0077918

# SAF-RC-087
# 618-7 Burial Ground - Soil
# FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

| | | |
|---|---|---|
| Rick Kerkow | L6-06 | KW 6/9/08<br>Initials/Date |
| Kathy Wendt | H4-21 | KW 6/9/08<br>Initials/Date |

**COMMENTS:**

**SDG K1209 SAF-RC-087**

Rad only X Chem only Rad & Chem

X Complete Partial

**WASTE SITE: 618-7 Burial Ground/Stockpiles**

RECEIVED
JUN 1 2 2008
EDMC

LIONVILLE LABORATORY INC.

RECEIVED JUN 2008

2 June 2008

Joan Kessner
WC-Hanford
2620 Fermi Avenue
MSIN H9-03
Richland, WA 99354

**Subject:** Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

| | |
|---|---|
| LvLI Batch # | 0804L989 |
| SDG # | K1209 |
| SAF # | RC-087 |
| Date Received | 4/278 |
| # Samples | 2 |
| Matrix | SOIL |
| Volatiles | |
| Semivolatiles | |
| Pest/PCB | |
| Glycols | |
| DRO/KRO/GRO | |
| GC Organics | |
| 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

RECEIVED
JUN 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J16MK0 | | | | | | |
| TCLP | 001 | S | 08LT0035 | 04/22/08 | 04/29/08 | 04/30/08 |
| J16MK1 | | | | | | |
| TCLP | 002 | S | 08LT0035 | 04/22/08 | 04/29/08 | 04/30/08 |
| SILVER, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SILVER, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SILVER, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ALUMINUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| ALUMINUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| ALUMINUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| ARSENIC, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ARSENIC, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ARSENIC, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BORON, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BORON, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BORON, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BARIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BARIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BARIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BERYLLIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BERYLLIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BERYLLIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BISMUTH, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BISMUTH, TOTAL REP | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| BISMUTH, TOTAL SPIKE | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CALCIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CALCIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CALCIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CADMIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CADMIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CADMIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COBALT, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COBALT, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COBALT, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CHROMIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CHROMIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| CHROMIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COPPER, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COPPER, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| COPPER, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| IRON, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| IRON, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| IRON, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| MERCURY, TOTAL | 002 | S | 08C0082 | 04/22/08 | 05/12/08 | 05/12/08 |
| MERCURY, TOTAL | 002 REP | S | 08C0082 | 04/22/08 | 05/12/08 | 05/12/08 |
| MERCURY, TOTAL | 002 MS | S | 08C0082 | 04/22/08 | 05/12/08 | 05/12/08 |
| POTASSIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| POTASSIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| POTASSIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| LITHIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| LITHIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| LITHIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MAGNESIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MAGNESIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MAGNESIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MANGANESE, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MANGANESE, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MANGANESE, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MOLYBDENUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MOLYBDENUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| MOLYBDENUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SODIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| SODIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| SODIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| NICKEL, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| NICKEL, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| NICKEL, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| PHOSPHORUS, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| PHOSPHORUS, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| PHOSPHORUS, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/07/08 |
| LEAD, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| LEAD, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| LEAD, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ANTIMONY, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ANTIMONY, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ANTIMONY, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SELENIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SELENIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SELENIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SILICON, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SILICON, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| SILICON, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TIN, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TIN, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TIN, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| STRONTIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| STRONTIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| STRONTIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TITANIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TITANIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| TITANIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| THALLIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| THALLIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| THALLIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| URANIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| URANIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| URANIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| VANADIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| VANADIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| VANADIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZINC, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZINC, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZINC, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZIRCONIUM, TOTAL | 002 | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZIRCONIUM, TOTAL | 002 REP | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| ZIRCONIUM, TOTAL | 002 MS | S | 08L0185 | 04/22/08 | 05/06/08 | 05/06/08 |
| J16MK0 | | | | | | |
| SILVER, TCLP LEACHAT | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| SILVER, TCLP LEACHAT | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| SILVER, TCLP LEACHAT | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| MERCURY, TCLP LEACHA | 003 | W | 08C0077 | 04/22/08 | 05/01/01 | 05/01/01 |
| MERCURY, TCLP LEACHA | 003 REP | W | 08C0077 | 04/22/08 | 05/01/01 | 05/01/01 |
| MERCURY, TCLP LEACHA | 003 MS | W | 08C0077 | 04/22/08 | 05/01/01 | 05/01/01 |
| LEAD, TCLP LEACHATE | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| LEAD, TCLP LEACHATE | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| LEAD, TCLP LEACHATE | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | 003 | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | 003 REP | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | 003 MS | W | 08L0180 | 04/22/08 | 05/02/08 | 05/05/08 |
| J16MK1 | | | | | | |
| SILVER, TCLP LEACHAT | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| MERCURY, TCLP LEACHA | 004 | W | 08C0077 | 04/30/08 | 05/01/01 | 05/01/01 |
| LEAD, TCLP LEACHATE | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | 004 | W | 08L0180 | 04/30/08 | 05/02/08 | 05/05/08 |

AB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SILVER LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| SILVER, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ALUMINUM LABORTORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| ALUMINUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| ARSENIC LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ARSENIC, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BORON LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BORON, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BARIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BARIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BERYLLIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BERYLLIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BISMUTH, LCS | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| BISMUTH, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CALCIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CALCIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CADMIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CADMIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| COBALT LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| COBALT, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CHROMIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| CHROMIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| COPPER LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| COPPER, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| IRON LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| IRON, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| MERCURY LABORATORY | LC1 BS | S | 08C0082 | N/A | 05/12/08 | 05/12/08 |
| MERCURY, TOTAL | MB1 | S | 08C0082 | N/A | 05/12/08 | 05/12/08 |
| POTASSIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| POTASSIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| LITHIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| LITHIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MAGNESIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MAGNESIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MANGANESE LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MANGANESE, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MOLYBDENUM LABORATOR | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| MOLYBDENUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SODIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-087 K1209

DATE RECEIVED: 04/24/08 LVL LOT # :0804L989

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| SODIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| NICKEL LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| NICKEL, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| PHOSPHORUS LCS | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| PHOSPHORUS, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/07/08 |
| LEAD LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| LEAD, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ANTIMONY LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ANTIMONY, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SELENIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SELENIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SILICON LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SILICON, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| TIN LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| TIN, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| STRONTIUM LCS STANDA | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| STRONTIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| TITANIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| TITANIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| THALLIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| THALLIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| URANIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| URANIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| VANADIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| VANADIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ZINC LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ZINC, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ZIRCONIUM LABORATORY | LC1 BS | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| ZIRCONIUM, TOTAL | MB1 | S | 08L0185 | N/A | 05/06/08 | 05/06/08 |
| SILVER LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SILVER, TCLP LEACHAT | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SILVER, TCLP LEACHAT | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SILVER, TCLP LEACHAT | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| ARSENIC LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| ARSENIC, TCLP LEACHA | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| BARIUM LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |

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| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| BARIUM, TCLP LEACHAT | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| BARIUM, TCLP LEACHAT | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CADMIUM LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CADMIUM, TCLP LEACHA | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CHROMIUM LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| CHROMIUM, TCLP LEACH | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| MERCURY LABORATORY | LC1 BS | W | 08C0077 | N/A | 05/01/01 | 05/01/01 |
| MERCURY, TOTAL | MB1 | W | 08C0077 | N/A | 05/01/01 | 05/01/01 |
| MERCURY, TCLP LEACHA | MB2 | W | 08C0077 | N/A | 05/01/01 | 05/01/01 |
| MERCURY, TCLP LEACHA | MB3 | W | 08C0077 | N/A | 05/01/01 | 05/01/01 |
| LEAD LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| LEAD, TCLP LEACHATE | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| LEAD, TCLP LEACHATE | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| LEAD, TCLP LEACHATE | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SELENIUM LABORATORY | LC1 BS | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | MB1 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | MB2 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |
| SELENIUM, TCLP LEACH | MB3 | W | 08L0180 | N/A | 05/02/08 | 05/05/08 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD RC-087
**LVL#:** 0804L989
**SDG/SAF#:** K1209/RC-087

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 04-24-08

**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 1 soil sample and 2 TCLP leachate samples.

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

   The soil sample was reported with a 3-fold dilution for all ICP analytes and Mercury due to sample matrix. The soil sample was reported on a wet weight "as received" basis.

   The TCLP leachate samples were reported with a 6-fold dilution for all ICP analytes due to sample matrix.

   Aluminum and Iron were rerun on a different instrument due to sample matrix and reported from file PS0507A along with Phosphorous.

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 Sodium and Potassium. The soil sample was rerun for Sodium and Potassium in file PS0507A along with Phosphorous.

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

6. The preparation/method blank 08L0185 for 1 analyte was outside 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.

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 36 32 pages.

05 6/2/08

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

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

8. All laboratory control samples (LCS) were within the 80-120% control with the exception of Silicon (39.2%). Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low for Silicon.

9. The matrix spike (MS) recoveries for 9 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 |
|---|---|---|---|
| J16MK1 | Antimony | 300 | 101.2 |
| | Iron | 126,000 | 91.5 |
| | Silver | 300 | 98.9 |
| | Zinc | 300 | 102.2 |
| | Chromium | 1,050 | 111.4 |
| | Copper | 1,050 | 105.7 |
| | Lead | 3,300 | 114.0 |
| | Titanium | 3,300 | 88.7 |

11. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from client sample J16MK0 was selected for the matrix spike (MS) for this analytical batch.

13. The matrix spike for Silver was below 50% recovery (6.7%). 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.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/19/08
Date

alm/m04-989

LvLI
LIONVILLE LABORATORY INC.

# METALS METHOD GLOSSARY

ıe following methods are used as reference for the digestion and analysis of samples contained within th

ɔt#: 08041989

:aching Procedure: __1310 __1311 __1312 __Other:_____

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

etals Digestion Methods: __3005A ✓3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

## Metals Analysis Methods

| | SW846 | | EPA | | STD MTD | EPA OSWR | USATHAMA |
|---|---|---|---|---|---|---|---|
| luminum | ✓6010B | | __200.7 | | | | __99 |
| ntimony | ✓6010B | __7041 [5] | __200.7 | __204.2 | | | __99 |
| rsenic | ✓6010B | __7060A [5] | __200.7 | __206.2 | __3113B | | __99 |
| arium | ✓6010B | | __200.7 | | | | __99 |
| eryllium | ✓6010B | | __200.7 | | | | __99 |
| ismuth | ✓6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| oron | ✓6010B | | __200.7 | | | | __99 |
| admium | ✓6010B | __7131A [5] | __200.7 | __213.2 | | | __99 |
| alcium | ✓6010B | | __200.7 | | | | __99 |
| hromium | ✓6010B | __7191 [5] | __200.7 | __218.2 | | | __SS17 |
| obalt | ✓6010B | | __200.7 | | | | __99 |
| opper | ✓6010B | __7211 [5] | __200.7 | __220.2 | | | __99 |
| on | ✓6010B | | __200.7 | | | | __99 |
| ead | ✓6010B | __7421 [5] | __200.7 | __239.2 | __3113B | | __99 |
| ithium | ✓6010B | __7430 [4] | __200.7 | | | __1620 | __99 |
| lagnesium | ✓6010B | | __200.7 | | | | __99 |
| langanese | ✓6010B | | __200.7 | | | | __99 |
| lercury | ✓7470A [3] | ✓7471A [3] | __245.1 [2] | __245.5 [2] | | | __99 |
| lolybdenum | ✓6010B | | __200.7 | | | | __99 |
| ickel | ✓6010B | | __200.7 | | | | __99 |
| otassium | ✓6010B | __7610 [4] | __200.7 | __258.1 [4] | | | __99 |
| are Earths | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| elenium | ✓6010B | __7740 [5] | __200.7 | __270.2 | __3113B | | __99 |
| ilicon | ✓6010B [1] | | __200.7 | | | __1620 | __99 |
| ilica | __6010B | | __200.7 | | | __1620 | __99 |
| ilver | ✓6010B | __7761 [5] | __200.7 | __272.2 | | | __99 |
| odium | ✓6010B | __7770 [4] | __200.7 | __273.1 [4] | | | __99 |
| trontium | ✓6010B | | __200.7 | | | | __99 |
| hallium | ✓6010B | __7841 [5] | __200.7 | __279.2 __200.9 | | | __99 |
| in | ✓6010B | | __200.7 | | | | __99 |
| itanium | ✓6010B | | __200.7 | | | | __99 |
| ranium | ✓6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| anadium | ✓6010B | | __200.7 | | | | __99 |
| inc | ✓6010B | | __200.7 | | | | __99 |
| irconium | ✓6010B [1] | | __200.7 [1] | | | __1620 | __99 |

ther: Phosphorous Method: 6010B

# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

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

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

## ABBREVIATIONS

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

## ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -002 | J16MK1 | Silver, Total | 1.4 | MG/KG | 0.26 | 3.0 |
| | | Aluminum, Total | 7590 | MG/KG | 10.3 | 3.0 |
| | | Arsenic, Total | 3.0 | MG/KG | 1.3 | 3.0 |
| | | Boron, Total | 2.3 | MG/KG | 1.3 | 3.0 |
| | | Barium, Total | 70.1 | MG/KG | 0.26 | 3.0 |
| | | Beryllium, Total | 0.63 | MG/KG | 0.13 | 3.0 |
| | | Bismuth, Total | 2.4 | MG/KG | 1.6 | 3.0 |
| | | Calcium, Total | 11200 | MG/KG | 10.3 | 3.0 |
| | | Cadmium, Total | 0.24 | MG/KG | 0.13 | 3.0 |
| | | Cobalt, Total | 7.2 | MG/KG | 0.52 | 3.0 |
| | | Chromium, Total | 28.8 | MG/KG | 0.52 | 3.0 |
| | | Copper, Total | 102 | MG/KG | 0.52 | 3.0 |
| | | Iron, Total | 24500 | MG/KG | 11.6 | 3.0 |
| | | Mercury, Total | 1.3 | MG/KG | 0.02 | 3.0 |
| | | Potassium, Total | 1230 | MG/KG | 127 | 3.0 |
| | | Lithium, Total | 6.5 | MG/KG | 0.10 | 3.0 |
| | | Magnesium, Total | 3830 | MG/KG | 6.5 | 3.0 |
| | | Manganese, Total | 290 | MG/KG | 0.10 | 3.0 |
| | | Molybdenum, Total | 15.0 | MG/KG | 0.78 | 3.0 |
| | | Sodium, Total | 357 | MG/KG | 5.2 | 3.0 |
| | | Nickel, Total | 31.5 | MG/KG | 0.52 | 3.0 |
| | | Phosphorus, Total | 864 | MG/KG | 12.9 | 3.0 |
| | | Lead, Total | 2820 | MG/KG | 0.78 | 3.0 |
| | | Antimony, Total | 0.78 u | MG/KG | 0.78 | 3.0 |
| | | Selenium, Total | 1.6 u | MG/KG | 1.6 | 3.0 |
| | | Silicon, Total | 399 | MG/KG | 10.3 | 3.0 |
| | | Tin, Total | 1.6 u | MG/KG | 1.6 | 3.0 |
| | | Strontium, Total | 53.5 | MG/KG | 0.08 | 3.0 |
| | | Titanium, Total | 1830 | MG/KG | 0.26 | 3.0 |
| | | Thallium, Total | 1.6 u | MG/KG | 1.6 | 3.0 |
| | | Uranium, Total | 68.3 | MG/KG | 5.2 | 3.0 |
| | | Vanadium, Total | 54.5 | MG/KG | 0.36 | 3.0 |
| | | Zinc, Total | 140 | MG/KG | 1.6 | 3.0 |
| | | Zirconium, Total | 24.8 | MG/KG | 12.9 | 3.0 |
| -003 | J16MK0 | Silver, TCLP Leachate | 6.0 u | UG/L | 6.0 | 6.0 |
| | | Arsenic, TCLP Leachate | 30.0 u | UG/L | 30.0 | 6.0 |
| | | Barium, TCLP Leachate | 475 | UG/L | 6.0 | 6.0 |
| | | Cadmium, TCLP Leachate | 12.6 | UG/L | 3.0 | 6.0 |
| | | Chromium, TCLP Leachate | 20.9 | UG/L | 12.0 | 6.0 |

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INORGANICS DATA SUMMARY REPORT 05/19/08

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

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -003 | J16MK0 | Mercury, TCLP Leachate | 0.06 u | UG/L | 0.06 | 1.0 |
| | | Lead, TCLP Leachate | 27000 | UG/L | 18.0 | 6.0 |
| | | Selenium, TCLP Leachate | 36.0 u | UG/L | 36.0 | 6.0 |

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INORGANICS DATA SUMMARY REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -004 | J16MK1 | Silver, TCLP Leachate | 6.0 u | UG/L | 6.0 | 6.0 |
| | | Arsenic, TCLP Leachate | 36.3 | UG/L | 30.0 | 6.0 |
| | | Barium, TCLP Leachate | 620 | UG/L | 6.0 | 6.0 |
| | | Cadmium, TCLP Leachate | 8.8 | UG/L | 3.0 | 6.0 |
| | | Chromium, TCLP Leachate | 16.0 | UG/L | 12.0 | 6.0 |
| | | Mercury, TCLP Leachate | 0.06 u | UG/L | 0.06 | 1.0 |
| | | Lead, TCLP Leachate | 5360 | UG/L | 18.0 | 6.0 |
| | | Selenium, TCLP Leachate | 36.0 u | UG/L | 36.0 | 6.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| BLANK1 | 08L0185-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 |
| | | Bismuth, Total | 0.60 | u | MG/KG | 0.60 | 1.0 |
| | | Calcium, Total | 4.0 | u | 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 | 1.5 | | MG/KG | 0.20 | 1.0 |
| | | Copper, Total | 0.20 | u | MG/KG | 0.20 | 1.0 |
| | | Iron, Total | 8.3 | | MG/KG | 4.5 | 1.0 |
| | | Potassium, Total | 49.3 | u | MG/KG | 49.3 | 1.0 |
| | | Lithium, Total | 0.12 | | MG/KG | 0.04 | 1.0 |
| | | Magnesium, Total | 2.5 | u | MG/KG | 2.5 | 1.0 |
| | | Manganese, Total | 0.19 | | MG/KG | 0.04 | 1.0 |
| | | Molybdenum, Total | 0.30 | u | MG/KG | 0.30 | 1.0 |
| | | Sodium, Total | 7.9 | | MG/KG | 2.0 | 1.0 |
| | | Nickel, Total | 0.67 | | MG/KG | 0.20 | 1.0 |
| | | Phosphorus, Total | 5.0 | u | MG/KG | 5.0 | 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 |
| | | Tin, Total | 0.61 | | MG/KG | 0.60 | 1.0 |
| | | Strontium, Total | 0.03 | u | MG/KG | 0.03 | 1.0 |
| | | Titanium, Total | 0.10 | u | MG/KG | 0.10 | 1.0 |
| | | Thallium, Total | 0.60 | u | MG/KG | 0.60 | 1.0 |
| | | Uranium, Total | 2.0 | u | MG/KG | 2.0 | 1.0 |
| | | Vanadium, Total | 0.14 | u | MG/KG | 0.14 | 1.0 |
| | | Zinc, Total | 0.60 | u | MG/KG | 0.60 | 1.0 |
| | | Zirconium, Total | 5.0 | u | MG/KG | 5.0 | 1.0 |
| BLANK1 | 08C0082-MB1 | Mercury, Total | 0.01 | u | MG/KG | 0.01 | 1.0 |
| BLANK1 | 08L0180-MB1 | 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 | 1.1 | | UG/L | 1.0 | 1.0 |
| | | Cadmium, TCLP Leachate | 0.50 | u | UG/L | 0.50 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| BLANK1 | 08L0180-MB1 | Chromium, TCLP Leachate | 2.0 | u | UG/L | 2.0 | 1.0 |
| | | Lead, TCLP Leachate | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Selenium, TCLP Leachate | 6.0 | u | UG/L | 6.0 | 1.0 |
| BLANK2 | 08L0180-MB2 | Silver, TCLP Leachate | 6.0 | u | UG/L | 6.0 | 6.0 |
| | | Arsenic, TCLP Leachate | 30.0 | u | UG/L | 30.0 | 6.0 |
| | | Barium, TCLP Leachate | 6.0 | u | UG/L | 6.0 | 6.0 |
| | | Cadmium, TCLP Leachate | 3.0 | u | UG/L | 3.0 | 6.0 |
| | | Chromium, TCLP Leachate | 12.0 | u | UG/L | 12.0 | 6.0 |
| | | Lead, TCLP Leachate | 18.0 | u | UG/L | 18.0 | 6.0 |
| | | Selenium, TCLP Leachate | 36.0 | u | UG/L | 36.0 | 6.0 |
| BLANK3 | 08L0180-MB3 | Silver, TCLP Leachate | 6.0 | u | UG/L | 6.0 | 6.0 |
| | | Arsenic, TCLP Leachate | 30.0 | u | UG/L | 30.0 | 6.0 |
| | | Barium, TCLP Leachate | 6.0 | u | UG/L | 6.0 | 6.0 |
| | | Cadmium, TCLP Leachate | 3.0 | u | UG/L | 3.0 | 6.0 |
| | | Chromium, TCLP Leachate | 12.0 | u | UG/L | 12.0 | 6.0 |
| | | Lead, TCLP Leachate | 18.0 | u | UG/L | 18.0 | 6.0 |
| | | Selenium, TCLP Leachate | 36.0 | u | UG/L | 36.0 | 6.0 |
| BLANK1 | 08C0077-MB1 | Mercury, Total | 0.06 | u | UG/L | 0.06 | 1.0 |
| BLANK2 | 08C0077-MB2 | Mercury, TCLP Leachate | 0.06 | u | UG/L | 0.06 | 1.0 |
| BLANK3 | 08C0077-MB3 | Mercury, TCLP Leachate | 0.06 | u | UG/L | 0.06 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -002 | J16MK1 | Silver, Total | 3.8 | 1.4 | 4.3 | 55.8 | 3.0 |
| | | Aluminum, Total | 7730 | 7590 | 172 | 82.7* | 3.0 |
| | | Arsenic, Total | 163 | 3.0 | 172 | 92.6 | 3.0 |
| | | Boron, Total | 83.1 | 2.3 | 86.2 | 93.7 | 3.0 |
| | | Barium, Total | 243 | 70.1 | 172 | 100.2 | 3.0 |
| | | Beryllium, Total | 4.7 | 0.63 | 4.3 | 94.6 | 3.0 |
| | | Bismuth, Total | 412 | 2.4 | 431 | 95.0 | 3.0 |
| | | Calcium, Total | 13800 | 11200 | 2160 | 121.9* | 3.0 |
| | | Cadmium, Total | 4.3 | 0.24 | 4.3 | 94.4 | 3.0 |
| | | Cobalt, Total | 47.9 | 7.2 | 43.1 | 94.4 | 3.0 |
| | | Chromium, Total | 41.6 | 28.8 | 17.2 | 74.4 | 3.0 |
| | | Copper, Total | 103 | 102 | 21.6 | 6.0* | 3.0 |
| | | Iron, Total | 23900 | 24500 | 86.2 | -760. * | 3.0 |
| | | Mercury, Total | 1.3 | 1.3 | 0.12 | -7.2* | 3.0 |
| | | Potassium, Total | 3270 | 1230 | 2160 | 94.6 | 3.0 |
| | | Lithium, Total | 92.5 | 6.5 | 86.2 | 99.8 | 3.0 |
| | | Magnesium, Total | 5940 | 3830 | 2160 | 98.0 | 3.0 |
| | | Manganese, Total | 336 | 290 | 43.1 | 105.1* | 3.0 |
| | | Molybdenum, Total | 80.0 | 15.0 | 86.2 | 75.4 | 3.0 |
| | | Sodium, Total | 2580 | 357 | 2160 | 103.1 | 3.0 |
| | | Nickel, Total | 64.8 | 31.5 | 43.1 | 77.3 | 3.0 |
| | | Phosphorus, Total | 1240 | 864 | 431 | 87.8 | 3.0 |
| | | Lead, Total | 270 | 2820 | 43.1 | -5900. * | 3.0 |
| | | Antimony, Total | 21.2 | 0.78u | 43.1 | 49.2 | 3.0 |
| | | Selenium, Total | 140 | 1.6 u | 172 | 81.3 | 3.0 |
| | | Silicon, Total | 489 | 399 | 86.2 | 103.8* | 3.0 |
| | | Tin, Total | 80.1 | 1.6 u | 86.2 | 92.9 | 3.0 |
| | | Strontium, Total | 142 | 53.5 | 86.2 | 102.7 | 3.0 |
| | | Titanium, Total | 1870 | 1830 | 86.2 | 54.3* | 3.0 |
| | | Thallium, Total | 156 | 1.6 u | 172 | 90.7 | 3.0 |
| | | Uranium, Total | 505 | 68.3* | 431 | 101.3 | 3.0 |
| | | Vanadium, Total | 94.3 | 54.5 | 43.1 | 92.3 | 3.0 |
| | | Zinc, Total | 240 | 140 | 43.1 | 233.4 | 3.0 |
| | | Zirconium, Total | 448 | 24.8 | 431 | 98.2 | 3.0 |
| -003 | J16MK0 | Silver, TCLP Leachate | 333 | 6.0 u | 5000 | 6.7 | 6.0 |
| | | Arsenic, TCLP Leachate | 5080 | 30.0 u | 5000 | 101.6 | 6.0 |
| | | Barium, TCLP Leachate | 90000 | 475 | 100000 | 89.5 | 6.0 |
| | | Cadmium, TCLP Leachate | 1060 | 12.6 | 1000 | 104.9 | 6.0 |
| | | Chromium, TCLP Leachat | 5210 | 20.9 | 5000 | 103.9 | 6.0 |
| | | Mercury, TCLP Leachate | 199 | 0.06u | 200 | 99.5 | 50.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -003 | J16MK0 | Lead, TCLP Leachate | 32200 | 27000 | 5000 | 104.0* | 6.0 |
| | | Selenium, TCLP Leachat | 987 | 36.0 u | 1000 | 98.7 | 6.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -002REP | J16MK1 | Silver, Total | 1.4 | 0.25u | NC | 3.0 |
| | | Aluminum, Total | 7590 | 7160 | 5.7 | 3.0 |
| | | Arsenic, Total | 3.0 | 2.5 | 18.2 | 3.0 |
| | | Boron, Total | 2.3 | 2.5 | 8.3 | 3.0 |
| | | Barium, Total | 70.1 | 76.9 | 9.3 | 3.0 |
| | | Beryllium, Total | 0.63 | 0.65 | 2.8 | 3.0 |
| | | Bismuth, Total | 2.4 | 2.5 | 4.1 | 3.0 |
| | | Calcium, Total | 11200 | 8430 | 28.3 | 3.0 |
| | | Cadmium, Total | 0.24 | 0.29 | 17.9 | 3.0 |
| | | Cobalt, Total | 7.2 | 7.8 | 8.0 | 3.0 |
| | | Chromium, Total | 28.8 | 22.5 | 24.6 | 3.0 |
| | | Copper, Total | 102 | 90.2 | 12.4 | 3.0 |
| | | Iron, Total | 24500 | 24700 | 0.56 | 3.0 |
| | | Mercury, Total | 1.3 | 1.2 | 6.1 | 1.0 |
| | | Potassium, Total | 1230 | 1200 | 2.1 | 3.0 |
| | | Lithium, Total | 6.5 | 6.2 | 4.7 | 3.0 |
| | | Magnesium, Total | 3830 | 3810 | 0.58 | 3.0 |
| | | Manganese, Total | 290 | 338 | 15.2 | 3.0 |
| | | Molybdenum, Total | 15.0 | 1.6 | 161.4 | 3.0 |
| | | Sodium, Total | 357 | 404 | 12.4 | 3.0 |
| | | Nickel, Total | 31.5 | 27.0 | 15.4 | 3.0 |
| | | Phosphorus, Total | 864 | 894 | 3.4 | 3.0 |
| | | Lead, Total | 2820 | 274 | 164.6 | 3.0 |
| | | Antimony, Total | 0.78u | 0.74u | NC | 3.0 |
| | | Selenium, Total | 1.6 u | 1.5 u | NC | 3.0 |
| | | Silicon, Total | 399 | 333 | 18.2 | 3.0 |
| | | Tin, Total | 1.6 u | 1.5 u | NC | 3.0 |
| | | Strontium, Total | 53.5 | 54.1 | 1.1 | 3.0 |
| | | Titanium, Total | 1830 | 1950 | 6.6 | 3.0 |
| | | Thallium, Total | 1.6 u | 1.5 u | NC | 3.0 |
| | | Uranium, Total | 68.3 | 50.2 | 30.5 | 3.0 |
| | | Vanadium, Total | 54.5 | 58.4 | 6.9 | 3.0 |
| | | Zinc, Total | 140 | 140 | 0.57 | 3.0 |
| | | Zirconium, Total | 24.8 | 25.4 | 2.4 | 3.0 |
| -003REP | J16MK0 | Silver, TCLP Leachate | 6.0 u | 6.0 u | NC | 6.0 |
| | | Arsenic, TCLP Leachate | 30.0 u | 30.0 u | NC | 6.0 |
| | | Barium, TCLP Leachate | 475 | 463 | 2.5 | 6.0 |
| | | Cadmium, TCLP Leachate | 12.6 | 11.9 | 5.7 | 6.0 |
| | | Chromium, TCLP Leachate | 20.9 | 19.3 | 8.0 | 6.0 |
| | | Mercury, TCLP Leachate | 0.06u | 0.06u | NC | 1.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -003REP | J16MK0 | Lead, TCLP Leachate | 27000 | 27400 | 1.2 | 6.0 |
| | | Selenium, TCLP Leachate | 36.0 u | 36.0 u | NC | 6.0 |

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 08L0185-LC1 | Silver, LCS | 45.7 | 50.0 | MG/KG | 91.4 |
| | | Aluminum, LCS | 450 | 500 | MG/KG | 89.9 |
| | | Arsenic, LCS | 891 | 1000 | MG/KG | 89.1 |
| | | Boron, LCS | 452 | 500 | MG/KG | 90.4 |
| | | Barium, LCS | 456 | 500 | MG/KG | 91.3 |
| | | Beryllium, LCS | 23.4 | 25.0 | MG/KG | 93.6 |
| | | Bismuth, LCS | 454 | 500 | MG/KG | 90.8 |
| | | Calcium, LCS | 2380 | 2500 | MG/KG | 95.2 |
| | | Cadmium, LCS | 23.2 | 25.0 | MG/KG | 92.8 |
| | | Cobalt, LCS | 232 | 250 | MG/KG | 93.0 |
| | | Chromium, LCS | 46.6 | 50.0 | MG/KG | 93.2 |
| | | Copper, LCS | 116 | 125 | MG/KG | 92.7 |
| | | Iron, LCS | 458 | 500 | MG/KG | 91.6 |
| | | Potassium, LCS | 2180 | 2500 | MG/KG | 87.4 |
| | | Lithium, LCS | 486 | 500 | MG/KG | 97.1 |
| | | Magnesium, LCS | 2300 | 2500 | MG/KG | 91.9 |
| | | Manganese, LCS | 70.6 | 75.0 | MG/KG | 94.1 |
| | | Molybdenum, LCS | 448 | 500 | MG/KG | 89.6 |
| | | Sodium, LCS | 2260 | 2500 | MG/KG | 90.3 |
| | | Nickel, LCS | 186 | 200 | MG/KG | 93.0 |
| | | Phosphorus, LCS | 448 | 500 | MG/KG | 89.6 |
| | | Lead, LCS | 231 | 250 | MG/KG | 92.3 |
| | | Antimony, LCS | 267 | 300 | MG/KG | 89.0 |
| | | Selenium, LCS | 871 | 1000 | MG/KG | 87.1 |
| | | Silicon, LCS | 196 | 500 | MG/KG | 39.2 |
| | | Tin, LCS | 463 | 500 | MG/KG | 92.7 |
| | | Strontium, LCS | 460 | 500 | MG/KG | 91.9 |
| | | Titanium, LCS | 452 | 500 | MG/KG | 90.5 |
| | | Thallium, LCS | 908 | 1000 | MG/KG | 90.8 |
| | | Uranium, LCS | 454 | 500 | MG/KG | 90.7 |
| | | Vanadium, LCS | 230 | 250 | MG/KG | 92.1 |
| | | Zinc, LCS | 92.1 | 100 | MG/KG | 92.1 |
| | | Zirconium, LCS | 469 | 500 | MG/KG | 93.7 |
| LCS1 | 08C0082-LC1 | Mercury, LCS | 5.0 | 4.7 | MG/KG | 105.5 |
| LCS1 | 08L0180-LC1 | Silver, LCS | 490 | 500 | UG/L | 98.0 |
| | | Arsenic, LCS | 9340 | 10000 | UG/L | 93.4 |
| | | Barium, LCS | 4890 | 5000 | UG/L | 97.9 |
| | | Cadmium, LCS | 240 | 250 | UG/L | 96.0 |

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/19/08

CLIENT: TNUHANFORD RC-087 K1209 LVL LOT #: 0804L989

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 08L0180-LC1 | Chromium, LCS | 487 | 500 | UG/L | 97.5 |
| | | Lead, LCS | 2410 | 2500 | UG/L | 96.6 |
| | | Selenium, LCS | 9280 | 10000 | UG/L | 92.8 |
| LCS1 | 08C0077-LC1 | Mercury, LCS | 5.1 | 5.0 | UG/L | 102.0 |

Lionville Laboratory Incorporated

Logbook #: 440

# SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0180
Date/Time Initiated: 5/2/08 1245
Date/Time Completed: 5/2/08
Analyst(s): UB
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters: RCRA/Cr

Digested / Undigested (circle one)
Balance #: NA
Balance Cal Verif: Y NA
Hot Plate Temp: 94°

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

TNL

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 08041989-002 | | 100 | 100 | <2 | TC | NA | clear | NA | NA |
| 002R | | | | | | | | | |
| 002S | 1.0 | | | | | | | | |
| 08041989-003 | | | | | | | | | |
| 003R | | | | | | | | | |
| 003S | 1.0 | | | | | | | | |
| 004 | | | | | | | | | |
| 08041991-002 | | 50 | 50 | | | | | limited | VOL. |
| 002R | | | | | | | | | |
| * 002S | 1.0 | | | | | | | | |
| 08041976-002 | | 100 | 100 | | | | | NA | NA |
| 002R | | | | | | | | | |
| 002S | 1.0 | | | | | | | | |
| 08041019-005 | | | | | | | yellow/clear | | |
| 005R | | | | | | | | | |
| 005S | 1.0 | | | | | | | | |
| 006 | | | | | | | | | |
| 007 | | | | | | | | | |
| 008 | | | | | | | | | |
| 08L0180-MB1 | | | | | | | Clear | | |
| MB2 | | | | | | | | | |
| MB3 | | | | | | | | | |
| LC1 | 1.0 | | | | | | | | |

Ten 5/2/08

Spiking IDs:
MS #: 6072-77-05
78-06

LCS #: 6072-78-08
09
10
11

Reagent IDs:
$HNO_3$ E46025
HCL
$H_2O_2$
1:1 $HNO_3$
1:1 HCL 6078-069-03

File ID#: IC018001
LIMS Transfer: Y N Updated
Data Review By/Date:
PMP, 05/05/08

* spiked w/ 1.0mL of TCLP spike & 0.5mL Ba spike

**Lionville Laboratory Incorporated** Logbook #: 440

# SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0185
Date/Time Initiated: 5/6/08 1000
Date/Time Completed:
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See bottle

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

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

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

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 |
|---|---|---|---|---|---|---|---|---|---|
| 0804L989-002 | | 1.16gr | 100ml | <2 | TO | coarse | brown soil | rocks, paper | (P) |
| 002R | | 1.22gr | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 002S | 1.0ml * | 1.16gr | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 0804L001-001 | | 1.15gr | ↓ | ↓ | ↓ | ↓ | ↓ | rocks | |
| 001R | | 1.16gr | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | |
| 001S | 1.0ml * | 1.18gr | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | |
| 08L0185-MB1 | | 1.0gr | ↓ | ↓ | ↓ | ↓ | boiling chips | | |
| LC1 | 1.0ml * | 1.0gr | ↓ | ↓ | ↓ | ↓ | ↓ | | |

MW 5/6/08

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

Reagent IDs:
$HNO_3$ W.E. E46025
HCL E45 G05039
$H_2O_2$ MW 5/6/08
1:1 $HNO_3$ 9787-077-04
1:1 HCL

File ID#:
LIMS Transfer: Y N
Data Review By/Date: 5/7/08

* also 0.5ml 6072-076-06 (Bi)
0.5ml 6072-076-07 (P-)
0.5ml 6072-078-01 (U-)
0.5ml 6072-076-05 (Zr)

L-SPI-3020-A-0601

ionville Laboratory
ncorporated

# MERCURY PREPARATION

Logbook # 455

nalyst: CEB
Date 5/12/08
Start Time/Temp: 1430 | 95°
End Time/Temp: 1505 | 98°

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

Prep Batch: 08C0082
Worksheet: HG051201
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 | S | | | 10mL | 50mL | |
| 0.2 µg/L | JI | 0.100 | | | | |
| 1.0 | I4 | 0.500 | | | | |
| 2.0 | DR | 1.000 | | | | |
| 5.0 | 8 | 2.500 | | | | |
| 10.0 | 537 | 5.000 | | | | |
| ICV | 514 | 0.125 | 2.5 | | | |
| CCV | 11A | 0.250 | 5.0 | | | |
| ICB/CCB | 616 | | | | | |
| MB1 | 31 | | | 0.30 | | PBS182 9.50L |
| LC1 | P5 | * | * | 0.30 | | LCSS182 100.00 |
| 08041989-002 | TR | | | 0.40 | | R |
| 002R | DLN | | | 0.34 | | |
| 002S | Gd | 0.500 | 1.0 | 0.40 | | |
| 0805L053-001 | 3P | | | 0.30 | | R |
| 001R | AN | | | 0.32 | | |
| 001S | UT | 0.500 | 1.0 | 0.30 | | |

CEB 5/12/08

| andard: | ID | Prep Date/Time |
|---|---|---|
| | TEB 05/12/08 | |
| AL/MS | R1 6072-078-14B | 5/12/08 1220 |
| V/CCV/LCS | US 6072-78-15A | |

Reviewed By/Date: 5/13/08

see book # 9368 for std traceability information

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

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

-HgCVAA-Prep1007

Page #:

000000026

Lionville Laboratory
Incorporated

# MERCURY PREPARATION

Logbook # 455

Analyst: DLB
Date 5/12/08
Start Time/Temp: 1430 | 95°
End Time/Temp: 1505 | 98°

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

Prep Batch: 08C0083
Worksheet: HG051201
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 | S | | | 10mL | 50mL | |
| 0.2 µg/L | JI | 0.100 | | | | |
| 1.0 | I4 | 0.500 | | | | |
| 2.0 | DR | 1.000 | | | | |
| 5.0 | 8 | 2.500 | | | | |
| 10.0 | 537 | 5.000 | | | | |
| ICV | 514 | 0.125 | 2.5 | | | |
| CCV | 11A | 0.250 | 5.0 | | | |
| ICB/CCB | 616 | | | | | |
| MB1 | F8 | | | 0.5mL | | PBW183 |
| LC1 | I94 | 0.250 | 5.0 | | | LCSW183 |
| 0804L910-014 | NJ | | | | | |
| 0804L950-002 | R | | | | | R |
| 002S | P3 | | | | | |
| 002T | 2V | | | | | |
| 08LTF038-LB1 | F2 | | | | | |

5/12/08

| Standard: | ID | Prep Date/Time |
|---|---|---|
| CAL/MS | RI 6072-78-14B | 5/12/08 1220 |
| CV/CCV/LCS | US 6072-78-15A | |

Reviewed By/Date: 5/13/08

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

ME-HgCVAA-Prep1007

Page #:

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# MERCURY PREPARATION

Logbook # 422

CB
5/1/08
ne/Temp: 1315 | 98°
e/Temp: 1515 | 98°

Instrument ID H63.1
Balance #: (NA)
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0077
Worksheet: HG050101
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 | JI | | | 33mL | 33mL | |
| 0.2 µg/L | A27 | 0.0667 | | | | |
| 1.0 | PC | 0.334 | | | | |
| 2.0 | BLV | 0.667 | | | | |
| 5.0 | 508 | 1.667 | | | | |
| 10.0 | A1 | 3.334 | | | | |
| ICV | 194 | 0.0834 | 2.5 | | | |
| CCV | B14 | 0.167 | 5.0 | | | |
| ICB/CCB | K17 | | | | | |
| MB1 | R | | | | | PBW177 |
| LC1 | A901 | 0.167 | 5.0 | | | LCSW177 |
| 0804L002-001 | WK | | | | | |
| 001R | 573 | | | | | |
| 001S | ET | 0.334 | 1.0 | | | |
| 0804L998-004 | 76 | | | | | |
| 004R | 154 | | | | | |
| 004S | R2 | 0.334 | 1.0 | | | |
| 009 | AP | | | | | |
| 014 | X0 | | | | | |
| 0804L023-004 | CM | | | | | |
| 0804L020-006 | L53 | | | | | |
| 017 | 71L | | | | | |
| 0804L958-004 | P18 | | | | | |
| 004S | 297 | 0.667 | 2.00 | | | |
| 005 | 857 | | | | | |
| 006 | N60 | | | | | |
| 0804L929-002 | A1R | | | | | |

| rd: | ID | Prep Date/Time |
|---|---|---|
| IS | R16072-78-14B | 5/1/08 1105 |
| CV/LCS | LS 6072-78-15A | ↓ |

Reviewed By/Date: 5/7/08

see book # 9368 for std traceability information

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

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

CVAA-Prep1007

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nville Laboratory
orporated

# MERCURY PREPARATION

Logbook # 422

alyst: DRM
e 5/1/08
rt Time/Temp:
d Time/Temp: see page 090

Instrument ID H63.1
Balance #: NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0077
Worksheet: HG050101
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. |
|---|---|---|---|---|---|---|
| 08041929-002R | H5 | | | 33mL | 33mL | |
| 002S | BG | 0.667 | 200 | | | |
| 08041989-003 | JS | | | | | |
| 003R | 5T | | | | | |
| 003S | 95 | 0.667 | 200 | | | |
| 004 | S | | | | | |
| 08041991-002 | HW | | | 16.5mL | | limit's vol |
| 002R | 55 | | | | | |
| 002S | TR | 0.667 | 200 | | | |
| 08041976-002 | 3T | | | 33mL | | |
| 002R | PT | | | | | |
| 002S | KX | 0.667 | 200 | | | |
| 08LT0032-LB1 | F8 | | | | | |
| 08LT0032MS-LB1 | I4 | | | | | |
| Test 5/1/08 | | | | | | |

DRM 5/1/08

| dard: | ID | Prep Date/Time |
|---|---|---|
| /MS | | |
| CCV/LCS | see page 090 | |

Reviewed By/Date: [signature] 5/7/08

see book # 9368 for std traceability information

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

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

gCVAA-Prep1007

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onville Laboratory Use Only

28041989

# Custody Transfer Record/Lab Work Request

Page 1 of 1

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

ent THE HANFORD SAFE RC-087

t. Final Proj. Sampling Date

ject# 11343-606-001-9999-00

ject Contact/Phone#

nville Laboratory Project Manager O Johnson

SW846 Del STO TAT 7 Day

te Rec'd 4-24-08 Date Due 5-1-08

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | | | | | | | | | A 3 | | | | | | | |
| #/Type Container | Liquid / Solid | | | | | | | | | 1P | | | | | | | |
| Volume | | | | | | | | | Total met | 500 | | LEACHATE | | | | | |
| Preservatives | | | | | | | | | | | | | | | | | |
| ANALYSES REQUESTED → | | ORGANIC | | | | | | | | INORG | | | | | | | |
| | | VOA | BNA | Pest/PCB | Herb | | | | | TCLP Metal Hg | CN | | | | | | |

| TRIX DES: | Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | Lionville Laboratory Use Only | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Met O | ITCLP | | RCRA | | | | | |
| Soil | 001 | T16MK0 | | | Soil | 4-22-08 | 0750 | | | | | | X | | | | | | | |
| Sediment | 002 | 1 1 | | | 1 | 1 | 0800 | | | | | X | X | | | | | | | |
| Solid | 003 | 1 0 TCLP 05 001 | | | 1 | * | | | | | | | | | X | | | | | |
| Sludge | 004 | 1 1 1 002 | | | 1 | 1 | | | | | | | | | | | | | | |
| Water | | | | | | | | | | | | | | | | | | | | |
| Oil | | | | | | | | | | | | | | | | | | | | |
| Air | | | | | | | | | | | | | | | | | | | | |
| Drum | | | | | | | | | | | | | | | | | | | | |
| Solids | | | | | | | | | | | | | | | | | | | | |
| Drum | | | | | | | | | | | | | | | | | | | | |
| Liquids | | | | | | | | | | | | | | | | | | | | |
| EP/TCLP | | | | | | | | | | | | | | | | | | | | |
| Leachate | | | | | | | | | | | | | | | | | | | | |
| Wipe | | | | | | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | | | | | |
| Fish | | | | | | | | | | | | | | | | | | | | |

ecial Instructions:

Met ① = HSL + B, Bi, Li, Mo, Si, Sr, Sn, Ti, P, U, Zr

Special Instructions:

~~4-29-08~~ 1. ~~per client add total metals #2.~~ via 5-2-08

5-2-08 2. Add Total met to Sample #002

3.

4.

5.

6.

| Relinquished by | Received by | Date | Time | Relinquished by | Received by | Date | Time | Relinquished by | Received by | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fed Ex | [signature] | 4/24/08 | 1155 | | | | | ORIGINAL REWRITTEN | | "COMPOSITE WASTE" | |

000000030

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-087-118 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **Collector** B Lawrence, E. Harries | **Company Contact** Joan Kessner | **Telephone No.** 509-375-4688 | **Project Coordinator** KESSNER, JH |
| **Price Code** 8F | **Data Turnaround** ~~15~~ 7 Days 4/15/08 | | |
| **Project Designation** 618-7 Burial Ground - Soil | **Sampling Location** 618-7 Burial Ground/Stockpiles | | **SAF No.** RC-087 |
| **Ice Chest No.** AFS-04-123 | **Field Logbook No.** EL-1395-12 | **COA** RG61872600 | **Method of Shipment** FedEx |
| **Shipped To** EBERLINE SERVICES / LIONVILLE | **Offsite Property No.** A080240 | | **Bill of Lading/Air Bill No.** see osp |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Potential Radiological and Beryllium contamination*

**Special Handling and/or Storage**

*None*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Preservation** | None | | | | | | | | | | |
| **Type of Container** | P | | | | | | | | | | |
| **No. of Container(s)** | 1 | | | | | | | | | | |
| **Volume** | 500mL | | | | | | | | | | |
| **SAMPLE ANALYSIS** | See item (1) in Special Instructions. | | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | RCF Screen | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~J16MJ9~~ | ~~SOIL~~ | | | | | | | | | | | | |
| J16MK0 | SOIL | 4/22/08 | 0750 | X | | | | J16M94 | | | | | |
| J16MK1 | SOIL | 4/22/08 | 0800 | X | | | | J16M95 | | | | | |
| ~~J16MK2~~ | ~~SOIL~~ | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

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

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| E. Harries / E. Harries | 0850 4/22/08 | RT Coffman / RT Coffman | 0850 4/22/08 |
| RT Coffman / RT Coffman | 0930 4/22/08 | REFER #1A, 1060 BLDG | 0930 4/22/08 |
| 1060/1A 4/23/08 | 1000 | MS Stankovich 4/23/08 | 1000 |
| WCH MS Stankovich 4/23/08 | 1000 | FedEx | |
| FedEx 4-24-08 | 1155 | 4-24-08 | 1155 |
| | | | |

**SPECIAL INSTRUCTIONS**

None

(1) Metals by ICP (TCLP) - 1311/6010 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/7470

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

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
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

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

**CLIENT:** TNU HANFORD
Project/SAF/SOW/Release #: RC-087

**Date:** 4/24/08

**LvLI Batch #:** 08041989

**Sample Custodian:** [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | |
|---|---|---|---|
| 1. Samples Hand Delivered or Shipped? | Carrier Fed Ex | | Airbill # 7910 5131 2327 |
| 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 14-2 | °C | Cooler # AFS-04-123 |
| 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 LABORATORIES, INC.