0069538

# SAF-RC-008
# ERDF Groundwater Well Samples
# FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

| | | |
|---|---|---|
| Jim Rugg | T2-03 | ___NB 4/24/06___<br>INITIAL/DATE |
| Jeanette Duncan | H9-02 | __NB 4/24/06<br>INITIAL/DATE |

**COMMENTS:**

SDG __K0253____ SAF-RC-008

Rad only X Chem only Rad & Chem

X Complete Partial

RECEIVED
MAY 04 2006
EDMC

LIONVILLE LABORATORY INC.

RECEIVED APR 2006

19 April 2006

Joan Kessner
WC-Hanford
3190 Washington Way
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 # | 0603L421 |
| SDG # | K0253 |
| SAF # | RC-008 |
| Date Received | 3/4/06 |
| # Samples | 7 |
| Mat\rix | WATER |
| Volatiles | X |
| Semivolatiles | |
| Pest/PCB | |
| PAH | |
| DRO/KRO/GRO | |
| GC Alcohols | |
| Herbicides | |
| Metals | X |
| Inorganics | X |

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
APR 2006

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| B1HRJ0 | 002 | W | 06LVG061 | 03/03/06 | N/A | 03/15/06 |
| B1HRH2 | 004 | W | 06LVG061 | 03/03/06 | N/A | 03/15/06 |
| B1HRJ4 | 006 | W | 06LVG061 | 03/03/06 | N/A | 03/15/06 |
| B1HRH6 | 008 | W | 06LVG061 | 03/03/06 | N/A | 03/15/06 |
| B1HV48 | 009 | W | 06LVG062 | 03/03/06 | N/A | 03/16/06 |
| B1HV48 | 009 MS | W | 06LVG062 | 03/03/06 | N/A | 03/16/06 |
| B1HV48 | 009 MSD | W | 06LVG062 | 03/03/06 | N/A | 03/16/06 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| VBLKTB | MB1 | W | 06LVG061 | N/A | N/A | 03/15/06 |
| VBLKTF | MB1 | W | 06LVG062 | N/A | N/A | 03/16/06 |
| VBLKTF | MB1 BS | W | 06LVG062 | N/A | N/A | 03/16/06 |

LIONVILLE LABORATORY INC.

**Case Narrative**

**Client:** TNU-HANFORD RC-008
**LVL #:** 0603L421
**SDG/SAF #** K0253/RC-008

**W.O. #:** 11343-606-001-9999-00
**Date Received:** 03-04-2006

## GC/MS VOLATILE

Five (5) water samples were collected on 03-03-2006.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 03-15,16-2006.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which was documented on the Sample Receipt Checklist.
2. Samples were analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/19/06
Date

som\group\data\voa\tnu-hanford\0603-421.doc

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 2 4 pages.



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

# GLOSSARY

## DATA QUALIFIERS

**U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

**J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

**B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

**E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

**D** = Identifies all compounds identified in an analysis at a secondary dilution factor.

**I** = Interference.

**NQ** = Result qualitatively confirmed but not able to quantify.

**N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

**X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

**Y** = Additional qualifiers used as required are explained in the case narrative.

# GLOSSARY

## ABBREVIATIONS

**BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

**BSD** = Indicates blank spike duplicate.

**MS** = Indicates matrix spike.

**MSD** = Indicates matrix spike duplicate.

**DL** = Suffix added to sample number to indicate that results are from a diluted analysis.

**NA** = Not Applicable.

**DF** = Dilution Factor.

**NR** = Not Required.

**SP, Z** = Indicates Spiked Compound.

# TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

**MP** - **Missed Peak:** Manually added peak not found by automatic quan program.

**PA** - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.

**RI** - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.

**SP** - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.

**CB** - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

**PI** - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

**Lionville Laboratory, Inc.**

Volatiles by GC/MS, HSL List

Report Date: 04/19/06 10:49

RFW Batch Number: 0603L421 Client: **TNUHANFORD RC-008 K0253** Work Order: 11343606001 Page: 1a

000000006

| | Cust ID: | B1HRJ0 | | B1HRH2 | | B1HRJ4 | | B1HRH6 | | B1HV48 | | B1HV48 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 002 | | 004 | | 006 | | 008 | | 009 | | 009 MS | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| | Units: | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Surrogate Recovery | Toluene-d8 | 100 | % | 94 | % | 92 | % | 99 | % | 92 | % | 95 | % |
| | Bromofluorobenzene | 107 | % | 101 | % | 101 | % | 109 | % | 102 | % | 104 | % |
| | 1,2-Dichloroethane-d4 | 108 | % | 104 | % | 102 | % | 109 | % | 100 | % | 105 | % |
| Chloromethane | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 98 | % |
| Bromomethane | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 109 | % |
| Vinyl Chloride | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 91 | % |
| Chloroethane | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 101 | % |
| Methylene Chloride | | 4 | JB | 3 | JB | 3 | JB | 4 | JB | 4 | JB | 79 | % |
| Acetone | | 11 | | 10 | U | 2 | J | 13 | | 8 | J | 96 | % |
| Carbon Disulfide | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 106 | % |
| 1,1-Dichloroethene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 103 | % |
| 1,1-Dichloroethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 109 | % |
| 1,2-Dichloroethene (total) | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 99 | % |
| Chloroform | | 5 | U | 1 | J | 5 | U | 5 | U | 5 | U | 107 | % |
| 1,2-Dichloroethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 113 | % |
| 2-Butanone | | 2 | J | 10 | U | 10 | U | 2 | J | 3 | J | 108 | % |
| 1,1,1-Trichloroethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 104 | % |
| Carbon Tetrachloride | | 5 | J | 4 | J | 5 | U | 5 | U | 5 | U | 101 | % |
| Bromodichloromethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 109 | % |
| 1,2-Dichloropropane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 111 | % |
| cis-1,3-Dichloropropene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 106 | % |
| Trichloroethene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 103 | % |
| Dibromochloromethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 106 | % |
| 1,1,2-Trichloroethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 113 | % |
| Benzene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 107 | % |
| Trans-1,3-Dichloropropene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 115 | % |
| Bromoform | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 112 | % |
| 4-Methyl-2-pentanone | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 116 | % |
| 2-Hexanone | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 118 | % |
| Tetrachloroethene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 98 | % |
| 1,1,2,2-Tetrachloroethane | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 123 | % |
| Toluene | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 106 | % |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0603L421 Client: TNUHANFORD RC-008 K0253 Work Order: 11343606001 Page: 1b

| Cust ID: | B1HRJ0 | B1HRH2 | B1HRJ4 | B1HRH6 | B1HV48 | B1HV48 |
|---|---|---|---|---|---|---|
| RFW#: | 002 | 004 | 006 | 008 | 009 | 009 MS |
| Chlorobenzene | 5 U | 5 U | 5 U | 5 U | 5 U | 104 % |
| Ethylbenzene | 5 U | 5 U | 5 U | 5 U | 5 U | 103 % |
| Styrene | 5 U | 5 U | 5 U | 5 U | 5 U | 111 % |
| Xylene (total) | 5 U | 5 U | 5 U | 5 U | 5 U | 105 % |
| cis-1,2-dichloroethene | 5 U | 5 U | 5 U | 5 U | 5 U | 99 % |
| trans-1,2-dichloroethene | 5 U | 5 U | 5 U | 5 U | 5 U | 99 % |

*= Outside of EPA CLP QC limits.

000000007

**Lionville Laboratory, Inc.**

Volatiles by GC/MS, HSL List

Report Date: 04/19/06 10:49

RFW Batch Number: 0603L421 Client: **TNUHANFORD RC-008 K0253** Work Order: 11343606001 Page: 2a

000000008

| | Cust ID: | B1HV48 | | VBLKTB | | VBLKTF | | VBLKTF BS | |
|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 009 MSD | | 06LVG061-MB1 | | 06LVG062-MB1 | | 06LVG062-MB1 | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| | Units: | ug/L | | ug/L | | ug/L | | ug/L | |
| Surrogate Recovery | Toluene-d8 | 96 | % | 91 | % | 96 | % | 95 | % |
| | Bromofluorobenzene | 102 | % | 95 | % | 104 | % | 100 | % |
| | 1,2-Dichloroethane-d4 | 102 | % | 96 | % | 103 | % | 99 | % |
| Chloromethane | | 92 | % | 10 | U | 10 | U | 88 | % |
| Bromomethane | | 100 | % | 10 | U | 10 | U | 98 | % |
| Vinyl Chloride | | 89 | % | 10 | U | 10 | U | 85 | % |
| Chloroethane | | 100 | % | 10 | U | 10 | U | 99 | % |
| Methylene Chloride | | 76 | % | 4 | J | 2 | J | 71 | % |
| Acetone | | 91 | % | 10 | U | 10 | U | 94 | % |
| Carbon Disulfide | | 105 | % | 5 | U | 5 | U | 99 | % |
| 1,1-Dichloroethene | | 103 | % | 5 | U | 5 | U | 97 | % |
| 1,1-Dichloroethane | | 105 | % | 5 | U | 5 | U | 98 | % |
| 1,2-Dichloroethene (total) | | 97 | % | 5 | U | 5 | U | 91 | % |
| Chloroform | | 104 | % | 5 | U | 5 | U | 97 | % |
| 1,2-Dichloroethane | | 110 | % | 5 | U | 5 | U | 102 | % |
| 2-Butanone | | 100 | % | 10 | U | 10 | U | 100 | % |
| 1,1,1-Trichloroethane | | 103 | % | 5 | U | 5 | U | 97 | % |
| Carbon Tetrachloride | | 101 | % | 5 | U | 5 | U | 94 | % |
| Bromodichloromethane | | 105 | % | 5 | U | 5 | U | 98 | % |
| 1,2-Dichloropropane | | 108 | % | 5 | U | 5 | U | 101 | % |
| cis-1,3-Dichloropropene | | 105 | % | 5 | U | 5 | U | 98 | % |
| Trichloroethene | | 100 | % | 5 | U | 5 | U | 95 | % |
| Dibromochloromethane | | 105 | % | 5 | U | 5 | U | 97 | % |
| 1,1,2-Trichloroethane | | 109 | % | 5 | U | 5 | U | 101 | % |
| Benzene | | 104 | % | 5 | U | 5 | U | 98 | % |
| Trans-1,3-Dichloropropene | | 111 | % | 5 | U | 5 | U | 102 | % |
| Bromoform | | 109 | % | 5 | U | 5 | U | 98 | % |
| 4-Methyl-2-pentanone | | 109 | % | 10 | U | 10 | U | 102 | % |
| 2-Hexanone | | 112 | % | 10 | U | 10 | U | 103 | % |
| Tetrachloroethene | | 97 | % | 5 | U | 5 | U | 92 | % |
| 1,1,2,2-Tetrachloroethane | | 120 | % | 5 | U | 5 | U | 109 | % |
| Toluene | | 104 | % | 5 | U | 5 | U | 99 | % |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0603L421 Client: TNUHANFORD RC-008 K0253 Work Order: 11343606001 Page: 2b

| Cust ID: | B1HV48 | | VBLKTB | | VBLKTF | | VBLKTF BS | |
|---|---|---|---|---|---|---|---|---|
| RFW#: | 009 MSD | | 06LVG061-MB1 | | 06LVG062-MB1 | | 06LVG062-MB1 | |
| Chlorobenzene | 102 | % | 5 | U | 5 | U | 96 | % |
| Ethylbenzene | 100 | % | 5 | U | 5 | U | 96 | % |
| Styrene | 109 | % | 5 | U | 5 | U | 102 | % |
| Xylene (total) | 102 | % | 5 | U | 5 | U | 97 | % |
| cis-1,2-dichloroethene | 97 | % | 5 | U | 5 | U | 91 | % |
| trans-1,2-dichloroethene | 97 | % | 5 | U | 5 | U | 91 | % |

*= Outside of EPA CLP QC limits.

000000009

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRJ0

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L421-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031518

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/15/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. 67630 | ISOPROPYL ALCOHOL | 7.446 | 10 | NJ |

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRH2

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L421-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031519

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/15/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | | | | |

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRJ4

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L421-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031520

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/15/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SILOXANE | 16.206 | 6 | J |
| 2. | SILOXANE | 19.461 | 8 | J |

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HRH6

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L421-008

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031521

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/15/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. 67630 | ISOPROPYL ALCOHOL | 7.446 | 8 | NJ |
| 2. | SILOXANE | 19.461 | 10 | J |
| 3. | SILOXANE | 21.511 | 6 | J |

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B1HV48

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 0603L421-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: q031609

Level: (low/med) LOW Date Received: 03/04/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SILOXANE | 16.206 | 50 | J |
| 2. | SILOXANE | 19.455 | 30 | J |
| 3. | SILOXANE | 21.511 | 20 | J |

1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKTB

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 06LVG061-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031504

Level: (low/med) LOW Date Received: 03/15/06

% Moisture: not dec. _____ Date Analyzed: 03/15/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | | | | |

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKTF

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 06LVG062-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: g031604

Level: (low/med) LOW Date Received: 03/16/06

% Moisture: not dec. _____ Date Analyzed: 03/16/06

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | | | | |

FORM 1 VOA-TIC 1/87 Rev.

Lionville Laboratory Use Only

06 03 L 421

# Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-HANFORD SAF# RC-008

Est. Final Proj. Sampling Date

Project # 11343-006-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager DJ

QC Spec Del Std TAT 30 DAYS

Date Rec'd 3/4/06 Date Due 4/3/06

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | 1 | | | | | | | 2 | | 1 | 2 | 2 | 2 | 1 | | |
| #/Type Container | Liquid | G | | | | | | | V | | P | P | P | P | G | | |
| | Solid | | | | | | | | | | | | | | | | |
| Volume | Liquid | 40 | | | | | | | 500 | | P | 500 | 500 | 500 | L | | |
| | Solid | | | | | | | | | | | | | | | | |
| Preservatives | | HCL | | | | | | | HNO3 | | – | – | – | H2SO4 | H2O4 | | |
| ANALYSES REQUESTED → | | ORGANIC | | | | | | | INORG | | | | | | | | |
| | | VOA | BNA | Pest/ PCB | Herb | | | | TAL Metal | CN | IC Cl/Br/NO3 | TDS | ALK | NH3 NO | TOX | | |

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

| Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | 0624H | | | | | | METO SO | METO TO | | ICO | ITDS | IALKL | IN3N2 | ITOX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | B1HRH9(F) | | | W | 3-3-06 | 0957 | | | | | | | 1 | X | | | | | | |
| 002 | B1HRJ0 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 003 | B1HRH1(F) | | | | | 1159 | | | | | | | 1 | X | | | | | | |
| 004 | B1HRH2 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 005 | B1HRJ3(F) | | | | | 0845 | | | | | | | 1 | X | | | | | | |
| 006 | B1HRJ4 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 007 | B1HRH5(F) | | | | | 0800 | | | | | | | 1 | X | | | | | | |
| 008 | B1HRH6 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 009 | B1HV48 | | | | | 0800 | 3 | | | | | | | | | | | | | |

Special Instructions:

MET① = Al, Ag, Ba, Be, Ca, Cr, Cd, Co, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC① = IC-Cl, Br, F, NO3, NO2, PO4, SO4

RUN MATRIX QC

DATE/REVISIONS:

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

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| FedEx | [signature] | 3/4/06 | 1000 |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |
| | | | |

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

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-14

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H1073 | Ice Chest No.: ERC-96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH9 (F) | | W | 3-3-06 | 0957 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ0 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1900 | FED EX | |
| Ed Eo | 3/4/06 1000 | [signature] | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wipe | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-8

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H103B | Ice Chest No.: ERC 96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH1 (F) | | W | 3-3-06 | 1159 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRH2 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRH2 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRH2 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| Fed Ex | 3-4-06 1000 | V. Nunnally | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-17

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS- SAWS- H103R | Ice Chest No.: ~~ERC-96-833~~ ERC-96-933 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 79207331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRJ3 (F) | | W | 3-3-06 | 0845 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ4 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| Fed Ex | 3-4-06 1000 | | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wipe | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-11

Page 1 of 1

| | | |
|---|---|---|
| Collector DURATEK R.T. SICKLE | Contact/Requester J Kessner | Telephone No. 509-375-4688 MSIN FAX |
| SAF No. RC-008 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title ERDF Groundwater Well Samples | DTS-SAMPS-H103B | Ice Chest No. SAMPLE-445 Temp. ERC. 96-838 |
| Shipped To (Lab) Lionville Laboratory Incorporated | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. FEDEX 3331 5331 |
| Protocol GPP | Priority: 45 Days | Offsite Property No. 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH5 (F) | | W | 3-3-06 | 0800 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | ↓ | ↓ | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | | | 1x500-mL P 250ml ORS 3-3-06 | IC Anions - 300.0 | Cool 4C |
| B1HRH6 | | W | | | 1x250-mL G/P 500 ORS 3-3-06 | Alkalinity - 310.1 | Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P 1000 ORS 3-3-06 | TDS - 160.1 | Cool 4C |
| B1HRH6 | | W | ↓ | ↓ | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| DURATEK R.T. SICKLE | | | 3-3-06 1100 | FedEx | | | |
| FedEx | | | 3-4-06 1000 | | | | 3-4-06 1000 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-21



| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kramer | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H103B | Ice Chest No.: ERC-96-833 Temp. |
| Shipped To (Lab): Liomville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HV48 | | W | 3-3-06 | 0900 | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | 1400 MAR 0 3 2006 | FED EX | |
| Relinquished By: Fed Ex | 3-4-06 1000 | Received By: | 3-4-06 1000 |
| Relinquished By | | Received By | |
| Relinquished By | | Received By | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

# PARTS AND TOOLS RETURN (PTR) FORM
## PROJECT HANFORD, 2355 STEVENS DR., RICHLAND, WA 99354

REFERENCE BUSINESS PROCESS GUIDE - MATERIAL RETURNS

**SECTION A - Material Information**

Company DURATEK Date 03/03/06

One of the following is **REQUIRED**:

PO/Release No.

Contract/Rel. No.

P-Card Log No.

Other

Contract Specialist Name: DOT STEWART

Phone Number: 509 373.7073

Material Coordinator/P-Card Holder Name

Phone Number

PTR No. 16983

Total Pieces 2

| Line Item No. | Quantity | U/M | Q Level | Description (Catalog ID No., S/N, Gov. Tag No.)/Include Reason for Return | Unit Price | Value |
|---|---|---|---|---|---|---|
| 1 | 2 | EA | | COOLER #ERC-96-833 WEIGHT; 75 LBS<br>COC # RC-008-11,-8,-17,-14,-21<br>COOLER #SAWS-335 WEIGHT; 57 LBS<br>COC # RC-008-3,-4,-22<br>SAMLPES CONTAIN RADIOACTIVE MATERIAL THAT DOES NOT MEET DOT LIMITS OR EXCEED LAB ACCEPTANCE CRITERIA. | 7926 3371 5231<br>7926 7630 4049 | |

**SECTION B - Financial Transaction Information**

**Passport Purchase Order** Financial Transaction - Check One

- ☐ **Credit** - Return for Credit - PP Receipt Required
- ☐ **Replace** - Return for Replacement - PP Receipt Required
- ☐ **Inventory** - Return to PHMC Inventory
- ☐ **Return** - QA-Non-NCR Material (Credit)

*Requires identification of controlling Purchase Order, Contract, or PHMC Property Custodian accountable for the Govt. property in accordance with Regulations.

**Contract/P-Card/Other** - No Financial Transaction Created from PTR

- ☐ Credit - Contract/P-Card
- ☐ Repair
- ☐ Ship Supplier Owned Materials, Containers, Samples, etc.
- ☒ *Ship Govt. Owned Materials, Containers, Samples, etc.
- ☐ OTHER
- ☐ Core Charge - Return for Credit of Deposit
- ☐ Replace
- ☐ Ship Waste/Material for Disposal
- ☐ Over Shipment

**SECTION C - Hazardous Material Information**

| | | |
|---|---|---|
| Hazardous Material | ☐ Yes* | ☒ No |
| Radioactive Material | ☒ Yes* | ☐ No |
| Rad. Control Survey | ☐ Yes | ☒ No |

*T&P Inspections (req'd) ☐ Yes ☒ No

Include appropriate shipping document. Radioactive Material is also Hazardous.

Certified Free of Contamination ☐ Yes ☒ No

Certifier's Name/Date

Custodian: R.T. SICKLE

Telephone: 509-373-7073

Current Location of Material:

Date Available to Ship: 3/3/06

**SECTION D - Vendor/Ship To Information**

Ship To: LIONVILLE LAB
208 WELSH POOL ROAD
LIONVILLE, PA. 19341/133

Contractor

Contact: ORLETTE JOHNSON

Contact Phone: 610-280-3012

RA No.:

F.O.B.

| Item | % Cost | Cost Center | CACN | COA |
|---|---|---|---|---|
| ALL | 100 | D9T85 | 121981 | ES10 |

**SECTION E - Shipping Information** - To be completed by Shipping Department

Routing

B/L No.

B/L Wt.

Frt. Collect

Acct. No.

**SECTION F - OSD&D/Shipping Notice Information** - To be completed by Shipping/Procurement

By

Date Shipped

OSD&D No.

Shipping Notice No.

Receipt No. 000000023

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Date: 3-4-06

Purchase Order / Project# / SAF#/ SOW# / Release #: RE-008

LvLI Batch # : 0603L421

Sample Custodian: V. Newman

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | | | |
|---|---|---|---|---|---|
| 1. | Samples Hand Delivered or ~~Shipped~~ | Carrier Fed Ex | | Airbill# 7920 3331 5231 | |
| 2. | Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | Comments |
| 3. | Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | | |
| 4. | All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | ☑ Yes | ☐ No | | |
| 5. | Samples received cooled or ambient? IR | Temp | °C | Cooler # | |
| 6. | Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | |
| 7. | coc signed and dated? | ☑ Yes | ☐ No | | |
| 8. | Sample containers are intact? | ☑ Yes | ☐ No | | |
| 9. | All samples on coc received? All samples received on coc? | ☑ Yes | ☐ No | | |
| 10. | All sample label information matches coc? | ☑ Yes | ☐ No | | |
| 11. | Samples properly preserved? | ☑ Yes | ☐ No | | |
| 12. | Samples received within hold times? Short holds taken to wet lab? | ☑ Yes | ☐ No | | |
| 13. | VOA, TOC, TOX free of headspace? | ☐ Yes | ☑ No | ☐ N/A Air Bubble | |
| 14. | QC stickers placed on bottles designated by client? | ☐ Yes | ☐ No | ☑ N/A | |
| 15. | Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | ☑ Yes 3-4-06 | ☑ No | | |
| 16. | Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | ☑ Yes | ☐ No | ☐ No Discrepancies | |

SR-002-B

LVLI LIONVILLE LABORATORY INC

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

RECEIVED APR 2006

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS | ANALYSIS TIME |
|---|---|---|---|---|---|---|---|
| B1HRJ0 | | | | | | | |
| ALKALINITY | 002 | W | 06LAK018 | 03/03/06 | 03/17/06 | 03/17/06 | |
| ALKALINITY | 002 REP | W | 06LAK018 | 03/03/06 | 03/17/06 | 03/17/06 | |
| BROMIDE BY IC | 002 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| BROMIDE BY IC | 002 REP | W | 06LICD29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| BROMIDE BY IC | 002 MS | W | 06LICD29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| CHLORIDE BY IC | 002 | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| CHLORIDE BY IC | 002 REP | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| CHLORIDE BY IC | 002 MS | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 002 | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 002 REP | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 002 MS | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| NITRITE BY IC | 002 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | ~~0934~~ 1004 |
| NITRATE BY IC | 002 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 0934 |
| PHOSPHATE BY IC | 002 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 1004 |
| SULFATE BY IC | 002 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| NITRATE NITRITE | 002 | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| TOTAL DISSOLVED SOLI | 002 | W | 06LSSA24 | 03/03/06 | 03/07/06 | 03/07/06 | |
| TOTAL ORGANIC HALIDE | 002 | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |
| B1HRH2 | | | | | | | |
| ALKALINITY | 004 | W | 06LAK018 | 03/03/06 | 03/17/06 | 03/17/06 | |
| BROMIDE BY IC | 004 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| CHLORIDE BY IC | 004 | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 004 | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| NITRITE BY IC | 004 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 1020 |
| NITRATE BY IC | 004 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 0840 |
| PHOSPHATE BY IC | 004 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 1020 |
| SULFATE BY IC | 004 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| NITRATE NITRITE | 004 | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| TOTAL DISSOLVED SOLI | 004 | W | 06LSSA24 | 03/03/06 | 03/07/06 | 03/07/06 | |
| TOTAL ORGANIC HALIDE | 004 | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |
| B1HRJ4 | | | | | | | |
| ALKALINITY | 006 | W | 06LAK018 | 03/03/06 | 03/17/06 | 03/17/06 | |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS | ANALYSIS TIME |
|---|---|---|---|---|---|---|---|
| BROMIDE BY IC | 006 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| CHLORIDE BY IC | 006 | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 006 | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| NITRITE BY IC | 006 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 1037 |
| NITRATE BY IC | 006 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| PHOSPHATE BY IC | 006 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| SULFATE BY IC | 006 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| NITRATE NITRITE | 006 | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| NITRATE NITRITE | 006 REP | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| NITRATE NITRITE | 006 MS | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| TOTAL DISSOLVED SOLI | 006 | W | 06LSSA24 | 03/03/06 | 03/07/06 | 03/07/06 | |
| TOTAL ORGANIC HALIDE | 006 | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |
| B1HRH6 | | | | | | | |
| ALKALINITY | 008 | W | 06LAK018 | 03/03/06 | 03/17/06 | 03/17/06 | |
| BROMIDE BY IC | 008 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| CHLORIDE BY IC | 008 | W | 06LICC29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| FLUORIDE BY IC | 008 | W | 06LICB29 | 03/03/06 | 03/09/06 | 03/10/06 | |
| NITRITE BY IC | 008 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | 1054 |
| NITRATE BY IC | 008 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| PHOSPHATE BY IC | 008 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| SULFATE BY IC | 008 | W | 06LICB27 | 03/03/06 | 03/07/06 | 03/08/06 | |
| NITRATE NITRITE | 008 | W | 06LN3018 | 03/03/06 | 03/23/06 | 03/23/06 | |
| TOTAL DISSOLVED SOLI | 008 | W | 06LSSA24 | 03/03/06 | 03/07/06 | 03/07/06 | |
| TOTAL ORGANIC HALIDE | 008 | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |
| TOTAL ORGANIC HALIDE | 008 REP | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |
| TOTAL ORGANIC HALIDE | 008 MS | W | 06LX002 | 03/03/06 | 03/13/06 | 03/13/06 | |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| ALKALINITY | MB1 | W | 06LAK018 | N/A | 03/17/06 | 03/17/06 |
| ALKALINITY | MB1 BS | W | 06LAK018 | N/A | 03/17/06 | 03/17/06 |
| ALKALINITY | MB1 BSD | W | 06LAK018 | N/A | 03/17/06 | 03/17/06 |
| BROMIDE BY IC | MB1 | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| BROMIDE BY IC | MB1 BS | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| BROMIDE BY IC | MB1 | W | 06LICD29 | N/A | 03/09/06 | 03/09/06 |
| BROMIDE BY IC | MB1 BS | W | 06LICD29 | N/A | 03/09/06 | 03/09/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CHLORIDE BY IC | MB1 | W | 06LICC29 | N/A | 03/09/06 | 03/09/06 |
| CHLORIDE BY IC | MB1 BS | W | 06LICC29 | N/A | 03/09/06 | 03/09/06 |
| FLUORIDE BY IC | MB1 | W | 06LICB29 | N/A | 03/09/06 | 03/09/06 |
| FLUORIDE BY IC | MB1 BS | W | 06LICB29 | N/A | 03/09/06 | 03/09/06 |
| NITRITE BY IC | MB1 | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| NITRITE BY IC | MB1 BS | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| NITRATE BY IC | MB1 | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| NITRATE BY IC | MB1 BS | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| PHOSPHATE BY IC | MB1 | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| PHOSPHATE BY IC | MB1 BS | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| SULFATE BY IC | MB1 | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| SULFATE BY IC | MB1 BS | W | 06LICB27 | N/A | 03/07/06 | 03/07/06 |
| NITRATE NITRITE | MB1 | W | 06LN3018 | N/A | 03/23/06 | 03/23/06 |
| NITRATE NITRITE | MB1 BS | W | 06LN3018 | N/A | 03/23/06 | 03/23/06 |
| TOTAL DISSOLVED SOLI | MB1 | W | 06LSSA24 | N/A | 03/07/06 | 03/07/06 |
| TOTAL DISSOLVED SOLI | MB1 BS | W | 06LSSA24 | N/A | 03/07/06 | 03/07/06 |
| TOTAL DISSOLVED SOLI | MB1 BSD | W | 06LSSA24 | N/A | 03/07/06 | 03/07/06 |
| TOTAL ORGANIC HALIDE | MB1 | W | 06LX002 | N/A | 03/13/06 | 03/13/06 |
| TOTAL ORGANIC HALIDE | MB1 BS | W | 06LX002 | N/A | 03/13/06 | 03/13/06 |

LIONVILLE LABORATORY INC.

## Analytical Report

**Client:** TNU-HANFORD RC-008 K0253
**LVL#:** 0603L421

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 03-04-06

## INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 water 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 and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrite, Nitrate and Phosphate (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of Total Organic Halides (TOX) as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria with the exception of MB 06LX002-MB1 for TOX that above the reporting limit of 5.2 ug/L at 7.5 ug/L.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Alkalinity and Total Dissolved Solids (TDS) were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrate Nitrite and TOX were within the 75-125% control limits.

8. The replicate analyses for Alkalinity, Bromide, Chloride, Fluoride and Nitrate Nitrite were within the 20% RPD control limit however replicate analysis for TOX was outside the control limit that may be attributed to sample inhomogeneity.

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 21 pages.



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

9. Matrix quality control analyses for Nitrite, Nitrate, Phosphate and Sulfate were not reported due to the necessity of multiple re-analyses due to poor calibrations and continuing calibration verification samples and the subsequent depletion of the sample volume.

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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/12/06
Date

njp\i03-421

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Incorporated

## WET CHEMISTRY

## METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

| | EPA /600 | SW846 | OTHER |
|---|---|---|---|
| Acidity | ✓ 305.1 | | |
| ✓ Alkalinity ___ Bicarbonate ___ Carbonate | ✓ 310.1 | | |
| BOD | ___ 405.1 | | ___ 5210B (b) |
| Ion Chromatography: | | | |
| ✓ Bromide ✓ Chloride ✓ Fluoride | ✓ 300.0 | ___ 9056 | |
| ✓ Nitrate ✓ Nitrite ___ Phosphate | ✓ 300.0 | ___ 9056 | |
| ✓ Sulfate ___ Formate ___ Acetate ___ Oxalate | ✓ 300.0 | ___ 9056 | |
| Chloride | ___ 325.2 | ___ 9251 | |
| Chorine, Residual | ___ 330.5 (mod) | | |
| Cyanide, Amenable to Chlorination | ___ 335.2 | ___ 9010B | |
| Cyanide, Total | ___ 335.2 | ___ 9010B ___ 9014 | ___ ILMO4.0 (e) |
| Cyanide, Weak Acid Dissociable | | ___ | ___ 412 (a) ___ 4500CN-I (b |
| COD | ___ 410.4(mod) | | ___ 5220C (b) |
| Color | ___ 110.2 | | |
| Corrosivity by Coupon | | ___ 1110(mod) | |
| Chromium VI | | ___ 7196A | ___ 3500Cr-D (b) |
| Fluoride | ___ 340.2 | | ___ 4500-FC |
| Hardness, Calcium | ___ 215.2 | | |
| Hardness, Total | ___ 130.2 | | |
| Iodide | | | ___ ASTM D19P202 (1) |
| Surfactant | ✓ 425.1 | | |
| ✓ Nitrate-Nitrite ___ Nitrate ___ Nitrite | ✓ 353.2 | | |
| Ammonia | ___ 350.3 | | |
| Total___ Kjeldahl ___ Organic Nitrogen | ___ 351.3 | | |
| Total___ Organic ___ Inorganic Carbon | ___ 415.1 | ___ 9060 | |
| Oil & Grease | ___ 413.1 | ___ 9070 | |
| ___ pH ____ pH; paper | ___ 150.1 | ___ 9040B ___ 9041A | |
| Petroleum Hydrocarbons, Total Recoverable | ___ 418.1 | | |
| Phenol | ___ 420.1 ___ 420.2 | ___ 9065 ___ 9066 | |
| ___Ortho ___Total Phosphate | ___ 365.2 | | ___ 4500-P B ___ C |
| Salinity | | | ___ 210A (a) ___ 2520 (b) |
| Settleable Solids | ___ 160.5 | | |
| Sulfide | ___ 376.1 | ___ 9030B/9034 (acid soluble) | |
| Reactive ___Cyanide ___Sulfide | | ___ Section 7.3 (__9014__9030B) | |
| Silica | ___ 370.1 | | |
| Sulfite | ___ 377.1 | | |
| Sulfate | ___ 375.4 | ___ 9038 | |
| Specific Conductance | ___ 120.1 | ___ 9050A | |
| Specific Gravity | | | ___ D5057-90 ___ 213E (a) |
| Synthetic Precipitation Leach | | ___ 1312 | |
| Total ✓ Dissolved __Suspended ___Solids | 160 ✓.1 ___.2 ___.3 | | |
| Total Organic Halides | ___ 450.1 | ✓ 9020B | |
| Turbidity | ___ 180.1 | | |
| Volatile Solids: | | | |
| __Total __Dissolved __Suspended | ___ 160.4 | | |
| **Other:** | | **Method:** | |

06

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 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421
WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -002 | B1HRJ0 | Alkalinity | 124 | MG/L | 1.0 | 1.0 |
| | | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Chloride by IC | 16.7 | MG/L | 0.50 | 2.0 |
| | | Fluoride by IC | 0.31 | MG/L | 0.25 | 1.0 |
| | | Nitrite by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate by IC | 63.8 | MG/L | 2.50 | 10.0 |
| | | Phosphate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Sulfate by IC | 30.5 | MG/L | 2.5 | 10.0 |
| | | Nitrate Nitrite | 13.8 | MG/L | 0.40 | 20.0 |
| | | Total Dissolved Solids | 302 | MG/L | 5.00 | 1.0 |
| | | Total Organic Halides | 9.2 | UG/L | 5.2 | 1.0 |
| -004 | B1HRH2 | Alkalinity | 128 | MG/L | 1.0 | 1.0 |
| | | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Chloride by IC | 23.5 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 0.29 | MG/L | 0.25 | 1.0 |
| | | Nitrite by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate by IC | 63.1 | MG/L | 2.50 | 10.0 |
| | | Phosphate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Sulfate by IC | 30.9 | MG/L | 2.5 | 10.0 |
| | | Nitrate Nitrite | 12.9 | MG/L | 0.40 | 20.0 |
| | | Total Dissolved Solids | 314 | MG/L | 5.00 | 1.0 |
| | | Total Organic Halides | 5.2 u | UG/L | 5.2 | 1.0 |
| -006 | B1HRJ4 | Alkalinity | 1.0 u | MG/L | 1.0 | 1.0 |
| | | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Chloride by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Fluoride by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrite by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Phosphate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Sulfate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate Nitrite | 0.020u | MG/L | 0.020 | 1.0 |
| | | Total Dissolved Solids | 16.0 | MG/L | 5.00 | 1.0 |
| | | Total Organic Halides | 5.2 u | UG/L | 5.2 | 1.0 |
| -008 | B1HRH6 | Alkalinity | 1.0 u | MG/L | 1.0 | 1.0 |
| | | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Chloride by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Fluoride by IC | 0.25 u | MG/L | 0.25 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -008 | B1HRH6 | Nitrite by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Phosphate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Sulfate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate Nitrite | 0.020u | MG/L | 0.020 | 1.0 |
| | | Total Dissolved Solids | 5.00 u | MG/L | 5.00 | 1.0 |
| | | Total Organic Halides | 5.2 u | UG/L | 5.2 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421
WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| BLANK10 | 06LAK018-MB1 | Alkalinity | 0.50 u | MG/L | 0.50 | 1.0 |
| BLANK10 | 06LICB27-MB1 | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrite by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Nitrate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Phosphate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| | | Sulfate by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| BLANK10 | 06LICD29-MB1 | Bromide by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| BLANK10 | 06LICC29-MB1 | Chloride by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| BLANK10 | 06LICB29-MB1 | Fluoride by IC | 0.25 u | MG/L | 0.25 | 1.0 |
| BLANK10 | 06LN3018-MB1 | Nitrate Nitrite | 0.020u | MG/L | 0.020 | 1.0 |
| BLANK10 | 06LSSA24-MB1 | Total Dissolved Solids | 5.00 u | MG/L | 5.00 | 1.0 |
| BLANK1 | 06LX002-MB1 | Total Organic Halides | 7.5 | UG/L | 5.2 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -002 | B1HRJ0 | Bromide by IC | 10.1 | 0.00 | 10.0 | 101.4 | 1.0 |
| | | Chloride by IC | 44.4 | 16.7 | 25.0 | 110.8 | 5.0 |
| | | Fluoride by IC | 10.7 | 0.31 | 10.0 | 104.1 | 2.0 |
| -006 | B1HRJ4 | Nitrate Nitrite | 0.47 | 0.02u | 0.50 | 93.4 | 1.0 |
| -008 | B1HRH6 | Total Organic Halides | 50.9 | 3.2 | 50.0 | 95.5 | 1.0 |
| BLANK10 | 06LAK018-MB1 | Alkalinity | 102 | 0.50u | 100 | 101.6 | 1.0 |
| | | Alkalinity MSD | 102 | 0.50u | 100 | 101.6 | 1.0 |
| BLANK10 | 06LICB27-MB1 | Bromide by IC | 5.0 | 0.25u | 5.0 | 100 | 1.0 |
| | | Nitrite by IC | 5.12 | 0.25u | 5.00 | 102.4 | 1.0 |
| | | Nitrate by IC | 4.89 | 0.25u | 5.00 | 97.8 | 1.0 |
| | | Phosphate by IC | 5.3 | 0.25u | 5.0 | 105.4 | 1.0 |
| | | Sulfate by IC | 4.7 | 0.25u | 5.0 | 94.7 | 1.0 |
| BLANK10 | 06LICD29-MB1 | Bromide by IC | 4.7 | 0.25u | 5.0 | 94.0 | 1.0 |
| BLANK10 | 06LICC29-MB1 | Chloride by IC | 4.6 | 0.25u | 5.0 | 92.2 | 1.0 |
| BLANK10 | 06LICB29-MB1 | Fluoride by IC | 4.9 | 0.25u | 5.0 | 97.4 | 1.0 |
| BLANK10 | 06LN3018-MB1 | Nitrate Nitrite | 0.50 | 0.02u | 0.50 | 99.4 | 1.0 |
| BLANK10 | 06LSSA24-MB1 | Total Dissolved Solids | 96.0 | 5.00u | 100 | 96.0 | 1.0 |
| | | Total Dissolved Solids | 97.0 | 5.00u | 100 | 97.0 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| BLANK1 | 06LX002-MB1 | Total Organic Halides | 50.5 | 0.0 | 50.0 | 101.0 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | SPIKE#1 %RECOV | SPIKE#2 %RECOV | %DIFF |
|---|---|---|---|---|---|
| BLANK10 | 06LAK018-MB1 | Alkalinity | 101.6 | 101.6 | 0.00 |
| BLANK10 | 06LSSA24-MB1 | Total Dissolved Solids | 96.0 | 97.0 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/23/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR (REP) |
|---|---|---|---|---|---|---|
| -002REP | B1HRJ0 | Alkalinity | 124 | 125 | 0.43 | 1.0 |
| | | Bromide by IC | 0.25u | 0.25u | NC | 1.0 |
| | | Chloride by IC | 16.7 | 17.0 | 1.8 | 2.0 |
| | | Fluoride by IC | 0.31 | 0.31 | 2.3 | 1.0 |
| -006REP | B1HRJ4 | Nitrate Nitrite | 0.02u | 0.02u | NC | 1.0 |
| -008REP | B1HRH6 | Total Organic Halides | 5.2 u | 5.6 | ~~NC~~ 54.8 | 1.0 |

4-11-06

| Lionville Laboratory Use Only |
|---|
| 0603L421 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVL

15

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-HANFORD SAF# RC-008

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 3/4/06 Date Due: 4/3/06

| | | AC | | | | | | | D | | E | F | G | H | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | 1 | | | | | | | 2 | | 1 | 2 | 2 | 2 | 1 |
| #/Type Container | Liquid | G | | | | | | | P | | P | P | P | P | G |
| | Solid | | | | | | | | | | | | | | |
| Volume | Liquid | 40 | | | | | | | 500 | | P | 500 | 500/250 | 500 | L |
| | Solid | | | | | | | | | | | | | | |
| Preservatives | | HCL | | | | | | | HNO3 | | – | – | – | H2SO4 | H2O4 |
| ANALYSES REQUESTED | | ORGANIC: VOA | BNA | Pest/PCB | Herb | | | | INORG: TAL Metal | CN | IC Anions | TDS | ALK | NO2 NO3 | TOX |

Lionville Laboratory Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

| Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | 0624H | | | | | | MET(1) SO | MET(1) TO | | IC(1) | ITDS | IALKL | IN3N2 | ITOX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | B1HRH9(F) | | | W | 3-3-06 | 0957 | | | | | | | 1 | 1 | [illegible] | | | | | |
| 002 | B1HRJ0 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 003 | B1HRH1(F) | | | | | 1159 | | | | | | | 1 | 1 | [illegible] | | | | | |
| 004 | B1HRH2 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 005 | B1HRJ3(F) | | | | | 0845 | | | | | | | 1 | 1 | [illegible] | | | | | |
| 006 | B1HRJ4 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 007 | B1HRH5(F) | | | | | 0800 | | | | | | | 1 | 1 | [illegible] | | | | | |
| 008 | B1HRH6 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 009 | B1HV48 | | | | | 0800 | 3 | | | | | | | | | | | | | |

Special Instructions:

MET(1) = Al, Ag, Ba, Be, Ca, Cr, Cd, Co, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC(1) = IC-Cl, Br, Fl, NO3, NO2, PO4, SO4

RUN MATRIX QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| FedEx | [signature] | 3/4/06 | 1000 |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |

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

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-14



| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H1073 | Ice Chest No.: ERC-96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH9 (F) | | W | 3-3-06 | 0957 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ0 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 03 2006 1400 | FED EX | |
| Ed Eo | 3/4/06 1000 | [signature] | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-8



| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H103B | Ice Chest No.: ERC 06-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH1 (F) | | W | 3-3-06 | 1159 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRH2 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRH2 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRH2 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1000 | FED EX | |
| FED EX | 3-4-06 1000 | V. Hernandez | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-17

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code: |
| Project Title: ERDF Groundwater Well Samples | DTS- SAWS- H103R | Ice Chest No.: ERC-96-833 Temp.: ERC-96-833 |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRJ3 (F) | | W | 3-3-06 | 0845 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ4 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| FED EX | 3-4-06 1000 | | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-11

Page 1 of 1

| | | |
|---|---|---|
| Collector DURATEK R. T. SICKLE | Contact/Requester J Kessner | Telephone No. 509-375-4688 MSIN FAX |
| SAF No. RC-008 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title ERDF Groundwater Well Samples | DTS-SAWS-H103B | Ice Chest No. ~~SAWL-443~~ 75 Temp. FRG 96-838 |
| Shipped To (Lab) Lionville Laboratory Incorporated | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. 7920 3331 5231 |
| Protocol GPP | Priority: 45 Days | Offsite Property No. 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH5 (F) | | W | 3-3-06 | 0800 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | | | 1x500-mL P 250ml DRS 3-3-06 | IC Anions - 300.0 | Cool 4C |
| B1HRH6 | | W | | | 1x~~250~~-mL G/P 500 DRS 3-3-06 | Alkalinity - 310.1 | Cool 4C |
| B1HRH6 | | W | | | 1x~~300~~-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P 1000 DRS 3-3-06 | TDS - 160.1 | Cool 4C |
| B1HRH6 | | W | | | 1x~~500~~-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| DURATEK R. T. SICKLE | [signature] | | 3-3-06 1400 | FedEx | | | |
| Fed Ex | | | 3-4-06 1000 | [signature] | | | 3-4-06 1000 |
| | | | | | | | |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|
| | | | |

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-21



| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H103B | Ice Chest No. ERC-96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No. 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No. 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HV48 | | W | 3-3-06 | 0800 | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By | Received By |
|---|---|
| Print: R.T. SICKLE Sign: [signature] Date/Time: 1400 MAR 03 2006 | Print: FED EX Sign: Date/Time: |
| Relinquished By: FED EX Date/Time: 3-4-06 1000 | Received By: [signature] Date/Time: 3-4-06 1000 |
| Relinquished By: Date/Time: | Received By: Date/Time: |
| Relinquished By: Date/Time: | Received By: Date/Time: |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|
| | | | |

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

**CLIENT:** TNW HANFORD **Date:** 3-4-06

Purchase Order / Project# / SAF# / SOW# / Release #: RE-008

**LvLI Batch # :** 0603L421 **Sample Custodian:** V. Newman

**NOTE: EXPLAIN ALL DISCREPANCIES**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Samples Hand Delivered or ~~Shipped~~ | Carrier Fed Ex | | Airbill# 7920 3331 5231 | |
| 2. | Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | Comments |
| 3. | Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | | |
| 4. | All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | ☑ Yes | ☐ No | | |
| 5. | Samples received cooled or ambient? IR | Temp | °C | Cooler # | |
| 6. | Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | |
| 7. | coc signed and dated? | ☑ Yes | ☐ No | | |
| 8. | Sample containers are intact? | ☑ Yes | ☐ No | | |
| 9. | All samples on coc received? All samples received on coc? | ☑ Yes | ☐ No | | |
| 10. | All sample label information matches coc? | ☑ Yes | ☐ No | | |
| 11. | Samples properly preserved? | ☑ Yes | ☐ No | | |
| 12. | Samples received within hold times? Short holds taken to wet lab? | ☑ Yes | ☐ No | | |
| 13. | VOA, TOC, TOX free of headspace? | ☐ Yes | ☑ No | ☐ N/A Air Bubble | |
| 14. | QC stickers placed on bottles designated by client? | ☐ Yes | ☐ No | ☑ N/A | |
| 15. | Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | ☑ Yes 3-4-06 | ☑ No | | |
| 16. | Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | ☑ Yes | ☐ No | ☐ No Discrepancies | |

SR-002-B

LvLI LIONVILLE LABORATORIES, INC.

RECEIVED
APR 2006

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| B1HRH9 | | | | | | |
| SILVER, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SILVER, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SILVER, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| MAGNESIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 001 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 001 REP | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 001 MS | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRJ0 | | | | | | |
| SILVER, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| VANADIUM, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, TOTAL | 002 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRH1 | | | | | | |
| SILVER, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 003 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRH2 | | | | | | |
| SILVER, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| MANGANESE, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, TOTAL | 004 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRJ3 | | | | | | |
| SILVER, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 005 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRJ4 | | | | | | |
| SILVER, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| COPPER, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, TOTAL | 006 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRH5 | | | | | | |
| SILVER, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CALCIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, SOLUBLE | 007 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, SOLUBLE | 007 | W' | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| B1HRH6 | | | | | | |
| SILVER, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ALUMINUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BARIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| BERYLLIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CALCIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CADMIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COBALT, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| CHROMIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| COPPER, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| IRON, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| POTASSIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MAGNESIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| MANGANESE, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| SODIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| NICKEL, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ANTIMONY, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| VANADIUM, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |
| ZINC, TOTAL | 008 | W | 06L0165 | 03/03/06 | 03/15/06 | 03/29/06 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SILVER LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| SILVER, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ALUMINUM LABORTORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ALUMINUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| BARIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| BARIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| BERYLLIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| BERYLLIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CALCIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CALCIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CADMIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CADMIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| COBALT LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| COBALT, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CHROMIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| CHROMIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| COPPER LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| COPPER, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| IRON LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| IRON, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| POTASSIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-008 K0253

DATE RECEIVED: 03/04/06 LVL LOT # :0603L421

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| POTASSIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| MAGNESIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| MAGNESIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| MANGANESE LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| MANGANESE, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| SODIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| SODIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| NICKEL LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| NICKEL, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ANTIMONY LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ANTIMONY, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| VANADIUM LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| VANADIUM, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ZINC LABORATORY | LC1 BS | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |
| ZINC, TOTAL | MB1 | W | 06L0165 | N/A | 03/15/06 | 03/29/06 |

LIONVILLE LABORATORY INC.

## Analytical Report

**Client:** TNU-HANFORD RC-008
**LVL#:** 0603L421
**SDG/SAF#:** K0253/RC-008

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 03-04-06

### METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 water samples.

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

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

4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples except for B1HRH1 and B1HRH2 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.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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 27 pages.

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

11. The duplicate analyses for 2 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 Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. 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.

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/10/06
Date

jjw/m03-421

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#: 0603L421

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: X3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

## Metals Analysis Methods

| | SW846 | | EPA | | STD MTD | EPA OSWR | USATHAMA |
|---|---|---|---|---|---|---|---|
| Aluminum | X6010B | | __200.7 | | | | __99 |
| Antimony | X6010B | __7041 [5] | __200.7 | __204.2 | | | __99 |
| Arsenic | __6010B | __7060A [5] | __200.7 | __206.2 | __3113B | | __99 |
| Barium | X6010B | | __200.7 | | | | __99 |
| Beryllium | X6010B | | __200.7 | | | | __99 |
| Bismuth | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| Boron | __6010B | | __200.7 | | | | __99 |
| Cadmium | X6010B | __7131A [5] | __200.7 | __213.2 | | | __99 |
| Calcium | X6010B | | __200.7 | | | | __99 |
| Chromium | X6010B | __7191 [5] | __200.7 | __218.2 | | | __SS17 |
| Cobalt | X6010B | | __200.7 | | | | __99 |
| Copper | X6010B | __7211 [5] | __200.7 | __220.2 | | | __99 |
| Iron | X6010B | | __200.7 | | | | __99 |
| Lead | __6010B | __7421 [5] | __200.7 | __239.2 | __3113B | | __99 |
| Lithium | __6010B | __7430 [4] | __200.7 | | | __1620 | __99 |
| Magnesium | X6010B | | __200.7 | | | | __99 |
| Manganese | X6010B | | __200.7 | | | | __99 |
| Mercury | __7470A [3] | __7471A [3] | __245.1 [2] | __245.5 [2] | | | __99 |
| Molybdenum | __6010B | | __200.7 | | | | __99 |
| Nickel | X6010B | | __200.7 | | | | __99 |
| Potassium | X6010B | __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 | X6010B | __7761 [5] | __200.7 | __272.2 | | | __99 |
| Sodium | X6010B | __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 | X6010B | | __200.7 | | | | __99 |
| Zinc | X6010B | | __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 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -001 | B1HRH9 | Silver, Soluble | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Soluble | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Soluble | 58.1 | | UG/L | 3.0 | 1.0 |
| | | Beryllium, Soluble | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Soluble | 48600 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Soluble | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Soluble | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Soluble | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Soluble | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Soluble | 18.6 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Soluble | 4880 | | UG/L | 771 | 1.0 |
| | | Magnesium, Soluble | 15500 | | UG/L | 39.1 | 1.0 |
| | | Manganese, Soluble | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Soluble | 18000 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Soluble | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Soluble | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Soluble | 26.4 | | UG/L | 3.1 | 1.0 |
| | | Zinc, Soluble | 17.0 | | UG/L | 1.6 | 1.0 |
| -002 | B1HRJ0 | Silver, Total | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Total | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Total | 59.0 | | UG/L | 3.0 | 1.0 |
| | | Beryllium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Total | 48800 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Total | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Total | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Total | 32.4 | | UG/L | 6.4 | 1.0 |
| | | Copper, Total | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Total | 150 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Total | 4970 | | UG/L | 771 | 1.0 |
| | | Magnesium, Total | 15800 | | UG/L | 39.1 | 1.0 |
| | | Manganese, Total | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Total | 18400 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Total | 23.9 | | UG/L | 8.9 | 1.0 |
| | | Antimony, Total | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Total | 26.8 | | UG/L | 3.1 | 1.0 |
| | | Zinc, Total | 8.7 | | UG/L | 1.6 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -003 | B1HRH1 | Silver, Soluble | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Soluble | 55.4 | | UG/L | 23.6 | 1.0 |
| | | Barium, Soluble | 55.2 | | UG/L | 3.0 | 1.0 |
| | | Beryllium, Soluble | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Soluble | 48500 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Soluble | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Soluble | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Soluble | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Soluble | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Soluble | 25.2 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Soluble | 5670 | | UG/L | 771 | 1.0 |
| | | Magnesium, Soluble | 15500 | | UG/L | 39.1 | 1.0 |
| | | Manganese, Soluble | 5.3 | | UG/L | 3.2 | 1.0 |
| | | Sodium, Soluble | 21600 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Soluble | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Soluble | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Soluble | 24.9 | | UG/L | 3.1 | 1.0 |
| | | Zinc, Soluble | 286 | | UG/L | 1.6 | 1.0 |
| -004 | B1HRH2 | Silver, Total | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Total | 43.2 | | UG/L | 23.6 | 1.0 |
| | | Barium, Total | 56.1 | | UG/L | 3.0 | 1.0 |
| | | Beryllium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Total | 49000 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Total | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Total | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Total | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Total | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Total | 428 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Total | 5140 | | UG/L | 771 | 1.0 |
| | | Magnesium, Total | 15700 | | UG/L | 39.1 | 1.0 |
| | | Manganese, Total | 4.2 | | UG/L | 3.2 | 1.0 |
| | | Sodium, Total | 21700 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Total | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Total | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Total | 25.2 | | UG/L | 3.1 | 1.0 |
| | | Zinc, Total | 319 | | UG/L | 1.6 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -005 | B1HRJ3 | Silver, Soluble | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Soluble | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Soluble | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Beryllium, Soluble | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Soluble | 27.1 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Soluble | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Soluble | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Soluble | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Soluble | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Soluble | 16.1 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Soluble | 771 | u | UG/L | 771 | 1.0 |
| | | Magnesium, Soluble | 39.1 | u | UG/L | 39.1 | 1.0 |
| | | Manganese, Soluble | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Soluble | 41.4 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Soluble | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Soluble | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Soluble | 3.1 | u | UG/L | 3.1 | 1.0 |
| | | Zinc, Soluble | 3.3 | | UG/L | 1.6 | 1.0 |
| -006 | B1HRJ4 | Silver, Total | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Total | 30.3 | | UG/L | 23.6 | 1.0 |
| | | Barium, Total | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Beryllium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Total | 21.9 | u | UG/L | 21.9 | 1.0 |
| | | Cadmium, Total | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Total | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Total | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Total | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Total | 12.4 | | UG/L | 5.4 | 1.0 |
| | | Potassium, Total | 771 | u | UG/L | 771 | 1.0 |
| | | Magnesium, Total | 39.1 | u | UG/L | 39.1 | 1.0 |
| | | Manganese, Total | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Total | 34.8 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Total | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Total | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Total | 3.1 | u | UG/L | 3.1 | 1.0 |
| | | Zinc, Total | 2.4 | | UG/L | 1.6 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -007 | B1HRH5 | Silver, Soluble | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Soluble | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Soluble | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Beryllium, Soluble | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Soluble | 35.2 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Soluble | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Soluble | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Soluble | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Soluble | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Soluble | 5.4 | u | UG/L | 5.4 | 1.0 |
| | | Potassium, Soluble | 771 | u | UG/L | 771 | 1.0 |
| | | Magnesium, Soluble | 39.1 | u | UG/L | 39.1 | 1.0 |
| | | Manganese, Soluble | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Soluble | 47.4 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Soluble | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Soluble | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Soluble | 3.1 | u | UG/L | 3.1 | 1.0 |
| | | Zinc, Soluble | 11.0 | | UG/L | 1.6 | 1.0 |
| -008 | B1HRH6 | Silver, Total | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Total | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Total | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Beryllium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Total | 21.9 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Total | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Total | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Total | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Total | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Total | 5.4 | u | UG/L | 5.4 | 1.0 |
| | | Potassium, Total | 771 | u | UG/L | 771 | 1.0 |
| | | Magnesium, Total | 39.1 | u | UG/L | 39.1 | 1.0 |
| | | Manganese, Total | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Total | 41.8 | | UG/L | 25.1 | 1.0 |
| | | Nickel, Total | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Total | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Total | 3.1 | u | UG/L | 3.1 | 1.0 |
| | | Zinc, Total | 4.0 | | UG/L | 1.6 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| BLANK1 | 06L0165-MB1 | Silver, Total | 5.6 | u | UG/L | 5.6 | 1.0 |
| | | Aluminum, Total | 23.6 | u | UG/L | 23.6 | 1.0 |
| | | Barium, Total | 3.0 | u | UG/L | 3.0 | 1.0 |
| | | Beryllium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Calcium, Total | 22.4 | | UG/L | 21.9 | 1.0 |
| | | Cadmium, Total | 4.2 | u | UG/L | 4.2 | 1.0 |
| | | Cobalt, Total | 5.5 | u | UG/L | 5.5 | 1.0 |
| | | Chromium, Total | 6.4 | u | UG/L | 6.4 | 1.0 |
| | | Copper, Total | 2.2 | u | UG/L | 2.2 | 1.0 |
| | | Iron, Total | 5.4 | u | UG/L | 5.4 | 1.0 |
| | | Potassium, Total | 771 | u | UG/L | 771 | 1.0 |
| | | Magnesium, Total | 39.1 | u | UG/L | 39.1 | 1.0 |
| | | Manganese, Total | 3.2 | u | UG/L | 3.2 | 1.0 |
| | | Sodium, Total | 25.1 | u | UG/L | 25.1 | 1.0 |
| | | Nickel, Total | 8.9 | u | UG/L | 8.9 | 1.0 |
| | | Antimony, Total | 31.6 | u | UG/L | 31.6 | 1.0 |
| | | Vanadium, Total | 3.1 | u | UG/L | 3.1 | 1.0 |
| | | Zinc, Total | 13.7 | | UG/L | 1.6 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253

LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -001 | B1HRH9 | Silver, Soluble | 49.0 | 5.6 u | 50.0 | 98.0 | 1.0 |
| | | Aluminum, Soluble | 2000 | 23.6 u | 2000 | 100.2 | 1.0 |
| | | Barium, Soluble | 2000 | 58.1 | 2000 | 96.9 | 1.0 |
| | | Beryllium, Soluble | 48.1 | 0.20u | 50.0 | 96.2 | 1.0 |
| | | Calcium, Soluble | 72500 | 48600 | 25000 | 95.8 | 1.0 |
| | | Cadmium, Soluble | 46.4 | 4.2 u | 50.0 | 92.8 | 1.0 |
| | | Cobalt, Soluble | 487 | 5.5 u | 500 | 97.5 | 1.0 |
| | | Chromium, Soluble | 197 | 6.4 u | 200 | 98.3 | 1.0 |
| | | Copper, Soluble | 246 | 2.2 u | 250 | 98.3 | 1.0 |
| | | Iron, Soluble | 1010 | 18.6 | 1000 | 99.0 | 1.0 |
| | | Potassium, Soluble | 29700 | 4880 | 25000 | 99.3 | 1.0 |
| | | Magnesium, Soluble | 40400 | 15500 | 25000 | 99.7 | 1.0 |
| | | Manganese, Soluble | 484 | 3.2 u | 500 | 96.7 | 1.0 |
| | | Sodium, Soluble | 43100 | 18000 | 25000 | 100.2 | 1.0 |
| | | Nickel, Soluble | 495 | 8.9 u | 500 | 99.0 | 1.0 |
| | | Antimony, Soluble | 467 | 31.6 u | 500 | 93.3 | 1.0 |
| | | Vanadium, Soluble | 488 | 26.4 | 500 | 92.3 | 1.0 |
| | | Zinc, Soluble | 489 | 17.0 | 500 | 94.3 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -001REP | B1HRH9 | Silver, Soluble | 5.6 u | 5.6 u | NC | 1.0 |
| | | Aluminum, Soluble | 23.6 u | 23.6 u | NC | 1.0 |
| | | Barium, Soluble | 58.1 | 56.9 | 2.1 | 1.0 |
| | | Beryllium, Soluble | 0.20u | 0.20u | NC | 1.0 |
| | | Calcium, Soluble | 48600 | 47800 | 1.6 | 1.0 |
| | | Cadmium, Soluble | 4.2 u | 4.2 u | NC | 1.0 |
| | | Cobalt, Soluble | 5.5 u | 5.5 u | NC | 1.0 |
| | | Chromium, Soluble | 6.4 u | 6.4 u | NC | 1.0 |
| | | Copper, Soluble | 2.2 u | 2.2 u | NC | 1.0 |
| | | Iron, Soluble | 18.6 | 18.7 | 0.54 | 1.0 |
| | | Potassium, Soluble | 4880 | 4760 | 2.5 | 1.0 |
| | | Magnesium, Soluble | 15500 | 15500 | 0.13 | 1.0 |
| | | Manganese, Soluble | 3.2 u | 3.2 u | NC | 1.0 |
| | | Sodium, Soluble | 18000 | 18200 | 1.1 | 1.0 |
| | | Nickel, Soluble | 8.9 u | 17.7 | ~~NC~~ 200 | 1.0 |
| | | Antimony, Soluble | 31.6 u | 31.6 u | NC | 1.0 |
| | | Vanadium, Soluble | 26.4 | 25.5 | 3.5 | 1.0 |
| | | Zinc, Soluble | 17.0 | 3.4 | 133.3 | 1.0 |

error entry pw 4/11/06

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/07/06

CLIENT: TNUHANFORD RC-008 K0253 LVL LOT #: 0603L421

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

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 06L0165-LC1 | Silver, LCS | 486 | 500 | UG/L | 97.2 |
| | | Aluminum, LCS | 5060 | 5000 | UG/L | 101.2 |
| | | Barium, LCS | 4890 | 5000 | UG/L | 97.7 |
| | | Beryllium, LCS | 239 | 250 | UG/L | 95.6 |
| | | Calcium, LCS | 24500 | 25000 | UG/L | 98.0 |
| | | Cadmium, LCS | 244 | 250 | UG/L | 97.6 |
| | | Cobalt, LCS | 2470 | 2500 | UG/L | 98.8 |
| | | Chromium, LCS | 485 | 500 | UG/L | 96.9 |
| | | Copper, LCS | 1240 | 1250 | UG/L | 98.9 |
| | | Iron, LCS | 4920 | 5000 | UG/L | 98.5 |
| | | Potassium, LCS | 24200 | 25000 | UG/L | 96.8 |
| | | Magnesium, LCS | 24600 | 25000 | UG/L | 98.6 |
| | | Manganese, LCS | 727 | 750 | UG/L | 97.0 |
| | | Sodium, LCS | 24700 | 25000 | UG/L | 98.7 |
| | | Nickel, LCS | 1950 | 2000 | UG/L | 97.4 |
| | | Antimony, LCS | 2830 | 3000 | UG/L | 94.5 |
| | | Vanadium, LCS | 2340 | 2500 | UG/L | 93.6 |
| | | Zinc, LCS | 993 | 1000 | UG/L | 99.3 |

| Lionville Laboratory Use Only |
|---|
| 0603L421 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

See SRC

LVL

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client TNU-HANFORD SAF# RC-008

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 Days

Date Rec'd 3/4/06 Date Due 4/3/06

| | | AC | | | | | | | D | | E | F | G | H | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | 1 | | | | | | | 2 | | 1 | 2 | 2 | 2 | 1 |
| #/Type Container | Liquid | G | | | | | | | P | | P | P | P | P | G |
| | Solid | | | | | | | | | | | | | | |
| Volume | Liquid | 40 | | | | | | | 500 | | P | 500 | 500/250 | 500 | L |
| | Solid | | | | | | | | | | | | | | |
| Preservatives | | HCL | | | | | | | HNO3 | | — | — | — | H2SO4 | H2O4 |
| ANALYSES REQUESTED → | | ORGANIC: VOA | BNA | Pest/PCB | Herb | | | | INORG: TAL Metal | CN | IC Anions | TDS | ALK | NO2 NO3 | TOX |

Lionville Laboratory Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

| Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | 0624H | | | | | | MET(1) SO | MET(1) TO | | IC(1) | ITDS | TALKL | IN3N2 | ITOX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | B1HRH9(F) | | | W | 3-3-06 | 0957 | | | | | | | 1 | 1 | | | | | | |
| 002 | B1HRJ0 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 003 | B1HRH1(F) | | | | | 1159 | | | | | | | 1 | 1 | | | | | | |
| 004 | B1HRH2 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 005 | B1HRJ3(F) | | | | | 0845 | | | | | | | 1 | 1 | | | | | | |
| 006 | B1HRJ4 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 007 | B1HRH5(F) | | | | | 0800 | | | | | | | 1 | 1 | | | | | | |
| 008 | B1HRH6 | | | | | L | 3 | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 |
| 009 | B1HV48 | | | | | 0800 | 3 | | | | | | | | | | | | | |

Special Instructions:

MET(1) = Al, Ag, Ba, Be, Ca, Cr, Cd, Co, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

IC(1) = IC-Cl, Br, Fl, NO3, NO2, PO4, SO4

RUN MATRIX QC

DATE/REVISIONS:

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

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| FedEx | [signature] | 3/4/06 | 1000 |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |

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

0000000020

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-14

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H107B | Ice Chest No.: BRC-96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH9 (F) | | W | 3-3-06 | 0757 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ0 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ0 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ0 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| Relinquished By | Date/Time | Received By | Date/Time |
| | 3/4/06 1000 | | 3-4-06 1000 |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-8

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS- SAWS- H103B | Ice Chest No.: RC 96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH1 (F) | | W | 3-3-06 | 1159 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH2 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRH2 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRH2 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH2 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRH2 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| FED EX | 3-4-06 1000 | V. Hernandez | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # RC-008-17

Page 1 of 1

| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code: |
| Project Title: ERDF Groundwater Well Samples | DTS- SAWS- H103R | Ice Chest No.: ~~RC-96-833~~ Temp.: RC-96-833 |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No.: 79207331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No.: 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRJ3 (F) | | W | 3-3-06 | 0845 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRJ4 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B1HRJ4 | | W | | | 1x200-mL G/P | Alkalinity - 310.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x300-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL G/P | TDS - 160.1 | Cool 4C |
| B1HRJ4 | | W | | | 1x500-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 | FED EX | |
| Fed Ex | 3-4-06 1000 | | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-11

Page 1 of 1

| | | |
|---|---|---|
| Collector DURATEK R.T. SICKLE | Contact/Requester J Kessner | Telephone No. 509-375-4688 MSIN FAX |
| SAF No. RC-008 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title ERDF Groundwater Well Samples | DTS-SAW05-H103B | Ice Chest No. ~~SAW-443~~ 725 Temp. ERG 96-838 |
| Shipped To (Lab) Lionville Laboratory Incorporated | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. 7920 3331 5731 |
| Protocol GPP | Priority: 45 Days | Offsite Property No. 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HRH5 (F) | | W | 3-3-06 | 0800 | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | | | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P | ICP Metals - 6010B (TAL) | HNO3 to pH <2 |
| B1HRH6 | | W | | | 1x500-mL P 250ml DRS 3-3-06 | IC Anions - 300.0 | Cool 4C |
| B1HRH6 | | W | | | 1x~~200~~-mL G/P 500 DRS 3-3-06 | Alkalinity - 310.1 | Cool 4C |
| B1HRH6 | | W | | | 1x~~300~~-mL G/P | NO2/NO3 - 353.2 | H2SO4 to pH <2 Cool 4C |
| B1HRH6 | | W | | | 1x500-mL G/P 1000 DRS 3-3-06 | TDS - 160.1 | Cool 4C |
| B1HRH6 | | W | | | 1x~~500~~-mL aGs* | TOX - 9020 | H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| DURATEK R.T. SICKLE | [signature] | 3-3-06 | 1400 | FedEx | | | |
| Fed Ex | | 3-4-06 | 1000 | [signature] | | 3-4-06 | 1000 |
| | | | | | | | |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

000000024

PNNL

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-008-21



| | | |
|---|---|---|
| Collector: R.T. SICKLE | Contact/Requester: J Kessner | Telephone No.: 509-375-4688 MSIN FAX |
| SAF No.: RC-008 | Sampling Origin: Hanford Site | Purchase Order/Charge Code |
| Project Title: ERDF Groundwater Well Samples | DTS-SAWS-H1033 | Ice Chest No. ERC-96-833 Temp. |
| Shipped To (Lab): Lionville Laboratory Incorporated | Method of Shipment: Govt. Vehicle | Bill of Lading/Air Bill No. 7920 3331 5231 |
| Protocol: GPP | Priority: 45 Days | Offsite Property No. 16983 |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1HV48 | | W | 3-3-06 | 0800 | 3x40-mL aGs* | VOA - 8260B (TCL) | HCl or H2SO4 to pH <2 Cool 4C |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| R.T. SICKLE | MAR 0 3 2006 1400 | FED EX | |
| Fed Ex | 3-4-06 1000 | [signature] | 3-4-06 1000 |
| | | | |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

9Z0000000

# PARTS AND TOOLS RETURN (PTR) FORM
## PROJECT HANFORD, 2355 STEVENS DR., RICHLAND, WA 99354

**REFERENCE BUSINESS PROCESS GUIDE - MATERIAL RETURNS**

### SECTION A - Material Information

Company DURATEK Date 03/03/06

One of the following is **REQUIRED**:

PO/Release No.

Contract/Rel. No.

P-Card Log No.

Other

Contract Specialist Name: DOT STEWART

Phone Number: 509 373.7073

Material Coordinator/P-Card Holder Name

Phone Number

PTR No.: 16983

Total Pieces: 2

| Line Item No. | Quantity | U/M | Q Level | Description (Catalog ID No., S/N, Gov. Tag No.)/Include Reason for Return | Unit Price | Value |
|---|---|---|---|---|---|---|
| 1 | 2 | EA | | COOLER #ERC-96-833 WEIGHT; 75 LBS<br>COC # RC-008-11,-8,-17,-14,-21<br>COOLER #SAWS-335 WEIGHT; 57 LBS<br>COC # RC-008-3,-4,-22<br>SAMLPES CONTAIN RADIOACTIVE MATERIAL THAT DOES NOT MEET DOT LIMITS OR EXCEED LAB ACCEPTANCE CRITERIA. | 7920 3371 5231<br>7926 7630 4449 | |

### SECTION B - Financial Transaction Information

**Passport Purchase Order** Financial Transaction - Check One

- ☐ **Credit** - Return for Credit - PP Receipt Required
- ☐ **Replace** - Return for Replacement - PP Receipt Required
- ☐ **Inventory** - Return to PHMC Inventory
- ☐ **Return** - QA-Non-NCR Material (Credit)

*Requires identification of controlling Purchase Order, Contract, or PHMC Property Custodian accountable for the Govt. property in accordance with Regulations.

**Contract/P-Card/Other** - No Financial Transaction Created from PTR

- ☐ Credit - Contract/P-Card
- ☐ Repair
- ☐ Ship Supplier Owned Materials, Containers, Samples, etc.
- ☒ *Ship Govt. Owned Materials, Containers, Samples, etc.
- ☐ OTHER
- ☐ Core Charge - Return for Credit of Deposit
- ☐ Replace
- ☐ Ship Waste/Material for Disposal
- ☐ Over Shipment

### SECTION C - Hazardous Material Information

| | | |
|---|---|---|
| Hazardous Material | ☐ Yes* | ☒ No |
| Radioactive Material | ☒ Yes* | ☐ No |
| Rad. Control Survey | ☐ Yes | ☒ No |

*T&P Inspections (req'd) ☐ Yes ☒ No

Include appropriate shipping document. Radioactive Material is also Hazardous.

Certified Free of Contamination ☐ Yes ☒ No

Certifier's Name/Date

Custodian: R.T. SICKLE

Telephone: 509-373-7073

Current Location of Material:

Date Available to Ship: 3/3/06

### SECTION D - Vendor/Ship To Information

Ship To: LIONVILLE LAB
208 WELSH POOL ROAD
LIONVILLE, PA. 19341/133

Contractor

Contact: ORLETTE JOHNSON

Contact Phone: 610-280-3012

RA No.:

F.O.B.

| Item | % Cost | Cost Center | CACN | COA |
|---|---|---|---|---|
| ALL | 100 | D9T85 | 121981 | ES10 |

**SECTION E - Shipping Information** - To be completed by Shipping Department

Routing

B/L No.

B/L Wt.

Frt. Collect

Acct. No.

**SECTION F - OSD&D/Shipping Notice Information** - To be completed by Shipping/Procurement

By

Date Shipped

OSD&D No.

Shipping Notice No.

Receipt No.

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNW HANFORD

Date: 3-4-06

Purchase Order / Project# / SAF# / SOW# / Release #: RE-008

LvLI Batch # : 0603L421

Sample Custodian: V. Newman

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | | | |
|---|---|---|---|---|---|
| 1. | Samples Hand Delivered or Shipped | Carrier Fed Ex | | Airbill# 7920 3331 5231 | |
| 2. | Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | Comments |
| 3. | Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | | |
| 4. | All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | ☑ Yes | ☐ No | | |
| 5. | Samples received cooled or ambient? IR | Temp | °C | Cooler # | |
| 6. | Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals | |
| 7. | coc signed and dated? | ☑ Yes | ☐ No | | |
| 8. | Sample containers are intact? | ☑ Yes | ☐ No | | |
| 9. | All samples on coc received? All samples received on coc? | ☑ Yes | ☐ No | | |
| 10. | All sample label information matches coc? | ☑ Yes | ☐ No | | |
| 11. | Samples properly preserved? | ☑ Yes | ☐ No | | |
| 12. | Samples received within hold times? Short holds taken to wet lab? | ☑ Yes | ☐ No | | |
| 13. | VOA, TOC, TOX free of headspace? | ☐ Yes | ☑ No | ☐ N/A | Air Bubble |
| 14. | QC stickers placed on bottles designated by client? | ☐ Yes | ☐ No | ☑ N/A | |
| 15. | Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | 3-4-06 ☑ Yes | ☑ No | | |
| 16. | Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | ☑ Yes | ☐ No | ☐ No Discrepancies | |

SR-002-B

LVLI LIONVILLE LABORATORY INC.