0077966

SAF-RC-104
600 Area Component of the RCBRA – Multi-Incremental Soil - Resampling
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Duane Jacques H4-22 KW 6/17/08
NITIAL/DATE

RECEIVED
JUN 2 3 2008
EDMC

COMMENTS:

SDG K1225 **SAF-RC-104**

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: Equipment Blank RCBRA 600-208

LIONVILLE LABORATORY INC.

RECEIVED JUN 2008

17 June 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 #	0805L125
SDG #	K1225
SAF #	RC-104
Date Received	5/20/08
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
PAH	
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\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-104 K1225

RECEIVED JUN 2008

DATE RECEIVED: 05/15/08 LVL LOT # :0805L225

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16V87						
SILVER, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
ALUMINUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
ARSENIC, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
BORON, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
BARIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
BERYLLIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
BISMUTH, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
CALCIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
CADMIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
COBALT, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
CHROMIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
COPPER, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
IRON, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
POTASSIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
LITHIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
MAGNESIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
MANGANESE, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
MOLYBDENUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
SODIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
NICKEL, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
PHOSPHORUS, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
LEAD, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
ANTIMONY, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
SELENIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
SILICON, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
TIN, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
STRONTIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
THALLIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
URANIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
VANADIUM, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
ZINC, TOTAL	001	S	08L0215	05/08/08	05/28/08	05/29/08
AB QC:						
SILVER LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-104 K1225

DATE RECEIVED: 05/15/08 LVL LOT # :0805L125

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
ALUMINUM LABORTORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
ALUMINUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
ARSENIC LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
ARSENIC, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
BORON LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
BORON, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
BARIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
BARIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
BERYLLIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
BISMUTH, LCS	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
BISMUTH, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
CALCIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
CALCIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
CADMIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
CADMIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
COBALT LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
COBALT, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
CHROMIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
CHROMIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
COPPER LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
COPPER, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
IRON LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
IRON, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
POTASSIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
POTASSIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
LITHIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
LITHIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
MAGNESIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
MANGANESE LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
MANGANESE, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
MOLYBDENUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
SODIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
SODIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
NICKEL LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-104 K1225

DATE RECEIVED: 05/15/08 LVL LOT # :0805L125

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
PHOSPHORUS LCS	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
PHOSPHORUS, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
LEAD LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
LEAD, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
ANTIMONY LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
ANTIMONY, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
SELENIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
SELENIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
SILICON LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
SILICON, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
TIN LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
TIN, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
STRONTIUM LCS STANDA	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
STRONTIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
THALLIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
THALLIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
URANIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
URANIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
VANADIUM LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
VANADIUM, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08
ZINC LABORATORY	LC1 BS	S	08L0215	N/A	05/28/08	05/29/08
ZINC, TOTAL	MB1	S	08L0215	N/A	05/28/08	05/29/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-104
LVL#: 0805L125
SDG/SAF#: K1225/RC-104

W.O.#: 11343-606-001-9999-00
Date Received: 05-15-08

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 soil sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was digested in 2 gram increments in multiple beakers until all of the metals sample aliquot was digested. The resulting digestates were composited to represent the sample for analysis, and a portion of the final digestate volume was filtered for analysis. The sample result is reported on a wet weight, "as received" basis.

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, Potassium, and Silicon in file TA0529A. The sample was reported for Sodium, Silicon, and Potassium along with Phosphorous from files PS0529B and PS0529C. All results contained in this report are surrounded by in control ICV and CCVs.

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

6. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or the sample was greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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.

8. All laboratory control samples (LCS) were within the 80-120% control with the exception of Silicon (25.9%). Associated sample result may be biased low. Refer to the Inorganics Laboratory Control Standards Report.

9. All matrix spike, duplicate and serial dilution analyses were performed on TNU Hanford, LvLI#: 0805L172 within the same digestion batch. Please refer to this package for the associated QC forms.

10. 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.

11. 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.

12. 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

6/10/08
Date

alm/m05-125

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

ot#: 0805L125

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	✓6010B		200.7				99
ntimony	✓6010B	7041 [5]	200.7	204.2			99
rsenic	✓6010B	7060A [5]	200.7	206.2	3113B		99
arium	✓6010B		200.7				99
eryllium	✓6010B		200.7				99
ismuth	✓6010B [1]		200.7 [1]			1620	99
oron	✓6010B		200.7				99
admium	✓6010B	7131A [5]	200.7	213.2			99
alcium	✓6010B		200.7				99
hromium	✓6010B	7191 [5]	200.7	218.2			SS17
obalt	✓6010B		200.7				99
opper	✓6010B	7211 [5]	200.7	220.2			99
ron	✓6010B		200.7				99
ead	✓6010B	7421 [5]	200.7	239.2	3113B		99
ithium	✓6010B	7430 [4]	200.7			1620	99
agnesium	✓6010B		200.7				99
anganese	✓6010B		200.7				99
ercury	7470A [3]	7471A [3]	245.1 [2]	245.5 [2]			99
olybdenum	✓6010B		200.7				99
ickel	✓6010B		200.7				99
otassium	✓6010B	7610 [4]	200.7	258.1 [4]			99
are Earths	6010B [1]		200.7 [1]			1620	99
elenium	✓6010B	7740 [5]	200.7	270.2	3113B		99
ilicon	✓6010B [1]		200.7			1620	99
ilica	6010B		200.7			1620	99
ilver	✓6010B	7761 [5]	200.7	272.2			99
odium	✓6010B	7770 [4]	200.7	273.1 [4]			99
trontium	✓6010B		200.7				99
hallium	✓6010B	7841 [5]	200.7	279.2	200.9		99
in	✓6010B		200.7				99
itanium	6010B		200.7				99
ranium	✓6010B [1]		200.7 [1]			1620	99
anadium	✓6010B		200.7				99
inc	✓6010B		200.7				99
irconium	6010B [1]		200.7 [1]			1620	99

Other: Phosphorous Method: 6010B

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 06/10/08

CLIENT: TNUHANFORD RC-104 K1225 LVL LOT #: 0805L125

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16V87	Silver, Total	0.05 u	MG/KG	0.05	1.0
		Aluminum, Total	61.9	MG/KG	2.0	1.0
		Arsenic, Total	0.25 u	MG/KG	0.25	1.0
		Boron, Total	0.25 u	MG/KG	0.25	1.0
		Barium, Total	1.3	MG/KG	0.05	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	20.7	MG/KG	2.0	1.0
		Cadmium, Total	0.02 u	MG/KG	0.02	1.0
		Cobalt, Total	0.1 u	MG/KG	0.1	1.0
		Chromium, Total	0.12	MG/KG	0.1	1.0
		Copper, Total	0.13	MG/KG	0.1	1.0
		Iron, Total	292	MG/KG	2.2	1.0
		Potassium, Total	44.1	MG/KG	24.6	1.0
		Lithium, Total	0.07	MG/KG	0.02	1.0
		Magnesium, Total	8.6	MG/KG	1.2	1.0
		Manganese, Total	11.8	MG/KG	0.02	1.0
		Molybdenum, Total	0.15 u	MG/KG	0.15	1.0
		Sodium, Total	15.5	MG/KG	1.0	1.0
		Nickel, Total	0.1 u	MG/KG	0.1	1.0
		Phosphorus, Total	4.1	MG/KG	2.5	1.0
		Lead, Total	0.25	MG/KG	0.15	1.0
		Antimony, Total	0.15 u	MG/KG	0.15	1.0
		Selenium, Total	0.30 u	MG/KG	0.30	1.0
		Silicon, Total	43.3	MG/KG	3.3	1.0
		Tin, Total	0.49	MG/KG	0.30	1.0
		Strontium, Total	0.22	MG/KG	0.01	1.0
		Thallium, Total	0.30 u	MG/KG	0.30	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.09	MG/KG	0.07	1.0
		Zinc, Total	1.1	MG/KG	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/10/08

CLIENT: TNUHANFORD RC-104 K1225 LVL LOT #: 0805L125

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0215-MB1	Silver, Total	0.05 u	MG/KG	0.05	1.0
		Aluminum, Total	2.0 u	MG/KG	2.0	1.0
		Arsenic, Total	0.25 u	MG/KG	0.25	1.0
		Boron, Total	0.25 u	MG/KG	0.25	1.0
		Barium, Total	0.05 u	MG/KG	0.05	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.30 u	MG/KG	0.30	1.0
		Calcium, Total	2.0 u	MG/KG	2.0	1.0
		Cadmium, Total	0.02 u	MG/KG	0.02	1.0
		Cobalt, Total	0.1 u	MG/KG	0.1	1.0
		Chromium, Total	0.1 u	MG/KG	0.1	1.0
		Copper, Total	0.1 u	MG/KG	0.1	1.0
		Iron, Total	3.7	MG/KG	2.2	1.0
		Potassium, Total	24.6 u	MG/KG	24.6	1.0
		Lithium, Total	0.03	MG/KG	0.02	1.0
		Magnesium, Total	1.2 u	MG/KG	1.2	1.0
		Manganese, Total	0.04	MG/KG	0.02	1.0
		Molybdenum, Total	0.15 u	MG/KG	0.15	1.0
		Sodium, Total	2.6	MG/KG	1.0	1.0
		Nickel, Total	0.1 u	MG/KG	0.1	1.0
		Phosphorus, Total	2.5 u	MG/KG	2.5	1.0
		Lead, Total	0.15 u	MG/KG	0.15	1.0
		Antimony, Total	0.15 u	MG/KG	0.15	1.0
		Selenium, Total	0.30 u	MG/KG	0.30	1.0
		Silicon, Total	3.3 u	MG/KG	3.3	1.0
		Tin, Total	0.50	MG/KG	0.30	1.0
		Strontium, Total	0.01 u	MG/KG	0.01	1.0
		Thallium, Total	0.30 u	MG/KG	0.30	1.0
		Uranium, Total	1.0 u	MG/KG	1.0	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	0.48	MG/KG	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/10/08

CLIENT: TNUHANFORD RC-104 K1225 LVL LOT #: 0805L125

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0215-LC1	Silver, LCS	24.3	24.9	MG/KG	97.6
		Aluminum, LCS	256	250	MG/KG	102.5
		Arsenic, LCS	464	499	MG/KG	93.1
		Boron, LCS	235	250	MG/KG	94.3
		Barium, LCS	244	250	MG/KG	97.7
		Beryllium, LCS	12.3	12.5	MG/KG	98.4
		Bismuth, LCS	48.0	49.9	MG/KG	96.3
		Calcium, LCS	1230	1250	MG/KG	98.4
		Cadmium, LCS	11.9	12.5	MG/KG	95.2
		Cobalt, LCS	122	125	MG/KG	97.5
		Chromium, LCS	24.7	24.9	MG/KG	99.2
		Copper, LCS	62.1	62.4	MG/KG	99.5
		Iron, LCS	256	250	MG/KG	102.4
		Potassium, LCS	1120	1250	MG/KG	90.2
		Lithium, LCS	259	250	MG/KG	103.9
		Magnesium, LCS	1190	1250	MG/KG	95.6
		Manganese, LCS	36.9	37.4	MG/KG	98.7
		Molybdenum, LCS	240	250	MG/KG	96.4
		Sodium, LCS	1120	1250	MG/KG	89.6
		Nickel, LCS	97.1	99.8	MG/KG	97.3
		Phosphorus, LCS	42.9	49.9	MG/KG	85.9
		Lead, LCS	120	125	MG/KG	96.3
		Antimony, LCS	145	150	MG/KG	96.7
		Selenium, LCS	458	499	MG/KG	91.7
		Silicon, LCS	64.6	250	MG/KG	25.9
		Tin, LCS	247	250	MG/KG	98.8
		Strontium, LCS	246	250	MG/KG	98.8
		Thallium, LCS	483	499	MG/KG	96.9
		Uranium, LCS	47.8	49.9	MG/KG	95.7
		Vanadium, LCS	120	125	MG/KG	96.4
		Zinc, LCS	48.1	49.9	MG/KG	96.4

Lionville Laboratory Incorporated

Logbook #: 750

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0715
Date/Time Initiated: 5/23/08 1000
Date/Time Completed: 5/23/08 2000
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: HSL+B, Bi, Li, Mo, P, Si, Sr, Sn, V, (Hg)
(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

TW

Method: (circle)

SW	3005A	DW	200.7 (1994)
	3010A		200.9
	3015		3113B
	3020A		
	7060A (As/Se)	MCAWW	200.7 (1982)
	7760A (Ag)		200 (AA)
			206.2 (As/Se)
	(3050B)		
	3051	SM	3030C (NC)
CLP	ILMO3.0	Other	
	ILMO4.0		

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
08052125-001	A		2.01 gm	100 ml	<2	TO	coarse	Mixture sand	N/A	N/A
001	B		2.00 gm							
001	C		2.00 gm							
001	D		2.00 gm							
001	E		2.00 gm							
001	F		2.00 gm							
001	G		2.01 gm							
001	H	(30.05)	2.02 gm							
001	I		1.99 gm							
001	J		2.01 gm							
001	K		2.00 gm							
001	L		2.00 gm							
001	M		2.00 gm							
001	N		1.99 gm							
001	O		2.02 gm							
08052172-001	A		2.00 gm				fine	brown soil	trace plant mat	
001	B		2.00 gm							
001	C		2.02 gm							
001	D		2.00 gm							
001	E		2.00 gm							
001	F	(30.11)	2.00 gm							
001	G		2.00 gm							
001	H		2.00 gm							
001	I		2.01 gm							

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
1:1 HNO_3 9789-079-07
1:1 HCL

File ID#: I021501
LIMS Transfer: (Y) N updated
Data Review By/Date: PMP, 05/30/08

* and 0.1 ml 6072-076-06 (Bi)
0.1 ml 6072-076-07 (P-)
0.1 ml 6072-078-01 (V-)
0.020 ml 6072-78-15 (Hg)

⊗ Total weight of all samples.

PMP
05-29-08

L-SPI-3020-A-0601

Page #: 024
000000011

Lionville Laboratory Incorporated

Logbook #: 7X

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0215
Date/Time Initiated:
Date/Time Completed:
Analyst(s):
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:

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

Method: SW (circle)

	3005A	DW	200.7 (1994)
	3010A		200.9
	3015		3113B
	3020A		
	7060A (As/Se)	MCAWW	200.7 (1982)
	7760A (Ag)		200 (AA)
			206.2 (As/Se)
	3050B		
	3051	SM	3030C (NC)
CLP	ILMO3.0	Other	
	ILMO4.0		

TMW

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
0805L172-001 J		2.01 gm	100 ml	<2	TO	fine	brown soil - trace plant matter		
001 K		2.01 gm							
001 L		2.03 gm							
001 M		2.02 gm							
001 N		2.02 gm							
001 O		2.00 gm							
0805L172-001R A		2.02 gm							
001R B		2.02 gm							
001R C		2.02 gm							
001R D		2.00 gm							
001R E		2.00 gm							
001R F		2.01 gm							
001R G	*	2.01 gm							
001R H	(29.81)	2.01 gm							
001R I		2.01 gm							
001R J		2.02 gm							
001R K		2.01 gm							
001R L		2.03 gm							
001R M		2.04 gm							
001R N		1.99 gm							
001R O		1.64 gm							
0805L172-001S A	1.0 ml *	2.02 gm							
001S B		2.00 gm							
001S C		2.04 gm							

Spiking IDs:
MS #:

LCS #:

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3
1:1 HCL

File ID#: IC021501
LIMS Transfer: Y N
Data Review By/Date: Updated PMP, 05/30/08

* Total weight of all samples - PMP 05-29-08

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0215
Date/Time Initiated:
Date/Time Completed:
Analyst(s):
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:

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

See page 024

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

TRW

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
0805L172-0013 D	1.0 ml *	2.01 gm	100 ml	<2	TO	fine	brown soil - trace	plant matter	
0013 E		2.00 gm							
0013 F		2.02 gm							
0013 G		2.01 gm							
0013 H		2.00 gm							
0013 I	*	2.01 gm							
0013 J	(30.00)	2.01 gm							
0013 K		2.01 gm							
0013 L		2.01 gm							
0013 M		2.01 gm							
0013 N		2.00 gm							
0013 O		1.85 gm							
0805L172-002 A		2.03 gm							
002 B		2.01 gm							
002 C		2.02 gm							
002 D		2.02 gm							
002 E		2.00 gm							
002 F	*	2.03 gm							
002 G	(30.01)	2.01 gm							
002 H		2.00 gm							
002 I		2.00 gm							
002 J		2.02 gm							
002 K		2.01 gm							
002 L		2.02 gm							

Spiking IDs:
MS #:
LCS #:

See page 024

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3
1:1 HCL

See page 024

File ID#: IC021501
LIMS Transfer: Y N
Data Review By/Date: updated
PMP, 05/30/08

* Total weight of all samples.
PMP
05-29-08

Lionville Laboratory Incorporated Logbook #: 930

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 0820215
Date/Time Initiated:
Date/Time Completed:
Analyst(s):
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:

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

See page 024

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

TNU

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
08052172-002 M		2.01 gm	100ml	<2	TO	fine	brown soil - trace	plant matter	
002 N		2.00 gm							
002 O		1.83 gm							
08052172-003 A		2.01 gm							
003 B		2.02 gm							
003 C		2.01 gm							
003 D		2.01 gm							
003 E		2.02 gm							
003 F		2.01 gm							
003 G	*	2.00 gm							
003 H	(29.89)	2.01 gm							
003 I		2.03 gm							
003 J		2.01 gm							
003 K		2.04 gm							
003 L		2.01 gm							
003 M		2.05 gm							
003 N		2.01 gm							
003 O		1.65 gm							
08052172-004 A		2.00 gm							
004 B		2.02 gm							
004 C	*	2.03 gm							
004 D	(30.00)	2.00 gm							
004 E		2.01 gm							
004 F		2.01 gm							

Spiking IDs:
MS #:
LCS #:

See page 024

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3
1:1 HCL

See page 024

File ID#: IC021501
LIMS Transfer: Y N
Data Review By/Date: updated
PMP, 05/30/08

* Total weight of all samples.
PMP
05-29-08

Lionville Laboratory Incorporated

Logbook #: 450

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0215
Date/Time Initiated:
Date/Time Completed:
Analyst(s):
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:

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

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

TNU

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
0805L172-004 G		2.01 gm	100 ml	<2	TO	fine	brown silt-trace	plant matter	
004 H		2.01 gm							
004 I		2.02 gm							
004 J		2.00 gm							
004 K		2.02 gm							
004 L		2.01 gm							
004 M		2.02 gm							
004 N		2.00 gm							
004 O		1.84 gm							
0805L172-005 A		2.02 gm							
005 B		2.00 gm							
005 C		2.01 gm							
005 D		2.02 gm							
005 E		2.01 gm							
005 F	⊗	2.00 gm							
005 G	(29.97)	2.00 gm							
005 H		2.04 gm							
005 I		2.00 gm							
005 JK		2.00 gm							
005 KJ *		2.02 gm							
005 L		2.01 gm							
005 M		2.03 gm							
005 N		2.00 gm							
005 O		1.83 gm							

* changed entry pmp 5/28/08

Spiking IDs:
MS #:
See page 024
LCS #:

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3
1:1 HCL
See page 024

File ID#: IC021501
LIMS Transfer: Y N
Data Review By/Date: updated
PMP, 05/30/08

⊗ Total weight of all samples.

PMP
05-29-08

L-SPI-3020-A-0601

Lionville Laboratory Incorporated

Logbook #: 420

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0215
Date/Time Initiated:
Date/Time Completed:
Analyst(s):
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:
Digested / Undigested (circle one)
Balance #:
Balance Cal Verif: Y NA
Hot Plate Temp:

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
3050B
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other

TMW

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
08L0215-MB1 A		2.00 gm	100 ml	<2	TO	coarse	boiling chips	N/A	
B	⊗(6.01)	2.01 gm							
C		2.00 gm							
08L0215-LC1 A	1.0 ml *	2.01 gm							
B	⊗(6.01)	2.01 gm							
C		1.99 gm							

PMP 5/28/08

Spiking IDs:
MS #:
LCS #:
See page 024

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3
1:1 HCL
See page 024

File ID#: IC021501
LIMS Transfer: Y N
Data Review By/Date: Updated PMP, 05/30/08

⊗ Total weight of all samples.

PMP
05-29-08

L-SPI-3020-A-0601

nville Laboratory Use Only

805L125

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000017

nt TNU HANFORD RC-104

. Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O-JOHNSON

SW846 Del STD TAT 30 days

e Rec'd 5-15-08 Date Due 6-14-08

Refrigerator #								A 3							
#/Type Container	Liquid / Solid							1Bg							
Volume								1000g							
Preservatives															
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN						
		Lionville Laboratory Use Only													
								Met①							

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J16V87	✓	✓	SOIL	5-8-08	0900

ecial Instructions:

Met① = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, U

NO HG

Special Instructions:

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

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

COMPOSITE

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-104-23	Page 1 of 1
llector MANLEY STRICKLAND	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8L / Data Turnaround 45 Days
oject Designation 600 Area Component of the RCBRA - Multi-Incremental Soi	Sampling Location Equipment Blank RCBRA 600-208		SAF No. RC-104	
e Chest No. GRP-03-015	Field Logbook No. EL-1611-1	COA BESRASC100	Method of Shipment ~~FED EX~~ ~~Ground~~ 5/14/08 Fed Ex	
ipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A080249		Bill of Lading/Air Bill No. see ospc	

OSSIBLE SAMPLE HAZARDS/REMARKS IONE	Preservation	None									
	Type of Container	G/P									
pecial Handling and/or Storage IONE	No. of Container(s)	1									
	Volume	1000g									
SAMPLE ANALYSIS		See item (1) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
6V87	SOIL	5-8-08	0900	X									

CHAIN OF POSSESSION	Sign/Print Names		
inquished By/Removed From: ony Manley Sony Manley	Date/Time: 5/8/08 12:05	Received By/Stored In: S/GALE D/Dale	Date/Time: 5808 1205
inquished By/Removed From: S/GALE D/Dale	Date/Time: 5808 1600	Received By/Stored In: REF 2C	Date/Time: 5808 1600
inquished By/Removed From: 060/2C	Date/Time: 0930 MAY 14 2008	Received By/Stored In: 0930 mstankovich	Date/Time: MAY 14 2008
inquished By/Removed From: 0930 mstankovich WCH	Date/Time: MAY 14 2008	Received By/Stored In: Fed Ex	Date/Time:
inquished By/Removed From: Fed Ex	Date/Time: 5-15-08 0925	Received By/Stored In: [signature]	Date/Time: 5-15-08 0925
inquished 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 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

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

CH-EE-011

KW

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: RC-104

Date: 5-15-08

LvLI Batch #: 0805L125

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7998 5378 1952
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 2-7	°C	Cooler # GRP-03-015
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