POTASSIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/10/00

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DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	005	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJN4						
TCLP	006	SO	00LT0019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	006	SO	00C0056	02/16/00	02/28/00	02/29/00
POTASSIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	006	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJP1						
TCLP	008	SO	00LT0019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	008	SO	00C0056	02/16/00	02/28/00	02/29/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	008	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJP0						
TCLP	009	SO	00LTO019	02/16/00	02/28/00	02/29/00
SILVER, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
BARIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
BERYLLIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
CALCIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
CADMIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
COBALT, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
CHROMIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
COPPER, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
IRON, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
MERCURY, TOTAL	009	SO	00C0056	02/16/00	02/28/00	02/29/00
POTASSIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
MAGNESIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
MANGANESE, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
SODIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
NICKEL, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
LEAD, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
ANTIMONY, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
VANADIUM, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/10/00
ZINC, TOTAL	009	SO	99L1024	02/16/00	03/01/00	03/02/00
B0XJM9						
SILVER, TCLP LEACHAT	010	W	99L1018	02/29/00	02/29/00	03/01/00
SILVER, TCLP LEACHAT	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
SILVER, TCLP LEACHAT	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TCLP LEACHA	010	W	99L1018	02/29/00	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	010	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	010	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	010	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	010	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	010	W	99L1018	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	010	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	010 REP	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	010 MS	W	99L1018	02/29/00	02/29/00	03/01/00
B0XJN0						
SILVER, TCLP LEACHAT	011	W	99L1018	02/29/00	02/29/00	03/02/00
ARSENIC, TCLP LEACHA	011	W	99L1018	02/29/00	02/29/00	03/02/00
BARIUM, TCLP LEACHAT	011	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	011	W	99L1018	02/29/00	02/29/00	03/02/00
CHROMIUM, TCLP LEACH	011	W	99L1018	02/29/00	02/29/00	03/02/00
MERCURY, TCLP LEACHA	011	W	00C0059	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	011 REP	W	00C0059	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	011 MS	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	011	W	99L1018	02/29/00	02/29/00	03/02/00
SELENIUM, TCLP LEACH	011	W	99L1018	02/29/00	02/29/00	03/02/00
B0XJN1						
SILVER, TCLP LEACHAT	012	W	99L1018	02/29/00	02/29/00	03/02/00
ARSENIC, TCLP LEACHA	012	W	99L1018	02/29/00	02/29/00	03/02/00
BARIUM, TCLP LEACHAT	012	W	99L1018	02/29/00	02/29/00	03/01/00

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TCLP LEACHA	012	W	99L1018	02/29/00	02/29/00	03/02/00
CHROMIUM, TCLP LEACH	012	W	99L1018	02/29/00	02/29/00	03/02/00
MERCURY, TCLP LEACHA	012	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	012	W	99L1018	02/29/00	02/29/00	03/02/00
SELENIUM, TCLP LEACH	012	W	99L1018	02/29/00	02/29/00	03/02/00
B0XJN2						
SILVER, TCLP LEACHAT	013	W	99L1018	02/29/00	02/29/00	03/02/00
ARSENIC, TCLP LEACHA	013	W	99L1018	02/29/00	02/29/00	03/02/00
BARIUM, TCLP LEACHAT	013	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	013	W	99L1018	02/29/00	02/29/00	03/02/00
CHROMIUM, TCLP LEACH	013	W	99L1018	02/29/00	02/29/00	03/02/00
MERCURY, TCLP LEACHA	013	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	013	W	99L1018	02/29/00	02/29/00	03/02/00
SELENIUM, TCLP LEACH	013	W	99L1018	02/29/00	02/29/00	03/02/00
B0XJN3						
SILVER, TCLP LEACHAT	014	W	99L1018	02/29/00	02/29/00	03/02/00
ARSENIC, TCLP LEACHA	014	W	99L1018	02/29/00	02/29/00	03/02/00
BARIUM, TCLP LEACHAT	014	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	014	W	99L1018	02/29/00	02/29/00	03/02/00
CHROMIUM, TCLP LEACH	014	W	99L1018	02/29/00	02/29/00	03/02/00
MERCURY, TCLP LEACHA	014	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	014	W	99L1018	02/29/00	02/29/00	03/02/00
SELENIUM, TCLP LEACH	014	W	99L1018	02/29/00	02/29/00	03/02/00
B0XJN4						
SILVER, TCLP LEACHAT	015	W	99L1018	02/29/00	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	015	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	015	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	015	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	015	W	99L1018	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	015	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	015	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	015	W	99L1018	02/29/00	02/29/00	03/01/00

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0XJP1						
SILVER, TCLP LEACHAT	016	W	99L1018	02/29/00	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	016	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	016	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	016	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	016	W	99L1018	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	016	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	016	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	016	W	99L1018	02/29/00	02/29/00	03/01/00
B0XJP0						
SILVER, TCLP LEACHAT	017	W	99L1018	02/29/00	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	017	W	99L1018	02/29/00	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	017	W	99L1018	02/29/00	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	017	W	99L1018	02/29/00	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	017	W	99L1018	02/29/00	02/29/00	03/01/00
MERCURY, TCLP LEACHA	017	W	00C0059	02/29/00	02/29/00	03/01/00
LEAD, TCLP LEACHATE	017	W	99L1018	02/29/00	02/29/00	03/01/00
SELENIUM, TCLP LEACH	017	W	99L1018	02/29/00	02/29/00	03/01/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
SILVER, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
BARIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
BARIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
BERYLLIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
BERYLLIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
CALCIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
CALCIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
CADMIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
CADMIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
COBALT LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
COBALT, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
CHROMIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
COPPER LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
COPPER, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
IRON LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
IRON, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
MERCURY LABORATORY	LC1 BS	S	00C0056	N/A	02/28/00	02/29/00
MERCURY, TOTAL	MB1	S	00C0056	N/A	02/28/00	02/29/00
POTASSIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
POTASSIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
MAGNESIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
MAGNESIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
MANGANESE LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
MANGANESE, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
SODIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
SODIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
NICKEL LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
NICKEL, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
LEAD LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
LEAD, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
ANTIMONY LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
ANTIMONY, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
VANADIUM LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/10/00
VANADIUM, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/10/00
ZINC LABORATORY	LC1 BS	S	99L1024	N/A	03/01/00	03/02/00
ZINC, TOTAL	MB1	S	99L1024	N/A	03/01/00	03/02/00
SILVER LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
SILVER LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
SILVER, TCLP LEACHAT	MB1	W	99L1018	N/A	02/29/00	03/01/00
SILVER, TCLP LEACHAT	MB2	W	99L1018	N/A	02/29/00	03/01/00
ARSENIC LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
ARSENIC LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	MB1	W	99L1018	N/A	02/29/00	03/01/00
ARSENIC, TCLP LEACHA	MB2	W	99L1018	N/A	02/29/00	03/01/00
BARIUM LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
BARIUM LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	MB1	W	99L1018	N/A	02/29/00	03/01/00
BARIUM, TCLP LEACHAT	MB2	W	99L1018	N/A	02/29/00	03/01/00
CADMIUM LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-020

DATE RECEIVED: 02/23/00 RFW LOT # :0002L528

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	MB1	W	99L1018	N/A	02/29/00	03/01/00
CADMIUM, TCLP LEACHA	MB2	W	99L1018	N/A	02/29/00	03/01/00
CHROMIUM LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
CHROMIUM LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	MB1	W	99L1018	N/A	02/29/00	03/01/00
CHROMIUM, TCLP LEACH	MB2	W	99L1018	N/A	02/29/00	03/01/00
MERCURY LABORATORY	LC1 BS	W	00C0059	N/A	02/29/00	03/01/00
MERCURY LABORATORY	LC2 BS	W	00C0059	N/A	02/29/00	03/01/00
MERCURY, TOTAL	MB1	W	00C0059	N/A	02/29/00	03/01/00
MERCURY, TCLP LEACHA	MB2	W	00C0059	N/A	02/29/00	03/01/00
MERCURY, TCLP LEACHA	MB3	W	00C0059	N/A	02/29/00	03/01/00
MERCURY, TCLP LEACHA	MB4	W	00C0059	N/A	02/29/00	03/01/00
LEAD LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
LEAD LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
LEAD, TCLP LEACHATE	MB1	W	99L1018	N/A	02/29/00	03/01/00
LEAD, TCLP LEACHATE	MB2	W	99L1018	N/A	02/29/00	03/01/00
SELENIUM LABORATORY	LC1 BS	W	99L1018	N/A	02/29/00	03/01/00
SELENIUM LABORATORY	LC2 BS	W	99L1018	N/A	02/29/00	03/01/00
SELENIUM, TCLP LEACH	MB1	W	99L1018	N/A	02/29/00	03/01/00
SELENIUM, TCLP LEACH	MB2	W	99L1018	N/A	02/29/00	03/01/00

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

ALL

RECRA LabNet

Client: TMU-Hanford B00-020

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: 2-23-00 Date Due: 3-9-00

Account #:

Refrigerator #				4					4			4				
#/Type Container	Liquid															
	Solid			1AG					1AG			1AG				
Volume	Liquid															
	Solid			60					250			60				
Preservatives				–					–			–				
ANALYSES REQUESTED →		VOA	BNA	~~Pest~~/PCB	Herb			leachate	Metal	CN	S/metals					
		ORGANIC							INORG							

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			PCB				RCRA TCLP	Met(1)		ITCLP	IPH				
001	BØXJM9			SO	2-16-00	0935								✓		✓	✓				
002	JMØ					1000								✓		✓	✓				
003	JM1					1020								✓		✓	✓				
004	JM2					1130								✓		✓	✓				
005	JM3					1140								✓		✓	✓				
006	JM4					1200								✓		✓	✓				
007	MD9				2-17-00	1250			✓												
008	JP1				2-16-00	1220								✓		✓					
009	JPØ					1100								✓		✓					
010	BØXJM9 tclp of 001			L	**	–							✓								

Special Instructions:

Sat# B00-020

COMPOSITE WASTE

DATE/REVISIONS:

1. Run Matrix QC
2. Met(1) Fe, Pb, Mg, Mn, Ni, K, Ag, Na, Sb, Ba,
3. Be, Cd, Cr, Co, Cu, V, Zn, Ca, Hg
4.
5.
6.

RECRA LabNet Use Only

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

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

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

Coolers Temp. See below °C

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

NOTES:

B135500729 31-15.7°C 4235795534 023-3.4°C

B1 0N 09 0M 5 2 1 1-15.10°C

Relinquished by	Received by	Date	Time
[signature]	[signature]	2-23-00	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

0002L528

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TRU-Hanford BCO-020

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #:

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives:

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

RECRA LabNet Use Only: RCRA TCLP

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	RCRA TCLP
011	BØX Jno tclp of 002			L	**	–	✓
012	n1 003					–	✓
013	n2 004					–	✓
014	n3 005					–	✓
015	n4 006					–	✓
016	P1 008					–	✓
017	P0 009					–	✓

Special Instructions:

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

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

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

Relinquished by	Received by	Date	Time
FedEx	[illegible]	2-23-00	0930

Relinquished by	Received by	Date	Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-01	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: IP3/FG	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: TMA/RECRA RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS
Corrosive/Acid/Solid

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	250mL									
SAMPLE ANALYSIS	pH (Soil) - 9045	See item (1) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJM9	Other Solid	2·16·00	0935	X	X							BoxJ	N5
B0XJN0	Other Solid	2·16·00	1000	X	X							BoxJ	N5
B0XJN1	Other Solid	2·16·00	1020	X	X							BoxJ	N5

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: RFahlberg	Date/Time: 2.16.00 1400	Received By: Ref 2·B	Date/Time: 2·16·00 1400
Relinquished By: R 2·B	Date/Time: 2·23·00/0800	Received By: R.A Thoren R. Thoren	Date/Time: 2·23·00/0800
Relinquished By: RA Thoren R Thoren	Date/Time: 2·23·00/1430	Received By: FEDEX	Date/Time:
Relinquished By: FedEx	Date/Time: 2·23·00 0930	Received By: [illegible]	Date/Time: 2·23·00 0930
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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)

MPS 8164 0960 5214

Temp 15.6

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-02	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K		SAF No.: B00-020
Ice Chest No.: IB3/46	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: RP ~.1600 ~~TMA~~/RECRA	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS
Corrosive/Acid/Solid

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	250mL									
SAMPLE ANALYSIS	pH (Soil) - 9045	See item (1) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
B0XJN2	Other Solid	2·16·00	1130	X	X							Box	JN6
B0XJN3	Other Solid	2·16·00	1140	X	X							Box	JN6
B0XJN4	Other Solid	2·16·00	1200	X	X							Box	JN6

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R.Fahlberg R.Fahlberg	2·16·00 1400	Received By	R.F 2·B 2-16-00 1400
Relinquished By	R.F 2B	2·22·00/0800	Received By	R.Thorson 2·22·00/0800
Relinquished By	R.Thorson RIKKI THORSON	2·22·00/1430	Received By	FEDEX
Relinquished By	FedEx	2-23-00 0930	Received By	[illegible] 2-23-00 0930
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples.

(1) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

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

CTBHI-EE-011 (10/99)

8133500 72931 Temp · 15·7

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-10	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 183 K East & West		SAF No.: B00-020
Ice Chest No.: ERC99-069	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed EX
Shipped To: ~~TMA~~/RECRA RAF 2·17·00	Offsite Property No.: A00 0122		Bill of Lading/Air Bill No.: 4235 7953 4023

Price Code: 9K

Air Quality ☐

Data Turnaround: 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	Cool 4C										
Type of Container	aG										
No. of Container(s)	1										
Volume	60mL										
SAMPLE ANALYSIS	PCBs - 8082										

Sample No.	Matrix *	Sample Date	Sample Time										
B0XMD9	Other Solid	2·17·00	1250	X									BOX INS

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	2·17·00 1400	RAF 2·B	2·17·00 1400
R. 2·B	2·22·00/0900	R.A Thoren / R.A Thoren	2·22·00/0900
R.A Thoren / R.A Thoren	2·22·00/1430	FED EX	
FedEx	2·23·00 0930	[illegible]	2·23·00 0930

SPECIAL INSTRUCTIONS

Sample original [illegible] Controlled [illegible] 2000 [illegible]/9. no [illegible] Required RAF 2·22·00

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	B00-020-09	Page 1 of 1
Collector: Fahlberg	Company Contact: D Jacques; Telephone No.: 373-5299	Project Coordinator: TRENT, SJ	Price Code: 9K; Data Turnaround: 15 Days
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	Air Quality:
Ice Chest No.: ERC 99-069	Field Logbook No.: EL 1424; COA: E120KF2W14	Method of Shipment: Fed Ex	
Shipped To: ~~TMA~~/RECRA RF-16.00	Offsite Property No.: A00122	Bill of Lading/Air Bill No.: 48357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.									
Sample No. / Matrix * / Sample Date / Sample Time											
B0XJP1 / Other Solid / 2.16.00 / 1220		X								BOX JN6	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	2.16.00 1400	Rof 2.B.	2.16.00 1400
R. 2B	2.22.00 0900	R. Thoren / RA Thoren	2.22.00 0900
RA Thoren / R. Thoren	2.22.00 1430	[illegible]	
Fed Ex	2.23.00 0930	[illegible]	2.23.00 0930

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238)
(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Sample originated in non RAD Controlled area. <200cpm/g
No TA Required

Matrix *

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-020-08	Page 1 of 1

Collector: Fahlberg	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality ☐	
Project Designation: 183-KW/KE Acid Pipes	Sampling Location: 100K	SAF No.: B00-020	
Ice Chest No.: ERC 99-069	Field Logbook No.: EL 1424	COA: E120KF2W14	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RECRA	Offsite Property No.: AØØ0122	Bill of Lading/Air Bill No.: 42357953 4023	

POSSIBLE SAMPLE HAZARDS/REMARKS: NONE

Special Handling and/or Storage

SAMPLE ANALYSIS													
			Preservation	None	None								
			Type of Container	aG	aG								
			No. of Container(s)	1	1								
			Volume	60mL	60mL								
				See item (1) in Special Instructions.	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time										
B0XJP0	Other Solid	2-16-00	1100	X	X							Box	JN5

CHAIN OF POSSESSION	Sign/Print Names	Received By	Date/Time
Relinquished By: R. Fahlberg	Date/Time: 1400 2-16-00	Received By: Ref 2B	
Relinquished By: Ref 2B	Date/Time: 2-22-00/0900	Received By: RA Thoren	Date/Time: 2-22-00/0900
Relinquished By: RA Thoren	Date/Time: 2-22-00/1430	Received By: FED EX	
Relinquished By: Fed Ex	Date/Time: 2-23-00 0930	Received By: [illegible]	Date/Time: 2-23-00 0930
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples.

(1) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Thorium-228, Thorium-232, Uranium-235, Uranium-238}

(2) ICP Metals - 6010A (TAL); Mercury - 7471 - (CV); Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470

Samples originated from [illegible] Controlled [illegible] RT 2-22-00 [illegible] NO TA Required

Matrix *

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

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

BHI-EE-011 (10/99)