H0383-TMA/RECRA

RECRA LabNet

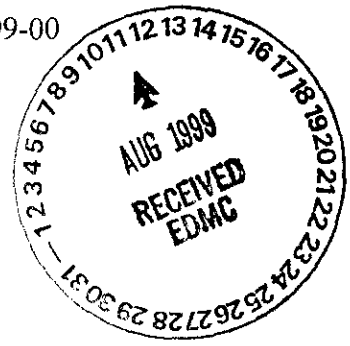
a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-041
RFW# : 9904L665
SDG/SAF# : H0383/B99-041

W.O.# : 10985-001-001-9999-00
Date Received: 04-10-99



METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

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) 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.

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

11. When the Mercury matrix spike is out-of-control, a five fold dilution with a 1µg/L spike is performed. The recovery of this spike was 92.7%.

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

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

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

Pat E L

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

4-29-99
Date

mld/m04-665

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9904L665

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050A __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.

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INORGANICS DATA SUMMARY REPORT 04/29/99

CLIENT: TNU-HANFORD B99-041 RECRA LOT #: 9904L665

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0V6V2	Chromium, Total	17.3	MG/KG	0.06	1.0
		Mercury, Total	0.48	MG/KG	0.02	1.0
		Lead, Total	18.9	MG/KG	0.18	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/29/99

CLIENT: TNU-HANFORD B99-041 RECRA LOT #: 9904L665

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0230-MB1	Chromium, Total	0.21	MG/KG	0.06	1.0
		Lead, Total	0.18 u	MG/KG	0.18	1.0
BLANK1	99C0113-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 04/29/99

CLIENT: TNU-HANFORD B99-041 RECRA LOT #: 9904L665

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0V6V2	Chromium, Total	36.2	17.3	20.2	93.6	1.0
		Mercury, Total	0.52	0.48	0.16	25.0	1.0
		Lead, Total	61.8	18.9	50.4	85.1	1.0

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INORGANICS PRECISION REPORT 04/29/99

CLIENT: TNU-HANFORD B99-041 RECRA LOT #: 9904L665

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0V6V2	Chromium, Total	17.3	17.4	0.58	1.0
		Mercury, Total	0.48	0.39	20.3	1.0
		Lead, Total	18.9	19.0	0.53	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/29/99

CLIENT: TNU-HANFORD B99-041 RECRA LOT #: 9904L665

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0230-LC1	Chromium, LCS	49.4	50.0	MG/KG	98.8
		Lead, LCS	241	250	MG/KG	96.4
LCS1	99C0113-LC1	Mercury, LCS	0.99	1.0	MG/KG	98.7

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-041

DATE RECEIVED: 04/10/99 RFW LOT # :9904L665

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0V6V2						
CHROMIUM, TOTAL	001	S	99L0230	04/06/99	04/22/99	04/24/99
CHROMIUM, TOTAL	001 REP	S	99L0230	04/06/99	04/22/99	04/24/99
CHROMIUM, TOTAL	001 MS	S	99L0230	04/06/99	04/22/99	04/24/99
MERCURY, TOTAL	001	S	99C0113	04/06/99	04/28/99	04/28/99
MERCURY, TOTAL	001 REP	S	99C0113	04/06/99	04/28/99	04/28/99
MERCURY, TOTAL	001 MS	S	99C0113	04/06/99	04/28/99	04/28/99
LEAD, TOTAL	001	S	99L0230	04/06/99	04/22/99	04/24/99
LEAD, TOTAL	001 REP	S	99L0230	04/06/99	04/22/99	04/24/99
LEAD, TOTAL	001 MS	S	99L0230	04/06/99	04/22/99	04/24/99
LAB QC:						
CHROMIUM LABORATORY	LC1 BS	S	99L0230	N/A	04/22/99	04/24/99
CHROMIUM, TOTAL	MB1	S	99L0230	N/A	04/22/99	04/24/99
MERCURY LABORATORY	LC1 BS	S	99C0113	N/A	04/28/99	04/28/99
MERCURY, TOTAL	MB1	S	99C0113	N/A	04/28/99	04/28/99
LEAD LABORATORY	LC1 BS	S	99L0230	N/A	04/22/99	04/24/99
LEAD, TOTAL	MB1	S	99L0230	N/A	04/22/99	04/24/99

RECRA LabNet Use Only

9904L665

Custody Transfer Record/Lab Work Request

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNe

Client TNL-HANFORD B99-041

Est. Final Proj. Sampling Date

Project # 10985 - 001 - 001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC SPEC Del STD TAT 21 DAY

Date Rec'd 4/10/99 Date Due 5/1/99

Account # TNLHANFORD

Refrigerator #		3
#/Type Container	Liquid	
	Solid	NA
Volume	Liquid	
	Solid	60ml
Preservatives		—

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

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met ①
001	BOV6V2	X	X	S	4/6/99	1300	✓

Special Instructions:

Saf #. B99-041

COMPOSITE WASTE

DATE/REVISIONS:

1. Met ① = MCRTO, MPBTO, MHGTO
2.
3.
4.
5.
6. * 42 35 79 52 46 30 @ 6.8°C

RECRA LabNet Use Only

Samples were: 1) Shipped X 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 6.8 C

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

NOTES:

Relinquished by	Received by	Date	Time
Fed Ex	Brue Kelly	4/10/99	1030

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

011

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-041-004	Page 1 of 1

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
MT Stankovich	MT Stankovich	531-7620	TRENT, SJ		21 Days
Project Designation	**Sampling Location**		**SAF No.**		
100 H Area - Quick Turn	116-H-7		B99-041		
Ice Chest No.	**Field Logbook No.**		**Method of Shipment**		
SML-223	EL-1500		OVERNITE CARRIER		
Shipped To	**Offsite Property No.**		**Bill of Lading/Air Bill No.**		
TMA/RECRA	A990111		423579524630		
			COA R116H72F00		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive

Special Handling and/or Storage
None

Preservation	None											
Type of Container	aG											
No. of Container(s)	1											
Volume	60mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
B0V6V2	Soil	4-6-99	1300	✓								B0V6T5

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	Stankovich	4.6.99 1515
Received By	Cooler #1B	
Relinquished By	COOLER #1B	4.9.99 1030
Received By	SIGNATURE	4/9/99 1030
Relinquished By	SIGNATURE	4.9.99 1030
Received By	OVERNITE CARRIER	
Relinquished By	FedEx	4/10/99 1030
Received By	[signature]	4/10/99 1030

SPECIAL INSTRUCTIONS
COA = R116H7 2F00 (TMA Lab); R116H7 2600 (Samplers)

(1) ICP Metals - 6010A (Supertrace) {Chromium, Lead}; Mercury - 7471 - (CV)

Stored in Cooler 1B - 3°C

*M STANKOVICH UNAVAILABLE TO SIGN COC

423579524630 @ 6.8°C

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

0127 0