0076996

SAF-RC-031
100-F Burial Grounds Remaining Sites - Soil Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jeff DeBuigne	X9-07	KW 4/22/08 INITIAL/DATE
Kathy Wendt	H4-21	KW 4/22/08 INITIAL/DATE

COMMENTS:

SDG: K1174 **SAF-RC-031**

Rad only X Chem only Rad & Chem

X Complete Partial

Waste Site: 600-149 Pistol Range Characterization

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MAY 01 2008
EDMC

LIONVILLE LABORATORY INC.

21 April 2008

RECEIVED APR 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 #	0804L860
SDG #	K1174
SAF #	RC-031
Date Received	4/3/08
# Samples	2
Matrix	SOIL
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\tnu-hanford\data\b_ltrs.doc

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

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16J93						
TCLP	001	S	08LT0027	04/01/08	04/07/08	04/08/08
SILVER, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
SILVER, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
SILVER, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
ALUMINUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/10/08
ALUMINUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/10/08
ALUMINUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/10/08
ARSENIC, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
ARSENIC, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
ARSENIC, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
BORON, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
BORON, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
BORON, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
BARIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
BARIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
BARIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
CALCIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/10/08
CALCIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/10/08
CALCIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/10/08
CADMIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
CADMIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
CADMIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
COBALT, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
COBALT, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
COBALT, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
CHROMIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
COPPER, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
COPPER, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
COPPER, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
IRON, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/10/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/10/08
IRON, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/10/08
MERCURY, TOTAL	001	S	08C0058	04/01/08	04/07/08	04/08/08
MERCURY, TOTAL	001 REP	S	08C0058	04/01/08	04/07/08	04/08/08
MERCURY, TOTAL	001 MS	S	08C0058	04/01/08	04/07/08	04/08/08
POTASSIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/10/08
POTASSIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/10/08
POTASSIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/10/08
MAGNESIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
MAGNESIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
MAGNESIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
MANGANESE, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
MANGANESE, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
MANGANESE, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
SODIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/10/08
SODIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/10/08
SODIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/10/08
NICKEL, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
NICKEL, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
NICKEL, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
LEAD, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
LEAD, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
LEAD, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
ANTIMONY, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
SELENIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
SELENIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
SELENIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
SILICON, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
SILICON, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
SILICON, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
VANADIUM, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
VANADIUM, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
VANADIUM, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001	S	08L0138	04/01/08	04/09/08	04/09/08
ZINC, TOTAL	001 REP	S	08L0138	04/01/08	04/09/08	04/09/08
ZINC, TOTAL	001 MS	S	08L0138	04/01/08	04/09/08	04/09/08
J16J94						
TCLP	002	S	08LT0027	04/01/08	04/07/08	04/08/08
SILVER, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
ALUMINUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/10/08
ARSENIC, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
BORON, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
BARIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
BERYLLIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
CALCIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/10/08
CADMIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
COBALT, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
CHROMIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
COPPER, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
IRON, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/10/08
MERCURY, TOTAL	002	S	08C0058	04/01/08	04/07/08	04/08/08
POTASSIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/10/08
MAGNESIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
MANGANESE, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
MOLYBDENUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
SODIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/10/08
NICKEL, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
LEAD, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
ANTIMONY, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
SELENIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
SILICON, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
VANADIUM, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
ZINC, TOTAL	002	S	08L0138	04/01/08	04/09/08	04/09/08
J16J93						
SILVER, TCLP LEACHAT	003	W	08L0136	04/08/08	04/09/08	04/10/08
SILVER, TCLP LEACHAT	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
SILVER, TCLP LEACHAT	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TCLP LEACHA	003	W	08L0136	04/08/08	04/09/08	04/10/08
ARSENIC, TCLP LEACHA	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
ARSENIC, TCLP LEACHA	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	003	W	08L0136	04/08/08	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	003	W	08L0136	04/08/08	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	003	W	08L0136	04/08/08	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
MERCURY, TCLP LEACHA	003	W	08C0065	04/08/08	04/10/08	08/11/08
MERCURY, TCLP LEACHA	003 REP	W	08C0065	04/08/08	04/10/08	08/11/08
MERCURY, TCLP LEACHA	003 MS	W	08C0065	04/08/08	04/10/08	08/11/08
LEAD, TCLP LEACHATE	003	W	08L0136	04/08/08	04/09/08	04/10/08
LEAD, TCLP LEACHATE	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
LEAD, TCLP LEACHATE	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
SELENIUM, TCLP LEACH	003	W	08L0136	04/08/08	04/09/08	04/10/08
SELENIUM, TCLP LEACH	003 REP	W	08L0136	04/08/08	04/09/08	04/10/08
SELENIUM, TCLP LEACH	003 MS	W	08L0136	04/08/08	04/09/08	04/10/08
J16J94						
SILVER, TCLP LEACHAT	004	W	08L0136	04/08/08	04/09/08	04/10/08
ARSENIC, TCLP LEACHA	004	W	08L0136	04/08/08	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	004	W	08L0136	04/08/08	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	004	W	08L0136	04/08/08	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	004	W	08L0136	04/08/08	04/09/08	04/10/08
MERCURY, TCLP LEACHA	004	W	08C0065	04/08/08	04/10/08	08/11/08
LEAD, TCLP LEACHATE	004	W	08L0136	04/08/08	04/09/08	04/10/08
SELENIUM, TCLP LEACH	004	W	08L0136	04/08/08	04/09/08	04/10/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
SILVER, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ALUMINUM LABORTORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
ARSENIC LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
ARSENIC, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BORON LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
BORON, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BARIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
BARIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
BERYLLIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
CALCIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
CALCIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
CADMIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
CADMIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
COBALT LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
COBALT, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
CHROMIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
CHROMIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
COPPER LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
COPPER, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
IRON LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
IRON, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
MERCURY LABORATORY	LC1 BS	S	08C0058	N/A	04/07/08	04/08/08
MERCURY, TOTAL	MB1	S	08C0058	N/A	04/07/08	04/08/08
POTASSIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
POTASSIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MAGNESIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
MANGANESE LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MANGANESE, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
MOLYBDENUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SODIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/10/08
SODIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/10/08
NICKEL LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
NICKEL, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
LEAD LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
LEAD, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ANTIMONY LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-031 K1174

DATE RECEIVED: 04/03/08 LVL LOT # :0804L860

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SELENIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
SELENIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SILICON LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
SILICON, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
VANADIUM LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
VANADIUM, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
ZINC LABORATORY	LC1 BS	S	08L0138	N/A	04/09/08	04/09/08
ZINC, TOTAL	MB1	S	08L0138	N/A	04/09/08	04/09/08
SILVER LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
SILVER, TCLP LEACHAT	MB1	W	08L0136	N/A	04/09/08	04/10/08
SILVER, TCLP LEACHAT	MB2	W	08L0136	N/A	04/09/08	04/10/08
ARSENIC LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
ARSENIC, TCLP LEACHA	MB1	W	08L0136	N/A	04/09/08	04/10/08
ARSENIC, TCLP LEACHA	MB2	W	08L0136	N/A	04/09/08	04/10/08
BARIUM LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	MB1	W	08L0136	N/A	04/09/08	04/10/08
BARIUM, TCLP LEACHAT	MB2	W	08L0136	N/A	04/09/08	04/10/08
CADMIUM LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	MB1	W	08L0136	N/A	04/09/08	04/10/08
CADMIUM, TCLP LEACHA	MB2	W	08L0136	N/A	04/09/08	04/10/08
CHROMIUM LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	MB1	W	08L0136	N/A	04/09/08	04/10/08
CHROMIUM, TCLP LEACH	MB2	W	08L0136	N/A	04/09/08	04/10/08
MERCURY LABORATORY	LC1 BS	W	08C0065	N/A	04/10/08	08/11/08
MERCURY, TOTAL	MB1	W	08C0065	N/A	04/10/08	08/11/08
MERCURY, TCLP LEACHA	MB2	W	08C0065	N/A	04/10/08	08/11/08
MERCURY, TCLP LEACHA	MB3	W	08C0065	N/A	04/10/08	08/11/08
LEAD LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
LEAD, TCLP LEACHATE	MB1	W	08L0136	N/A	04/09/08	04/10/08
LEAD, TCLP LEACHATE	MB2	W	08L0136	N/A	04/09/08	04/10/08
SELENIUM LABORATORY	LC1 BS	W	08L0136	N/A	04/09/08	04/10/08
SELENIUM, TCLP LEACH	MB1	W	08L0136	N/A	04/09/08	04/10/08
SELENIUM, TCLP LEACH	MB2	W	08L0136	N/A	04/09/08	04/10/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-031
LVL#: 0804L860
SDG/SAF#: K1174/RC-031

W.O.#: 11343-606-001-9999-00
Date Received: 04-03-08

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 analyses of 2 soil samples and 2 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All soil samples were run and reported with a 3-fold dilution. The soil samples were rerun on a different instrument for Aluminum, Calcium, and Iron due to sample matrix. TCLP leachate sample J16J94 was run and reported with a 6-fold dilution for Lead. Soil samples were 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 (80-120% for Mercury) with the exception of the ICV for Sodium and Potassium in file TA0409C. All samples were rerun for Sodium and Potassium along with Aluminum, Calcium and Iron in file PS0410A.

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), MB value less than 5% of the RCRA limit, 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 with the exception of both LCS for Silicon at 50.8%. Refer to the Inorganics Laboratory Control

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 30 pages.

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Standards Report. Associated sample results may be biased low for Silicon.

9. The matrix spike (MS) recoveries for 6 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16J93	Aluminum	66,000	97.5
	Iron	66,000	92.9
	Antimony	300	100.9
	Manganese	3,000	109.2
	Silicon	6,300	98.1
	Lead	1,800	71.9

11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from client sample J16J93 was selected for the matrix spike (MS) for this analytical batch.

13. The matrix spike for Silver was below 50% recovery (19.3%). The recovery in the TCLP Leachate was below 80-120% of the action level so standard addition was not required per Federal Register, Vol.57, No.227, Nov. 24, 1992, page 55117.

14. 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.

15. 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.

16. 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

4/16/08
Date

alm/m04-860

METALS METHOD GLOSSARY

'he following methods are used as reference for the digestion and analysis of samples contained within this ,ot#: 0804L860

,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
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-W1-033/M-03/01

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
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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16J93	Silver, Total	0.28 u	MG/KG	0.28	3.0
		Aluminum, Total	5540	MG/KG	11.1	3.0
		Arsenic, Total	2.9	MG/KG	1.4	3.0
		Boron, Total	1.4	MG/KG	1.4	3.0
		Barium, Total	64.4	MG/KG	0.28	3.0
		Beryllium, Total	0.67	MG/KG	0.14	3.0
		Calcium, Total	3910	MG/KG	11.1	3.0
		Cadmium, Total	0.14 u	MG/KG	0.14	3.0
		Cobalt, Total	7.3	MG/KG	0.56	3.0
		Chromium, Total	6.7	MG/KG	0.56	3.0
		Copper, Total	40.7	MG/KG	0.56	3.0
		Iron, Total	21600	MG/KG	12.5	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	1150	MG/KG	137	3.0
		Magnesium, Total	3870	MG/KG	6.9	3.0
		Manganese, Total	300	MG/KG	0.11	3.0
		Molybdenum, Total	0.83 u	MG/KG	0.83	3.0
		Sodium, Total	115	MG/KG	5.6	3.0
		Nickel, Total	8.5	MG/KG	0.56	3.0
		Lead, Total	2440	MG/KG	0.83	3.0
		Antimony, Total	38.0	MG/KG	0.83	3.0
		Selenium, Total	1.7 u	MG/KG	1.7	3.0
		Silicon, Total	253	MG/KG	11.1	3.0
		Vanadium, Total	51.8	MG/KG	0.39	3.0
		Zinc, Total	41.2	MG/KG	1.7	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J16J94	Silver, Total	0.24 u	MG/KG	0.24	3.0
		Aluminum, Total	5410	MG/KG	9.7	3.0
		Arsenic, Total	2.7	MG/KG	1.2	3.0
		Boron, Total	1.2 u	MG/KG	1.2	3.0
		Barium, Total	73.2	MG/KG	0.24	3.0
		Beryllium, Total	0.68	MG/KG	0.12	3.0
		Calcium, Total	3830	MG/KG	9.7	3.0
		Cadmium, Total	0.12 u	MG/KG	0.12	3.0
		Cobalt, Total	7.4	MG/KG	0.48	3.0
		Chromium, Total	7.0	MG/KG	0.48	3.0
		Copper, Total	46.9	MG/KG	0.48	3.0
		Iron, Total	21200	MG/KG	10.9	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	1220	MG/KG	119	3.0
		Magnesium, Total	4040	MG/KG	6.0	3.0
		Manganese, Total	325	MG/KG	0.1	3.0
		Molybdenum, Total	0.73 u	MG/KG	0.73	3.0
		Sodium, Total	113	MG/KG	4.8	3.0
		Nickel, Total	9.1	MG/KG	0.48	3.0
		Lead, Total	714	MG/KG	0.73	3.0
		Antimony, Total	5.6	MG/KG	0.73	3.0
		Selenium, Total	1.5 u	MG/KG	1.5	3.0
		Silicon, Total	231	MG/KG	9.7	3.0
		Vanadium, Total	52.7	MG/KG	0.34	3.0
		Zinc, Total	48.1	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J16J93	Silver, TCLP Leachate	3.4	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	19.7	UG/L	5.0	1.0
		Barium, TCLP Leachate	500	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0 u	UG/L	2.0	1.0
		Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0
		Lead, TCLP Leachate	15800	UG/L	34.8	1.0
		Selenium, TCLP Leachate	5.0 u	UG/L	5.0	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J16J94	Silver, TCLP Leachate	1.6	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	27.9	UG/L	5.0	1.0
		Barium, TCLP Leachate	632	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0 u	UG/L	2.0	1.0
		Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0
		Lead, TCLP Leachate	263000	UG/L	209	6.0
		Selenium, TCLP Leachate	17.8	UG/L	5.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0138-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	5.5	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	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.44	MG/KG	0.20	1.0
		Iron, Total	4.8	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	4.0	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	1.6	MG/KG	0.60	1.0
BLANK1	08C0058-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
BLANK1	08L0136-MB1	Silver, TCLP Leachate	1.0 u	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	9.0	UG/L	5.0	1.0
		Barium, TCLP Leachate	1.3	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0 u	UG/L	2.0	1.0
		Lead, TCLP Leachate	17.8	UG/L	3.0	1.0
		Selenium, TCLP Leachate	5.0 u	UG/L	5.0	1.0
BLANK2	08L0136-MB2	Silver, TCLP Leachate	1.0 u	UG/L	1.0	1.0
		Arsenic, TCLP Leachate	5.0 u	UG/L	5.0	1.0
		Barium, TCLP Leachate	1.0 u	UG/L	1.0	1.0
		Cadmium, TCLP Leachate	0.50 u	UG/L	0.50	1.0
		Chromium, TCLP Leachate	2.0 u	UG/L	2.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK2	08L0136-MB2	Lead, TCLP Leachate	7.5	UG/L	3.0	1.0
		Selenium, TCLP Leachate	9.1	UG/L	5.0	1.0
BLANK1	08C0065-MB1	Mercury, Total	0.20 u	UG/L	0.20	1.0
BLANK2	08C0065-MB2	Mercury, TCLP Leachate	0.06	UG/L	0.06	1.0
BLANK3	08C0065-MB3	Mercury, TCLP Leachate	0.06 u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16J93	Silver, Total	4.2	0.28u	4.6	91.3	3.0
		Aluminum, Total	6070	5540	185	283.8*	3.0
		Arsenic, Total	181	2.9	185	96.0	3.0
		Boron, Total	88.6	1.4	92.6	94.2	3.0
		Barium, Total	248	64.4	185	99.2	3.0
		Beryllium, Total	5.1	0.67	4.6	96.3	3.0
		Calcium, Total	6190	3910	2320	98.6	3.0
		Cadmium, Total	4.6	0.14u	4.6	100	3.0
		Cobalt, Total	51.8	7.3	46.3	96.1	3.0
		Chromium, Total	25.2	6.7	18.5	100	3.0
		Copper, Total	65.1	40.7	23.1	105.6	3.0
		Iron, Total	21700	21600	92.6	165.1*	3.0
		Mercury, Total	1.1	0.00u	1.0	114.5	1.0
		Potassium, Total	3360	1150	2320	95.8	3.0
		Magnesium, Total	6400	3870	2320	109.3	3.0
		Manganese, Total	358	300	46.3	127.4*	3.0
		Molybdenum, Total	86.3	0.83u	92.6	93.2	3.0
		Sodium, Total	2320	115	2320	95.2	3.0
		Nickel, Total	53.3	8.5	46.3	96.8	3.0
		Lead, Total	719	2440	46.3	-3700. *	3.0
		Antimony, Total	33.3	38.0	46.3	-10.	3.0
		Selenium, Total	153	1.7 u	185	82.4	3.0
		Silicon, Total	401	253	92.6	159.7	3.0
		Vanadium, Total	96.8	51.8	46.3	97.2	3.0
		Zinc, Total	87.6	41.2	46.3	100.2	3.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	J16J93	Silver, TCLP Leachate	966	3.4	5000	19.3	1.0
		Arsenic, TCLP Leachate	3980	19.7	5000	79.2	1.0
		Barium, TCLP Leachate	83800	500	100000	83.3	1.0
		Cadmium, TCLP Leachate	782	0.50u	1000	78.2	1.0
		Chromium, TCLP Leachat	3810	2.0 u	5000	76.3	1.0
		Mercury, TCLP Leachate	192	0.06u	200	96.0	50.0
		Lead, TCLP Leachate	18400	15800	5000	51.2	1.0
		Selenium, TCLP Leachat	829	5.0 u	1000	82.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16J93	Silver, Total	0.28u	0.27u	NC	3.0
		Aluminum, Total	5540	5120	8.1	3.0
		Arsenic, Total	2.9	2.9	0.00	3.0
		Boron, Total	1.4	1.4 u	NC	3.0
		Barium, Total	64.4	66.5	3.2	3.0
		Beryllium, Total	0.67	0.62	8.3	3.0
		Calcium, Total	3910	3720	5.2	3.0
		Cadmium, Total	0.14u	0.14u	NC	3.0
		Cobalt, Total	7.3	6.7	8.6	3.0
		Chromium, Total	6.7	6.2	7.8	3.0
		Copper, Total	40.7	43.8	7.3	3.0
		Iron, Total	21600	20400	5.3	3.0
		Mercury, Total	0.00u	0.00u	NC	1.0
		Potassium, Total	1150	1110	3.2	3.0
		Magnesium, Total	3870	3640	6.3	3.0
		Manganese, Total	300	297	0.80	3.0
		Molybdenum, Total	0.83u	0.82u	NC	3.0
		Sodium, Total	115	105	8.4	3.0
		Nickel, Total	8.5	8.0	6.1	3.0
		Lead, Total	2440	756	105.5	3.0
		Antimony, Total	38.0	5.4	150.2	3.0
		Selenium, Total	1.7 u	1.6 u	NC	3.0
		Silicon, Total	253	205	20.8	3.0
		Vanadium, Total	51.8	48.6	6.4	3.0
		Zinc, Total	41.2	38.6	6.5	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	J16J93	Silver, TCLP Leachate	3.4	2.7	23.0	1.0
		Arsenic, TCLP Leachate	19.7	16.7	16.5	1.0
		Barium, TCLP Leachate	500	500	0.080	1.0
		Cadmium, TCLP Leachate	0.50u	0.50u	NC	1.0
		Chromium, TCLP Leachate	2.0 u	2.0 u	NC	1.0
		Mercury, TCLP Leachate	0.06u	0.06u	NC	1.0
		Lead, TCLP Leachate	15800	16800	6.0	1.0
		Selenium, TCLP Leachate	5.0 u	20.8	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/11/08

CLIENT: TNUHANFORD RC-031 K1174 LVL LOT #: 0804L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0138-LC1	Silver, LCS	44.1	50.0	MG/KG	88.2
		Aluminum, LCS	448	500	MG/KG	89.5
		Arsenic, LCS	882	1000	MG/KG	88.2
		Boron, LCS	440	500	MG/KG	88.0
		Barium, LCS	439	500	MG/KG	87.8
		Beryllium, LCS	22.4	25.0	MG/KG	89.6
		Calcium, LCS	2200	2500	MG/KG	88.2
		Cadmium, LCS	22.3	25.0	MG/KG	89.2
		Cobalt, LCS	222	250	MG/KG	88.8
		Chromium, LCS	44.8	50.0	MG/KG	89.6
		Copper, LCS	112	125	MG/KG	89.3
		Iron, LCS	448	500	MG/KG	89.7
		Potassium, LCS	2190	2500	MG/KG	87.8
		Magnesium, LCS	2220	2500	MG/KG	88.8
		Manganese, LCS	67.3	75.0	MG/KG	89.7
		Molybdenum, LCS	436	500	MG/KG	87.2
		Sodium, LCS	2220	2500	MG/KG	88.8
		Nickel, LCS	179	200	MG/KG	89.6
		Lead, LCS	226	250	MG/KG	90.3
		Antimony, LCS	258	300	MG/KG	86.1
		Selenium, LCS	842	1000	MG/KG	84.2
		Silicon, LCS	254	500	MG/KG	50.8
		Vanadium, LCS	217	250	MG/KG	86.8
		Zinc, LCS	95.6	100	MG/KG	95.6
LCS1	08C0058-LC1	Mercury, LCS	5.0	4.7	MG/KG	106.1
LCS1	08L0136-LC1	Silver, LCS	448	500	UG/L	89.6
		Arsenic, LCS	8810	10000	UG/L	88.1
		Barium, LCS	4560	5000	UG/L	91.1
		Cadmium, LCS	226	250	UG/L	90.4
		Chromium, LCS	442	500	UG/L	88.5
		Lead, LCS	2230	2500	UG/L	89.2
		Selenium, LCS	8820	10000	UG/L	88.2
LCS1	08C0065-LC1	Mercury, LCS	5.1	5.0	UG/L	101.6

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0136
Date/Time Initiated: 4/9/08 1030
Date/Time Completed: 4/9/08 1600
Analyst(s): MW
Matrix: Soil Water Other: leachate
Instr. Type: AA (ICP)
Parameters: RCRA

(Digested) / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y (NA)
Hot Plate Temp: 90°

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 glass

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
0803L830-003		100 ml	100 ml	<2	TC	N/A	clear/colorless	N/A	N/A
003R									
003S	1.0 ml								
004									
0804L854-003									
003R									
003S	1.0 ml								
004									
0804L860-003									
003R									
003S	1.0 ml								
004									
08LT0027-LB1									
08L0136-MB1									
LC1	1.0 ml								

MW 4/9/08

Spiking IDs:
MS #: 6072-073-03
05

LCS #: 6072-078-08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL
H_2O_2
1:1 HNO_3
1:1 HCL 6072-069-03

File ID#: IC013601
LIMS Transfer: (Y) N updated
Data Review By/Date: PMP, 04/10/08

Lionville Laboratory Incorporated Logbook #: 440

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L-0138
Date/Time Initiated: 4/9/08 1100
Date/Time Completed: 4/9/08 1500
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See Logbook

(Digested) / Undigested (circle one)
Balance #: B70
Balance Cal Verif: (Y) NA
Hot Plate Temp: 90°

Method: (circle)
SW 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 teflon

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
0803L828-001		1.23gm	100ml	<2	TO	coarse	dark brown/rocks		
001R		1.30gm							
001S	1.0 ml	1.24gm							
002		1.17gm					brown/rocks		
003		1.27gm							
004		1.19gm							
0803L829-001		1.07gm					brown/crystalline		
001R		1.05gm							
001S	1.0 ml	1.08gm							
0804L860-001		1.08gm				fine	brown/vegetation		
001R		1.10gm							
001S	1.0 ml	1.08gm							
002		1.24gm					rocks		
08L0138-MB1		1.0gm				coarse	broking dirt		
LC1	1.0 ml								

MW 4/9/08

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

Reagent IDs:
HNO_3 E46025
HCL E45047
H_2O_2 E44106
1:1 HNO_3 9789-07-06
1:1 HCL D10
W.E. NW 4/10/08

File ID#: IC013801, IC013802, IC013803
LIMS Transfer: (Y) N
Data Review By/Date: RMP, 04/10/08

Updated

Lionville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: TEB
Date 4/7/08
Start Time/Temp: 1535 | 93°
End Time/Temp: 1605 | 92°

Instrument ID 4G-3.1
Balance #: B29 ✓ /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0058
Worksheet: HG-040801
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	8T			10mL	50mL	
0.2 µg/L	CB	0.100				
1.0	11A	0.500				
2.0	5T	1.000				
5.0	2B	2.500				
10.0	3H	5.000				
ICV	H	0.125	2.5			
CCV	PT	0.250	5.0			
ICB/CCB	1435					9.80L
MB1	997			0.30		PBS158 100.00
LCI	401	*	*	0.30		LSS158 ↓
0803L810-011	OLN			0.38		100.00
0803L837-001	871			0.33		89.42
001R	711			0.39		↓
001S	55	0.500	1.0	0.33		
0803L841-001	503			0.32		100.00
001R	AB			0.30		
001S	1721	0.500	1.0	0.32		
002	WO			0.32		
003	8H			0.35		
004	JC			0.32		
005	HW			0.35		
006	LIS			0.34		
007	S			0.33		
008	114			0.32		
0804L860-001	RU			0.34		R 100.00
001R	CX			0.32		↓

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6072-75-07B	4/7/08 1120
ICV/CCV/LCS	US 6072-75-08A	↓

Reviewed By/Date: [signature] 4/16/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021 *

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: TEB
Date 4/7/08
Start Time/Temp: supply
End Time/Temp: 58

Instrument ID HG3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 0802058
Worksheet: HG-040801
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0804L860-001S	J1	0.500	1.0	0.34	50mL	R 100.00
002	27			0.32	↓	↓ ↓

TEB 4/7/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page 058	

Reviewed By/Date: [signature] 4/16/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: GB
Date 4/10/08
Start Time/Temp: 1025 | 93°
End Time/Temp: 1225 | 92°

Instrument ID HG3.1
Balance #: (NA)
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0065
Worksheet: HG041101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? ✓ Yes __ No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	OLN			33mL	33mL	Poured & spiked 4/9/08
0.2 µg/L	JB	0.0667				Refridg. 0: [illegible] 4/9/08
1.0	297	0.334				
2.0	A94	0.667				
5.0	AP	1.667				
10.0	DX	3.334				
ICV	LV	0.0834	2.5			
CCV	A4	0.167	5.0			
ICB/CCB	194					
MBI	8H					
LCI	503	0.167	5.0			
0803L830-003	PT					
003R	IC					
003S	11A	0.667	200			
004	N2					
0804L860-003	JC					
003R	E7					
003S	AB	0.667	200			
004	BLV					
0804L854-003	N4					
003R	70D					
003S	JS	0.667	200			
004	2B					
0803L841-017	711					
017S	C48	0.667	200			
018	WN					
019	55					

Standard:	ID	Prep Date/Time
ICAL/MS	RI 6072-75-07A	4/9/08 0945
ICV/CCV/LCS	US 6072-75-08B	↓

Reviewed By/Date: [signature] 4/16/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 422

Analyst: UB
Date 4/10/08
Start Time/Temp: 5pm 8T
End Time/Temp: 5pm 8T

Instrument ID HG-3.1
Balance #: NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0065
Worksheet: HG041101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? ✓ Yes __ No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: **The Inital/Final Volume for water samples = 33mL, unless otherwise noted.**
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0803L841-020	CM			33mL	33mL	
021	S					
022	WU					
023	CB					
024	ST					
08LT0027-LB1	G12					
08LT0028-LB1	CB2					

EEA 4/10/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	Sep pur 069	

Reviewed By/Date: [signature] 4/16/08

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

See SRC

Lionville Laboratory Use Only

0804L460 8 wk 4-3-08

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAF# RC-031

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STD TAT: 7DAY

Date Rec'd: 4-3-08 Date Due: 4-10-08

Refrigerator #									A 3								
#/Type Container	Liquid																
	Solid								1P				LEACHATE				
Volume									100/100								
Preservatives																	
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Tot Metal Hg	CN	TCLP Met Hg						
		Lionville Laboratory Use Only															
									MetO		ITCLP		RCRA				

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	MetO	ITCLP	RCRA
001	J16J93			SOIL	4-1-08	0945	X	X	
002	J16J94			SOIL	4-1-08	0945	X	X	
003	93 TCLP OS 001			L	*				X
004	94 002								X

Special Instructions:

MetO = HSL + B, Mo, Si (NOTL)

Special Instructions:

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

* See Lab Chron

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	4/3/08	0930

Relinquished by	Received by	Date	Time

Relinquished	Received by	Date	Time
ORIGINAL REWRITTEN	COMPOSITE WASTE		

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-031-119	Page 1 of 1

Collector T. Welch-Koelling	Company Contact J. R. DeBuigne	Telephone No. 528-6409	Project Coordinator KESSNER, JH
Price Code 8B	Data Turnaround 7 DAY		
Project Designation 100-F Burial Grounds Remaining Sites - Soil Quick Turn	Sampling Location 600-149 Pistol Range Characterization		SAF No. RC-031
Ice Chest No. ERC-02-003	Field Logbook No. EFL-1174-4	COA R601492600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / KONVILLE	Offsite Property No. A080209		Bill of Lading/Air Bill No. See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	None	None	None							
Type of Container	P	P	P	P							
No. of Container(s)	1	1 X 250 0 4-1-08	1	0							
Volume	500mL	500mL	1000mL	1000mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (1)	See item (2)							
Sample No.	Matrix *	Sample Date	Sample Time								
J16J93	SOIL	4-1-08	0945	X	X						Low
J16J94	SOIL	4-1-08	0945			X	X				High

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: JR DeBuigne — Date/Time 1520 4-1-08	Received By/Stored In: 1060 Ship Facility 2B — Date/Time 1520 4-1-08
Relinquished By/Removed From: 1060 BATELLE 2B — Date/Time 4/2/08 1210	Received By/Stored In: DAVID ST JOHN — Date/Time 4/2/08 1210
Relinquished By/Removed From: DAVID ST JOHN — Date/Time 4/2/08 1210	Received By/Stored In: FED EX — Date/Time
Relinquished By/Removed From: Fed Ex — Date/Time 4-3-08 0930	Received By/Stored In: [illegible] — Date/Time 4-3-08 0930
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470

Please call Joan before running ICP Metals (TCLP).

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	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAP/SOW/Release #: RC-031

Date: 4/3/08

LvLI Batch #: 08041860

Sample Custodian: Vicki Heerandy

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7910 3584 7259
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 2-3	°C	Cooler # ERC-02-003
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.