0073757

SAF-RC-074
100-D/DR Burial Grounds & Remaining Sites – Soil Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jeanette Duncan H4-21 KW 8/20/07
INITIAL/DATE

COMMENTS:

SDG K0886 SAF-RC-074

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: 120-D-2

RECEIVED
AUG 23 2007
EDMC

LIONVILLE LABORATORY INC.

14 August 2007

RECEIVED AUG 2007

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

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0707L644
SDG #	K0886
SAF #	RC-074
Date Received	7/26/07
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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.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-074 K0886

RECEIVED AUG 2007

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15242						
SILVER, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
SILVER, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
SILVER, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
ALUMINUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
ALUMINUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
ALUMINUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
ARSENIC, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
ARSENIC, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
ARSENIC, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
BORON, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
BORON, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
BORON, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
BARIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
BARIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
BARIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
BERYLLIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
BERYLLIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
BERYLLIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
BISMUTH, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
BISMUTH, TOTAL REP	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
BISMUTH, TOTAL SPIKE	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
CALCIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
CALCIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
CALCIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
CADMIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
CADMIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
CADMIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
COBALT, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
COBALT, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
COBALT, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
CHROMIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
CHROMIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
CHROMIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
COPPER, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
COPPER, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
IRON, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
IRON, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
IRON, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
POTASSIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
POTASSIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
POTASSIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
LITHIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
LITHIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
LITHIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
MAGNESIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
MAGNESIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
MAGNESIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
MANGANESE, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
MANGANESE, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
MANGANESE, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
MOLYBDENUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
MOLYBDENUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
MOLYBDENUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
SODIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
SODIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
SODIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
NICKEL, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
NICKEL, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
NICKEL, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
PHOSPHORUS, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/01/07
PHOSPHORUS, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/01/07
PHOSPHORUS, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/01/07
LEAD, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
LEAD, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
LEAD, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
ANTIMONY, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
ANTIMONY, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
ANTIMONY, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
SELENIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
SELENIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
SELENIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
SILICON, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
SILICON, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
TIN, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
TIN, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
TIN, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
STRONTIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
STRONTIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
STRONTIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
THALLIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
THALLIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
THALLIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
URANIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
URANIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
URANIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
VANADIUM, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
VANADIUM, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
VANADIUM, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07
ZINC, TOTAL	001	S	07L0362	07/24/07	07/31/07	08/02/07
ZINC, TOTAL	001 REP	S	07L0362	07/24/07	07/31/07	08/02/07
ZINC, TOTAL	001 MS	S	07L0362	07/24/07	07/31/07	08/02/07

LAB QC:

SILVER LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
SILVER, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
ALUMINUM LABORTORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
ALUMINUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
ARSENIC LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
ARSENIC, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
BORON LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
BORON, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
BARIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
BARIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
BERYLLIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
BERYLLIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
BISMUTH, LCS	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
BISMUTH, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
CALCIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
CADMIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
CADMIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
COBALT LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
COBALT, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
CHROMIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
CHROMIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
COPPER LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
COPPER, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
IRON LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
IRON, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
POTASSIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
POTASSIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
LITHIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
LITHIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
MAGNESIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
MAGNESIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
MANGANESE LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
MANGANESE, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
MOLYBDENUM LABORATOR	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
MOLYBDENUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
SODIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
SODIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
NICKEL LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
NICKEL, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
PHOSPHORUS LCS	LC1 BS	S	07L0362	N/A	07/31/07	08/01/07
PHOSPHORUS, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/01/07
LEAD LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
LEAD, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
ANTIMONY LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
ANTIMONY, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
SELENIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
SELENIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
SILICON LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
SILICON, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
TIN LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
TIN, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
STRONTIUM LCS STANDA	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STRONTIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
THALLIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
THALLIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
URANIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
URANIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
VANADIUM LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
VANADIUM, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07
ZINC LABORATORY	LC1 BS	S	07L0362	N/A	07/31/07	08/02/07
ZINC, TOTAL	MB1	S	07L0362	N/A	07/31/07	08/02/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074
LVL#: 0707L644
SDG/SAF#: K0886/RC-074

W.O.#: 11343-606-001-9999-00
Date Received: 07-26-07

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

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

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was reported with a 3-fold dilution due to sample matrix.

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

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

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

6. The preparation/method blanks for 2 analytes were outside 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.

   a). The MB results for Lithium and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

8. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the

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 17 pages.

Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 7 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. 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
J15242	Aluminum	30,000	105.2
	Iron	60,000	99.8
	Manganese	3,000	104.7
	Phosphorous	6,000	89.3
	Lead	3,300	99.2
	Silicon	6,300	99.9
	Vanadium	3,000	102.7

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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. 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.

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.

Judy Strm

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/13/07
Date

jjw/m07-644

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

he following methods are used as reference for the digestion and analysis of samples contained within thi
ot#: 0707L644

eaching Procedure: __1310 __1311 __1312 __Other:_____

LP 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
luminum	X 6010B		__200.7				__99
ntimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	X 6010B		__200.7				__99
eryllium	X 6010B		__200.7				__99
ismuth	X 6010B [1]		__200.7 [1]			__1620	__99
oron	X 6010B		__200.7				__99
admium	X 6010B	__7131A [5]	__200.7	__213.2			__99
alcium	X 6010B		__200.7				__99
hromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	X 6010B		__200.7				__99
opper	X 6010B	__7211 [5]	__200.7	__220.2			__99
ron	X 6010B		__200.7				__99
ead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	X 6010B	__7430 [4]	__200.7			__1620	__99
agnesium	X 6010B		__200.7				__99
anganese	X 6010B		__200.7				__99
ercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
olybdenum	X 6010B		__200.7				__99
ickel	X 6010B		__200.7				__99
otassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	X 6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	X 6010B	__7761 [5]	__200.7	__272.2			__99
odium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	X 6010B		__200.7				__99
hallium	X 6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	X 6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	X 6010B [1]		__200.7 [1]			__1620	__99
anadium	X 6010B		__200.7				__99
inc	X 6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous Method: 6010B

L-WI-003/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 08/03/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15242	Silver, Total	0.26	u	MG/KG	0.26	3.0
		Aluminum, Total	1790		MG/KG	4.8	3.0
		Arsenic, Total	2.4		MG/KG	1.2	3.0
		Boron, Total	1.0	u	MG/KG	1.0	3.0
		Barium, Total	56.0		MG/KG	0.06	3.0
		Beryllium, Total	0.03	u	MG/KG	0.03	3.0
		Bismuth, Total	1.1	u	MG/KG	1.1	3.0
		Calcium, Total	6510		MG/KG	2.0	3.0
		Cadmium, Total	0.14	u	MG/KG	0.14	3.0
		Cobalt, Total	2.6		MG/KG	0.23	3.0
		Chromium, Total	3.7		MG/KG	0.29	3.0
		Copper, Total	11.0		MG/KG	0.26	3.0
		Iron, Total	27400		MG/KG	6.8	3.0
		Potassium, Total	1950		MG/KG	9.2	3.0
		Lithium, Total	1.0		MG/KG	0.09	3.0
		Magnesium, Total	1160		MG/KG	2.3	3.0
		Manganese, Total	106		MG/KG	0.20	3.0
		Molybdenum, Total	0.46	u	MG/KG	0.46	3.0
		Sodium, Total	614		MG/KG	2.0	3.0
		Nickel, Total	2.6		MG/KG	0.77	3.0
		Phosphorus, Total	1020		MG/KG	4.0	3.0
		Lead, Total	132		MG/KG	0.95	3.0
		Antimony, Total	0.63	u	MG/KG	0.63	3.0
		Selenium, Total	1.2	u	MG/KG	1.2	3.0
		Silicon, Total	896		MG/KG	2.5	3.0
		Tin, Total	2.3		MG/KG	1.8	3.0
		Strontium, Total	63.4		MG/KG	0.03	3.0
		Thallium, Total	2.3	u	MG/KG	2.3	3.0
		Uranium, Total	4.1	u	MG/KG	4.1	3.0
		Vanadium, Total	79.8		MG/KG	0.23	3.0
		Zinc, Total	30.2		MG/KG	0.11	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/03/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0362-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	2.8	MG/KG	1.6	1.0
		Arsenic, Total	0.40 u	MG/KG	0.40	1.0
		Boron, Total	0.35 u	MG/KG	0.35	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	0.39 u	MG/KG	0.39	1.0
		Calcium, Total	9.3	MG/KG	0.70	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.08 u	MG/KG	0.08	1.0
		Chromium, Total	0.13	MG/KG	0.1	1.0
		Copper, Total	0.09 u	MG/KG	0.09	1.0
		Iron, Total	2.5	MG/KG	2.3	1.0
		Potassium, Total	3.1 u	MG/KG	3.1	1.0
		Lithium, Total	0.10	MG/KG	0.03	1.0
		Magnesium, Total	0.89	MG/KG	0.79	1.0
		Manganese, Total	0.07 u	MG/KG	0.07	1.0
		Molybdenum, Total	0.16 u	MG/KG	0.16	1.0
		Sodium, Total	10.6	MG/KG	0.69	1.0
		Nickel, Total	0.26 u	MG/KG	0.26	1.0
		Phosphorus, Total	1.4 u	MG/KG	1.4	1.0
		Lead, Total	0.32 u	MG/KG	0.32	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
		Silicon, Total	0.84 u	MG/KG	0.84	1.0
		Tin, Total	1.3	MG/KG	0.62	1.0
		Strontium, Total	0.02	MG/KG	0.01	1.0
		Thallium, Total	0.78 u	MG/KG	0.78	1.0
		Uranium, Total	1.4 u	MG/KG	1.4	1.0
		Vanadium, Total	0.08 u	MG/KG	0.08	1.0
		Zinc, Total	1.6	MG/KG	0.04	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/03/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15242	Silver, Total	4.8	0.26u	4.8	100	3.0
		Aluminum, Total	2590	1790	191	421.9*	3.0
		Arsenic, Total	187	2.4	191	96.7	3.0
		Boron, Total	93.6	1.0 u	95.5	98.0	3.0
		Barium, Total	261	56.0	191	107.3	3.0
		Beryllium, Total	4.8	0.03u	4.8	100	3.0
		Bismuth, Total	230	1.1 u	239	96.6	3.0
		Calcium, Total	9190	6510	2390	112.3	3.0
		Cadmium, Total	4.7	0.14u	4.8	97.9	3.0
		Cobalt, Total	50.4	2.6	47.7	100.2	3.0
		Chromium, Total	23.5	3.7	19.1	103.7	3.0
		Copper, Total	37.4	11.0	23.9	110.5	3.0
		Iron, Total	32400	27400	95.5	5185 *	3.0
		Potassium, Total	4490	1950	2390	106.1	3.0
		Lithium, Total	98.5	1.0	95.5	102.1	3.0
		Magnesium, Total	3770	1160	2390	109.2	3.0
		Manganese, Total	179	106	47.7	152.0	3.0
		Molybdenum, Total	92.1	0.46u	95.5	96.4	3.0
		Sodium, Total	2960	614	2390	98.1	3.0
		Nickel, Total	49.4	2.6	47.7	98.1	3.0
		Phosphorus, Total	1350	1020	239	135.9*	3.0
		Lead, Total	200	132	47.7	142.3	3.0
		Antimony, Total	43.0	0.63u	47.7	90.1	3.0
		Selenium, Total	184	1.2 u	191	96.2	3.0
		Silicon, Total	1030	896	95.5	140.0*	3.0
		Tin, Total	92.7	2.3	95.5	94.7	3.0
		Strontium, Total	172	63.4	95.5	113.4	3.0
		Thallium, Total	186	2.3 u	191	97.5	3.0
		Uranium, Total	235	4.1 u	239	98.3	3.0
		Vanadium, Total	141	79.8	47.7	129.1	3.0
		Zinc, Total	81.9	30.2	47.7	108.4	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/03/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(RBP)
-001REP	J15242	Silver, Total	0.26u	0.26u	NC	3.0
		Aluminum, Total	1790	1960	9.6	3.0
		Arsenic, Total	2.4	2.3	4.3	3.0
		Boron, Total	1.0 u	1.0 u	NC	3.0
		Barium, Total	56.0	58.4	4.2	3.0
		Beryllium, Total	0.03u	0.06	~~NC~~ 200	3.0
		Bismuth, Total	1.1 u	1.1 u	NC	3.0
		Calcium, Total	6510	8210	23.2	3.0
		Cadmium, Total	0.14u	0.14u	NC	3.0
		Cobalt, Total	2.6	2.7	3.8	3.0
		Chromium, Total	3.7	4.0	7.8	3.0
		Copper, Total	11.0	11.3	2.7	3.0
		Iron, Total	27400	30300	9.9	3.0
		Potassium, Total	1950	2230	13.2	3.0
		Lithium, Total	1.0	1.1	9.5	3.0
		Magnesium, Total	1160	1160	0.043	3.0
		Manganese, Total	106	111	4.7	3.0
		Molybdenum, Total	0.46u	0.46u	NC	3.0
		Sodium, Total	614	667	8.2	3.0
		Nickel, Total	2.6	2.4	8.0	3.0
		Phosphorus, Total	1020	1020	0.13	3.0
		Lead, Total	132	149	11.9	3.0
		Antimony, Total	0.63u	0.63u	NC	3.0
		Selenium, Total	1.2 u	1.2 u	NC	3.0
		Silicon, Total	896	764	15.8	3.0
		Tin, Total	2.3	3.5	41.4	3.0
		Strontium, Total	63.4	76.3	18.5	3.0
		Thallium, Total	2.3 u	2.3 u	NC	3.0
		Uranium, Total	4.1 u	4.1 u	NC	3.0
		Vanadium, Total	79.8	92.0	14.2	3.0
		Zinc, Total	30.2	33.7	11.0	3.0

corrected value
JW 8/10/07

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/03/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0362-LC1	Silver, LCS	45.0	49.0	MG/KG	91.8
		Aluminum, LCS	460	490	MG/KG	93.9
		Arsenic, LCS	866	980	MG/KG	88.3
		Boron, LCS	444	490	MG/KG	90.6
		Barium, LCS	464	490	MG/KG	94.7
		Beryllium, LCS	22.3	24.5	MG/KG	91.0
		Bismuth, LCS	226	245	MG/KG	92.4
		Calcium, LCS	2190	2450	MG/KG	89.5
		Cadmium, LCS	21.7	24.5	MG/KG	88.6
		Cobalt, LCS	222	245	MG/KG	90.7
		Chromium, LCS	44.9	49.0	MG/KG	91.6
		Copper, LCS	116	122	MG/KG	94.5
		Iron, LCS	446	490	MG/KG	91.0
		Potassium, LCS	2110	2450	MG/KG	86.2
		Lithium, LCS	454	490	MG/KG	92.6
		Magnesium, LCS	2130	2450	MG/KG	86.8
		Manganese, LCS	68.2	73.5	MG/KG	92.8
		Molybdenum, LCS	440	490	MG/KG	89.9
		Sodium, LCS	2100	2450	MG/KG	85.9
		Nickel, LCS	177	196	MG/KG	90.1
		Phosphorus, LCS	212	245	MG/KG	86.6
		Lead, LCS	220	245	MG/KG	89.6
		Antimony, LCS	266	294	MG/KG	90.4
		Selenium, LCS	850	980	MG/KG	86.7
		Silicon, LCS	434	490	MG/KG	88.5
		Tin, LCS	438	490	MG/KG	89.3
		Strontium, LCS	465	490	MG/KG	94.8
		Thallium, LCS	880	980	MG/KG	89.8
		Uranium, LCS	222	245	MG/KG	90.6
		Vanadium, LCS	221	245	MG/KG	90.3
		Zinc, LCS	89.6	98.0	MG/KG	91.4

Lionville Laboratory Use Only

07071644

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client TWL-HANFORD SAFHOTWM RC-074

Est. Final Proj. Sampling Date

Project# 11343-606-001-9999-00

Project Contact/Phone#

Lionville Laboratory Project Manager O Johnson

QC SW846 Del STD TAT 15 days

Date Rec'd 7-26-07 Date Due 8-10-07

Refrigerator #									A 2		B 2	C 2					
#/Type Container	Liquid																
	Solid								1G		1G	1G					
Volume									60		60	60					
Preservatives									—		—	—					
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN	IC Anions	Hg Cl2					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
															Met D		ECD IPH	ICRG			
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	001	J15242	/	/	Soil	7/24/07	0954								X		X	X			

Special Instructions:

Met ① = HSL + U, Sn, Sr, P, B, Mo, Si, Li, Bi, NO HG

IC ① = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	7/27/07	0955

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL		"COMPOSITE WASTE"	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-027	Page 1 of 1

Collector D.W. Shea/Sub-contractor- John Caldwell	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH
Price Code 8K	Data Turnaround 15 days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Quick T	Sampling Location 120-D-2		SAF No. RC-074
Ice Chest No. AFS-06-003	Field Logbook No. EL-1607-1	COA R120D22600	Method of Shipment Fed EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. ~~See OSPC~~ TRE A070385		Bill of Lading/Air Bill No. SEE OSPC

0000000910

POSSIBLE SAMPLE HAZARDS/REMARKS

Cr+6, pH

Special Handling and/or Storage

Cool to 4°C

Preservation	None	Cool 4C	Cool 4C									
Type of Container	G P	G P	G P									
No. of Container(s)	1 A	1 C	1 D									
Volume	60ml.	60ml.	60ml.									
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	IC Anions - 300.0; pH (Soil) - 9045									
Sample No.	Matrix *	Sample Date	Sample Time									
J15242	SOIL	7/24/07	0954	✓	✓	✓						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
John Caldwell (SEC)	7/24/07 1003	DWS for DWSHEA	7/24/07 1003
DWS for DWSHEA	7/24/07 1758	Fridge 3A	7/24/07 1756
3728 # 3A	7-25-07 0930	T.R. Edmundson for Edmundson	7-25-07 0930
T.R. Edmundson for Edmundson WCH	7-25-07 1500	Fed Ex	
Fed Ex	7/26/07 0955	[illegible]	7-26-07 0955
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]

Sampler unavailable to relinquish samples from 3728 Ref # 3A. 3728 Custodian removed samples for shipping on 7/25/07.

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-074

Date: 7/26/07

LvLI Batch #: 0707L644

Sample Custodian: Vicki Hennesy

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill # 7917 2895 3427
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.1°	°C	Cooler # AFS-06-003
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

RECEIVED AUG 2007

DATE RECEIVED: 07/26/07 LVL LOT # :07[illegible]644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15242						
% SOLIDS	001	S	07L%S085	07/24/07	07/27/07	07/30/07
% SOLIDS	001 REP	S	07L%S085	07/24/07	07/27/07	07/30/07
BROMIDE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
BROMIDE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
BROMIDE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
CHLORIDE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
CHLORIDE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
CHLORIDE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
FLUORIDE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
FLUORIDE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
FLUORIDE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRITE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRITE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRITE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRATE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRATE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
NITRATE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
PHOSPHATE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
PHOSPHATE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
PHOSPHATE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
CHROMIUM VI	001	S	07LVI059	07/24/07	08/01/07	08/01/07
CHROMIUM VI	001 REP	S	07LVI059	07/24/07	08/01/07	08/01/07
CHROMIUM VI	001 MS	S	07LVI059	07/24/07	08/01/07	08/01/07
CHROMIUM VI	001 MSD	S	07LVI059	07/24/07	08/01/07	08/01/07
SULFATE BY IC	001	S	07LICA44	07/24/07	08/09/07	08/09/07
SULFATE BY IC	001 REP	S	07LICA44	07/24/07	08/09/07	08/09/07
SULFATE BY IC	001 MS	S	07LICA44	07/24/07	08/09/07	08/09/07
PH	001	S	07LPH049	07/24/07	07/30/07	07/30/07
PH	001 REP	S	07LPH049	07/24/07	07/30/07	07/30/07
LAB QC:						
BROMIDE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
BROMIDE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
CHLORIDE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0886

DATE RECEIVED: 07/26/07 LVL LOT # :0707L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
FLUORIDE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
FLUORIDE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
NITRITE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
NITRITE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
NITRATE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
NITRATE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
PHOSPHATE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
PHOSPHATE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07
CHROMIUM VI	MB1	S	07LVI059	N/A	08/01/07	08/01/07
CHROMIUM VI	MB1 BS	S	07LVI059	N/A	08/01/07	08/01/07
CHROMIUM VI	MB1 BSD	S	07LVI059	N/A	08/01/07	08/01/07
SULFATE BY IC	MB1	S	07LICA44	N/A	08/09/07	08/09/07
SULFATE BY IC	MB1 BS	S	07LICA44	N/A	08/09/07	08/09/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074 K0886
LVL#: 0707L644

W.O.#: 11343-606-001-9999-00
Date Received: 07-26-07

INORGANIC NARRATIVE

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

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary. The initial calibration verification for (ortho) Phosphate was above the 90-110% control limits at 118% however the associated sample results were below the reporting limit. The elevated reporting limit associated with Phosphate analysis is the result of the necessity to dilute the sample due to co-elution effects of the presence of an abundance of Sulfate.

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nuitrate, nitrate, Phosphate, Chromium VI and Sulfate were within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

10. 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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/13/07
Date

njp\i07-644

The results presented in this report relate to the analytical testing and conditions of the samples upon 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 12 pages.

Lionville Laboratory Incorporated

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 Solids	__ 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 7.3/9014	
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)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Bromide, Chloride, Fluoride, **Method:** EPA 300.0

Other: Nitrite, Nitrate, Phosphate, Sulfate **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/10/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15242	% Solids	99.7		%	0.01	1.0
		Bromide by IC	2.4	u	MG/KG	2.4	1.0
		Chloride by IC	8.4		MG/KG	2.4	1.0
		Fluoride by IC	2.7		MG/KG	2.4	1.0
		Nitrite by IC	2.36	u	MG/KG	2.36	1.0
		Nitrate by IC	2.36	u	MG/KG	2.36	1.0
		Phosphate by IC	23.6	u	MG/KG	23.6	10.0
		Chromium VI	0.29		MG/KG	0.20	1.0
		Sulfate by IC	7160		MG/KG	470	1.0
		pH	2.9		SOIL PH	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/10/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LICA44-MB1	Bromide by IC	2.4	u	MG/KG	2.4	1.0
		Chloride by IC	2.4	u	MG/KG	2.4	1.0
		Fluoride by IC	2.4	u	MG/KG	2.4	1.0
		Nitrite by IC	2.39	u	MG/KG	2.39	1.0
		Nitrate by IC	2.39	u	MG/KG	2.39	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Sulfate by IC	2.4	u	MG/KG	2.4	1.0
BLANK10	07LVI059-MB1	Chromium VI	0.20	u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/10/07

CLIENT: TNUHANFORD RC-074 K0886 LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15242	Bromide by IC	86.2	0.0	89.0	96.9	2.0
		Chloride by IC	96.4	8.4	89.0	98.9	2.0
		Fluoride by IC	91.1	2.7	89.0	99.4	2.0
		Nitrite by IC	84.0	2.36u	89.0	94.4	2.0
		Nitrate by IC	89.9	2.36u	89.0	101.0	2.0
		Phosphate by IC	1010	23.6 u	894	113.0	20.0
		Soluble Chromium VI	4.2	0.29	4.0	96.7	1.0
		Insoluble Chromium VI	1120	0.29	1160	96.6	100
		Sulfate by IC	23600	7160	17900	92.1	400
BLANK10	07LICA44-MB1	Bromide by IC	49.1	2.4 u	52.0	94.5	1.0
		Chloride by IC	48.6	2.4 u	52.0	93.4	1.0
		Fluoride by IC	49.5	2.4 u	52.0	95.1	1.0
		Nitrite by IC	48.2	2.39u	52.0	92.6	1.0
		Nitrate by IC	48.6	2.39u	52.0	93.5	1.0
		Phosphate by IC	51.3	2.4 u	52.0	98.7	1.0
		Sulfate by IC	49.6	2.4 u	52.0	95.4	1.0
BLANK10	07LVI059-MB1	Soluble Chromium VI	3.9	0.20u	4.0	98.0	1.0
		Insoluble Chromium VI	1170	0.20u	1170	100	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/10/07

CLIENT: TNUHANFORD RC-074 K0886

LVL LOT #: 0707L644

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15242	% Solids	99.7	99.6	0.060	1.0
		Bromide by IC	2.4 u	2.5 u	NC	1.0
		Chloride by IC	8.4	8.2	2.0	1.0
		Fluoride by IC	2.7	2.8	4.0	1.0
		Nitrite by IC	2.36u	2.48u	NC	1.0
		Nitrate by IC	2.36u	2.48u	NC	1.0
		Phosphate by IC	23.6 u	24.8 u	NC	10.0
		Chromium VI	0.29	0.33	14.5	1.0
		Sulfate by IC	7160	7390	3.2	1.0
		pH	2.9	3.0	1.2	1.0

Lionville Laboratory Use Only

07071644

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client TWL-HANFORD SAFRPOTYPH RC-074

Est. Final Proj. Sampling Date

Project# 11343-606-001-9999-00

Project Contact/Phone#

Lionville Laboratory Project Manager O Johnson

QC SW846 Del STD TAT 15 days

Date Rec'd 7-26-07 Date Due 8-10-07

		A		B	C
Refrigerator #		2		2	2
#/Type Container	Liquid / Solid	1G		1G	1G
Volume		60		60	60
Preservatives		—		—	—
ANALYSES REQUESTED	ORGANIC: VOA, BNA, Pest/PCB, Herb			INORG: Metal, CN	IC, Anions, Hg, GC/MS

Lionville Laboratory 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	Metal		IC Anions IPH	ICRG
001	J15242	/	/	Soil	7/24/07	0954	X		X	X

Special Instructions:
Met(1) = HSL + U, Sn, Sr, P, B, Mo, Si, Li, Bi, NO HG
IC(1) = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	7/27/07	0955

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-027	Page 1 of 1

Collector: D.W. Shea/Sub-contractor - John Caldwell	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8K	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick T	Sampling Location: 120-D-2		SAF No.: RC-074
Ice Chest No.: AFS-06-003	Field Logbook No.: EL-1607-1	COA: R120D22600	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: ~~See OSPC~~ TRE A070385		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Cr+6, pH

Special Handling and/or Storage

Cool to 4°C

Preservation	None	Cool 4C	Cool 4C								
Type of Container	G P	G P	G P								
No. of Container(s)	1 A	1 C	1 B								
Volume	60ml.	60ml.	60ml.								
SAMPLE ANALYSIS	See Item (1) in Special Instructions	Chromium Hex - 7196	IC Anions - 300.0, pH (Soil) - 9045								
Sample No.	Matrix *	Sample Date	Sample Time								
J15242	SOIL	7/24/07	0954	✓	✓	✓					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
John Caldwell (SEC)	7/24/07 1003	DWS Lee DWSHEA	7/24/07 1003
DWS Lee DWSHEA	7/24/07 1756	Fridge 3A	7/24/07 1756
3728 # 3A	7-25-07 0930	J.R. Edmundson	7-25-07 0930
J.R. Edmundson WCH	7-25-07 1500	Fed Ex	
Fed Ex	7/26/07 0955	[signature]	7-26-07 0955
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc]

Sampler unavailable to relinquish samples from 3728 Ref # 3A. 3728 Custodian removed samples for shipping on 7/25/07.

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-074

Date: 7/26/07

LvLI Batch #: 07071644

Sample Custodian: Vicki Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill # 7917 2875 3427
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.1°	°C	Cooler # AFS-06-003
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI