0074051

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

RECEIVED
OCT 05 2007
EDMC

COMPLETE COPY OF DATA PACKAGE TO:

Jeanette Duncan H4-21 KW 9/25/07
INITIAL/DATE

COMMENTS:

SDG K0955 SAF-RC-074

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Sites: Stained soil by 100-D-56

LIONVILLE LABORATORY INC.

21 September 2007

RECEIVED 2007

Joan Kessner
WC-Hanford
2620 Fermi Avenue
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 #	0709L888
SDG #	K0955
SAF #	RC-074
Date Received	9/11/07
# Samples	4
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 K0955

RECEIVED SEP 2007

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15HW6						
% SOLIDS	001	S	07L%SA12	09/06/07	09/12/07	09/12/07
CHROMIUM VI	001	S	07LVI074	09/06/07	09/12/07	09/12/07
CHROMIUM VI	001 REP	S	07LVI074	09/06/07	09/12/07	09/12/07
CHROMIUM VI	001 MS	S	07LVI074	09/06/07	09/12/07	09/12/07
CHROMIUM VI	001 MSD	S	07LVI074	09/06/07	09/12/07	09/12/07
J15HW7						
% SOLIDS	002	S	07L%SA12	09/06/07	09/12/07	09/12/07
CHROMIUM VI	002	S	07LVI074	09/06/07	09/12/07	09/12/07
J15HW8						
% SOLIDS	003	S	07L%SA12	09/06/07	09/12/07	09/12/07
% SOLIDS	003 REP	S	07L%SA12	09/06/07	09/12/07	09/12/07
CHROMIUM VI	003	S	07LVI074	09/06/07	09/12/07	09/12/07
LAB QC:						
CHROMIUM VI	MB1	S	07LVI074	N/A	09/12/07	09/12/07
CHROMIUM VI	MB1 BS	S	07LVI074	N/A	09/12/07	09/12/07
CHROMIUM VI	MB1 BSD	S	07LVI074	N/A	09/12/07	09/12/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074 K0955
LVL#: 0709L888

W.O.#: 11343-606-001-9999-00
Date Received: 09-11-07

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.

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

   LvLI is NELAP accredited by the State of Pennsylvania. 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 blank for Chromium VI was within the method criteria.

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

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analysis for Percent Solids was within the 20% Relative Percent Difference (RPD) control limit however replicate analysis for Chromium VI was outside the control limit that may be attributed to sample inhomogeneity.

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

9/18/07
Date

njp\i09-888

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 11 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: **Method:**

Other: **Method**

L-WI-034/B-01/01

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
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 09/14/07

CLIENT: TNU-HANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15HW6	% Solids	90.0	%	0.01	1.0
		Chromium VI	0.22 u	MG/KG	0.22	1.0
-002	J15HW7	% Solids	92.0	%	0.01	1.0
		Chromium VI	13.6	MG/KG	0.22	1.0
-003	J15HW8	% Solids	85.4	%	0.01	1.0
		Chromium VI	0.32	MG/KG	0.23	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/14/07

CLIENT: TNU-HANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI074-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/14/07

CLIENT: TNU-HANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15HW6	Soluble Chromium VI	4.6	0.22u	4.4	101.4	1.0
		Insoluble Chromium VI	1260	0.22u	1170	107.9	100
BLANK10	07LVI074-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100.1	1.0
		Insoluble Chromium VI	1210	0.20u	1170	103.6	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/14/07

CLIENT: TNU-HANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15HW6	Chromium VI	0.22u	0.24	118.0	1.0
-003REP	J15HW8	% Solids	85.4	86.1	0.89	1.0

Lionville Laboratory Use Only

07091888

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

LVLI

Client: TNU Hanford BC-074

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STO TAT: 15 day

Date Rec'd: 9-11-07 Date Due: 9-26-07

Refrigerator #										A 3		B 3					
#/Type Container	Liquid / Solid									1gl		1gl					
Volume										60		60					
Preservatives										—		—					
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb					INORG: Metal	CN	Cr+6					
Lionville Laboratory Use Only										Met①		ICP6					

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	Met①	ICP6
001	J15HW6			S	9607	1254	X	X
002	J15HW7					1300	X	X
003	J15HW8					1311	X	X

Special Instructions:

Met① = HSL + B, Bi, Mo, Li, Si, Sr, Sn, U, P (No HG)

Run matrix QC

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-11-07	0940

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-032	Page 1 of 1

Collector: D.W. Shea/Sub-contractor (J. Caldwell)	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8J	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick T	Sampling Location: stained soil by 100-D-56		SAF No.: RC-074
Ice Chest No.: AFS-04-012	Field Logbook No.: EL-1607-2	COA: R00D562600	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: See OSPC A070409		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Cr+6

9-11-07

Special Handling and/or Storage

Preservation	None	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time									
J15HW6	SOIL	9/6/07	1254	✓	✓							
J15HW7	SOIL	9/6/07	1300	✓	✓							
J15HW8	SOIL	9/6/07	1311	✓	✓							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
(SEC)	9/6/07 1318	DWSHEA DWSHEA	9/6/07 1318
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWSHEA DWSHEA	9/6/07 1757	Fridge 3A	9/6/07 1757
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fridge 3A	9-10-07 0930	KMSingleton	9-10-07 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
KMSingleton	WCH 9-10-07 1500	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
	9.11.07 0940		9.11.07 0940
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 9/10/07.

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

000000010

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

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

Date: 9.11.07

LvLI Batch #: 07091888

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7924 1471 29
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 2.3 °C		Cooler # AFS-04.012
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~~ DJ 9-11-07	☐ 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.

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

RECEIVED SEP 2007

DATE RECEIVED: 09/11/07 LVL LOT # :0709L828

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J15HW6						
SILVER, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
SILVER, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
SILVER, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
ALUMINUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
ALUMINUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
ALUMINUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
ARSENIC, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
ARSENIC, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
ARSENIC, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
BORON, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
BORON, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
BORON, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
BARIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
BARIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
BARIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
BERYLLIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
BERYLLIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
BERYLLIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
BISMUTH, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
BISMUTH, TOTAL REP	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
BISMUTH, TOTAL SPIKE	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
CALCIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
CALCIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
CALCIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
CADMIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
CADMIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
CADMIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
COBALT, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
COBALT, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
COBALT, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
CHROMIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
CHROMIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
CHROMIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
COPPER, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
COPPER, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
IRON, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
IRON, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
IRON, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
POTASSIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
POTASSIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
POTASSIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
LITHIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
LITHIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
LITHIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
MAGNESIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
MAGNESIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
MAGNESIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
MANGANESE, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
MANGANESE, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
MANGANESE, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
MOLYBDENUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
MOLYBDENUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
MOLYBDENUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
SODIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
SODIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
SODIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
NICKEL, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
NICKEL, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
NICKEL, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
PHOSPHORUS, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/13/07
PHOSPHORUS, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/13/07
PHOSPHORUS, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/13/07
LEAD, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
LEAD, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
LEAD, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
ANTIMONY, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
ANTIMONY, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
ANTIMONY, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
SELENIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
SELENIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
SELENIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
SILICON, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
SILICON, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
TIN, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
TIN, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
TIN, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
STRONTIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
STRONTIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
STRONTIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
THALLIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
THALLIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
THALLIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
URANIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
URANIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
URANIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
VANADIUM, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
VANADIUM, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
VANADIUM, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
ZINC, TOTAL	001	S	07L0455	09/06/07	09/12/07	09/12/07
ZINC, TOTAL	001 REP	S	07L0455	09/06/07	09/12/07	09/12/07
ZINC, TOTAL	001 MS	S	07L0455	09/06/07	09/12/07	09/12/07
J15HW7						
SILVER, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
ALUMINUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
ARSENIC, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
BORON, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
BARIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
BERYLLIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
BISMUTH, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
CALCIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
CADMIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
COBALT, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
CHROMIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
COPPER, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
IRON, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
POTASSIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
LITHIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
MANGANESE, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
MOLYBDENUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
SODIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
NICKEL, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
PHOSPHORUS, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/13/07
LEAD, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
ANTIMONY, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
SELENIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
SILICON, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
TIN, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
STRONTIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
THALLIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
URANIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
VANADIUM, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
ZINC, TOTAL	002	S	07L0455	09/06/07	09/12/07	09/12/07
J15HW8						
SILVER, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
ALUMINUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
ARSENIC, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
BORON, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
BARIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
BERYLLIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
BISMUTH, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
CALCIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
CADMIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
COBALT, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
CHROMIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
COPPER, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
IRON, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
POTASSIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
LITHIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
MAGNESIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
MANGANESE, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
MOLYBDENUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
SODIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
PHOSPHORUS, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/13/07
LEAD, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
ANTIMONY, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
SELENIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
SILICON, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
TIN, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
STRONTIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
THALLIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
URANIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
VANADIUM, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07
ZINC, TOTAL	003	S	07L0455	09/06/07	09/12/07	09/12/07

LAB QC:

SILVER LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
SILVER, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
ALUMINUM LABORTORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
ALUMINUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
ARSENIC LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
ARSENIC, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
BORON LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
BORON, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
BARIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
BARIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
BERYLLIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
BERYLLIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
BISMUTH, LCS	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
BISMUTH, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
CALCIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
CALCIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
CADMIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
CADMIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
COBALT LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
COBALT, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
CHROMIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
CHROMIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
COPPER LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
IRON LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
IRON, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
POTASSIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
POTASSIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
LITHIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
LITHIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
MAGNESIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
MAGNESIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
MANGANESE LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
MANGANESE, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
MOLYBDENUM LABORATOR	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
MOLYBDENUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
SODIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
SODIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
NICKEL LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
NICKEL, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
PHOSPHORUS LCS	LC1 BS	S	07L0455	N/A	09/12/07	09/13/07
PHOSPHORUS, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/13/07
LEAD LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
LEAD, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
ANTIMONY LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
ANTIMONY, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
SELENIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
SELENIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
SILICON LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
SILICON, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
TIN LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
TIN, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
STRONTIUM LCS STANDA	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
STRONTIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
THALLIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
THALLIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
URANIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
URANIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
VANADIUM LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07
VANADIUM, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07
ZINC LABORATORY	LC1 BS	S	07L0455	N/A	09/12/07	09/12/07

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-074 K0955

DATE RECEIVED: 09/11/07 LVL LOT # :0709L888

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	MB1	S	07L0455	N/A	09/12/07	09/12/07

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-074
LVL#: 0709L888
SDG/SAF#: K0955/RC-074

W.O.#: 11343-606-001-9999-00
Date Received: 09-11-07

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 analyses of 3 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples are reported with 3-fold dilutions for ICP metals 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 (80-120% for Mercury).

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

6. 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.

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 Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 5 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

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 21 pages.

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dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J15HW6	Aluminum	66,000	100.9
	Calcium	66,000	99.2
	Iron	66,000	110.4
	Phosphorous	6,000	105.5
	Antimony	300	100.8

11. The duplicate analyses for 2 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. 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/20/07
Date

jjw/m09-888

LVLI
LIONVILLE LABORATORY INC.

The following methods are used as reference for the digestion and analysis of samples contained within t

Lot#: 0709L888

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 [1]		__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	__6010B		__200.7				__99
Uranium	X6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

W.E. 11/9/2007

Other: Phosphorous

Method: 6010B

L-WI-033/M-03/01
000000010

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 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J15HW6	Silver, Total	0.29 u	MG/KG	0.29	3.0
		Aluminum, Total	5110	MG/KG	5.3	3.0
		Arsenic, Total	3.2	MG/KG	1.3	3.0
		Boron, Total	1.2 u	MG/KG	1.2	3.0
		Barium, Total	53.0	MG/KG	0.06	3.0
		Beryllium, Total	0.11	MG/KG	0.03	3.0
		Bismuth, Total	1.3 u	MG/KG	1.3	3.0
		Calcium, Total	7660	MG/KG	2.3	3.0
		Cadmium, Total	0.16 u	MG/KG	0.16	3.0
		Cobalt, Total	5.3	MG/KG	0.26	3.0
		Chromium, Total	9.1	MG/KG	0.32	3.0
		Copper, Total	12.5	MG/KG	0.29	3.0
		Iron, Total	13100	MG/KG	7.7	3.0
		Potassium, Total	961	MG/KG	10.3	3.0
		Lithium, Total	6.9	MG/KG	0.1	3.0
		Magnesium, Total	4080	MG/KG	2.6	3.0
		Manganese, Total	242	MG/KG	0.22	3.0
		Molybdenum, Total	0.51 u	MG/KG	0.51	3.0
		Sodium, Total	181	MG/KG	2.2	3.0
		Nickel, Total	10.0	MG/KG	0.87	3.0
		Phosphorus, Total	355	MG/KG	4.5	3.0
		Lead, Total	4.0	MG/KG	1.1	3.0
		Antimony, Total	0.70 u	MG/KG	0.70	3.0
		Selenium, Total	1.4 u	MG/KG	1.4	3.0
		Silicon, Total	1980	MG/KG	2.8	3.0
		Tin, Total	2.0 u	MG/KG	2.0	3.0
		Strontium, Total	36.1	MG/KG	0.03	3.0
		Thallium, Total	2.6 u	MG/KG	2.6	3.0
		Uranium, Total	4.6 u	MG/KG	4.6	3.0
		Vanadium, Total	28.3	MG/KG	0.26	3.0
		Zinc, Total	35.0	MG/KG	0.13	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J15HW7	Silver, Total	0.27 u	MG/KG	0.27	3.0
		Aluminum, Total	6560	MG/KG	5.1	3.0
		Arsenic, Total	4.2	MG/KG	1.2	3.0
		Boron, Total	3.3	MG/KG	1.1	3.0
		Barium, Total	162	MG/KG	0.06	3.0
		Beryllium, Total	0.16	MG/KG	0.03	3.0
		Bismuth, Total	1.2 u	MG/KG	1.2	3.0
		Calcium, Total	106000	MG/KG	2.2	3.0
		Cadmium, Total	0.88	MG/KG	0.15	3.0
		Cobalt, Total	4.8	MG/KG	0.24	3.0
		Chromium, Total	30.4	MG/KG	0.30	3.0
		Copper, Total	36.1	MG/KG	0.27	3.0
		Iron, Total	14600	MG/KG	7.3	3.0
		Potassium, Total	1160	MG/KG	9.8	3.0
		Lithium, Total	6.8	MG/KG	0.09	3.0
		Magnesium, Total	4390	MG/KG	2.5	3.0
		Manganese, Total	199	MG/KG	0.21	3.0
		Molybdenum, Total	0.51	MG/KG	0.49	3.0
		Sodium, Total	395	MG/KG	2.1	3.0
		Nickel, Total	8.8	MG/KG	0.82	3.0
		Phosphorus, Total	269	MG/KG	4.2	3.0
		Lead, Total	4.8	MG/KG	1.0	3.0
		Antimony, Total	0.67 u	MG/KG	0.67	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Silicon, Total	1960	MG/KG	2.6	3.0
		Tin, Total	3.7	MG/KG	1.9	3.0
		Strontium, Total	120	MG/KG	0.03	3.0
		Thallium, Total	2.4 u	MG/KG	2.4	3.0
		Uranium, Total	4.4 u	MG/KG	4.4	3.0
		Vanadium, Total	25.1	MG/KG	0.24	3.0
		Zinc, Total	86.7	MG/KG	0.12	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J15HW8	Silver, Total	0.31 u	MG/KG	0.31	3.0
		Aluminum, Total	5650	MG/KG	5.7	3.0
		Arsenic, Total	2.7	MG/KG	1.4	3.0
		Boron, Total	1.2 u	MG/KG	1.2	3.0
		Barium, Total	65.9	MG/KG	0.07	3.0
		Beryllium, Total	0.14	MG/KG	0.03	3.0
		Bismuth, Total	1.4 u	MG/KG	1.4	3.0
		Calcium, Total	9730	MG/KG	2.4	3.0
		Cadmium, Total	0.17 u	MG/KG	0.17	3.0
		Cobalt, Total	5.8	MG/KG	0.28	3.0
		Chromium, Total	10.2	MG/KG	0.34	3.0
		Copper, Total	13.4	MG/KG	0.31	3.0
		Iron, Total	13300	MG/KG	8.2	3.0
		Potassium, Total	1240	MG/KG	11.0	3.0
		Lithium, Total	7.5	MG/KG	0.10	3.0
		Magnesium, Total	4410	MG/KG	2.8	3.0
		Manganese, Total	267	MG/KG	0.24	3.0
		Molybdenum, Total	0.55 u	MG/KG	0.55	3.0
		Sodium, Total	216	MG/KG	2.4	3.0
		Nickel, Total	10.9	MG/KG	0.93	3.0
		Phosphorus, Total	368	MG/KG	4.8	3.0
		Lead, Total	3.4	MG/KG	1.1	3.0
		Antimony, Total	0.76 u	MG/KG	0.76	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	3170	MG/KG	3.0	3.0
		Tin, Total	2.2 u	MG/KG	2.2	3.0
		Strontium, Total	42.9	MG/KG	0.03	3.0
		Thallium, Total	2.8 u	MG/KG	2.8	3.0
		Uranium, Total	5.0 u	MG/KG	5.0	3.0
		Vanadium, Total	25.6	MG/KG	0.28	3.0
		Zinc, Total	34.5	MG/KG	0.14	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	07L0455-MB1	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	1.6 u	MG/KG	1.6	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Boron, Total	0.34 u	MG/KG	0.34	1.0
		Barium, Total	0.24	MG/KG	0.02	1.0
		Beryllium, Total	0.009u	MG/KG	0.009	1.0
		Bismuth, Total	0.37 u	MG/KG	0.37	1.0
		Calcium, Total	13.0	MG/KG	0.66	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.09 u	MG/KG	0.09	1.0
		Copper, Total	0.17	MG/KG	0.08	1.0
		Iron, Total	2.5	MG/KG	2.2	1.0
		Potassium, Total	3.0 u	MG/KG	3.0	1.0
		Lithium, Total	0.1	MG/KG	0.03	1.0
		Magnesium, Total	2.2	MG/KG	0.76	1.0
		Manganese, Total	0.07 u	MG/KG	0.07	1.0
		Molybdenum, Total	0.15 u	MG/KG	0.15	1.0
		Sodium, Total	8.7	MG/KG	0.65	1.0
		Nickel, Total	0.25 u	MG/KG	0.25	1.0
		Phosphorus, Total	1.3 u	MG/KG	1.3	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.40 u	MG/KG	0.40	1.0
		Silicon, Total	0.80 u	MG/KG	0.80	1.0
		Tin, Total	1.6	MG/KG	0.59	1.0
		Strontium, Total	0.12	MG/KG	0.009	1.0
		Thallium, Total	0.75 u	MG/KG	0.75	1.0
		Uranium, Total	1.3 u	MG/KG	1.3	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	1.7	MG/KG	0.04	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J15HW6	Silver, Total	5.2	0.29u	5.3	98.1	3.0
		Aluminum, Total	5880	5110	214	362.6*	3.0
		Arsenic, Total	206	3.2	214	95.0	3.0
		Boron, Total	103	1.2 u	107	96.6	3.0
		Barium, Total	261	53.0	214	97.3	3.0
		Beryllium, Total	5.2	0.11	5.3	96.1	3.0
		Bismuth, Total	256	1.3 u	267	96.0	3.0
		Calcium, Total	11100	7660	2670	127.4	3.0
		Cadmium, Total	5.3	0.16u	5.3	100	3.0
		Cobalt, Total	56.7	5.3	53.4	96.3	3.0
		Chromium, Total	31.3	9.1	21.4	103.7	3.0
		Copper, Total	38.4	12.5	26.7	97.0	3.0
		Iron, Total	13600	13100	107	477.6*	3.0
		Potassium, Total	3510	961	2670	95.6	3.0
		Lithium, Total	117	6.9	107	102.7	3.0
		Magnesium, Total	6970	4080	2670	108.4	3.0
		Manganese, Total	307	242	53.4	122.1*	3.0
		Molybdenum, Total	98.6	0.51u	107	92.3	3.0
		Sodium, Total	2790	181	2670	97.6	3.0
		Nickel, Total	62.3	10.0	53.4	97.9	3.0
		Phosphorus, Total	491	355	267	50.9	3.0
		Lead, Total	54.3	4.0	53.4	94.2	3.0
		Antimony, Total	39.6	0.70u	53.4	74.2	3.0
		Selenium, Total	177	1.4 u	214	83.0	3.0
		Silicon, Total	2080	1980	107	99.0*	3.0
		Tin, Total	103	2.0 u	107	96.8	3.0
		Strontium, Total	140	36.1	107	97.3	3.0
		Thallium, Total	202	2.6 u	214	94.5	3.0
		Uranium, Total	255	4.6 u	267	95.7	3.0
		Vanadium, Total	77.6	28.3	53.4	92.3	3.0
		Zinc, Total	83.7	35.0	53.4	91.2	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J15HW6	Silver, Total	0.29u	0.29u	NC	3.0
		Aluminum, Total	5110	5420	6.0	3.0
		Arsenic, Total	3.2	3.8	17.1	3.0
		Boron, Total	1.2 u	1.2 u	NC	3.0
		Barium, Total	53.0	57.5	8.1	3.0
		Beryllium, Total	0.11	0.12	8.7	3.0
		Bismuth, Total	1.3 u	1.3 u	NC	3.0
		Calcium, Total	7660	8680	12.6	3.0
		Cadmium, Total	0.16u	0.16u	NC	3.0
		Cobalt, Total	5.3	5.5	3.7	3.0
		Chromium, Total	9.1	9.5	4.3	3.0
		Copper, Total	12.5	12.4	0.80	3.0
		Iron, Total	13100	13000	0.34	3.0
		Potassium, Total	961	1080	12.0	3.0
		Lithium, Total	6.9	7.6	9.7	3.0
		Magnesium, Total	4080	4360	6.6	3.0
		Manganese, Total	242	252	4.3	3.0
		Molybdenum, Total	0.51u	0.51u	NC	3.0
		Sodium, Total	181	194	7.0	3.0
		Nickel, Total	10.0	10.8	7.7	3.0
		Phosphorus, Total	355	345	2.9	3.0
		Lead, Total	4.0	3.3	19.2	3.0
		Antimony, Total	0.70u	0.70u	NC	3.0
		Selenium, Total	1.4 u	1.4 u	NC	3.0
		Silicon, Total	1980	2550	25.3	3.0
		Tin, Total	2.0 u	3.1	~~NC~~ 200	3.0
		Strontium, Total	36.1	37.8	4.6	3.0
		Thallium, Total	2.6 u	2.6 u	NC	3.0
		Uranium, Total	4.6 u	4.6 u	NC	3.0
		Vanadium, Total	28.3	26.0	8.5	3.0
		Zinc, Total	35.0	32.3	8.0	3.0

corrected value 9/26/07 pm

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/19/07

CLIENT: TNUHANFORD RC-074 K0955 LVL LOT #: 0709L888

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	07L0455-LC1	Silver, LCS	44.5	46.8	MG/KG	95.1
		Aluminum, LCS	447	468	MG/KG	95.7
		Arsenic, LCS	855	935	MG/KG	91.4
		Boron, LCS	433	468	MG/KG	92.7
		Barium, LCS	444	468	MG/KG	94.9
		Beryllium, LCS	22.3	23.4	MG/KG	95.3
		Bismuth, LCS	221	234	MG/KG	94.6
		Calcium, LCS	2220	2340	MG/KG	94.8
		Cadmium, LCS	22.1	23.4	MG/KG	94.4
		Cobalt, LCS	225	234	MG/KG	96.2
		Chromium, LCS	44.9	46.8	MG/KG	95.9
		Copper, LCS	113	117	MG/KG	96.8
		Iron, LCS	450	468	MG/KG	96.3
		Potassium, LCS	2160	2340	MG/KG	92.3
		Lithium, LCS	470	468	MG/KG	100.4
		Magnesium, LCS	2170	2340	MG/KG	93.0
		Manganese, LCS	68.1	70.1	MG/KG	97.1
		Molybdenum, LCS	434	468	MG/KG	92.9
		Sodium, LCS	2180	2340	MG/KG	93.2
		Nickel, LCS	177	187	MG/KG	94.8
		Phosphorus, LCS	197	234	MG/KG	84.4
		Lead, LCS	221	234	MG/KG	94.4
		Antimony, LCS	259	280	MG/KG	92.5
		Selenium, LCS	810	935	MG/KG	86.6
		Silicon, LCS	424	468	MG/KG	90.7
		Tin, LCS	456	468	MG/KG	97.6
		Strontium, LCS	448	468	MG/KG	95.7
		Thallium, LCS	892	935	MG/KG	95.4
		Uranium, LCS	220	234	MG/KG	94.1
		Vanadium, LCS	223	234	MG/KG	95.2
		Zinc, LCS	88.6	93.5	MG/KG	94.8

Lionville Laboratory Use Only

07091888

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

LVLI

Client: TNU Hanford RC-074

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STO TAT: 15 day

Date Rec'd: 9-11-07 Date Due: 9-26-07

Refrigerator #									A 3		B 3					
#/Type Container	Liquid								1gl		1gl					
	Solid															
Volume									60		60					
Preservatives									—		—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	Cr+6					
Lionville Laboratory Use Only									Met①		ICR6					

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	Met①	ICR6
001	J15HW6			S	9607	1254	X	X
002	J15HW7			↓	↓	1300	X	X
003	J15HW8			↓	↓	1311	X	X

Special Instructions:

Met① = HSL + B, Bi, Mo, Li, Si, Sr, Sn, U, P (No HG)

Run Matrix QC

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-11-07	0940

Relinquished by	Received by	Date	Time

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

0000000019

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-032	Page 1 of 1

Collector: D.W. Shea/Sub-contractor (J. Caldwell)	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8J	Data Turnaround: 15 days		
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick T	Sampling Location: stained soil by 100-D-56		SAF No.: RC-074
Ice Chest No.: AFS-04-012	Field Logbook No.: EL-1607-2	COA: R00D562600	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: See OSPC A070409		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Cr+6

Special Handling and/or Storage

Preservation	None	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J15HW6	SOIL	9/6/07	1254	✓	✓								
J15HW7	SOIL	9/6/07	1300	✓	✓								
J15HW8	SOIL	9/6/07	1311	✓	✓								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J. Caldwell (SEC)	9/6/07 1318	DWSHEA DWSHEA	9/6/07 1318
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWSHEA DWSHEA	9/6/07 1757	Fridge 3A	9/6/07 1757
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fridge 3A	9-10-07 0930	KMSingleton	9-10-07 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
KMSingleton	9-10-07 1500 WCH	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	9.11.07 0940	[illegible]	9.11.07 0940
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 9/10/07.

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

000000020

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

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

Date: 9.11.07

LvLI Batch #: 07091888

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill # 7924 1471 29
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 2-3 °C		Cooler # AFS-04.012
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~~ DN 9-11-07	☐ 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