SAF-RC-047
100 & 300 Area Component of the RCBRA Sediment and Tissues FINAL DATA PACKAGE

RECEIVED
JUN 2 2 2006
EDMC

COMPLETE COPY OF DATA PACKAGE TO:

Jill Thomson	H0-23	KW 6/13/06 INITIAL/DATE
Jeanette Duncan	H9-02	KW 6/13/06 INITIAL/DATE

COMMENTS:

SDG K0212 **SAF-RC-047**

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: Ref #16

Revised Metals to include Strontium and Bismuth

LIONVILLE LABORATORY INC.

RECEIVED 2006

7 June 2006

Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are revised hard copy metals reports for the SDGs indicated (marked X) in the following table:

SDG #	K0212
	K0217
	K0222
	K0229
	K0232
	K0236
	K0238
	K0242
	K0243
	K0244
	K0249

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs_revisions.doc

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0212

RECEIVED 4 JUN 2006

DATE RECEIVED: 02/07/06 LVL LOT # :0602L220

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11139						
SILVER, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
SILVER, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
SILVER, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
ALUMINUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
ALUMINUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
ALUMINUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
ARSENIC, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
ARSENIC, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
ARSENIC, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
BORON, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
BORON, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
BORON, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
BARIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
BARIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
BARIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
BERYLLIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
BERYLLIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
BERYLLIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
BISMUTH, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
BISMUTH, TOTAL REP	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
BISMUTH, TOTAL SPIKE	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
CALCIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
CALCIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
CALCIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
CADMIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
CADMIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
CADMIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
COBALT, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
COBALT, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
COBALT, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
CHROMIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
CHROMIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
CHROMIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
COPPER, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
COPPER, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0212

DATE RECEIVED: 02/07/06 LVL LOT # :0602L220

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
IRON, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
IRON, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
IRON, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
MERCURY, TOTAL	001	SO	06C0027	02/05/06	02/14/06	02/15/06
MERCURY, TOTAL	001 REP	SO	06C0027	02/05/06	02/14/06	02/15/06
MERCURY, TOTAL	001 MS	SO	06C0027	02/05/06	02/14/06	02/15/06
POTASSIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
POTASSIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
POTASSIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
LITHIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
LITHIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
LITHIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
MAGNESIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
MAGNESIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
MAGNESIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
MANGANESE, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
MANGANESE, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
MANGANESE, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
MOLYBDENUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
MOLYBDENUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
MOLYBDENUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
SODIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
SODIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
SODIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
NICKEL, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
NICKEL, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
NICKEL, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
PHOSPHORUS, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/13/06
PHOSPHORUS, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/13/06
PHOSPHORUS, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/13/06
LEAD, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
LEAD, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
LEAD, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
ANTIMONY, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
ANTIMONY, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
ANTIMONY, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
SELENIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0212

DATE RECEIVED: 02/07/06 LVL LOT # :0602L220

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
SELENIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
SILICON, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
SILICON, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
SILICON, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
TIN, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
TIN, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
TIN, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
STRONTIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
STRONTIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
STRONTIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
TITANIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
TITANIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
TITANIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
THALLIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
THALLIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
THALLIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
URANIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
URANIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
URANIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
VANADIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
VANADIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
VANADIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
ZINC, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
ZINC, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
ZINC, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06
ZIRCONIUM, TOTAL	001	SO	06L0093	02/05/06	02/09/06	02/18/06
ZIRCONIUM, TOTAL	001 REP	SO	06L0093	02/05/06	02/09/06	02/18/06
ZIRCONIUM, TOTAL	001 MS	SO	06L0093	02/05/06	02/09/06	02/18/06

LAB QC:

SILVER LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
SILVER, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
ALUMINUM LABORTORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
ALUMINUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
ARSENIC LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
ARSENIC, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0212

DATE RECEIVED: 02/07/06 LVL LOT # :0602L220

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BORON LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
BORON, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
BARIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
BARIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
BERYLLIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
BERYLLIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
BISMUTH, LCS	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
BISMUTH, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
CALCIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
CALCIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
CADMIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
CADMIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
COBALT LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
COBALT, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
CHROMIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
CHROMIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
COPPER LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
COPPER, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
IRON LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
IRON, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
MERCURY LABORATORY	LC1 BS	S	06C0027	N/A	02/14/06	02/15/06
MERCURY, TOTAL	MB1	S	06C0027	N/A	02/14/06	02/15/06
POTASSIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
POTASSIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
LITHIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
LITHIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
MAGNESIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
MAGNESIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
MANGANESE LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
MANGANESE, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
MOLYBDENUM LABORATOR	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
MOLYBDENUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
SODIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
SODIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
NICKEL LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
NICKEL, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
PHOSPHORUS LCS	LC1 BS	S	06L0093	N/A	02/09/06	02/13/06
PHOSPHORUS, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/13/06

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-047 K0212

DATE RECEIVED: 02/07/06 LVL LOT # :0602L220

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
LEAD, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
ANTIMONY LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
ANTIMONY, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
SELENIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
SELENIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
SILICON LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
SILICON, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
TIN LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
TIN, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
STRONTIUM LCS STANDA	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
STRONTIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
TITANIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
TITANIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
THALLIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
THALLIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
URANIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
URANIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
VANADIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
VANADIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
ZINC LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
ZINC, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06
ZIRCONIUM LABORATORY	LC1 BS	S	06L0093	N/A	02/09/06	02/18/06
ZIRCONIUM, TOTAL	MB1	S	06L0093	N/A	02/09/06	02/18/06

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-047
LVL#: 0602L220
SDG/SAF#: K0212/RC-047

W.O.#: 11343-606-001-9999-00
Date Received: 02-07-06

****Revision****
This report has been revised to include the addition of Strontium.

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 solid 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. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

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), 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 with the exception of Selenium (77.9%) and Silicon (72.5%). Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low. The LCS was not spiked for Bismuth as it was added to the analyte list after the samples were digeseted.

10. The matrix spike (MS) recoveries for 6 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 15 pages.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J11139	Aluminum	21,000	95.3
	Bismuth	100	82.2
	Iron	21,000	90.1
	Antimony	100	92.3
	Silicon	2,100	89.8
	Titanium	1,100	96.5

12. The duplicate analyses for 4 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. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

15. 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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/31/04
Date

jjw/m02-220r

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within Lot#: 06021220

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	X6010B [3]		__200.7 [1]			__1620	__99
Boron	X6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	X7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X6010B		__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X6010B		__200.7				__99
Thallium	X6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X6010B		__200.7				__99
Titanium	X6010B		__200.7				__99
Uranium	X6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	X6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorus Method: 6010B

L-WI-033/M-03/01
000000008

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, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/30/06

CLIENT: TNUHANFORD RC-047 K0212 LVL LOT #: 0602L220

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11139	Silver, Total	0.19 u	MG/KG	0.19	1.0
		Aluminum, Total	4600	MG/KG	2.4	1.0
		Arsenic, Total	3.9	MG/KG	0.45	1.0
		Boron, Total	1.7	MG/KG	0.36	1.0
		Barium, Total	46.0	MG/KG	0.03	1.0
		Beryllium, Total	0.25	MG/KG	0.01	1.0
		Bismuth, Total	0.81 u	MG/KG	0.81	1.0
		Calcium, Total	2220	MG/KG	1.6	1.0
		Cadmium, Total	0.22	MG/KG	0.09	1.0
		Cobalt, Total	3.8	MG/KG	0.16	1.0
		Chromium, Total	11.2	MG/KG	0.21	1.0
		Copper, Total	11.9	MG/KG	0.16	1.0
		Iron, Total	11700	MG/KG	4.3	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	699	MG/KG	7.4	1.0
		Lithium, Total	7.4	MG/KG	0.04	1.0
		Magnesium, Total	3120	MG/KG	1.8	1.0
		Manganese, Total	202	MG/KG	0.03	1.0
		Molybdenum, Total	0.30	MG/KG	0.17	1.0
		Sodium, Total	103	MG/KG	0.23	1.0
		Nickel, Total	11.4	MG/KG	0.17	1.0
		Phosphorus, Total	514	MG/KG	1.1	1.0
		Lead, Total	15.8	MG/KG	0.41	1.0
		Antimony, Total	0.53 u	MG/KG	0.53	1.0
		Selenium, Total	0.48 u	MG/KG	0.48	1.0
		Silicon, Total	615	MG/KG	1.1	1.0
		Tin, Total	0.83	MG/KG	0.69	1.0
		Strontium, Total	16.4	MG/KG	0.01	1.0
		Titanium, Total	379	MG/KG	0.05	1.0
		Thallium, Total	0.85 u	MG/KG	0.85	1.0
		Uranium, Total	2.7 u	MG/KG	2.7	1.0
		Vanadium, Total	20.4	MG/KG	0.12	1.0
		Zinc, Total	124	MG/KG	0.07	1.0
		Zirconium, Total	3.4	MG/KG	0.72	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/30/06

CLIENT: TNUHANFORD RC-047 K0212 LVL LOT #: 0602L220

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0093-MB1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Aluminum, Total	1.8 u	MG/KG	1.8	1.0
		Arsenic, Total	0.34 u	MG/KG	0.34	1.0
		Boron, Total	0.27 u	MG/KG	0.27	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Bismuth, Total	0.61 u	MG/KG	0.61	1.0
		Calcium, Total	1.2 u	MG/KG	1.2	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.12 u	MG/KG	0.12	1.0
		Chromium, Total	0.16 u	MG/KG	0.16	1.0
		Copper, Total	0.12 u	MG/KG	0.12	1.0
		Iron, Total	3.2 u	MG/KG	3.2	1.0
		Potassium, Total	5.5 u	MG/KG	5.5	1.0
		Lithium, Total	0.03	MG/KG	0.03	1.0
		Magnesium, Total	1.4 u	MG/KG	1.4	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.24	MG/KG	0.13	1.0
		Sodium, Total	0.52	MG/KG	0.17	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Phosphorus, Total	0.83 u	MG/KG	0.83	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.40 u	MG/KG	0.40	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Silicon, Total	0.82 u	MG/KG	0.82	1.0
		Tin, Total	0.69	MG/KG	0.52	1.0
		Strontium, Total	0.01 u	MG/KG	0.01	1.0
		Titanium, Total	0.04 u	MG/KG	0.04	1.0
		Thallium, Total	0.64 u	MG/KG	0.64	1.0
		Uranium, Total	2.1 u	MG/KG	2.1	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	0.05 u	MG/KG	0.05	1.0
		Zirconium, Total	0.54 u	MG/KG	0.54	1.0
BLANK1	06C0027-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/30/06

CLIENT: TNUHANFORD RC-047 K0212 LVL LOT #: 0602L220

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11139	Silver, Total	6.6	0.19u	6.7	98.5	1.0
		Aluminum, Total	5920	4600	267	495.5*	1.0
		Arsenic, Total	243	3.9	267	89.5	1.0
		Boron, Total	123	1.7	133	91.2	1.0
		Barium, Total	297	46.0	267	94.2	1.0
		Beryllium, Total	6.8	0.25	6.7	97.7	1.0
		Bismuth, Total	0.81 u	0.81u	667	NC	1.0
		Calcium, Total	5910	2220	3340	110.5	1.0
		Cadmium, Total	6.7	0.22	6.7	96.7	1.0
		Cobalt, Total	67.3	3.8	66.7	95.2	1.0
		Chromium, Total	38.3	11.2	26.7	101.5	1.0
		Copper, Total	45.1	11.9	33.4	99.4	1.0
		Iron, Total	13200	11700	133	1140 *	1.0
		Mercury, Total	0.20	0.02u	0.18	108.2	1.0
		Potassium, Total	4050	699	3340	100.6	1.0
		Lithium, Total	154	7.4	133	109.8	1.0
		Magnesium, Total	6740	3120	3340	108.6	1.0
		Manganese, Total	281	202	66.7	119.5	1.0
		Molybdenum, Total	130	0.30	133	97.4	1.0
		Sodium, Total	3420	103	3340	99.6	1.0
		Nickel, Total	74.8	11.4	66.7	95.1	1.0
		Phosphorus, Total	1160	514	667	96.4	1.0
		Lead, Total	77.8	15.8	66.7	93.0	1.0
		Antimony, Total	45.9	0.53u	66.7	68.8	1.0
		Selenium, Total	212	0.48u	267	79.3	1.0
		Silicon, Total	819	615	133	152.8*	1.0
		Tin, Total	129	0.83	133	95.8	1.0
		Strontium, Total	150	16.4	133	99.8	1.0
		Titanium, Total	603	379	133	167.5	1.0
		Thallium, Total	246	0.85u	267	92.0	1.0
		Uranium, Total	311	2.7 u	334	93.2	1.0
		Vanadium, Total	88.9	20.4	66.7	102.7	1.0
		Zinc, Total	195	124	66.7	106.9	1.0
		Zirconium, Total	625	3.4	667	93.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/30/06

CLIENT: TNUHANFORD RC-047 K0212 LVL LOT #: 0602L220

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J11139	Silver, Total	0.19u	0.19u	NC	1.0
		Aluminum, Total	4600	4720	2.6	1.0
		Arsenic, Total	3.9	3.8	2.6	1.0
		Boron, Total	1.7	1.2	34.5	1.0
		Barium, Total	46.0	42.6	7.7	1.0
		Beryllium, Total	0.25	0.28	8.5	1.0
		Bismuth, Total	0.81u	0.81u	NC	1.0
		Calcium, Total	2220	2310	3.8	1.0
		Cadmium, Total	0.22	0.29	26.0	1.0
		Cobalt, Total	3.8	3.8	0.00	1.0
		Chromium, Total	11.2	10.5	6.5	1.0
		Copper, Total	11.9	11.3	5.2	1.0
		Iron, Total	11700	11700	0.007	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Potassium, Total	699	684	2.2	1.0
		Lithium, Total	7.4	7.3	1.4	1.0
		Magnesium, Total	3120	3180	1.8	1.0
		Manganese, Total	202	198	1.8	1.0
		Molybdenum, Total	0.30	0.22	31.1	1.0
		Sodium, Total	103	106	2.6	1.0
		Nickel, Total	11.4	11.1	2.7	1.0
		Phosphorus, Total	514	544	5.6	1.0
		Lead, Total	15.8	15.8	0.00	1.0
		Antimony, Total	0.53u	0.53u	NC	1.0
		Selenium, Total	0.48u	0.48u	NC	1.0
		Silicon, Total	615	626	1.7	1.0
		Tin, Total	0.83	0.69u	~~NC~~ 200	1.0
		Strontium, Total	16.4	18.0	9.3	1.0
		Titanium, Total	379	400	5.3	1.0
		Thallium, Total	0.85u	0.85u	NC	1.0
		Uranium, Total	2.7 u	2.7 u	NC	1.0
		Vanadium, Total	20.4	20.2	0.99	1.0
		Zinc, Total	124	122	1.2	1.0
		Zirconium, Total	3.4	3.3	3.0	1.0

corrected entry MW 5/30/06

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/30/06

CLIENT: TNUHANFORD RC-047 K0212 LVL LOT #: 0602L220

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0093-LC1	Silver, LCS	48.0	50.0	MG/KG	96.0
		Aluminum, LCS	476	500	MG/KG	95.2
		Arsenic, LCS	883	1000	MG/KG	88.3
		Boron, LCS	460	500	MG/KG	92.1
		Barium, LCS	486	500	MG/KG	97.2
		Beryllium, LCS	24.4	25.0	MG/KG	97.6
		Bismuth, LCS	-2.	500	MG/KG	-0.32
		Calcium, LCS	2420	2500	MG/KG	96.6
		Cadmium, LCS	23.8	25.0	MG/KG	95.2
		Cobalt, LCS	242	250	MG/KG	96.6
		Chromium, LCS	49.9	50.0	MG/KG	99.8
		Copper, LCS	125	125	MG/KG	99.8
		Iron, LCS	495	500	MG/KG	99.0
		Potassium, LCS	2440	2500	MG/KG	97.5
		Lithium, LCS	500	500	MG/KG	100.1
		Magnesium, LCS	2370	2500	MG/KG	94.7
		Manganese, LCS	76.8	75.0	MG/KG	102.4
		Molybdenum, LCS	498	500	MG/KG	99.7
		Sodium, LCS	2400	2500	MG/KG	96.0
		Nickel, LCS	191	200	MG/KG	95.6
		Phosphorus, LCS	447	500	MG/KG	89.4
		Lead, LCS	233	250	MG/KG	93.1
		Antimony, LCS	278	300	MG/KG	92.6
		Selenium, LCS	779	1000	MG/KG	77.9
		Silicon, LCS	363	500	MG/KG	72.5
		Tin, LCS	491	500	MG/KG	98.1
		Strontium, LCS	485	500	MG/KG	97.1
		Titanium, LCS	493	500	MG/KG	98.5
		Thallium, LCS	931	1000	MG/KG	93.1
		Uranium, LCS	243	250	MG/KG	97.2
		Vanadium, LCS	253	250	MG/KG	101.1
		Zinc, LCS	92.2	100	MG/KG	92.2
		Zirconium, LCS	500	500	MG/KG	99.9
LCS1	06C0027-LC1	Mercury, LCS	6.6	6.2	MG/KG	106.8

Lionville Laboratory Use Only

06021220

Custody Transfer Record/Lab Work Request

Page 1 of 1 See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford RC047

Est. Final Proj. Sampling Date:

Project #: 11343-406-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC Spec: Std Del: Std TAT: 30 Days

Date Rec'd: 2-7-06 Date Due: 3/9/06

		A	B	C	D	E	F
Refrigerator #		6	6	6	6	6	6
#/Type Container	Liquid						
	Solid	19	19	19	19	19	19
Volume	Liquid						
	Solid	125	125	125	60	125	125
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC			INORG		
		VOA	BNA	Pest/PCB	Herb	PCB	Metal	CN	TPH 418.1	DRO GRO

Lionville Laboratory Use Only

		A	B	C	D	E	F
		8270 SH	8081 SH	8082	METALS (1)	TPHC	DRO GRO

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	A	B	C	D	E	F
001	J11139	✓	✓	SO	2-5-06	1130	X	X	X	X	X	X

Special Instructions:

METALS (1) = HSL + B, Mo, Si, Sn, Ti, U, Zr, P, Li + Bi + Sr

DATE/REVISIONS:

1. Sample have a liquid layer.
2/16/06 2. Bi added to METALS (1) per DI
5/19/06 3. Sr added - per DUR # 06-05-R002
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	D Smith	2-7-06	0910

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

0000000015