0076490

SAF-RC-029
Remaining Sites Confirmation Sampling - Soil
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Charlene Martinez	H4-23	KW 3/17/08 INITIAL/DATE
Elizabeth Farris	H4-23	KW 3/17/08 INITIAL/DATE
Kathy Wendt	H4-21	KW 3/17/08 INITIAL/DATE

RECEIVED
MAR 18 2008
EDMC

COMMENTS:

SDG K1124 SAF RC-029

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-F-45

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

RECEIVED
MAR 2008

DATE RECEIVED: 02/20/08 LVL LOT # 20802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J169T1						
SILVER, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
ALUMINUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
ARSENIC, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
BORON, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
BARIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
BERYLLIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
CALCIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
CADMIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
COBALT, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
CHROMIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
COPPER, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
IRON, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
MERCURY, TOTAL	001	S	08C0037	02/14/08	02/25/08	02/26/08
POTASSIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
MAGNESIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
MANGANESE, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
MOLYBDENUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
SODIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
NICKEL, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
LEAD, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
ANTIMONY, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
SELENIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
SILICON, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
VANADIUM, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
ZINC, TOTAL	001	S	08L0089	02/14/08	02/29/08	03/03/08
J169T2						
SILVER, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
SILVER, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
SILVER, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
ALUMINUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
ALUMINUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
ALUMINUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
ARSENIC, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
ARSENIC, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
BORON, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
BORON, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
BORON, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
BARIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
BARIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
BARIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
BERYLLIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
BERYLLIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
BERYLLIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
CALCIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
CALCIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
CALCIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
CADMIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
CADMIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
CADMIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
COBALT, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
COBALT, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
COBALT, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
CHROMIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
CHROMIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
CHROMIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
COPPER, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
COPPER, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
COPPER, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
IRON, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
IRON, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
IRON, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
MERCURY, TOTAL	002	S	08C0039	02/14/08	02/27/08	02/28/08
MERCURY, TOTAL	002 REP	S	08C0039	02/14/08	02/27/08	02/28/08
MERCURY, TOTAL	002 MS	S	08C0039	02/14/08	02/27/08	02/28/08
POTASSIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
POTASSIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
POTASSIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
MAGNESIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
MAGNESIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
MAGNESIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
MANGANESE, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
MANGANESE, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
MOLYBDENUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
MOLYBDENUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
MOLYBDENUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
SODIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
SODIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
SODIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
NICKEL, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
NICKEL, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
NICKEL, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
LEAD, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
LEAD, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
LEAD, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
ANTIMONY, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
ANTIMONY, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
ANTIMONY, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
SELENIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
SELENIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
SELENIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
SILICON, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
SILICON, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
SILICON, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
VANADIUM, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
VANADIUM, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
VANADIUM, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
ZINC, TOTAL	002	S	08L0089	02/14/08	02/29/08	03/04/08
ZINC, TOTAL	002 REP	S	08L0089	02/14/08	02/29/08	03/04/08
ZINC, TOTAL	002 MS	S	08L0089	02/14/08	02/29/08	03/04/08
J169T3						
SILVER, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
ALUMINUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
ARSENIC, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
BORON, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
BARIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
CALCIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
CADMIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
COBALT, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
CHROMIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
COPPER, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
IRON, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
MERCURY, TOTAL	003	S	08C0037	02/14/08	02/25/08	02/26/08
POTASSIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
MAGNESIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
MANGANESE, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
MOLYBDENUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
SODIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
NICKEL, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
LEAD, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
ANTIMONY, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
SELENIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
SILICON, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
VANADIUM, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
ZINC, TOTAL	003	S	08L0089	02/14/08	02/29/08	03/04/08
J169T4						
SILVER, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
ALUMINUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
ARSENIC, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
BORON, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
BARIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
BERYLLIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
CALCIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
CADMIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
COBALT, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
CHROMIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
COPPER, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
IRON, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
MERCURY, TOTAL	004	S	08C0037	02/14/08	02/25/08	02/26/08
POTASSIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
MAGNESIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
MOLYBDENUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
SODIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
NICKEL, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
LEAD, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
ANTIMONY, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
SELENIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
SILICON, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
VANADIUM, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08
ZINC, TOTAL	004	S	08L0089	02/14/08	02/29/08	03/04/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
SILVER, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
ALUMINUM LABORTORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
ALUMINUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
ARSENIC LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
ARSENIC, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
BORON LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
BORON, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
BARIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
BARIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
BERYLLIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
CALCIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
CALCIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
CADMIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
CADMIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
COBALT LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
COBALT, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
CHROMIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
CHROMIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
COPPER LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
COPPER, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
IRON LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
IRON, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
MERCURY LABORATORY	LC1 BS	S	08C0037	N/A	02/25/08	02/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	MB1	S	08C0037	N/A	02/25/08	02/26/08
POTASSIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
POTASSIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
MAGNESIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
MANGANESE LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
MANGANESE, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
MOLYBDENUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
SODIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
SODIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
NICKEL LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
NICKEL, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
LEAD LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
LEAD, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
ANTIMONY LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
ANTIMONY, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
SELENIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
SELENIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
SILICON LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
SILICON, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
VANADIUM LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
VANADIUM, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
ZINC LABORATORY	LC1 BS	S	08L0089	N/A	02/29/08	03/03/08
ZINC, TOTAL	MB1	S	08L0089	N/A	02/29/08	03/03/08
MERCURY LABORATORY	LC1 BS	S	08C0039	N/A	02/27/08	02/28/08
MERCURY, TOTAL	MB1	S	08C0039	N/A	02/27/08	02/28/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-029
LVL#: 0802L629
SDG/SAF#: K112/RC-029

W.O.#: 11343-606-001-9999-00
Date Received: 02-20-08

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 4 soil samples.

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

   The samples were reported with 3-fold dilutions for ICP metals due to sample matrix.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

6. The preparation/method blank for 1 analyte was 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 result for Sodium was greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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 22 pages.

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 8.1%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J169T2	Aluminum	66,000	100.4
	Chromium	300	105.2
	Iron	66,000	102.9
	Silicon	6,300	101.7
	Antimony	300	104.3

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

12. For the purposes of this report, the data has been reported to the 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/6/08
Date

alm/m02-629

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 08021629

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:_____

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 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J169T1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	45.4	MG/KG	3.4	1.0
		Arsenic, Total	0.43 u	MG/KG	0.43	1.0
		Boron, Total	0.43 u	MG/KG	0.43	1.0
		Barium, Total	1.1	MG/KG	0.09	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	25.1	MG/KG	3.4	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.17 u	MG/KG	0.17	1.0
		Chromium, Total	0.17 u	MG/KG	0.17	1.0
		Copper, Total	0.23	MG/KG	0.17	1.0
		Iron, Total	101	MG/KG	3.9	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	16.4	MG/KG	3.4	1.0
		Magnesium, Total	7.8	MG/KG	2.2	1.0
		Manganese, Total	4.1	MG/KG	0.03	1.0
		Molybdenum, Total	0.26 u	MG/KG	0.26	1.0
		Sodium, Total	10.6	MG/KG	1.7	1.0
		Nickel, Total	0.31	MG/KG	0.17	1.0
		Lead, Total	0.41	MG/KG	0.26	1.0
		Antimony, Total	0.26 u	MG/KG	0.26	1.0
		Selenium, Total	0.52 u	MG/KG	0.52	1.0
		Silicon, Total	30.7	MG/KG	3.4	1.0
		Vanadium, Total	0.12 u	MG/KG	0.12	1.0
		Zinc, Total	0.69	MG/KG	0.52	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J169T2	Silver, Total	0.30 u	MG/KG	0.30	3.0
		Aluminum, Total	5270	MG/KG	11.9	3.0
		Arsenic, Total	3.5	MG/KG	1.5	3.0
		Boron, Total	1.5 u	MG/KG	1.5	3.0
		Barium, Total	65.6	MG/KG	0.30	3.0
		Beryllium, Total	0.43	MG/KG	0.15	3.0
		Calcium, Total	2830	MG/KG	11.9	3.0
		Cadmium, Total	0.24	MG/KG	0.15	3.0
		Cobalt, Total	5.5	MG/KG	0.60	3.0
		Chromium, Total	95.1	MG/KG	0.60	3.0
		Copper, Total	12.0	MG/KG	0.60	3.0
		Iron, Total	17100	MG/KG	13.4	3.0
		Mercury, Total	0.10	MG/KG	0.009	1.0
		Potassium, Total	785	MG/KG	11.9	3.0
		Magnesium, Total	3510	MG/KG	7.5	3.0
		Manganese, Total	276	MG/KG	0.12	3.0
		Molybdenum, Total	0.89 u	MG/KG	0.89	3.0
		Sodium, Total	127	MG/KG	6.0	3.0
		Nickel, Total	11.4	MG/KG	0.60	3.0
		Lead, Total	8.7	MG/KG	0.89	3.0
		Antimony, Total	0.89 u	MG/KG	0.89	3.0
		Selenium, Total	1.8 u	MG/KG	1.8	3.0
		Silicon, Total	446	MG/KG	11.9	3.0
		Vanadium, Total	32.3	MG/KG	0.42	3.0
		Zinc, Total	62.3	MG/KG	1.8	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J169T3	Silver, Total	0.29 u	MG/KG	0.29	3.0
		Aluminum, Total	5880	MG/KG	11.8	3.0
		Arsenic, Total	3.3	MG/KG	1.5	3.0
		Boron, Total	1.8	MG/KG	1.5	3.0
		Barium, Total	63.9	MG/KG	0.29	3.0
		Beryllium, Total	0.46	MG/KG	0.15	3.0
		Calcium, Total	3020	MG/KG	11.8	3.0
		Cadmium, Total	0.21	MG/KG	0.15	3.0
		Cobalt, Total	5.7	MG/KG	0.59	3.0
		Chromium, Total	46.2	MG/KG	0.59	3.0
		Copper, Total	13.9	MG/KG	0.59	3.0
		Iron, Total	20200	MG/KG	13.2	3.0
		Mercury, Total	0.13	MG/KG	0.01	1.0
		Potassium, Total	894	MG/KG	11.8	3.0
		Magnesium, Total	3820	MG/KG	7.4	3.0
		Manganese, Total	287	MG/KG	0.12	3.0
		Molybdenum, Total	1.5	MG/KG	0.88	3.0
		Sodium, Total	128	MG/KG	5.9	3.0
		Nickel, Total	14.2	MG/KG	0.59	3.0
		Lead, Total	8.2	MG/KG	0.88	3.0
		Antimony, Total	0.88 u	MG/KG	0.88	3.0
		Selenium, Total	1.8 u	MG/KG	1.8	3.0
		Silicon, Total	418	MG/KG	11.8	3.0
		Vanadium, Total	34.1	MG/KG	0.41	3.0
		Zinc, Total	64.7	MG/KG	1.8	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J169T4	Silver, Total	0.32 u	MG/KG	0.32	3.0
		Aluminum, Total	6660	MG/KG	12.6	3.0
		Arsenic, Total	3.6	MG/KG	1.6	3.0
		Boron, Total	1.6 u	MG/KG	1.6	3.0
		Barium, Total	65.2	MG/KG	0.32	3.0
		Beryllium, Total	0.48	MG/KG	0.16	3.0
		Calcium, Total	3170	MG/KG	12.6	3.0
		Cadmium, Total	0.29	MG/KG	0.16	3.0
		Cobalt, Total	5.5	MG/KG	0.63	3.0
		Chromium, Total	96.9	MG/KG	0.63	3.0
		Copper, Total	12.3	MG/KG	0.63	3.0
		Iron, Total	16200	MG/KG	14.2	3.0
		Mercury, Total	0.01	MG/KG	0.008	1.0
		Potassium, Total	905	MG/KG	12.6	3.0
		Magnesium, Total	3900	MG/KG	7.9	3.0
		Manganese, Total	252	MG/KG	0.13	3.0
		Molybdenum, Total	0.95 u	MG/KG	0.95	3.0
		Sodium, Total	124	MG/KG	6.3	3.0
		Nickel, Total	11.8	MG/KG	0.63	3.0
		Lead, Total	12.0	MG/KG	0.95	3.0
		Antimony, Total	0.95 u	MG/KG	0.95	3.0
		Selenium, Total	1.9 u	MG/KG	1.9	3.0
		Silicon, Total	508	MG/KG	12.6	3.0
		Vanadium, Total	29.8	MG/KG	0.44	3.0
		Zinc, Total	75.3	MG/KG	1.9	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0089-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	13.7	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	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.10	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	10.4	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	0.60 u	MG/KG	0.60	1.0
BLANK1	08C0037-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
BLANK1	08C0039-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J169T2	Silver, Total	4.6	0.30u	5.0	92.0	3.0
		Aluminum, Total	6690	5270	199	715.7*	3.0
		Arsenic, Total	191	3.5	199	94.1	3.0
		Boron, Total	94.0	1.5 u	99.4	94.6	3.0
		Barium, Total	257	65.6	199	96.1	3.0
		Beryllium, Total	5.3	0.43	5.0	97.5	3.0
		Calcium, Total	5710	2830	2480	115.8	3.0
		Cadmium, Total	5.1	0.24	5.0	97.1	3.0
		Cobalt, Total	53.6	5.5	49.7	96.8	3.0
		Chromium, Total	71.7	95.1	19.9	-120. *	3.0
		Copper, Total	37.1	12.0	24.8	101.2	3.0
		Iron, Total	17400	17100	99.4	275.2*	3.0
		Mercury, Total	0.34	0.10	0.15	157.5	1.0
		Potassium, Total	3130	785	2480	94.2	3.0
		Magnesium, Total	6460	3510	2480	118.4	3.0
		Manganese, Total	337	276	49.7	121.1*	3.0
		Molybdenum, Total	90.6	0.89u	99.4	91.1	3.0
		Sodium, Total	2380	127	2480	90.9	3.0
		Nickel, Total	61.4	11.4	49.7	100.6	3.0
		Lead, Total	57.0	8.7	49.7	97.2	3.0
		Antimony, Total	24.1	0.89u	49.7	48.5	3.0
		Selenium, Total	165	1.8 u	199	82.8	3.0
		Silicon, Total	488	446	99.4	42.4*	3.0
		Vanadium, Total	83.8	32.3	49.7	103.6	3.0
		Zinc, Total	118	62.3	49.7	111.3	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J169T2	Silver, Total	0.30u	0.28u	NC	3.0
		Aluminum, Total	5270	5540	5.1	3.0
		Arsenic, Total	3.5	2.7	25.8	3.0
		Boron, Total	1.5 u	1.4 u	NC	3.0
		Barium, Total	65.6	59.6	9.6	3.0
		Beryllium, Total	0.43	0.44	3.9	3.0
		Calcium, Total	2830	2950	4.0	3.0
		Cadmium, Total	0.24	0.15	48.7	3.0
		Cobalt, Total	5.5	5.6	1.8	3.0
		Chromium, Total	95.1	41.9	77.7	3.0
		Copper, Total	12.0	10.8	10.5	3.0
		Iron, Total	17100	17700	3.3	3.0
		Mercury, Total	0.10	0.14	35.4	1.0
		Potassium, Total	785	779	0.72	3.0
		Magnesium, Total	3510	3660	4.1	3.0
		Manganese, Total	276	271	1.9	3.0
		Molybdenum, Total	0.89u	0.84u	NC	3.0
		Sodium, Total	127	110	14.2	3.0
		Nickel, Total	11.4	11.5	0.87	3.0
		Lead, Total	8.7	8.2	5.9	3.0
		Antimony, Total	0.89u	0.84u	NC	3.0
		Selenium, Total	1.8 u	1.7 u	NC	3.0
		Silicon, Total	446	379	16.2	3.0
		Vanadium, Total	32.3	34.8	7.5	3.0
		Zinc, Total	62.3	62.2	0.16	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/06/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0089-LC1	Silver, LCS	46.6	50.0	MG/KG	93.2
		Aluminum, LCS	492	500	MG/KG	98.4
		Arsenic, LCS	911	1000	MG/KG	91.1
		Boron, LCS	458	500	MG/KG	91.6
		Barium, LCS	476	500	MG/KG	95.3
		Beryllium, LCS	23.5	25.0	MG/KG	94.0
		Calcium, LCS	2350	2500	MG/KG	94.0
		Cadmium, LCS	22.9	25.0	MG/KG	91.6
		Cobalt, LCS	233	250	MG/KG	93.1
		Chromium, LCS	46.9	50.0	MG/KG	93.8
		Copper, LCS	122	125	MG/KG	97.3
		Iron, LCS	469	500	MG/KG	93.8
		Potassium, LCS	2310	2500	MG/KG	92.5
		Magnesium, LCS	2300	2500	MG/KG	91.9
		Manganese, LCS	72.2	75.0	MG/KG	96.3
		Molybdenum, LCS	451	500	MG/KG	90.1
		Sodium, LCS	2220	2500	MG/KG	88.8
		Nickel, LCS	185	200	MG/KG	92.7
		Lead, LCS	234	250	MG/KG	93.7
		Antimony, LCS	280	300	MG/KG	93.2
		Selenium, LCS	905	1000	MG/KG	90.5
		Silicon, LCS	40.4	500	MG/KG	8.1
		Vanadium, LCS	235	250	MG/KG	93.9
		Zinc, LCS	92.6	100	MG/KG	92.6
LCS1	08C0037-LC1	Mercury, LCS	4.7	4.7	MG/KG	100.3
LCS1	08C0039-LC1	Mercury, LCS	4.8	2.8	MG/KG	~~170.1~~ 101.2

Corrected Value TEN 3/6/08

Lionville Laboratory Incorporated Logbook #: 371

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0089
Date/Time Initiated: 2/29/08 1130
Date/Time Completed: 2/29/08 1800
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (CP)
Parameters: See Tracking

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (✓) NA
Hot Plate Temp: 91°

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 Tiffin

TNW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08022629-001		1.16gm	100ml		TO	coarse	tan/orange	(C) trace	some
002		1.11gm				fine	brown/rocks	roots	
002R		1.18gm							
002S	1.0ml	1.11gm							
003		1.13gm							
004		1.06gm						none	
08022630-001		1.06gm					tan		
001R		1.05gm							
001S	1.0ml	1.06gm							
002		1.09gm							
003		1.12gm							
08022635-001		1.04gm				coarse	dk. brown/chunk	of rust	(?)
001R		1.05gm							
001S	1.0ml	1.03gm							
08022644-001		1.04gm				fine			
001R		1.03gm							
001S	1.0ml	1.01gm							
08L0089-MB1		1.0gm							
LCS		1.0gm							

MW 2/29/08

Spiking IDs:
MS #: B100-04-01
02
03
8072-072-01
LCS #: 02
03
04
05

Reagent IDs:
HNO_3
HCL
H_2O_2
1:1 HNO_3 9789-070-06
1:1 HCL

File ID#: IC008901
LIMS Transfer: (✓) N Updated
Data Review By/Date: PMP, 02/29/08

Lionville Laboratory Use Only

08024629

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000020

Client: TNU Hanford RC-029

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 15 Days

Date Rec'd: 2-20-08 Date Due: 3-6-08

Refrigerator #									A		B					
#/Type Container	Liquid								2		2					
	Solid								1pl		1pl					
Volume									250		120					
Preservatives									—		—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Cr+6					
		Lionville Laboratory Use Only														
									Met①		ICP6					

MATRIX CODES: 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	J169T1			S	2-14-08	1145								X						
002	J169T2					1231								X		X				
003	J169T3					1232								X		X				
004	J169T4					1250								X		X				

Special Instructions: Run matrix QC

met① = HSL + B, Mo, Si (NOTL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	D. Smith	2-20-08	0940

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-043	Page 1 of 1

Collector ~~Welch-Koelling~~ Etherington	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-F-45	SAF No.: RC-029	
Ice Chest No.: 03-107 ERC-~~02-407~~ MG 2/19/08	Field Logbook No.: EL-1601-2	COA: C00F45A000	Method of Shipment: FedEx
Shipped To: ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No.: A080186		Bill of Lading/Air Bill No.: SCE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	Cool 4C							
Type of Container	P	G/P	G/P	G/P							
No. of Container(s)	1	1	1	1							
Volume	1000mL	60mL	250mL	120mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14; Tritium - H3	See item (2) in Special Instructions.	Chromium Hex - 7196							

BHudson 2/19/08

Sample No.	Matrix *	Sample Date	Sample Time										
J169T1 #1	SOIL	2/14/08	1145			X							
J169T2 #2	SOIL	2/14/08	1231			X	X						
J169T3 #3	SOIL	2/14/08	1232			X	X						
J169T4 #4	SOIL	2/14/08	1250			X	X						
~~J169T5~~	~~SOIL~~ BH 2/14/08												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] BY ETHERINGTON	2-14-08 1400	BHUDSON BHudson	2/14/08 1400
BHUDSON BHudson	2/14/08 1445	10600 #3C	2/14/08 1445
10600/3C	2/19/08 1100	MCL mstankovich	2/19/08 1100
~~WCH~~ (SEE) mstankovich	2/19/08	Fed Ex	
Fed Ex	2-20-08/0940	[signature]	2-20-08/0940
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89,90 -- Total Sr; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium
(2) ICP Metals - 6010TR (SW846) (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 - 7471 - (CV)

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

000000021

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

Project/SAF/SDW/Release #: RC.029

Date: 2.20.08

LvLI Batch #: 08021629

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7998 0467 2350
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:* hole in bottom of cooler.
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.03.107
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 2.20.08	

LvLI LIONVILLE LABORATORY INC

SR-002-B.doc

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-029 K1124

RECEIVED MAR 2008

DATE RECEIVED: 02/20/08 LVL LOT # :0802L629

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J169T1						
% SOLIDS	001	S	08L%S024	02/14/08	02/22/08	02/22/08
J169T2						
% SOLIDS	002	S	08L%S024	02/14/08	02/22/08	02/22/08
CHROMIUM VI	002	S	08LVI016	02/14/08	02/25/08	02/25/08
CHROMIUM VI	002 REP	S	08LVI016	02/14/08	02/25/08	02/25/08
CHROMIUM VI	002 MS	S	08LVI016	02/14/08	02/25/08	02/25/08
CHROMIUM VI	002 MSD	S	08LVI016	02/14/08	02/25/08	02/25/08
J169T3						
% SOLIDS	003	S	08L%S024	02/14/08	02/22/08	02/22/08
CHROMIUM VI	003	S	08LVI016	02/14/08	02/25/08	02/25/08
J169T4						
% SOLIDS	004	S	08L%S024	02/14/08	02/22/08	02/22/08
% SOLIDS	004 REP	S	08L%S024	02/14/08	02/22/08	02/22/08
CHROMIUM VI	004	S	08LVI016	02/14/08	02/25/08	02/25/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI016	N/A	02/25/08	02/25/08
CHROMIUM VI	MB1 BS	S	08LVI016	N/A	02/25/08	02/25/08
CHROMIUM VI	MB1 BSD	S	08LVI016	N/A	02/25/08	02/25/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-029 K1124
LVL#: 0802L629

W.O.#: 11343-606-001-9999-00
Date Received: 02-20-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 soil samples.

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

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

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

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

5. The method blank for Chromium VI was within the method criteria.

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

7. The matrix spike (MS) recovery for Insoluble Chromium VI was within the 75-125% control limits however MS recovery for Soluble Chromium VI was above the control limits that may beattributed to the high backgroud color necessitating dilution of the sample digestate.

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

9. Results for soil are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/5/08
Date

njp\i02-629

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/04/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J169T1	% Solids	100	%	0.01	1.0
-002	J169T2	% Solids	90.6	%	0.01	1.0
		Chromium VI	6.9	MG/KG	2.2	10.0
-003	J169T3	% Solids	90.3	%	0.01	1.0
		Chromium VI	3.1	MG/KG	2.2	10.0
-004	J169T4	% Solids	89.8	%	0.01	1.0
		Chromium VI	37.1	MG/KG	2.2	10.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/04/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI016-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/04/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J169T2	Soluble Chromium VI	14.2	6.9	4.4	164.7	10.0
		Insoluble Chromium VI	1230	6.9	1130	108.7	100
BLANK10	08LVI016-MB1	Soluble Chromium VI	4.1	0.20u	4.0	101.9	1.0
		Insoluble Chromium VI	1380	0.20u	1370	100.9	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/04/08

CLIENT: TNUHANFORD RC-029 K1124 LVL LOT #: 0802L629

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J169T2	Chromium VI	6.9	7.9	13.3	10.0
-004REP	J169T4	% Solids	89.8	89.7	0.14	1.0

Lionville Laboratory Use Only
08024629

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU Hanford RC-029
Est. Final Proj. Sampling Date:
Project#: 11343-606-001-9999-00
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
SW846 Del: STD TAT: 15 Days
Date Rec'd: 2-20-08 Date Due: 3-6-08

		A		B
Refrigerator #		2		2
#/Type Container	Liquid			
	Solid	1pl		1pl
Volume		250		120
Preservatives		—		—
ANALYSES REQUESTED →	ORGANIC: VOA, BNA, Pest/PCB, Herb		INORG: Metal + Hg (met①), CN	Cr+6 (ICR6)

MATRIX CODES: 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	met①	ICR6
	001	J169T1			S	2-14-08	1145	X	
	002	J169T2			↓	↓	1231	X	X
	003	J169T3			↓	↓	1232	X	X
	004	J169T4			↓	↓	1250	X	X

Special Instructions: Run matrix QC
met① = HSL + B, Mo, Si (NOTL)

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

Relinquished by	Received by	Date	Time
FedEx	D. Smith	2-20-08	0940

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-043	Page 1 of 1

Collector: ~~Welch-Koelling~~ Etherington	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-F-45		SAF No.: RC-029
Ice Chest No.: 03-107 ERC-02-407 2/19/08	Field Logbook No.: EL-1601-2	COA: C00F45A000	Method of Shipment: FedEx
Shipped To: ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No.: A080186		Bill of Lading/Air Bill No.: SCE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	Cool 4C							
Type of Container	P	G/P	G/P	G/P							
No. of Container(s)	1	1	1	1							
Volume	1000mL	60mL	250mL	120mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Carbon-14; Tritium - H3	See item (2) in Special Instructions.	Chromium Hex - 7196							

Sample No.	Matrix *	Sample Date	Sample Time										
I169T1 #1	SOIL	2/14/08	1145			X							
I169T2 #2	SOIL	2/14/08	1231			X	X						
I169T3 #3	SOIL	2/14/08	1232			X	X						
I169T4 #4	SOIL	2/14/08	1250			X	X						
~~I169T5~~	~~SOIL~~ BH 2/14/08												

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: [illegible] ETHERINGTON	Date/Time: 2-14-08 1400	Received By/Stored In: BHUDSON [illegible]
Date/Time: 2/14/08 1400		
Relinquished By/Removed From: BHUDSON [illegible]	Date/Time: 2/14/08 1445	Received By/Stored In: 1060 F3C
Date/Time: 2/14/08 1445		
Relinquished By/Removed From: 1060/3C	Date/Time: 2/19/08 1100	Received By/Stored In: [illegible] MSTankovich
Date/Time: 2/19/08 1100		
Relinquished By/Removed From: [illegible] MSTankovich	Date/Time: 2/19/08 (SEE) WCH	Received By/Stored In: Fed Ex
Date/Time:		
Relinquished By/Removed From: Fed Ex	Date/Time: 2-20-08/0940	Received By/Stored In: [illegible]
Date/Time: 2-20-08/0940		
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
Date/Time:		

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Strontium-89,90 -- Total Sr; Technetium-99; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Total Uranium
(2) ICP Metals - 6010TR (SW846) {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 - 7471 - (CV)

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

VCH-EE-011

000000010

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford
Project/SAF/SOW/Release #: RC-029

Date: 2.20.08

LvLI Batch #: 0802L629

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7998 0467 2350
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:* hole in bottom of cooler.
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-03-107
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 OB		Date 2.20.08	

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