H1201

0055064

FEB 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 RFW LOT # :0101L728

| CLIENT ID /ANALYSIS | RFW # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| B10R59 | | | | | | |
| BROMIDE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 002 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| B10R71 | | | | | | |
| BROMIDE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| BROMIDE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| BROMIDE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 004 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 004 REP | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 004 MS | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| B10R74 | | | | | | |
| BROMIDE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 RFW LOT # :0101L728

| CLIENT ID /ANALYSIS | RFW # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CHLORIDE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 006 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| B10R78 | | | | | | |
| BROMIDE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 008 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| B10R80 | | | | | | |
| BROMIDE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 010 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| B10R83 | | | | | | |
| BROMIDE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRITE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| NITRATE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |
| SULFATE BY IC | 012 | W | 01LIC004 | 01/02/01 | 01/17/01 | 01/17/01 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| BROMIDE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 RFW LOT # :0101L728

| CLIENT ID /ANALYSIS | RFW # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| BROMIDE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| CHLORIDE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| FLUORIDE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| NITRITE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| NITRITE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| NITRATE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| NITRATE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| PHOSPHATE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| SULFATE BY IC | MB1 | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |
| SULFATE BY IC | MB1 BS | W | 01LIC004 | N/A | 01/17/01 | 01/17/01 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD C01-009 H1201
**LVL#:** 0101L728

**W.O.#:** 01985-001-001-9999-00
**Date Received:** 01-10-01

**INORGANIC NARRATIVE**

As of 27 January 2001, Recra LabNet Philadelphia became Lionville Laboratory Inc. Some forms may still reference Recra LabNet Philadelphia.

1. This narrative covers the analyses of 6 water samples.

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

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate, Nitrite and Phosphate which were received past hold.

4. The cooler temperature was recorded on the chain of custody.

5. The method blanks were within the method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits.

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

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

for J. Michael Taylor
President
Lionville Laboratory Incorporated

02-13-01
Date

njp\i01-728

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 20 pages.

**Lionville Laboratory, Inc.**

## 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:** | |



L-WI-034/A-01/01

# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

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

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

## ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
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 Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/09/01

CLIENT: TNUHANFORD C01-009 H1201

LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -002 | B10R59 | Bromide by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Chloride by IC | 24.2 | MG/L | 2.5 | 10.0 |
| | | Fluoride by IC | 1.0 u | MG/L | 1.0 | 2.0 |
| | | Nitrite by IC | 3.28 | MG/L | 0.50 | 2.0 |
| | | Nitrate by IC | 28.6 | MG/L | 2.50 | 10.0 |
| | | Phosphate by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Sulfate by IC | 254 | MG/L | 12.5 | 50.0 |
| -004 | B10R71 | Bromide by IC | 1.2 u | MG/L | 1.2 | 5.0 |
| | | Chloride by IC | 26.0 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 2.5 u | MG/L | 2.5 | 5.0 |
| | | Nitrite by IC | 1.25 u | MG/L | 1.25 | 5.0 |
| | | Nitrate by IC | 6.57 | MG/L | 1.25 | 5.0 |
| | | Phosphate by IC | 1.2 u | MG/L | 1.2 | 5.0 |
| | | Sulfate by IC | 707 | MG/L | 50.0 | 200 |
| -006 | B10R74 | Bromide by IC | 0.51 | MG/L | 0.50 | 2.0 |
| | | Chloride by IC | 31.6 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 1.0 u | MG/L | 1.0 | 2.0 |
| | | Nitrite by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Nitrate by IC | 39.4 | MG/L | 1.25 | 5.0 |
| | | Phosphate by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Sulfate by IC | 218 | MG/L | 12.5 | 50.0 |
| -008 | B10R78 | Bromide by IC | 0.51 | MG/L | 0.50 | 2.0 |
| | | Chloride by IC | 30.0 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 1.0 u | MG/L | 1.0 | 2.0 |
| | | Nitrite by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Nitrate by IC | 39.7 | MG/L | 1.25 | 5.0 |
| | | Phosphate by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Sulfate by IC | 222 | MG/L | 12.5 | 50.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/09/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -010 | B10R80 | Bromide by IC | 0.80 | MG/L | 0.50 | 2.0 |
| | | Chloride by IC | 30.1 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 1.0 u | MG/L | 1.0 | 2.0 |
| | | Nitrite by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Nitrate by IC | 24.3 | MG/L | 1.25 | 5.0 |
| | | Phosphate by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Sulfate by IC | 327 | MG/L | 12.5 | 50.0 |
| -012 | B10R83 | Bromide by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Chloride by IC | 32.3 | MG/L | 1.2 | 5.0 |
| | | Fluoride by IC | 1.0 u | MG/L | 1.0 | 2.0 |
| | | Nitrite by IC | 1.25 u | MG/L | 1.25 | 5.0 |
| | | Nitrate by IC | 47.6 | MG/L | 1.25 | 5.0 |
| | | Phosphate by IC | 0.50 u | MG/L | 0.50 | 2.0 |
| | | Sulfate by IC | 148 | MG/L | 5.0 | 20.0 |

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/09/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| BLANK10 | 01LIC004-MB1 | 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 | 0.50 u | MG/L | 0.50 | 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 |

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 02/09/01

CLIENT: TNUHANFORD C01-009 M1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -004 | B10R71 | Bromide by IC | 24.5 | 1.0 | 25.0 | 93.7 | 5.0 |
| | | Chloride by IC | 74.0 | 26.0 | 50.0 | 96.0 | 10.0 |
| | | Fluoride by IC | 53.1 | 0.56 | 50.0 | 105.1 | 5.0 |
| | | Nitrite by IC | 25.0 | 1.25u | 25.0 | 100.0 | 5.0 |
| | | Nitrate by IC | 30.8 | 6.57 | 25.0 | 96.9 | 5.0 |
| | | Phosphate by IC | 23.7 | 1.2 u | 25.0 | 94.8 | 5.0 |
| | | Sulfate by IC | 1750 | 707 | 1000 | 104.4 | 200 |
| BLANK10 | 01LIC004-MB1 | Bromide by IC | 4.9 | 0.25u | 5.0 | 98.7 | 1.0 |
| | | Chloride by IC | 4.7 | 0.25u | 5.0 | 93.2 | 1.0 |
| | | Fluoride by IC | 10.5 | 0.50u | 10.0 | 105.3 | 1.0 |
| | | Nitrite by IC | 4.91 | 0.25u | 5.00 | 98.3 | 1.0 |
| | | Nitrate by IC | 4.75 | 0.25u | 5.00 | 95.0 | 1.0 |
| | | Phosphate by IC | 4.9 | 0.25u | 5.0 | 97.5 | 1.0 |
| | | Sulfate by IC | 4.8 | 0.25u | 5.0 | 96.9 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 02/09/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -004REP | B10R71 | Bromide by IC | 1.2 u | 1.2 u | NC | 5.0 |
| | | Chloride by IC | 26.0 | 23.5 | 10.1 | 5.0 |
| | | Fluoride by IC | 2.5 u | 2.5 u | NC | 5.0 |
| | | Nitrite by IC | 1.25u | 1.25u | NC | 5.0 |
| | | Nitrate by IC | 6.57 | 6.58 | 0.20 | 5.0 |
| | | Phosphate by IC | 1.2 u | 1.2 u | NC | 5.0 |
| | | Sulfate by IC | 707 | 696 | 1.6 | 200 |

RECRA LabNet Use Only

010/L728

# Custody Transfer Record/Lab Work Request

Page 1 of 2

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

RECRA LabNet

Client TNU HANFORD SAF C01-009

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager CJ

QC Spec Del Std TAT 30 day

Date Rec'd 1-10-01 Date Due 2-9-01

Account #

| | | A | B |
|---|---|---|---|
| Refrigerator # | | G | G |
| #/Type Container | Liquid | 1PL | 1PL |
| #/Type Container | Solid | | |
| Volume | Liquid | 500 | 500 |
| Volume | Solid | | |
| Preservatives | | HNO3 | — |
| ANALYSES REQUESTED | ORGANIC: VOA | | |
| | ORGANIC: BNA | | |
| | ORGANIC: Pest/PCB | | |
| | ORGANIC: Herb | | |
| | INORG: Metal | | |
| | INORG: CN | | |
| | INORG: Anions | | |
| RECRA LabNet Use Only | | Met ① | IC ① |

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 | Met ① | IC ① |
|---|---|---|---|---|---|---|---|---|
| 001 | B10R58 | | | W | 1-2-01 | 0949 | 1 | |
| 002 | 59 | | | | | ⊥ | | 1 |
| 003 | 70 | | | | | 0851 | 1 | |
| 004 | 71 | | | | | ⊥ | | 1 |
| 005 | 73 | | | | | 1024 | 1 | |
| 006 | 74 | | | | | ⊥ | | 1 |
| 007 | 77 | | | | | 1024 | 1 | |
| 008 | 78 | | | | | ⊥ | | 1 |
| 009 | 79 | | | | | 1109 | 1 | |
| 010 | 80 | | | | ⊥ | ⊥ | | 1 |

Special Instructions: SAF C01-009

Run Matrix QC

DATE/REVISIONS:

Met ① 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K-,

⊥ 2. Mg, Mn, Ni, Na, Sb, Sr, V-, Zn

IC ① 3. Br, Cl, F, NO2, NO3, PO4, SO4

4.

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See Below

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Labels Indicate Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

COC Tape was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 4.1 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 8214 8983 1864

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| Fed Ex | V. Bernard | 1-10-01 | 0940 |

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

RECRA LabNet Use Only

0101L728

# Custody Transfer Record/Lab Work Request



**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

RECRA LabNet

Client TMC-HANFORD SAF C01-009

Est. Final Proj. Sampling Date

Project #

Project Contact/Phone #

RECRA Project Manager

QC Del TAT

Date Rec'd Date Due

Account #

| | | A | B |
|---|---|---|---|
| Refrigerator # | | C | C |
| #/Type Container | Liquid | 1PL | 1PL |
| | Solid | | |
| Volume | Liquid | 500 | 500 |
| | Solid | | |
| Preservatives | | HNO3 | |

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN, Anions

RECRA LabNet 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 | Metal (1) | ICI (1) |
|---|---|---|---|---|---|---|---|---|
| 011 | BIOR 82 | | | 1-2-01 | 0945 | | 1 | |
| 012 | " 83 | | | " | " | | | 1 |

Special Instructions:

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

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| Fed Ex | P. Henry | 1-10-01 | 0940 |

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

0101L728

PNNL
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-12

Page 1 of 1

| | | |
|---|---|---|
| Collector: D. R. BREWINGTON | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING NOVEMBER 2000 | Logbook No.: WAM-SAW-H30 | Ice Chest No.: SML540 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT. VEHICLE | Bill of Lading/Air Bill No.: 4235795415 07 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
" "

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| | Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|---|
| 1 | B10R58 (F) | | W | 1/3/01 | 0949 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| 2 | B10R59 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| | B10R59 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| D. R. BREWINGTON | D. R. Brewington | for | 1-03-01 | Fed Ex | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | J R Corso | | JR Corso | 1-4-01 10:00 |
| Fed Ex | | | 1-10-01 0940 | [illegible] | | [illegible] | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liqui |
| 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

SDG : H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-23

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING NOVEMBER 2000 | Logbook No. WMSAWS-N 34 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT. VEHICLE | Bill of Lading/Air Bill No. 4235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| | Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|---|
| 3 ✓ | B10R70 (F) | | W | 1-2-01 | 0851 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| 1 ✓ | B10R71 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| ✓ | B10R71 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | D. E. PARCHEN | D. Parchen | 1-3-01 1200 | FED EX | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | JR Corso | | JR Corso | 1-4-01 10:00 |
| Fed Ex | | | 1-10-01 0940 | Vicki Hernandez | | | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liqui |
| 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
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-27



| | | |
|---|---|---|
| Collector: D. E. PARCHEN | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING, NOVEMBER 2000 | Logbook No.: WIN-SAWS-A31 | Ice Chest No.: ER40 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT. VEHICLE | Bill of Lading/Air Bill No.: 42357954 1529 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R73 (F) | | W | 1-2-01 | 1024 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R74 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R74 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | D. E. PARCHEN | [signature] | 1-3-01 1200 | FED EX | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | JR Corso | | [signature] | 1-4-01 10:00 |
| Fed Ex | | | 1-10-01 0940 | [signature] | | | 1-10-01 0940 |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liqui |
| 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
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-28

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING, NOVEMBER 2000 | Logbook No. WIN-SAWS-H39 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT. VEHICLE | Bill of Lading/Air Bill No. 4235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
" "

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R77 (F) | | W | 1-2-01 | 1024 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R78 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R78 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| D. E. PARCHEN | | DEP | 1-03-01 1200 | FED EX | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | JR Ebro | | JR Ebro | 1-4-01 10:12 |
| Fed Ex | | | 1-10-01 0940 | Patti Hennig | | Patti Hennig | 1-10-01 0940 |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-31

Page 1 of 1

| | | |
|---|---|---|
| Collector: D. E. PARCHEN | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING, NOVEMBER 2000 | Logbook No.: WM-SAWS-H 34 | Ice Chest No.: ER40 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT. VEHICLE | Bill of Lading/Air Bill No.: 4235795 4 1529 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R79 (F) | | W | 1-2-01 | 1109 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R80 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R80 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By (Print) | Sign | Date/Time | Received By (Print) | Sign | Date/Time |
|---|---|---|---|---|---|
| D. E. PARCHEN | D. E. Parchen | 1-03-01 1200 | FEDEX | | 1-3-01 |
| Fed Ex | | 1-4-01 10:00 | J.R. Conso | J.R. Conso | 1-4-01 10:00 |
| Fed Ex | | 1-10-01 0940 | Vicki Hernandez | | 1-10-01 0940 |
| | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-35

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING NOVEMBER 2000 | Logbook No. WIN-5176W5-N39 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT. VEHICLE | Bill of Lading/Air Bill No. 7235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| 1a B10R82 (F) | | W | 1-2-01 | 0945 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| b B10R83 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| c B10R83 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| D. E. PARCHEN | 1-3-01 1200 | FED EX | 1-3-01 |
| Fed Ex | 1-4-01 10:00 | J R Corso | 1-4-01 10:00 |
| Fed Ex | 1-10-01 0940 | Rick Hennely | 1-10-01 0940 |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG H1201

PAGE 1 | Thermo NUtech | CHAIN OF CUSTODY | ORD # R1-01-008

01/09/01 12:54:55 | WORK ID: SAF C01-009 SDG H1201

RCVD: 01/04/01 DUE: 02/18/01 | KEEP: 02/18/02 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS | | |
|---|---|---|---|---|---|
| 01A-W | R10R58 (F) | RECRA | DISPOS | E011 | |
| 02A-W | R10R59 | RECRA | DISPOS | E011 | E260 |
| 02B-W | R10R59 MS | RECRA | E011 | E260 | |
| 02C-W | R10R59 DUP | RECRA | E011 | E260 | |
| 03A-W | R10R70 (F) | RECRA | DISPOS | E011 | |
| 04A-W | R10R71 | RECRA | DISPOS | E011 | E260 |
| 05A-W | R10R73 (F) | RECRA | DISPOS | E011 | |
| 06A-W | R10R74 | RECRA | DISPOS | E011 | E260 |
| 07A-W | R10R77 (F) | RECRA | DISPOS | E011 | |
| 08A-W | R10R78 | RECRA | DISPOS | E011 | E260 |
| 09A-W | R10R79 (F) | RECRA | DISPOS | E011 | |
| 10A-W | R10R80 | RECRA | DISPOS | E011 | E260 |
| 11A-W | R10R82 (F) | RECRA | DISPOS | E011 | |
| 12A-W | R10R83 | RECRA | DISPOS | E011 | E260 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| E. Degnan | 01-09-01 | FEDERAL EXPRESS | 01-09-01 | | |
| | | | | | |
| | | | | | |
| | | | | | |

FEB 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| B10R58 | | | | | | |
| SILVER, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| SILVER, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| SILVER, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ALUMINUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| ALUMINUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ALUMINUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| BARIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| BARIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| BARIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| BERYLLIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| BERYLLIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| BERYLLIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CALCIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| CALCIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CALCIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CADMIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| CADMIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CADMIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| COBALT, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| COBALT, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| COBALT, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CHROMIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| CHROMIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| CHROMIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| COPPER, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| COPPER, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| COPPER, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| IRON, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| IRON, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| IRON, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| POTASSIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| POTASSIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| POTASSIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| MAGNESIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| MAGNESIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| MAGNESIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| MANGANESE, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| MANGANESE, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| MANGANESE, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| SODIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| SODIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| SODIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| NICKEL, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| NICKEL, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| NICKEL, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ANTIMONY, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| ANTIMONY, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ANTIMONY, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| STRONTIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| STRONTIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| STRONTIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| VANADIUM, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| VANADIUM, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| VANADIUM, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ZINC, TOTAL | 001 | W | 01L0019 | 01/02/01 | 01/19/01 | 02/12/01 |
| ZINC, TOTAL | 001 REP | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| ZINC, TOTAL | 001 MS | W | 01L0036 | 01/02/01 | 01/31/01 | 02/12/01 |
| B10R70 | | | | | | |
| SILVER, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ALUMINUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CALCIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CHROMIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| IRON, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| SODIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | 003 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| B10R73 | | | | | | |
| SILVER, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ALUMINUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CALCIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CHROMIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| IRON, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| SODIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | 005 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| B10R77 | | | | | | |
| SILVER, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ALUMINUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CALCIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CHROMIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| IRON, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| SODIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | 007 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| B10R79 | | | | | | |
| SILVER, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ALUMINUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CALCIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CHROMIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| IRON, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| SODIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | 009 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| B10R82 | | | | | | |
| SILVER, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| ALUMINUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CALCIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| CHROMIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| IRON, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| SODIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | 011 | W | 01L0019 | 01/02/01 | 01/19/01 | 01/24/01 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SILVER LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| SILVER, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| SILVER LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| SILVER, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ALUMINUM LABORTORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ALUMINUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ALUMINUM LABORTORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ALUMINUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| BARIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| BARIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| BARIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| BARIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| BERYLLIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| BERYLLIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| BERYLLIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| BERYLLIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CALCIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CALCIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| CALCIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CALCIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CADMIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| CADMIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| CADMIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CADMIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| COBALT LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| COBALT, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| COBALT LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| COBALT, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CHROMIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| CHROMIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| CHROMIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| CHROMIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| COPPER LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| COPPER, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| COPPER LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| COPPER, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| IRON LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| IRON, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| IRON LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| IRON, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| POTASSIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| POTASSIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| POTASSIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| POTASSIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| MAGNESIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| MAGNESIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| MAGNESIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| MAGNESIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| MANGANESE LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| MANGANESE, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| MANGANESE LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| MANGANESE, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| SODIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| SODIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| SODIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1201

DATE RECEIVED: 01/10/01 LVL LOT # :0101L728

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| SODIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| NICKEL LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| NICKEL, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| NICKEL LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| NICKEL, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ANTIMONY LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ANTIMONY, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ANTIMONY LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ANTIMONY, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| STRONTIUM LCS STANDA | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| STRONTIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| STRONTIUM LCS STANDA | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| STRONTIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| VANADIUM LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| VANADIUM, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| VANADIUM LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| VANADIUM, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ZINC LABORATORY | LC1 BS | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ZINC, TOTAL | MB1 | W | 01L0019 | N/A | 01/19/01 | 01/24/01 |
| ZINC LABORATORY | LC1 BS | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |
| ZINC, TOTAL | MB1 | W | 01L0036 | N/A | 01/31/01 | 02/12/01 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD C01-009
**LVL#:** 0101L728
**SDG/SAF#:** H1201/C01-009

**W.O.#:** 10985-001-001-9999-00
**Date Received:** 01-10-01

## METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.

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

   Matrix QC was missed in the original digestion. Therefore, sample B10R58R and B10R58S were digested in batch 01L0036. The sample, rep and spike were run in file TA0212B. This sample was reported with a ten fold dilution for Potassium due to the high concentration of this analyte.

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

4. All cooler temperatures have been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the final CCV for Cadmium in file TA0212B. All samples were surrounded by QC that was in control.

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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. The matrix spike (MS) recovery for 1 analyte was outside 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 29 pages.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

| Sample ID | Element | PDS Concentration (ppb) | PDS % Recovery |
|---|---|---|---|
| B10R58 | Potassium | 50,000 | 91.5 |

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

13. 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.

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.

15. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-16-01
Date

gmb/m01-728

# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 01011728

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: ✓3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

## Metals Analysis Methods

| | SW846 | | EPA | | STD MTD | EPA OSWR | USATHAMA |
|---|---|---|---|---|---|---|---|
| Aluminum | ✓6010B | | __200.7 | | | | __99 |
| Antimony | ✓6010B | __7041 [5] | __200.7 | __204.2 | | | __99 |
| Arsenic | __6010B | __7060A [5] | __200.7 | __206.2 | __3113B | | __99 |
| Barium | ✓6010B | | __200.7 | | | | __99 |
| Beryllium | ✓6010B | | __200.7 | | | | __99 |
| Bismuth | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| Boron | __6010B | | __200.7 | | | | __99 |
| Cadmium | ✓6010B | __7131A [5] | __200.7 | __213.2 | | | __99 |
| Calcium | ✓6010B | | __200.7 | | | | __99 |
| Chromium | ✓6010B | __7191 [5] | __200.7 | __218.2 | | | __SS17 |
| Cobalt | ✓6010B | | __200.7 | | | | __99 |
| Copper | ✓6010B | __7211 [5] | __200.7 | __220.2 | | | __99 |
| Iron | ✓6010B | | __200.7 | | | | __99 |
| Lead | __6010B | __7421 [5] | __200.7 | __239.2 | __3113B | | __99 |
| Lithium | __6010B | __7430 [4] | __200.7 | | | __1620 | __99 |
| Magnesium | ✓6010B | | __200.7 | | | | __99 |
| Manganese | ✓6010B | | __200.7 | | | | __99 |
| Mercury | __7470A [3] | __7471A [3] | __245.1 [2] | __245.5 [2] | | | __99 |
| Molybdenum | __6010B | | __200.7 | | | | __99 |
| Nickel | ✓6010B | | __200.7 | | | | __99 |
| Potassium | ✓6010B | __7610 [4] | __200.7 | __258.1 [4] | | | __99 |
| Rare Earths | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| Selenium | __6010B | __7740 [5] | __200.7 | __270.2 | __3113B | | __99 |
| Silicon | 3/3 2/14/4 __6010B [1] | | __200.7 | | | __1620 | __99 |
| Silica | ✓6010B | | __200.7 | | | __1620 | __99 |
| Silver | ✓6010B | __7761 [5] | __200.7 | __272.2 | | | __99 |
| Sodium | ✓6010B | __7770 [4] | __200.7 | __273.1 [4] | | | __99 |
| Strontium | ✓6010B | | __200.7 | | | | __99 |
| Thallium | __6010B | __7841 [5] | __200.7 | __279.2 | __200.9 | | __99 |
| Tin | __6010B | | __200.7 | | | | __99 |
| Titanium | __6010B | | __200.7 | | | | __99 |
| Uranium | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| Vanadium | ✓6010B | | __200.7 | | | | __99 |
| Zinc | ✓6010B | | __200.7 | | | | __99 |
| Zirconium | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |

Other:_____ Method:_____

L-WI-033/M-11/99

# 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, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. 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, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | B10R58 | Silver, Total | 1.1 u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 28.4 | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 50.9 | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 19600 | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 2.7 | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 0.63 | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 1.3 | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 64.5 | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 226000 | UG/L | 409 | 10.0 |
| | | Magnesium, Total | 10900 | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 52.6 | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 36800 | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 17.7 | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 3.4 | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 147 | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 2.4 | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 0.65 | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -003 | B10R70 | Silver, Total | 1.1 | u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 | u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 33.0 | | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 230000 | | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 | u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 29.7 | | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 16.6 | | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 7.4 | | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 | u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 17700 | | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 50500 | | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 6.1 | | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 95100 | | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 63.2 | | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 959 | | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 2.2 | | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 2.3 | | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -005 | B10R73 | Silver, Total | 1.1 | u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 | u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 40.7 | | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 82300 | | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.39 | | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 2.4 | | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 15.1 | | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 | u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 39500 | | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 20200 | | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 4.6 | | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 32300 | | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 5.1 | | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 402 | | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 2.8 | | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 1.1 | | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -007 | B10R77 | Silver, Total | 1.1 | | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 | u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 40.8 | | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 85900 | | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 | u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 1.9 | | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 14.0 | | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 | u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 39200 | | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 21200 | | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 4.3 | | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 33100 | | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 5.1 | | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 412 | | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 2.0 | | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 0.40 | u | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| -009 | B10R79 | Silver, Total | 1.4 | | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 | u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 33.7 | | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 114000 | | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.34 | | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 8.8 | | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 31.1 | | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 2.3 | | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 39.0 | | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 44400 | | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 24800 | | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 2.1 | | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 44500 | | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 21.4 | | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 448 | | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 3.3 | | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 2.9 | | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -011 | B10R82 | Silver, Total | 1.1 u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 54.4 | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 49000 | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 0.90 u | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 262 | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 0.90 u | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 86300 | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 15500 | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 5.3 | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 19400 | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 0.90 u | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 296 | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 5.8 | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 0.96 | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| BLANK1 | 01L0019-MB1 | Silver, Total | 1.1 | u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 22.7 | u | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 19.2 | u | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 | u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 0.60 | u | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 | u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 40.9 | u | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 6.7 | u | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 4.1 | u | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 0.80 | u | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 0.53 | | UG/L | 0.40 | 1.0 |
| BLANK1 | 01L0036-MB1 | Silver, Total | 1.1 | u | UG/L | 1.1 | 1.0 |
| | | Aluminum, Total | 29.2 | | UG/L | 22.7 | 1.0 |
| | | Barium, Total | 1.6 | | UG/L | 0.20 | 1.0 |
| | | Beryllium, Total | 0.10 | u | UG/L | 0.10 | 1.0 |
| | | Calcium, Total | 29.2 | | UG/L | 19.2 | 1.0 |
| | | Cadmium, Total | 0.30 | u | UG/L | 0.30 | 1.0 |
| | | Cobalt, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Chromium, Total | 0.60 | u | UG/L | 0.60 | 1.0 |
| | | Copper, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Iron, Total | 21.8 | u | UG/L | 21.8 | 1.0 |
| | | Potassium, Total | 40.9 | u | UG/L | 40.9 | 1.0 |
| | | Magnesium, Total | 9.8 | | UG/L | 6.7 | 1.0 |
| | | Manganese, Total | 0.20 | u | UG/L | 0.20 | 1.0 |
| | | Sodium, Total | 71.3 | | UG/L | 4.1 | 1.0 |
| | | Nickel, Total | 0.90 | u | UG/L | 0.90 | 1.0 |
| | | Antimony, Total | 2.3 | u | UG/L | 2.3 | 1.0 |
| | | Strontium, Total | 0.16 | | UG/L | 0.10 | 1.0 |
| | | Vanadium, Total | 0.80 | u | UG/L | 0.80 | 1.0 |
| | | Zinc, Total | 1.1 | | UG/L | 0.40 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -001 | B10R58 | Silver, Total | 50.9 | 1.1 u | 50.0 | 101.8 | 1.0 |
| | | Aluminum, Total | 2200 | 28.4 | 2000 | 108.6 | 1.0 |
| | | Barium, Total | 2100 | 50.9 | 2000 | 102.6 | 1.0 |
| | | Beryllium, Total | 52.2 | 0.10u | 50.0 | 104.4 | 1.0 |
| | | Calcium, Total | 47200 | 19600 | 25000 | 110.4 | 1.0 |
| | | Cadmium, Total | 50.6 | 0.30u | 50.0 | 101.2 | 1.0 |
| | | Cobalt, Total | 516 | 2.7 | 500 | 102.7 | 1.0 |
| | | Chromium, Total | 205 | 0.63 | 200 | 102.0 | 1.0 |
| | | Copper, Total | 256 | 1.3 | 250 | 101.8 | 1.0 |
| | | Iron, Total | 1090 | 64.5 | 1000 | 102.7 | 1.0 |
| | | Potassium, Total | 258000 | 226000 | 25000 | 129.4* | 10.0 |
| | | Magnesium, Total | 37900 | 10900 | 25000 | 108.0 | 1.0 |
| | | Manganese, Total | 580 | 52.6 | 500 | 105.6 | 1.0 |
| | | Sodium, Total | 65300 | 36800 | 25000 | 113.9 | 1.0 |
| | | Nickel, Total | 524 | 17.7 | 500 | 101.2 | 1.0 |
| | | Antimony, Total | 532 | 3.4 | 500 | 105.8 | 1.0 |
| | | Strontium, Total | 1200 | 147 | 1000 | 105.7 | 1.0 |
| | | Vanadium, Total | 521 | 2.4 | 500 | 103.6 | 1.0 |
| | | Zinc, Total | 526 | 0.65 | 500 | 105.1 | 1.0 |

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -001REP | B10R58 | Silver, Total | 1.1 u | 1.1 u | NC | 1.0 |
| | | Aluminum, Total | 28.4 | 74.7 | 89.8 | 1.0 |
| | | Barium, Total | 50.9 | 54.2 | 6.3 | 1.0 |
| | | Beryllium, Total | 0.10u | 0.16 | ~~NC~~ 200 | 1.0 |
| | | Calcium, Total | 19600 | 21200 | 7.8 | 1.0 |
| | | Cadmium, Total | 0.30u | 0.30u | NC | 1.0 |
| | | Cobalt, Total | 2.7 | 2.4 | 11.8 | 1.0 |
| | | Chromium, Total | 0.63 | 0.60u | ~~NC~~ 200 | 1.0 |
| | | Copper, Total | 1.3 | 1.4 | 7.4 | 1.0 |
| | | Iron, Total | 64.5 | 69.9 | 8.0 | 1.0 |
| | | Potassium, Total | 226000 | 229000 | 1.1 | 10.0 |
| | | Magnesium, Total | 10900 | 11600 | 6.9 | 1.0 |
| | | Manganese, Total | 52.6 | 56.4 | 7.0 | 1.0 |
| | | Sodium, Total | 36800 | 39300 | 6.7 | 1.0 |
| | | Nickel, Total | 17.7 | 19.1 | 7.6 | 1.0 |
| | | Antimony, Total | 3.4 | 2.4 | 34.5 | 1.0 |
| | | Strontium, Total | 147 | 156 | 6.4 | 1.0 |
| | | Vanadium, Total | 2.4 | 2.8 | 15.4 | 1.0 |
| | | Zinc, Total | 0.65 | 1.6 | 84.4 | 1.0 |

YJB 2/10/01

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/15/01

CLIENT: TNUHANFORD C01-009 H1201 LVL LOT #: 0101L728

WORK ORDER: 10985-001-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 01L0019-LC1 | Silver, LCS | 504 | 500 | UG/L | 100.7 |
| | | Aluminum, LCS | 5050 | 5000 | UG/L | 101.1 |
| | | Barium, LCS | 4940 | 5000 | UG/L | 98.8 |
| | | Beryllium, LCS | 246 | 250 | UG/L | 98.5 |
| | | Calcium, LCS | 24400 | 25000 | UG/L | 97.4 |
| | | Cadmium, LCS | 247 | 250 | UG/L | 98.8 |
| | | Cobalt, LCS | 2480 | 2500 | UG/L | 99.0 |
| | | Chromium, LCS | 492 | 500 | UG/L | 98.5 |
| | | Copper, LCS | 1230 | 1250 | UG/L | 98.7 |
| | | Iron, LCS | 4940 | 5000 | UG/L | 98.8 |
| | | Potassium, LCS | 25900 | 25000 | UG/L | 103.5 |
| | | Magnesium, LCS | 25300 | 25000 | UG/L | 101.3 |
| | | Manganese, LCS | 759 | 750 | UG/L | 101.2 |
| | | Sodium, LCS | 24700 | 25000 | UG/L | 99.0 |
| | | Nickel, LCS | 1970 | 2000 | UG/L | 98.5 |
| | | Antimony, LCS | 3020 | 3000 | UG/L | 100.5 |
| | | Strontium, LCS | 4970 | 5000 | UG/L | 99.4 |
| | | Vanadium, LCS | 2520 | 2500 | UG/L | 100.8 |
| | | Zinc, LCS | 995 | 1000 | UG/L | 99.5 |
| LCS1 | 01L0036-LC1 | Silver, LCS | 509 | 500 | UG/L | 101.8 |
| | | Aluminum, LCS | 5230 | 5000 | UG/L | 104.6 |
| | | Barium, LCS | 4990 | 5000 | UG/L | 99.8 |
| | | Beryllium, LCS | 257 | 250 | UG/L | 102.6 |
| | | Calcium, LCS | 25400 | 25000 | UG/L | 101.8 |
| | | Cadmium, LCS | 258 | 250 | UG/L | 103.3 |
| | | Cobalt, LCS | 2580 | 2500 | UG/L | 103.1 |
| | | Chromium, LCS | 512 | 500 | UG/L | 102.4 |
| | | Copper, LCS | 1240 | 1250 | UG/L | 99.6 |
| | | Iron, LCS | 5120 | 5000 | UG/L | 102.3 |
| | | Potassium, LCS | 25400 | 25000 | UG/L | 101.6 |
| | | Magnesium, LCS | 26200 | 25000 | UG/L | 104.6 |
| | | Manganese, LCS | 786 | 750 | UG/L | 104.8 |
| | | Sodium, LCS | 24400 | 25000 | UG/L | 97.7 |
| | | Nickel, LCS | 2040 | 2000 | UG/L | 102.1 |
| | | Antimony, LCS | 3080 | 3000 | UG/L | 102.8 |
| | | Strontium, LCS | 4970 | 5000 | UG/L | 99.4 |
| | | Vanadium, LCS | 2580 | 2500 | UG/L | 103.4 |
| | | Zinc, LCS | 1030 | 1000 | UG/L | 103.2 |

RECRA LabNet Use Only

010/L728

# Custody Transfer Record/Lab Work Request

Page 1 of 2

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

RECRA LabNet

Client TNU HANFORD SAF C01-009

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager DJ

QC Spec Del Std TAT 30 day

Date Rec'd 1-10-01 Date Due 2-9-01

Account #

| | | A | B |
|---|---|---|---|
| Refrigerator # | | G | G |
| #Type Container | Liquid | 1PL | 1PL |
| | Solid | | |
| Volume | Liquid | 500 | 500 |
| | Solid | | |
| Preservatives | | HNO3 | — |
| ANALYSES REQUESTED | ORGANIC: VOA, BNA, Pest/PCB, Herb | INORG: Metal, CN | Anions |

RECRA LabNet 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 | Metal | CN | Anions |
|---|---|---|---|---|---|---|---|---|---|
| 001 | B10R58 | | | W | 1-2-01 | 0949 | 1 | | |
| 002 | 59 | | | | | 1 | | | 1 |
| 003 | 70 | | | | | 0851 | 1 | | |
| 004 | 71 | | | | | 1 | | | 1 |
| 005 | 73 | | | | | 1024 | 1 | | |
| 006 | 74 | | | | | 1 | | | 1 |
| 007 | 77 | | | | | 1024 | 1 | | |
| 008 | 78 | | | | | 1 | | | 1 |
| 009 | 79 | | | | | 1109 | 1 | | |
| 010 | 80 | | | | | 1 | | | 1 |

Special Instructions: SAF C01-009

Run Matrix QC

DATE/REVISIONS:

Met① 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K,

1 2. Mg, Mn, Ni, Na, Sb, Se, V, Zn

IC① 3. Br, Cl, F, NO2, NO3, PO4, SO4

4.

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # See Below

2) Ambient or Chilled

3) Received In Good Condition (Y) or N

4) Labels Indicate Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

COC Tape was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 4.1 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| Fed Ex | V. Bernard | 1-10-01 | 0940 |

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

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 8214 8983 1864

Met (Y) or (N) 1-12-01

RECRA LabNet Use Only

01011728

# Custody Transfer Record/Lab Work Request



**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

RECRA LabNet

Client: 200-HANFORD SAF C01-009

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del TAT

Date Rec'd: Date Due:

Account #:

| | | A | B |
|---|---|---|---|
| Refrigerator # | | | |
| #/Type Container | Liquid | 6 | 6 |
| | Solid | 1PL | 1PL |
| Volume | Liquid | 500 | 500 |
| | Solid | | |
| Preservatives | | NaOH | |
| ANALYSES REQUESTED | ORGANIC: VOA | | |
| | ORGANIC: BNA | | |
| | ORGANIC: Pest/PCB | | |
| | ORGANIC: Herb | | |
| | INORG: Metal | Pb (1) | |
| | INORG: CN | | |
| | INORG: Anions | | TOC (1) |

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 | RECRA LabNet Use Only: Pb | TOC |
|---|---|---|---|---|---|---|---|---|
| 011 | B10R 82 | | | 1-2-01 | 0945 | | 1 | |
| 012 | " 83 | | | " | " | | | 1 |

Special Instructions:

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

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered
Airbill # See
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [illegible] | [illegible] | 1-10-01 | 0940 |

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

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

01017728

PNNL
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-12

Page 1 of 1

| | | |
|---|---|---|
| Collector: D. R. BREWINGTON | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING NOVEMBER 2000 | Logbook No.: WM-SAW-H28 | Ice Chest No.: SML540 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT VEHICLE | Bill of Lading/Air Bill No.: 4235795415 07 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
" "

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| | Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|---|
| 1 | B10R58 (F) | | W | 1/2/01 | 0949 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| 2 | B10R59 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| | B10R59 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By (Print / Sign) | Date/Time | Received By (Print / Sign) | Date/Time |
|---|---|---|---|
| D. R. BREWINGTON D. R. Brewington for | 1-03-01 (2:00) | Fed Ex | 1-3-01 |
| Fed Ex | 1-4-01 10:00 | J R Corso | 1-4-01 10:00 |
| Fed Ex | 1-10-01 0940 | [signature] | 1-10-01 0940 |
| | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG : H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-23

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING NOVEMBER 2000 | Logbook No. WMSAWS-N 34 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT VEHICLE | Bill of Lading/Air Bill No. 4235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| 3 B10R70 (F) | | W | 1-2-01 | 0851 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| 1 B10R71 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| 2 B10R71 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | D. E. PARCHEN | D. E. Parchen | 1-3-01 1200 | FED EX | | | 1-3-01 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-4-01 10:00 | JR Corso | | JR Corso | 1-4-01 10:00 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-10-01 0940 | Vicki Hernandez | | | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | Wt = 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
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-27

Page 1 of 1

| | | |
|---|---|---|
| Collector: D. E. PARCHEN | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING, NOVEMBER 2000 | Logbook No.: WIM-SAWS-H 30 | Ice Chest No.: ER40 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT. VEHICLE | Bill of Lading/Air Bill No.: 42357954 1529 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| 5 B10R73 (F) | | W | 1-2-01 | 1024 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| 3 B10R74 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| 2 B10R74 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | D. E. PARCHEN | DEParchen | 1200 1-3-01 | | FED EX | | 1-3-01 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-4-01 10:00 | JR Corso | | JRCorso | 1-4-01 10:00 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-10-01 0940 | | | | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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
SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-28

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING NOVEMBER 2000 | Logbook No. WIN-SAWS-H39 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT. VEHICLE | Bill of Lading/Air Bill No. 4235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R77 (F) | | W | 1-2-01 | 1024 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R78 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R78 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| D. E. PARCHEN | | DEParchen | 1-03-01 1200 | FED EX | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | JR Eovao | | JR Eovao | 1-4-01 10:42 |
| Fed Ex | | | 1-10-01 0940 | Patti Kennedy | | Patti Kennedy | 1-10-01 0940 |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-31

Page 1 of 1

| | | |
|---|---|---|
| Collector: D. E. PARCHEN | Contact/Requester: JH KESSNER | Telephone No.: (509) 375-4688 MSIN FAX |
| SAF No.: C01-009 | Sampling Origin: HANFORD SITE | Purchase Order/Charge Code |
| Project Title: ISRM GW MONITORING, NOVEMBER 2000 | Logbook No.: WM-SAWS-H 39 | Ice Chest No.: ER40 Temp. |
| Shipped To (Lab): TMA/RECRA | Method of Shipment: GOVT. VEHICLE | Bill of Lading/Air Bill No.: 4235755 4 1529 |
| Protocol: CERCLA | Data Turnaround: 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R79 (F) | | W | 1-2-01 | 1109 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R80 | | W | ↓ | ↓ | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R80 | | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| D. E. PARCHEN | | D. E. Parchen | 1-03-01 1200 | FEDEX | | | 1-3-01 |
| Fed Ex | | | 1-4-01 10:00 | JR Corso | | JR Corso | 1-4-01 10:00 |
| Fed Ex | | | 1-10-01 0940 | Vicki Hernandez | | | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liqui | |
| 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

SDG: H1201

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-009-35

Page 1 of 1

| | | |
|---|---|---|
| Collector D. E. PARCHEN | Contact/Requester JH KESSNER | Telephone No. (509) 375-4688 MSIN FAX |
| SAF No. C01-009 | Sampling Origin HANFORD SITE | Purchase Order/Charge Code |
| Project Title ISRM GW MONITORING NOVEMBER 2000 | Logbook No. WIN-SAWS-N39 | Ice Chest No. ER40 Temp. |
| Shipped To (Lab) TMA/RECRA | Method of Shipment GOVT. VEHICLE | Bill of Lading/Air Bill No. 4235 7954 1529 |
| Protocol CERCLA | Data Turnaround 45 Days | Offsite Property No. |

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B10R82 (F) | | W | 1-2-01 | 0945 | 1x500-mL G/P | ICP Metals - 6010A RCRA GW | HNO3 to pH <2 |
| B10R83 | | W | | | 1x500-mL P | IC Anions - 300.0 | Cool 4C |
| B10R83 | | W | | | 1x20-mL P | Activity Scan | None |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | D. E. PARCHEN | [signature] | 1200 1-3-01 | FED EX | | | 1-3-01 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-4-01 10:00 | J R Corso | | [signature] | 1-4-01 10:00 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Fed Ex | | | 1-10-01 0940 | [signature] | | | 1-10-01 0940 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liqui |
| 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