H1261

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-035 H1261

DATE RECEIVED: 02/27/01 LVL LOT # :0102L114

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11885						
SILVER, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
SILVER, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
SILVER, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
ALUMINUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
ALUMINUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
ALUMINUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
ARSENIC, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
ARSENIC, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
ARSENIC, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
BARIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
BARIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
BARIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
BERYLLIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
BERYLLIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
BERYLLIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
CALCIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
CALCIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
CALCIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
CADMIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
CADMIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
CADMIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
COBALT, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
COBALT, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
COBALT, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
CHROMIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
CHROMIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
CHROMIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
COPPER, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
COPPER, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
COPPER, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
IRON, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
IRON, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
IRON, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
MERCURY, TOTAL	001	SO	01C0067	02/15/01	03/05/01	03/06/01
MERCURY, TOTAL	001 REP	SO	01C0067	02/15/01	03/05/01	03/06/01

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-035 H1261

DATE RECEIVED: 02/27/01 LVL LOT # :0102L114

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	SO	01C0067	02/15/01	03/05/01	03/06/01
POTASSIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
POTASSIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
POTASSIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
MAGNESIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
MAGNESIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
MAGNESIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
MANGANESE, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
MANGANESE, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
MANGANESE, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
SODIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
SODIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
SODIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
NICKEL, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
NICKEL, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
NICKEL, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
LEAD, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
LEAD, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
LEAD, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
ANTIMONY, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
ANTIMONY, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
ANTIMONY, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
SELENIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
SELENIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
SELENIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
THALLIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
THALLIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
THALLIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
VANADIUM, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
VANADIUM, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
VANADIUM, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
ZINC, TOTAL	001	SO	01L0084	02/15/01	02/28/01	03/02/01
ZINC, TOTAL	001 REP	SO	01L0084	02/15/01	02/28/01	03/02/01
ZINC, TOTAL	001 MS	SO	01L0084	02/15/01	02/28/01	03/02/01
B11886						
SILVER, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-035 H1261

DATE RECEIVED: 02/27/01 LVL LOT # :0102L114

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
ARSENIC, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
BARIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
BERYLLIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
CALCIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
CADMIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
COBALT, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
CHROMIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
COPPER, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
IRON, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
MERCURY, TOTAL	002	SO	01C0067	02/15/01	03/05/01	03/06/01
POTASSIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
MAGNESIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
MANGANESE, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
SODIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
NICKEL, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
LEAD, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
ANTIMONY, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
SELENIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
THALLIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
VANADIUM, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
ZINC, TOTAL	002	SO	01L0084	02/15/01	02/28/01	03/02/01
B11887						
SILVER, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
ALUMINUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
ARSENIC, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
BARIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
BERYLLIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
CALCIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
CADMIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
COBALT, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
CHROMIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
COPPER, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
IRON, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
MERCURY, TOTAL	003	S	01C0067	02/15/01	03/05/01	03/06/01
POTASSIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-035 H1261

DATE RECEIVED: 02/27/01 LVL LOT # :0102L114

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
MANGANESE, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
SODIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
NICKEL, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
LEAD, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
ANTIMONY, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
SELENIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
THALLIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
VANADIUM, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01
ZINC, TOTAL	003	S	01L0084	02/15/01	02/28/01	03/02/01

LAB QC:

SILVER LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
SILVER, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
ALUMINUM LABORTORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
ALUMINUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
ARSENIC LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
ARSENIC, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
BARIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
BARIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
BERYLLIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
BERYLLIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
CALCIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
CALCIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
CADMIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
CADMIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
COBALT LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
COBALT, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
CHROMIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
CHROMIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
COPPER LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
COPPER, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
IRON LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
IRON, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
MERCURY LABORATORY	LC1 BS	S	01C0067	N/A	03/05/01	03/06/01
MERCURY, TOTAL	MB1	S	01C0067	N/A	03/05/01	03/06/01
POTASSIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-035 H1261

DATE RECEIVED: 02/27/01 LVL LOT # :0102L114

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
MAGNESIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
MAGNESIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
MANGANESE LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
MANGANESE, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
SODIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
SODIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
NICKEL LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
NICKEL, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
LEAD LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
LEAD, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
ANTIMONY LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
ANTIMONY, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
SELENIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
SELENIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
THALLIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
THALLIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
VANADIUM LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
VANADIUM, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01
ZINC LABORATORY	LC1 BS	S	01L0084	N/A	02/28/01	03/02/01
ZINC, TOTAL	MB1	S	01L0084	N/A	02/28/01	03/02/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-035
LVL#: 0102L114
SDG/SAF#: H1261/B01-035

W.O.#: 11343-606-001-9999-00
Date Received: 02-27-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 solid and 1 soil sample.

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

   Sample B11886 was reported with five fold dilutions for Aluminum and Zinc. Sample B11885 was reported with a ten fold dilution for Iron. These dilutions were performed due to the high concentrations of these analytes.

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

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

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 4 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy 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 18 pages.

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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
B11885	Aluminum	20,000	103.6
	Chromium	500	99.8
	Iron	250,000	103.5
	Nickel	500	98.0

12. The duplicate analyses for 8 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

15. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

03-14-01
Date

gmb/m02-114

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 01021114

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 [3]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

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

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B11885	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Aluminum, Total	1570	MG/KG	1.3	1.0
		Arsenic, Total	7.9	MG/KG	0.33	1.0
		Barium, Total	74.0	MG/KG	0.02	1.0
		Beryllium, Total	0.64	MG/KG	0.01	1.0
		Calcium, Total	7930	MG/KG	1.2	1.0
		Cadmium, Total	0.18	MG/KG	0.03	1.0
		Cobalt, Total	1.6	MG/KG	0.07	1.0
		Chromium, Total	109	MG/KG	0.07	1.0
		Copper, Total	9.2	MG/KG	0.06	1.0
		Iron, Total	76900	MG/KG	17.9	10.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	1820	MG/KG	2.2	1.0
		Magnesium, Total	642	MG/KG	0.61	1.0
		Manganese, Total	68.5	MG/KG	0.02	1.0
		Sodium, Total	7320	MG/KG	0.27	1.0
		Nickel, Total	35.3	MG/KG	0.11	1.0
		Lead, Total	5.8	MG/KG	0.23	1.0
		Antimony, Total	0.18	MG/KG	0.18	1.0
		Selenium, Total	0.32 u	MG/KG	0.32	1.0
		Thallium, Total	0.31 u	MG/KG	0.31	1.0
		Vanadium, Total	30.0	MG/KG	0.06	1.0
		Zinc, Total	26.5	MG/KG	0.05	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B11886	Silver, Total	0.17	MG/KG	0.13	1.0
		Aluminum, Total	303000	MG/KG	13.5	5.0
		Arsenic, Total	2.2	MG/KG	0.70	1.0
		Barium, Total	6.2	MG/KG	0.04	1.0
		Beryllium, Total	0.15	MG/KG	0.02	1.0
		Calcium, Total	1210	MG/KG	2.5	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	1.1	MG/KG	0.15	1.0
		Chromium, Total	257	MG/KG	0.15	1.0
		Copper, Total	1710	MG/KG	0.13	1.0
		Iron, Total	2600	MG/KG	3.8	1.0
		Mercury, Total	0.04 u	MG/KG	0.04	1.0
		Potassium, Total	1830	MG/KG	4.5	1.0
		Magnesium, Total	11700	MG/KG	1.3	1.0
		Manganese, Total	2300	MG/KG	0.04	1.0
		Sodium, Total	5880	MG/KG	0.57	1.0
		Nickel, Total	15.8	MG/KG	0.24	1.0
		Lead, Total	3.5	MG/KG	0.48	1.0
		Antimony, Total	0.41	MG/KG	0.37	1.0
		Selenium, Total	2.4	MG/KG	0.67	1.0
		Thallium, Total	1.7	MG/KG	0.65	1.0
		Vanadium, Total	46.0	MG/KG	0.13	1.0
		Zinc, Total	6010	MG/KG	0.54	5.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B11887	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Aluminum, Total	2940	MG/KG	1.3	1.0
		Arsenic, Total	4.7	MG/KG	0.33	1.0
		Barium, Total	44.4	MG/KG	0.02	1.0
		Beryllium, Total	0.26	MG/KG	0.01	1.0
		Calcium, Total	8340	MG/KG	1.2	1.0
		Cadmium, Total	0.05	MG/KG	0.03	1.0
		Cobalt, Total	1.6	MG/KG	0.07	1.0
		Chromium, Total	2.9	MG/KG	0.07	1.0
		Copper, Total	7.0	MG/KG	0.06	1.0
		Iron, Total	4290	MG/KG	1.8	1.0
		Mercury, Total	0.03	MG/KG	0.02	1.0
		Potassium, Total	936	MG/KG	2.2	1.0
		Magnesium, Total	825	MG/KG	0.61	1.0
		Manganese, Total	122	MG/KG	0.02	1.0
		Sodium, Total	60.2	MG/KG	0.27	1.0
		Nickel, Total	2.5	MG/KG	0.11	1.0
		Lead, Total	13.9	MG/KG	0.23	1.0
		Antimony, Total	0.18 u	MG/KG	0.18	1.0
		Selenium, Total	15.9	MG/KG	0.32	1.0
		Thallium, Total	0.31 u	MG/KG	0.31	1.0
		Vanadium, Total	66.8	MG/KG	0.06	1.0
		Zinc, Total	15.7	MG/KG	0.05	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0084-MB1	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Aluminum, Total	1.2 u	MG/KG	1.2	1.0
		Arsenic, Total	0.32 u	MG/KG	0.32	1.0
		Barium, Total	0.04	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	1.7	MG/KG	1.1	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.14	MG/KG	0.07	1.0
		Copper, Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.7 u	MG/KG	1.7	1.0
		Potassium, Total	2.1 u	MG/KG	2.1	1.0
		Magnesium, Total	0.97	MG/KG	0.59	1.0
		Manganese, Total	0.04	MG/KG	0.02	1.0
		Sodium, Total	1.8	MG/KG	0.26	1.0
		Nickel, Total	0.11 u	MG/KG	0.11	1.0
		Lead, Total	0.22 u	MG/KG	0.22	1.0
		Antimony, Total	0.17 u	MG/KG	0.17	1.0
		Selenium, Total	0.31 u	MG/KG	0.31	1.0
		Thallium, Total	0.30 u	MG/KG	0.30	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.08	MG/KG	0.05	1.0
BLANK1	01C0067-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B11885	Silver, Total	5.1	0.06u	5.2	98.1	1.0
		Aluminum, Total	1870	1570	206	146.8*	1.0
		Arsenic, Total	203	7.9	206	94.7	1.0
		Barium, Total	274	74.0	206	97.2	1.0
		Beryllium, Total	5.7	0.64	5.2	97.3	1.0
		Calcium, Total	10700	7930	2580	106.1	1.0
		Cadmium, Total	5.0	0.18	5.2	92.7	1.0
		Cobalt, Total	51.5	1.6	51.6	96.7	1.0
		Chromium, Total	123	109	20.6	68.4*	1.0
		Copper, Total	32.7	9.2	25.8	91.1	1.0
		Iron, Total	82500	76900	103	5422 *	10.0
		Mercury, Total	0.19	0.02u	0.18	108.4	1.0
		Potassium, Total	4800	1820	2580	115.8	1.0
		Magnesium, Total	3030	642	2580	92.6	1.0
		Manganese, Total	123	68.5	51.6	105.6	1.0
		Sodium, Total	10300	7320	2580	115.0	1.0
		Nickel, Total	101	35.3	51.6	127.9	1.0
		Lead, Total	53.4	5.8	51.6	92.2	1.0
		Antimony, Total	43.0	0.18	51.6	83.0	1.0
		Selenium, Total	192	0.32u	206	93.0	1.0
		Thallium, Total	192	0.31u	206	93.0	1.0
		Vanadium, Total	84.1	30.0	51.6	104.8	1.0
		Zinc, Total	72.8	26.5	51.6	89.7	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B11885	Silver, Total	0.06u	0.06u	NC	1.0
		Aluminum, Total	1570	1730	9.9	1.0
		Arsenic, Total	7.9	7.6	3.9	1.0
		Barium, Total	74.0	77.9	5.1	1.0
		Beryllium, Total	0.64	0.62	2.3	1.0
		Calcium, Total	7930	6670	17.2	1.0
		Cadmium, Total	0.18	0.08	79.5	1.0
		Cobalt, Total	1.6	2.2	31.6	1.0
		Chromium, Total	109	96.2	12.1	1.0
		Copper, Total	9.2	8.2	11.5	1.0
		Iron, Total	76900	72200	6.3	10.0
		Mercury, Total	0.02u	0.05	~~NC~~ 200	1.0
		Potassium, Total	1820	1850	1.7	1.0
		Magnesium, Total	642	803	22.3	1.0
		Manganese, Total	68.5	85.1	21.6	1.0
		Sodium, Total	7320	6860	6.4	1.0
		Nickel, Total	35.3	51.5	37.3	1.0
		Lead, Total	5.8	5.5	5.3	1.0
		Antimony, Total	0.18	0.18u	~~NC~~ 200	1.0
		Selenium, Total	0.32u	0.65	~~NC~~ 200	1.0
		Thallium, Total	0.31u	0.31u	NC	1.0
		Vanadium, Total	30.0	34.1	12.8	1.0
		Zinc, Total	26.5	26.6	0.38	1.0

YMB 3/14/01

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/06/01

CLIENT: TNU-HANFORD B01-035 LVL LOT #: 0102L114

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0084-LC1	Silver, LCS	50.1	50.0	MG/KG	100.2
		Aluminum, LCS	512	500	MG/KG	102.5
		Arsenic, LCS	968	1000	MG/KG	96.8
		Barium, LCS	498	500	MG/KG	99.7
		Beryllium, LCS	25.2	25.0	MG/KG	100.8
		Calcium, LCS	2510	2500	MG/KG	100.5
		Cadmium, LCS	25.2	25.0	MG/KG	100.8
		Cobalt, LCS	255	250	MG/KG	102.1
		Chromium, LCS	51.2	50.0	MG/KG	102.4
		Copper, LCS	126	125	MG/KG	100.4
		Iron, LCS	507	500	MG/KG	101.4
		Potassium, LCS	2520	2500	MG/KG	100.6
		Magnesium, LCS	2570	2500	MG/KG	102.7
		Manganese, LCS	78.1	75.0	MG/KG	104.1
		Sodium, LCS	2440	2500	MG/KG	97.5
		Nickel, LCS	202	200	MG/KG	100.8
		Lead, LCS	250	250	MG/KG	100
		Antimony, LCS	296	300	MG/KG	98.8
		Selenium, LCS	941	1000	MG/KG	94.1
		Thallium, LCS	992	1000	MG/KG	99.2
		Vanadium, LCS	259	250	MG/KG	103.5
		Zinc, LCS	99.8	100	MG/KG	99.8
LCS1	01C0067-LC1	Mercury, LCS	2.7	2.5	MG/KG	107.9

Lionville Laboratory Use Only
0102L114

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

Client: TPA - Hanford B01-035
Est. Final Proj. Sampling Date:
Project #: 11343-16016-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 7 day
Date Rec'd: 2-27-01 Date Due: 3-6-01

Refrigerator #									A 2							
#/Type Container	Liquid															
	Solid								1PG							
Volume	Liquid															
	Solid								100							
Preservatives									-							
ANALYSES REQUESTED →					ORGANIC				INORG							
					VOA	BNA	Pest/PCB	Herb	Metal	CN						
					Lionville Laboratory Use Only											
									mrt(1)							
001	B11885			So	2-15-01	0950			✓							
002	6			⊥	⊥	1000			✓							
003	7			S	⊥	1040			✓							

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
001	B11885			So	2-15-01	0950
002	6			⊥	⊥	1000
003	7			S	⊥	1040

Special Instructions: Saf B01-035
Run matrix QC

DATE/REVISIONS:
mrt(1) 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,
⊥ 2. Mg, Mn, Na, Ni, Sb, V, Zn, As, Pb
⊥ 3. Sr, Tl, Hg
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	TBoppel	2-27-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered ___
Airbill # 423579542694
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal 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. 2.4 °C

dT 2/15/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-035-25	Page 1 of 2

Collector: Thomas	Company Contact: Lerch, JA — Telephone No.: 373-5904	Project Coordinator: TRENT, SJ	Price Code: 2D — Data Turnaround: 7 days
Project Designation: 100-IU-6 Waste Site Anomalous Waste Characterization	Sampling Location: ~~1A Jones Dig Site #1~~ AT 2/15/01 60023 Dry Site	SAF No.: B01-035	Air Quality ☐
Ice Chest No.: SM1-153	Field Logbook No.: E1-1518 — COA R60023 2600 ~~RJONES2600~~ AT 2/15/01	Method of Shipment: FEDEX	
Shipped To: TMA/RECRA	Offsite Property No.: A010206	Bill of Lading/Air Bill No.: 4235 7904 2694	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL
SAMPLE ANALYSIS	PCBs - 8082	Pesticides - 8081	Semi-VOA - 8270A (TCL)	Sulfides - 9030 Activity	Total Cyanide - 9010	VOA - 8260A (TCL)	Carbon-14	Gross Alpha; Gross Beta	See item (1) in Special Instructions.	See item (2) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time										
B11885	OTHER SOLID	2/15/01	0950				B11868						X
B11886	other solid	2/15/01	1000				B11869						X
B11887	Soil	2/15/01	1040				B11870						X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Greg Thomas	1155	Greg Thomas 2/15/01	1155
Greg Thomas 2/15/01		Stored in Ref 3A 2/15/01	
Removed from Ref 3A 3728	0900 2-26-01	R.T. Thoren	0900 2-26-01
R.T. Thoren	0900 2-26-01	FedEx	
FedEx 22701	0935	T Kappel 22701	0935

SPECIAL INSTRUCTIONS

RT 2-21-01

~~(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)~~
(2) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Thallium); Mercury - 7471 - (CV)

Samples stored in Ref.# 3A at the 3728 Shipping Facility on 2/15/01.
Collector not available to relinquish samples on 2/26/01 for shipment.

RT 2-26-01

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)