0078364

SAF-RC-055
118-K-1 Burial Grounds – Other Solid
Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 7/1/08
INITIAL/DATE

COMMENTS:

SDG K1249 SAF-RC-055

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: 118-K-1

RECEIVED
JUL 07 2008
EDMC

LIONVILLE LABORATORY INC.

1 July 2008

RECEIVED JUN 2008

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 #	0806L234
SDG #	K1249
SAF #	RC-055
Date Received	6/5/08
# Samples	1
Matrix	OTHER SOLID
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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\tmu-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-055 K1249

RECEIVED JUN 2008

DATE RECEIVED: 06/05/08 LVL LOT # :0806L234

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16W90						
SILVER, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
SILVER, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
SILVER, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
ALUMINUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
ALUMINUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
ALUMINUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
ARSENIC, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
ARSENIC, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
ARSENIC, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
BARIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
BARIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
BARIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
BERYLLIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
BERYLLIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
BERYLLIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
CALCIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
CALCIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
CALCIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
CADMIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
CADMIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
CADMIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
COBALT, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
COBALT, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
COBALT, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
CHROMIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
CHROMIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
CHROMIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
COPPER, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
COPPER, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
COPPER, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
IRON, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
IRON, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
IRON, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
POTASSIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/12/08
POTASSIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/12/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-055 K1249

DATE RECEIVED: 06/05/08 LVL LOT # :0806L234

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/12/08
MAGNESIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
MAGNESIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
MAGNESIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
MANGANESE, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
MANGANESE, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
MANGANESE, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
SODIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/12/08
SODIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/12/08
SODIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/12/08
NICKEL, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
NICKEL, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
NICKEL, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
LEAD, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
LEAD, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
LEAD, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
ANTIMONY, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
ANTIMONY, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
ANTIMONY, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
SELENIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
SELENIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
SELENIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
THALLIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
THALLIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
THALLIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
VANADIUM, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
VANADIUM, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
VANADIUM, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08
ZINC, TOTAL	001	SO	08L0226	05/28/08	06/09/08	06/13/08
ZINC, TOTAL	001 REP	SO	08L0226	05/28/08	06/09/08	06/13/08
ZINC, TOTAL	001 MS	SO	08L0226	05/28/08	06/09/08	06/13/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
SILVER, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
ALUMINUM LABORTORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
ALUMINUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-055 K1249

DATE RECEIVED: 06/05/08 LVL LOT # :0806L234

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
ARSENIC, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
BARIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
BARIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
BERYLLIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
CALCIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
CALCIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
CADMIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
CADMIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
COBALT LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
COBALT, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
CHROMIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
CHROMIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
COPPER LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
COPPER, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
IRON LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
IRON, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
POTASSIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/12/08
POTASSIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/12/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
MAGNESIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
MANGANESE LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
MANGANESE, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
SODIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/12/08
SODIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/12/08
NICKEL LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
NICKEL, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
LEAD LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
LEAD, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
ANTIMONY LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
ANTIMONY, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
SELENIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
SELENIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
THALLIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
THALLIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08
VANADIUM LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
VANADIUM, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-055 K1249

DATE RECEIVED: 06/05/08 LVL LOT # :0806L234

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC LABORATORY	LC1 BS	S	08L0226	N/A	06/09/08	06/13/08
ZINC, TOTAL	MB1	S	08L0226	N/A	06/09/08	06/13/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-055
LVL#: 0806L234
SDG/SAF#: K1249/RC-055

W.O.#: 11343-606-001-9999-00
Date Received: 06-05-08

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 solid sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The solid sample was reported on a wet weight "as received" basis.

   Sample J16W90 was run and reported with 6-fold dilutions for all analytes with the exception of Potassium and Sodium due to sample matrix and high concentrations.

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 with the exception of Sodium and Potassium in file TA0613A. The sample was reported for Sodium and Potassium from file PS0612B.

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

6. The preparation/method blanks for 2 analytes were outside method criteria. {less than the Limit of Quantitation (3-10X the LOD),or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB results for Sodium and Potassium were greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and the sample 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.

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 19 pages.

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 6 analytes were outside the 75-125% control limits in the solid sample. 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
J16W90	Aluminum	252,000	76.5
	Iron	12,000	101.4
	Chromium	6,600	101.2
	Copper	6,600	104.6
	Zinc	6,600	100.7
	Lead	600	102.2

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

12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) 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.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/18/08
Date

alm/m06-234

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within Lot#: 08061234

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010B		200.7				99
Antimony	✓6010B	7041 [5]	200.7	204.2			99
Arsenic	✓6010B	7060A [5]	200.7	206.2	3113B		99
Barium	✓6010B		200.7				99
Beryllium	✓6010B		200.7				99
Bismuth	6010B [1]		200.7 [1]			1620	99
Boron	6010B		200.7				99
Cadmium	✓6010B	7131A [5]	200.7	213.2			99
Calcium	✓6010B		200.7				99
Chromium	✓6010B	7191 [5]	200.7	218.2			SS17
Cobalt	✓6010B		200.7				99
Copper	✓6010B	7211 [5]	200.7	220.2			99
Iron	✓6010B		200.7				99
Lead	✓6010B	7421 [5]	200.7	239.2	3113B		99
Lithium	6010B	7430 [4]	200.7			1620	99
Magnesium	✓6010B		200.7				99
Manganese	✓6010B		200.7				99
Mercury	7470A [3]	7471A [3]	245.1 [2]	245.5 [2]			99
Molybdenum	6010B		200.7				99
Nickel	✓6010B		200.7				99
Potassium	✓6010B	7610 [4]	200.7	258.1 [4]			99
Rare Earths	6010B [1]		200.7 [1]			1620	99
Selenium	✓6010B	7740 [5]	200.7	270.2	3113B		99
Silicon	6010B [1]		200.7			1620	99
Silica	6010B		200.7			1620	99
Silver	✓6010B	7761 [5]	200.7	272.2			99
Sodium	✓6010B	7770 [4]	200.7	273.1 [4]			99
Strontium	6010B		200.7				99
Thallium	✓6010B	7841 [5]	200.7	279.2	200.9		99
Tin	6010B		200.7				99
Titanium	6010B		200.7				99
Uranium	6010B [1]		200.7 [1]			1620	99
Vanadium	✓6010B		200.7				99
Zinc	✓6010B		200.7				99
Zirconium	6010B [1]		200.7 [1]			1620	99

Other:_____ Method:_____

L-WI-033/M-03/01
000000007

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 06/17/08

CLIENT: TNUHANFORD RC-055 K1249 LVL LOT #: 0806L234

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16W90	Silver, Total	0.59	u	MG/KG	0.59	6.0
		Aluminum, Total	343000		MG/KG	23.5	6.0
		Arsenic, Total	2.9	u	MG/KG	2.9	6.0
		Barium, Total	0.67		MG/KG	0.59	6.0
		Beryllium, Total	0.29	u	MG/KG	0.29	6.0
		Calcium, Total	51.1		MG/KG	23.5	6.0
		Cadmium, Total	0.29	u	MG/KG	0.29	6.0
		Cobalt, Total	1.2	u	MG/KG	1.2	6.0
		Chromium, Total	668		MG/KG	1.2	6.0
		Copper, Total	794		MG/KG	1.2	6.0
		Iron, Total	1280		MG/KG	26.5	6.0
		Potassium, Total	62.5		MG/KG	48.3	1.0
		Magnesium, Total	3170		MG/KG	14.7	6.0
		Manganese, Total	218		MG/KG	0.24	6.0
		Sodium, Total	29.5		MG/KG	2.0	1.0
		Nickel, Total	14.1		MG/KG	1.2	6.0
		Lead, Total	80.1		MG/KG	1.8	6.0
		Antimony, Total	1.8	u	MG/KG	1.8	6.0
		Selenium, Total	3.5	u	MG/KG	3.5	6.0
		Thallium, Total	3.5	u	MG/KG	3.5	6.0
		Vanadium, Total	24.4		MG/KG	0.82	6.0
		Zinc, Total	467		MG/KG	3.5	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/17/08

CLIENT: TNUHANFORD RC-055 K1249 LVL LOT #: 0806L234

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0226-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	6.2	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.30	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	17.7	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.29	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	9.2	MG/KG	4.5	1.0
		Potassium, Total	56.7	MG/KG	49.3	1.0
		Magnesium, Total	12.4	MG/KG	2.5	1.0
		Manganese, Total	0.05	MG/KG	0.04	1.0
		Sodium, Total	52.9	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.36	MG/KG	0.30	1.0
		Antimony, Total	0.32	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.76	MG/KG	0.60	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/17/08

CLIENT: TNUHANFORD RC-055 K1249 LVL LOT #: 0806L234

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16W90	Silver, Total	5.2	0.59u	4.9	106.1	6.0
		Aluminum, Total	358000	343000	196	7439 *	6.0
		Arsenic, Total	192	2.9 u	196	97.9	6.0
		Barium, Total	190	0.67	196	96.6	6.0
		Beryllium, Total	4.9	0.29u	4.9	100	6.0
		Calcium, Total	2460	51.1	2450	98.3	6.0
		Cadmium, Total	5.0	0.29u	4.9	102.0	6.0
		Cobalt, Total	48.5	1.2 u	49.0	99.0	6.0
		Chromium, Total	725	668	19.6	290.3*	6.0
		Copper, Total	890	794	24.5	387.8*	6.0
		Iron, Total	1420	1280	98.0	149.0*	6.0
		Potassium, Total	2140	62.5	2450	84.8	1.0
		Magnesium, Total	5750	3170	2450	105.2	6.0
		Manganese, Total	278	218	49.0	122.7*	6.0
		Sodium, Total	2240	29.5	2450	90.4	1.0
		Nickel, Total	62.6	14.1	49.0	99.0	6.0
		Lead, Total	116	80.1	49.0	73.5	6.0
		Antimony, Total	45.7	1.8 u	49.0	93.3	6.0
		Selenium, Total	170	3.5 u	196	86.8	6.0
		Thallium, Total	181	3.5 u	196	92.4	6.0
		Vanadium, Total	73.0	24.4	49.0	99.2	6.0
		Zinc, Total	541	467	49.0	152.0*	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/17/08

CLIENT: TNUHANFORD RC-055 K1249 LVL LOT #: 0806L234

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16W90	Silver, Total	0.59u	0.59u	NC	6.0
		Aluminum, Total	343000	336000	2.2	6.0
		Arsenic, Total	2.9 u	2.9 u	NC	6.0
		Barium, Total	0.67	0.74	10.0	6.0
		Beryllium, Total	0.29u	0.29u	NC	6.0
		Calcium, Total	51.1	41.6	20.5	6.0
		Cadmium, Total	0.29u	0.29u	NC	6.0
		Cobalt, Total	1.2 u	1.2 u	NC	6.0
		Chromium, Total	668	660	1.3	6.0
		Copper, Total	794	796	0.20	6.0
		Iron, Total	1280	1220	4.3	6.0
		Potassium, Total	62.5	52.4	17.6	1.0
		Magnesium, Total	3170	3100	2.2	6.0
		Manganese, Total	218	215	1.6	6.0
		Sodium, Total	29.5	44.0	39.5	1.0
		Nickel, Total	14.1	13.6	3.6	6.0
		Lead, Total	80.1	51.0	44.4	6.0
		Antimony, Total	1.8 u	1.8 u	NC	6.0
		Selenium, Total	3.5 u	3.5 u	NC	6.0
		Thallium, Total	3.5 u	3.5 u	NC	6.0
		Vanadium, Total	24.4	24.0	1.7	6.0
		Zinc, Total	467	464	0.62	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/17/08

CLIENT: TNUHANFORD RC-055 K1249 LVL LOT #: 0806L234

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0226-LC1	Silver, LCS	48.1	50.0	MG/KG	96.2
		Aluminum, LCS	504	500	MG/KG	100.8
		Arsenic, LCS	922	1000	MG/KG	92.2
		Barium, LCS	478	500	MG/KG	95.6
		Beryllium, LCS	23.9	25.0	MG/KG	95.6
		Calcium, LCS	2480	2500	MG/KG	99.0
		Cadmium, LCS	23.7	25.0	MG/KG	94.8
		Cobalt, LCS	238	250	MG/KG	95.0
		Chromium, LCS	48.2	50.0	MG/KG	96.4
		Copper, LCS	123	125	MG/KG	98.7
		Iron, LCS	492	500	MG/KG	98.3
		Potassium, LCS	2260	2500	MG/KG	90.3
		Magnesium, LCS	2390	2500	MG/KG	95.7
		Manganese, LCS	73.0	75.0	MG/KG	97.3
		Sodium, LCS	2330	2500	MG/KG	93.2
		Nickel, LCS	191	200	MG/KG	95.7
		Lead, LCS	239	250	MG/KG	95.5
		Antimony, LCS	278	300	MG/KG	92.6
		Selenium, LCS	898	1000	MG/KG	89.8
		Thallium, LCS	921	1000	MG/KG	92.1
		Vanadium, LCS	236	250	MG/KG	94.3
		Zinc, LCS	95.6	100	MG/KG	95.6

Lionville Laboratory Incorporated

Logbook #: 458

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0226
Date/Time Initiated: 6/9/08 1130
Date/Time Completed: 6/9/08 1930
Analyst(s): JMW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See backlog

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 93°

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
(3050B)
3051

DW 200.7 (1994)
200.9
3113B

MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)

SM 3030C (NC)

CLP ILMO3.0
ILMO4.0

Other tifler

Beck Bett/TMW/Vista

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL) *	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0805L140-005		100 ml	1.00 gm	22	TO	coarse	light grey paint chips	N/A	
005S	1.0 ml		1.00 gm						
005T	↓		0.62 gm						
0805L174-001			1.00 gm				grey paint chips		
001S	1.0 ml		1.00 gm						
001T	↓		0.98 gm						
002			1.00 gm						
0806L234-001			1.02 gm				fluffy, light grey solid		
001R			1.02 gm						
001S	1.0 ml		1.02 gm						
08L0226-MB1			1.0 gm			coarse	boiling chips		
LC1	1.0 ml		1.0 gm						
~~0805L206~~-001			1.47 gm				dry brown dirt	trace plant matter	
0806L273									

relogged to new batch JMW 6/10/08

* written in wrong columns JMW 6/9/08

JMW 6/9/08

Spiking IDs:
MS #: 8100-04-01
02
03
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL G05039
H_2O_2 * ~~E44A06~~ G15A18
1:1 HNO_3 9789-079-07
1:1 HCL

* new lot JMW 6/9/08

File ID#: IC022601, IC022602, IC022603

LIMS Transfer: (Y) N

Data Review By/Date: (PMP) Prestel, 06/10/08

updated

L-SPI-3020-A-0601

Lionville Laboratory Use Only

806C234

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000015

ent TNU HANFORD RC-055

t. Final Proj. Sampling Date

oject# 11343-606-001-9999-00

oject Contact/Phone#

onville Laboratory Project Manager O Johnson

: SW846 Del STD TAT 3 day

ate Rec'd 6-5-08 Date Due 6-8-08

Refrigerator #													A						
#/Type Container	Liquid												2						
	Solid												1G						
Volume													250						
Preservatives																			
ANALYSES REQUESTED →		ORGANIC											INORG						
		VOA	BNA	Pest/PCB	Herb								ZLP Metal	CN	PH				
		Lionville Laboratory Use Only																	
													Met(1)		IPH	we 6-10-08			
													X		X				

ATRIX
DES:
- Soil
- Sediment
- Solid
- Sludge
- Water
- Oil
- Air
- Drum Solids
- Drum Liquids
- EP/TCLP Leachate
- Wipe
- Other
- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
001	J16W90	✓	✓	X	5/28/08	1329

Special Instructions: X = OTHER SOLID

Met(1) = HSL NO HG

Special Instructions:

1. LIMITED VOLUME
2. 6-10-08 Canceled PH insufficient volume WS
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	5/5/08	1005

Relinquished by	Received by	Date	Time

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

...nville Laboratory Use Only

806C234

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

...nt TNU HANFORD RC-055

... Final Proj. Sampling Date

...ject# 11343-606-001-9999-00

...ject Contact/Phone#

...nville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3 day

...e Rec'd 6-5-08 Date Due 6-8-08

Refrigerator #														A 2							
#/Type Container	Liquid																				
	Solid													1G							
Volume														250							
Preservatives																					
ANALYSES REQUESTED →		ORGANIC												INORG							
		VOA	BNA	Pest/PCB	Herb									Metal	CN	PH					
		Lionville Laboratory Use Only																			
														Met(1)		IPH					
Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J16W90	✓	✓	X	5/28/08	1329								X		X					

...RIX ...ES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum, Solids, Drum, Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

...cial Instructions: X = OTHER SOLID

Met(1) = HSL NO HG

Special Instructions:

1. LIMITED VOLUME
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	9/5/08	1005

Relinquished by	Received by	Date	Time

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

000000016

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-055-034	Page ~~1 of 1~~ 2 of 2
ollector Rory Seffler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH	Price Code 3C Data Turnaround 3 day
oject Designation 118-K-1 Burial Grounds - Other Solid Quick Turn	Sampling Location 118-K-1		SAF No. RC-055	
Chest No. AFS-54-122	Field Logbook No. EL 1602-4	COA R118K12600	Method of Shipment ~~gov vehicle~~ Fed Ex JRD 6-4-08	
ipped To ~~Radiological Counting Facility~~ Lionville 8XD 6-3-08	Offsite Property No. A080289		Bill of Lading/Air Bill No. See OSPC	

OSSIBLE SAMPLE HAZARDS/REMARKS

pecial Handling and/or Storage

Preservation	None										
Type of Container	aG										
No. of Container(s)	1										
Volume	250mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
6W90	OTHER SOLID	5-28-08	1329	X									

CHAIN OF POSSESSION		Sign/Print Names	
linquished By/Removed From [signature] mstantouch	Date/Time JUN 03 2008 1500	Received By/Stored In 1060/IC	Date/Time JUN 03 2008 1500
linquished By/Removed From 060 IC	Date/Time 6-4-08 0800	Received By/Stored In JR DeBuigne [signature]	Date/Time 0800 6-4-08
linquished By/Removed From [signature]	Date/Time 0800 6-4-08	Received By/Stored In Fed Ex	Date/Time
linquished By/Removed From [signature]	Date/Time 6-5-08 1005	Received By/Stored In [signature]	Date/Time 6-5-08 1005
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ~~RCF GEA Shipping Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ 8XB 6-3-08

Run ICP metals
pH

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

MLS RTC

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

ABORATORY SECTION	Received By	Title	Date/Time
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

000000017

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-055-034	Page 1 of 2
Collector: Rory Seffler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH	Price Code: 3C 3day; Data Turnaround: 6-3-08
Project Designation: 118-K-1 Burial Grounds - Other Solid Quick Turn	Sampling Location: 118-K-1		SAF No.: RC-055	
Ice Chest No.: ERC-97-079	Field Logbook No.: EL 1602-4	COA: R118K12600	Method of Shipment: gov vehicle	
Shipped To: Radiological Counting Facility	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None			none	none						
Type of Container	aG			aG	aG						
No. of Container(s)	1			1	0						
Volume	250mL			250ml	250ml						
SAMPLE ANALYSIS	See item (1) in Special Instructions. Rad screen	BTD 5-28-08		ICP metals	pH						

Sample No.	Matrix *	Sample Date	Sample Time										
J16W90	OTHER SOLID	5-28-08	1329	X		19765			10g				

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RZ Steffler R.J. Steffler	1500 5-28-08	Doug Bowers/Doug Bowers	5-28-08/1500
Doug Bowers/Doug Bowers	5-28-08/1700	118-K-1 sample trailer RMA	5-28-08/1700
118K1 sample RMSA	5-30-08/1500	Doug Bowers/Doug Bowers	5-30-08/1500
Doug Bowers Bowers	5-30-08/1600	1060 RMA 1A	5-30-08/1600
1060/1A 0910	JUN 02 2008	MSTankovich 0910	JUN 02 2008
MSTankovich 1000	JUN 02 2008	D.Miller/DMiller RCF	1000 6-2-08
RCF 6-3-08 1350		MSTankovich 6/3/08 1350	

SPECIAL INSTRUCTIONS

(1) ~~RCF GEA Shipping Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)~~ BTD 5-28-08

Rad Screen

This sample will be relabeled & sent to Eberline Lab Run ICP metals & pH

AL oxide

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method: Transhipped to Lionville using page 2 of 2	Disposed By: MSTankovich; Date/Time: 6/4/08 0800

WCH-EE-011

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-055

Date: 6/5/08

LvLI Batch #: 0806L234

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 5488 4122
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 plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.5	°C	Cooler # AFS-04122
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

Limited Volume