

0054354

H0881

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B99-042 H0881



DATE RECEIVED: 10/31/00

RFW LOT # :0010L088

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOYC54						
ARSENIC, TOTAL	001	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	001	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC55						
ARSENIC, TOTAL	002	S	99L1711	06/15/00	11/13/00	11/13/00
ARSENIC, TOTAL	002 REP	S	99L1711	06/15/00	11/13/00	11/13/00
ARSENIC, TOTAL	002 MS	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	002	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	002 REP	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	002 MS	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC56						
ARSENIC, TOTAL	003	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	003	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC57						
ARSENIC, TOTAL	004	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	004	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC58						
ARSENIC, TOTAL	005	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	005	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC59						
ARSENIC, TOTAL	006	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	006	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC60						
ARSENIC, TOTAL	007	S	99L1711	06/15/00	11/13/00	11/13/00

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 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B99-042 H0881

DATE RECEIVED: 10/31/00

RFW LOT # :0010L088

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	007	S	99L1711	06/15/00	11/13/00	11/13/00
BOYC61						
ARSENIC, TOTAL	008	S	99L1711	06/15/00	11/13/00	11/13/00
LEAD, TOTAL	008	S	99L1711	06/15/00	11/13/00	11/13/00

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	99L1711	N/A	11/13/00	11/13/00
ARSENIC, TOTAL	MB1	S	99L1711	N/A	11/13/00	11/13/00
LEAD LABORATORY	LC1 BS	S	99L1711	N/A	11/13/00	11/13/00
LEAD, TOTAL	MB1	S	99L1711	N/A	11/13/00	11/13/00

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B99-042
RFW#: 0010L088
SDG/SAF#: H0881/B99-042

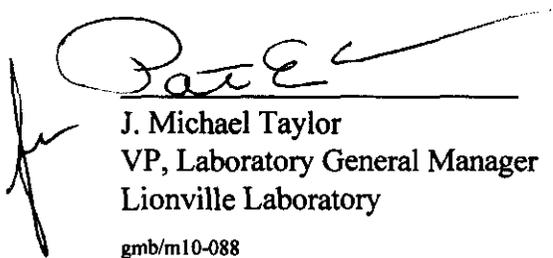
W.O.#: 10985-001-001-9999-00
Date Received: 10-31-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples are a re-log of 0006L617.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the original Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory
gmb/m10-088

Date 12-6-00



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 00102088

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	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Antimony	<u> 6010B </u> <u> 7041⁵ </u>	<u> 200.7 </u> <u> 204.2 </u>			<u> 99 </u>
Arsenic	<input checked="" type="checkbox"/> <u> 6010B </u> <u> 7060A⁵ </u>	<u> 200.7 </u> <u> 206.2 </u>	<u> 3113B </u>		<u> 99 </u>
Barium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Beryllium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Bismuth	<u> 6010B¹ </u>	<u> 200.7¹ </u>		<u> 1620 </u>	<u> 99 </u>
Boron	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Cadmium	<u> 6010B </u> <u> 7131A⁵ </u>	<u> 200.7 </u> <u> 213.2 </u>			<u> 99 </u>
Calcium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Chromium	<u> 6010B </u> <u> 7191⁵ </u>	<u> 200.7 </u> <u> 218.2 </u>			<u> SS17 </u>
Cobalt	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Copper	<u> 6010B </u> <u> 7211⁵ </u>	<u> 200.7 </u> <u> 220.2 </u>			<u> 99 </u>
Iron	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Lead	<input checked="" type="checkbox"/> <u> 6010B </u> <u> 7421⁵ </u>	<u> 200.7 </u> <u> 239.2 </u>	<u> 3113B </u>		<u> 99 </u>
Lithium	<u> 6010B </u> <u> 7430⁴ </u>	<u> 200.7 </u>		<u> 1620 </u>	<u> 99 </u>
Magnesium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Manganese	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Mercury	<u> 7470A³ </u> <u> 7471A³ </u>	<u> 245.1² </u> <u> 245.5² </u>			<u> 99 </u>
Molybdenum	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Nickel	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Potassium	<u> 6010B </u> <u> 7610⁴ </u>	<u> 200.7 </u> <u> 258.1⁴ </u>			<u> 99 </u>
Rare Earths	<u> 6010B¹ </u>	<u> 200.7¹ </u>		<u> 1620 </u>	<u> 99 </u>
Selenium	<u> 6010B </u> <u> 7740⁵ </u>	<u> 200.7 </u> <u> 270.2 </u>	<u> 3113B </u>		<u> 99 </u>
Silicon	<u> 6010B¹ </u>	<u> 200.7 </u>		<u> 1620 </u>	<u> 99 </u>
Silica	<u> 6010B </u>	<u> 200.7 </u>		<u> 1620 </u>	<u> 99 </u>
Silver	<u> 6010B </u> <u> 7761⁵ </u>	<u> 200.7 </u> <u> 272.2 </u>			<u> 99 </u>
Sodium	<u> 6010B </u> <u> 7770⁴ </u>	<u> 200.7 </u> <u> 273.1⁴ </u>			<u> 99 </u>
Strontium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Thallium	<u> 6010B </u> <u> 7841⁵ </u>	<u> 200.7 </u> <u> 279.2 </u> <u> 200.9 </u>			<u> 99 </u>
Tin	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Titanium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Uranium	<u> 6010B¹ </u>	<u> 200.7¹ </u>		<u> 1620 </u>	<u> 99 </u>
Vanadium	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Zinc	<u> 6010B </u>	<u> 200.7 </u>			<u> 99 </u>
Zirconium	<u> 6010B¹ </u>	<u> 200.7¹ </u>		<u> 1620 </u>	<u> 99 </u>

Other: _____

Method: _____

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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.

RECRA

Sample Discrepancy Report (SDR)

SDR #: DBPM 137

Initiator: Orlette Johnson Batch: 00062617 Parameter: _____
 Date: 10/25/00 Samples: all Matrix: soil
 Client: TNU Hartford Method: SW846/MCAWW/CLP/ Prep Batch: _____
AD981

1. Reason for SDR

- a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____
- b. General Discrepancy
 Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note: Verified by (Log-In) or (Prep Group) (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

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

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

3. Discussion and Proposed Action

Other Description:

- Re-log
 Entire Batch
 Following Samples: _____
 Re-leach
 Re-extract
 Re-digest
 Revise EDD
 Change Test Code to _____
 Place On/Take Off Hold (circle)

for Trace ICP As, Pb 7day TAT
 per client request
 Orlette Johnson 10/26/00

Note on COC:
Trace ICP

4. Project Manager Instructions...signature/date: _____

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

5. Final Action...signature/date: Keppel 10/31/00

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
 Included in Case Narrative
 Hard Copy COC Revised
 Electronic COC Revised
 EDD Corrections Completed

Relogged to 00102088

When Final Action has been recorded, forward original to QA for distribution and filing.

Route/Distribution of SDR

Route Distribution of Completed SDR

- Initiator
 Lab Manager: M. Taylor
 Project Mgr: Stone/Carey/Johnson
 Section Mgr: Wesson/Daniels
 QA (file): Schrenkel
 Data Management: Feldman
 Sample Prep: Bickel/Kauffman

- Metals: Doughty
 Inorganic: Perrone
 GC/LC: Pastor
 MS: Layman/Rycklak
 Log-in: Keppel
 Admin: Soos
 Other: Jeff Welsh

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/20/00

CLIENT: TNUHANFORD B99-042 H0881

RECRA LOT #: 0010L088

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-001	BOYC54	Arsenic, Total	0.32	u MG/KG	0.32	1.0
		Lead, Total	0.76	MG/KG	0.20	1.0
-002	BOYC55	Arsenic, Total	1.9	MG/KG	0.29	1.0
		Lead, Total	2.9	MG/KG	0.18	1.0
-003	BOYC56	Arsenic, Total	1.7	MG/KG	0.33	1.0
		Lead, Total	2.3	MG/KG	0.20	1.0
-004	BOYC57	Arsenic, Total	1.9	MG/KG	0.33	1.0
		Lead, Total	2.4	MG/KG	0.20	1.0
-005	BOYC58	Arsenic, Total	2.1	MG/KG	0.31	1.0
		Lead, Total	2.3	MG/KG	0.19	1.0
-006	BOYC59	Arsenic, Total	3.3	MG/KG	0.30	1.0
		Lead, Total	7.6	MG/KG	0.19	1.0
-007	BOYC60	Arsenic, Total	8.5	MG/KG	0.32	1.0
		Lead, Total	21.2	MG/KG	0.20	1.0
-008	BOYC61	Arsenic, Total	6.3	MG/KG	0.31	1.0
		Lead, Total	23.1	MG/KG	0.19	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/20/00

CLIENT: TNUHANFORD B99-042 H0881
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L088

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1711-MB1	Arsenic, Total	0.34	u MG/KG	0.34	1.0
		Lead, Total	0.27	MG/KG	0.21	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/20/00

CLIENT: TNUHANFORD B99-042 H0881

RECRA LOT #: 0010L088

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

SAMPLE	SITE ID	ANALYTE	SPIKED	INITIAL	SPIKED	%RECOV	DILUTION
			SAMPLE	RESULT	AMOUNT		FACTOR(SPK)
-002	BOYC55	Arsenic, Total	168	1.9	175	95.0	1.0
		Lead, Total	43.9	2.9	43.7	93.8	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/20/00

CLIENT: TNUHANFORD B99-042 H0881

RECRA LOT #: 0010L088

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-002REP	BOYC55	Arsenic, Total	1.9	1.7	11.1	1.0
		Lead, Total	2.9	2.7	7.1	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/20/00

CLIENT: TNUHANFORD B99-042 H0881
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L088

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
-----	-----	-----	-----	-----	-----	-----
LCS1	99L1711-LC1	Arsenic, LCS	957	1000	MG/KG	95.7
		Lead, LCS	244	250	MG/KG	97.8

