Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

May 29, 2009

Mr. Michael Thomas
Uranerz Energy Corporation
1701 East "E" Street
P.O. Box 50850
Casper, WY 82605-0850

**RE: Nichols Ranch In Situ Recovery Mining Permit Application, TFN 4 2/284**

Dear Mr. Thomas:

Enclosed is a review memo containing comments from the Land Quality Division Cheyenne staff's review of the above application. The memo concerns the hydrology data submitted digitally.

This memo should have been submitted on April 9, 2009, with the consolidated review memo, but I forgot it. Sorry about that.

If you have any questions concerning any comment in this memo, please feel free to contact me or Matt Kunz in Cheyenne at 307-777-7055.

Sincerely,

Glenn Mooney
Senior Geologist

\gm

Enclosure

Cc: Cheyenne File
NRC-MD w/enc.

Urandatarvmemevlet.9gm

NRC-MD

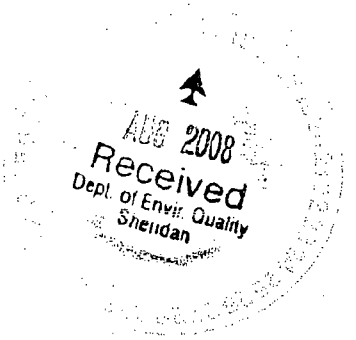
1866 SOUTH SHERIDAN AVENUE • SHERIDAN, WY 82801
AIR, LAND AND WATER DIVISIONS
(307) 673-9337 • FAX (307) 672-2213

# MEMORANDUM

**TO:** Glenn Mooney, Geological Project Analyst

**FROM:** Matt Kunze, Scientist 2 MK

**THROUGH:** Kathy Muller Ogle, Geological Supervisor KMO




**DATE:** August 8, 2008

**SUBJECT:** Baseline Hydrologic Monitoring Data Submitted Electronically for Nichols Ranch ISR Project (TFN 4 2/284)

The purpose of this memo is provide comments on data and formatting problems with the baseline hydrologic data submitted electronically by Uranerz Energy Corporation for the Nichols Ranch ISR Project (LQD TFN 4 2/284).

1. Lab water quality data were submitted on a total of 40 Excel files for each monitoring well in the Nichols Ranch and Hank units. Please consolidate the data for each well/sample date into a single file and spreadsheet for each unit.

2. Please use the preferred list of parameter names. For example, LQD prefers parameters be abbreviated according to the element symbol (i.e., DISSOLVED AL instead of Metals-Dissolved – Aluminum).

3. Please eliminate empty rows and cells within the spreadsheet so each row contains a complete record of data. For example, the MINE_NAME, SAMPLE_STATION_NAME, SAMP_DATE, and LAB_BOTTLE_ID fields should be filled in for each row that has an entry for PARAMETER_NAME and PARAMETER_VALUE.

4. Please provide the laboratory detection limit used for parameters that were reported as "ND." LQD stores the value of the detection limit, even if a parameter is reported as not detected by the lab. LQD prefers the non-detect values be reported as negative numbers (i.e., -0.001).

   In order to ensure that the baseline data and future data submissions are in the preferred format, LQD staff in Cheyenne (Kathy Muller Ogle and Matt Kunze) are available to work with Energy Laboratories, Inc on formatting issues. An example of lab water quality data in the preferred format (see attached Tables 1 and 2), and a current list of the preferred parameter names (see attached Table 3) will be provided to the laboratory.

5. Groundwater level data submitted in the file **NR DEQ_WL Mar08.xls** show two different water elevations on the same sample date for nearly every well. It appears that two different measuring point elevations have been used to subtract the depth to water

reading. Please verify which set of data are correct and also verify that the correct ground surface and measuring point elevations have been provided for each well in the Hank and Nichols Ranch units.

6. Please submit the station site information for the surface water monitoring stations that are being used for baseline and those that will be monitored during mining. An Excel spreadsheet template for surface water stations will soon be available on the LQD website, http://deq.state.wy.us/lqd/Uranium_Data.htm. A copy of this file is also attached to this memo. Also, please submit the baseline field and lab water quality data for the surface water stations shown in *Table D6A.1-1 Surface Water Quality* on page D6A.1-1. A separate spreadsheet (also attached and on the LQD website) can be used to submit surface water flow data if this type of monitoring will occur.

cc: Mark Taylor, District 3
Josh Malmberg, District 3
LQD District 3 - TFN 4 2/284 - Correspondence
LQD Cheyenne Office - TFN 4 2/284 - Correspondence

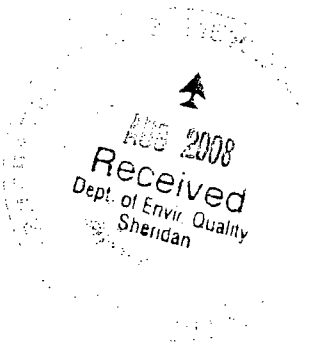


Table 1. *Example of lab water quality data as originally submitted for well N1,11894*

| MINE_NAME | SAMP_STATION_NAME | SAMP_DATE | PARAMETER_NAME | Units | PARAMETER_VALUE | LAB_COMP_NAME | LAB_BOTTLE_ID | ANALYSIS_DATE | ANALYTICAL_METHOD | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| Nichols Ranch | 11894 Well | 11/16/2006 | Conductivity | umhos/cm | 509 | Energy Laboratories | C06110808-002 | 11/18/06 | A2510 B | |
| | | | pH | s.u. | 8.11 | | | 11/18/06 | A4500-H B | |
| | | | Solids, Total Dissolved @ 180 °C | mg/L | 298 | | | 11/20/06 | A2540 C | |
| | | | | | | | | | | |
| | | | **Major Ions** | | | | | | | |
| | | | Carbonate as $CO_3$ | mg/L | ND | | | 11/20/06 | A2320 B | |
| | | | Bicarbonate as $HCO_3$ | mg/L | 152 | | | 11/20/06 | A2320 B | |
| | | | Calcium | mg/L | 7 | | | 11/30/06 | E200.7 | |
| | | | Chloride | mg/L | 5 | | | 11/20/06 | A4500-Cl B | |
| | | | Fluoride | mg/L | 0.03 | | | 11/20/06 | A4500-F C | |
| | | | Magnesium | mg/L | ND | | | 11/30/06 | E200.7 | |
| | | | Nitrogen, Ammonia as N | | ND | | | 11/20/06 | A4500-NH3 G | |
| | | | Nitrogen, Nitrate+Nitrite as N | mg/L | ND | | | 11/20/06 | E353.2 | |
| | | | Potassium | mg/L | 2 | | | 11/30/06 | E200.7 | |
| | | | Silica | mg/L | 6.9 | | | 11/30/06 | E200.7 | |
| | | | Sodium | mg/L | 100 | | | 11/30/06 | E200.7 | |
| | | | Sulfate | mg/L | 104 | | | 11/21/06 | E200.7 | |
| | | | | | | | | | | |
| | | | **Metals - Dissolved** | | | | | | | |
| | | | Aluminum | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Arsenic | mg/L | 0.004 | | | 11/20/06 | E200.8 | |
| | | | Barium | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Boron | mg/L | ND | | | 11/30/06 | E200.7 | |
| | | | Cadmium | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Chromium | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Copper | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Iron | mg/L | ND | | | 11/30/06 | E200.7 | |
| | | | Lead | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Manganese | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Mercury | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Molybdenum | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Nickel | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Selenium | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Uranium | mg/L | 0.0301 | | | 11/20/06 | E200.8 | |
| | | | Vanadium | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | Zinc | mg/L | ND | | | 11/20/06 | E200.8 | |
| | | | | | | | | | | |
| | | | **Metals - Total** | | | | | | | |
| | | | Iron | mg/L | ND | | | 11/30/06 | E200.7 | |
| | | | Manganese | mg/L | ND | | | 11/30/06 | E200.7 | |
| | | | | | | | | | | |
| | | | **Radionuclides - Dissolved** | | | | | | | |
| | | | Gross Alpha | pCi/L | 22.3 | | | 12/07/06 | E900.0 | |
| | | | Gross Alpha precision (+) | pCi/L | 1.1 | | | 12/07/06 | E900.0 | |
| | | | Gross Beta | pCi/L | 6.6 | | | 12/07/06 | E900.0 | |
| | | | Gross Beta precision (+) | pCi/L | 1.6 | | | 12/07/06 | E900.0 | |
| | | | Radium 226 | pCi/L | ND | | | 12/08/06 | E903.0 | |
| | | | Radium 228 | pCi/L | ND | | | 12/04/06 | RA-05 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | **Data Quality** | | | | | | | |
| | | | A/C Balance (±5) | % | -0.015 | | | 12/04/06 | Calculation | |
| | | | Anions | meq/L | 4.81 | | | 12/04/06 | Calculation | |
| | | | Cations | meq/L | 4.81 | | | 12/04/06 | Calculation | |
| | | | Solids, Total Dissolved Calculated | mg/L | 301 | | | 12/04/06 | Calculation | |
| | | | TDS Balance (0.80-1.20) | dec. % | 990 | | | 12/04/06 | Calculation | |

Table 2. Reformatted lab water quality data for well N1,11894. Note values for "ND" were entered from Table D6E-1 from Volume III-Appendix D-6 of the permit application. ND values for total metals (Fe & Mn) could not be located

| MINE_NAME | SAMP_STATION_NAME | SAMP_DATE | PARAMETER_NAME | PARAMETER_VALUE | LAB_COMP_NAME | LAB_BOTTLE_ID | ANALYSIS_DATE | ANALYTICAL_METHOD | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | SP CONDUCTANCE AT 25 C | 509 | ENERGY LABORATORIES | C06110808-002 | 11/18/2006 | A2510 B | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | PH | 8.11 | ENERGY LABORATORIES | C06110808-002 | 11/18/2006 | A4500-H B | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | TDS DRIED AT 180 C | 298 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A2540 C | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | CO3 AS CO3 | -1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A2320 B | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | HCO3 AS HCO3 | 152 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A2320 B | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED CA | 7 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED CL | 5 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A4500-Cl B | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED F | 0.03 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A4500-F C | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED MG | -1 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED NH3 AS N | -0.05 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | A4500-NH3 G | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED NO2 + NO3 AS N | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E353.2 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED K | 2 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED SI | 6.9 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED NA | 100 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED SO4 | 104 | ENERGY LABORATORIES | C06110808-002 | 11/21/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED AL | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED AS | 0.004 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED BA | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED B | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED CD | -0.005 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED CR | -0.05 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED CU | -0.01 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED FE | -0.03 | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED PB | -0.001 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED MN | -0.01 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED HG | -0.001 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED MO | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED NI | -0.05 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED SE | -0.001 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED U | 0.0301 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED V | -0.1 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | DISSOLVED ZN | -0.01 | ENERGY LABORATORIES | C06110808-002 | 11/20/2006 | E200.8 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | TOTAL FE | ND | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | TOTAL MN | ND | ENERGY LABORATORIES | C06110808-002 | 11/30/2006 | E200.7 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | GROSS ALPHA | 22.3 | ENERGY LABORATORIES | C06110808-002 | 12/7/2006 | E900.0 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | GROSS ALPHA PRECISION | 1.1 | ENERGY LABORATORIES | C06110808-002 | 12/7/2006 | E900.0 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | GROSS BETA | 6.6 | ENERGY LABORATORIES | C06110808-002 | 12/7/2006 | E900.0 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | GROSS BETA PRECISION | 1.6 | ENERGY LABORATORIES | C06110808-002 | 12/7/2006 | E900.0 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | RA226 | -0.2 | ENERGY LABORATORIES | C06110808-002 | 12/8/2006 | E903.0 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | RA228 | -1 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | RA-05 | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | CATION ANION BALANCE | -0.015 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | Calculation | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | ANIONS | 4.81 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | Calculation | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | CATIONS | 4.81 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | Calculation | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | TDS CALCULATED | 301 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | Calculation | |
| NICHOLS RANCH ISR | N1,11894 | 11/16/2006 | TDS RATIO ANAL/CALC | 990 | ENERGY LABORATORIES | C06110808-002 | 12/4/2006 | Calculation | |
| | | | | | | | | | |

Table 3. List of acceptable parameter names for electronic submission of field and water quality data.

| PARAMETER_NAME | PARAMETER_TYPE | UNITS |
|---|---|---|
| ACIDITY (ACD) | LABORATORY | MG/L |
| ALKALINITY AS CACO3 PH 3.7 | LABORATORY | MG/L |
| ALKALINITY AS CACO3 PH 4.5 | LABORATORY | MG/L |
| ANIONS | LABORATORY | MEQ/L |
| AS | LABORATORY | MG/L |
| BIPHENYL | LABORATORY | MG/L |
| BOD | LABORATORY | MG/L |
| BOD5 | LABORATORY | MG/L |
| CATION ANION BALANCE | LABORATORY | % |
| CATIONS | LABORATORY | MEQ/L |
| CO3 ALKALINITY | LABORATORY | MG/L |
| CO3 AS CO3 | LABORATORY | MG/L |
| COD | LABORATORY | MG/L |
| DIPHENYLETHER | LABORATORY | MG/L |
| DISSOLVED AG | LABORATORY | MG/L |
| DISSOLVED AL | LABORATORY | MG/L |
| DISSOLVED AS | LABORATORY | MG/L |
| DISSOLVED B | LABORATORY | MG/L |
| DISSOLVED BA | LABORATORY | MG/L |
| DISSOLVED BE | LABORATORY | MG/L |
| DISSOLVED BR | LABORATORY | MG/L |
| DISSOLVED CA | LABORATORY | MG/L |
| DISSOLVED CASO4.2H2O | LABORATORY | MG/L |
| DISSOLVED CD | LABORATORY | MG/L |
| DISSOLVED CL | LABORATORY | MG/L |
| DISSOLVED CN | LABORATORY | MG/L |
| DISSOLVED CO | LABORATORY | MG/L |
| DISSOLVED CO3 AS CACO3 | LABORATORY | MG/L |
| DISSOLVED CO3 AS CO3 | LABORATORY | MG/L |
| DISSOLVED CR | LABORATORY | MG/L |
| DISSOLVED CR-6 | LABORATORY | MG/L |
| DISSOLVED CU | LABORATORY | MG/L |
| DISSOLVED F | LABORATORY | MG/L |
| DISSOLVED FE | LABORATORY | MG/L |
| DISSOLVED HCO3 AS CACO3 | LABORATORY | MG/L |
| DISSOLVED HCO3 AS HCO3 | LABORATORY | MG/L |
| DISSOLVED HG | LABORATORY | MG/L |
| DISSOLVED K | LABORATORY | MG/L |
| DISSOLVED LI | LABORATORY | MG/L |
| DISSOLVED MD | LABORATORY | MG/L |
| DISSOLVED MG | LABORATORY | MG/L |
| DISSOLVED MN | LABORATORY | MG/L |
| DISSOLVED MO | LABORATORY | MG/L |
| DISSOLVED NA | LABORATORY | MG/L |
| DISSOLVED NH3 AS N | LABORATORY | MG/L |
| DISSOLVED NH4 AS N | LABORATORY | MG/L |
| DISSOLVED NI | LABORATORY | MG/L |
| DISSOLVED NO2 + NO3 AS N | LABORATORY | MG/L |
| DISSOLVED NO2 AS N | LABORATORY | MG/L |
| DISSOLVED NO3 AS N | LABORATORY | MG/L |
| DISSOLVED NO3 AS NO3 | LABORATORY | MG/L |
| DISSOLVED OH | LABORATORY | MG/L |
| DISSOLVED OH AS CACO3 | LABORATORY | MG/L |
| DISSOLVED OH AS OH | LABORATORY | MG/L |
| DISSOLVED PB | LABORATORY | MG/L |
| DISSOLVED PB 210 | LABORATORY | PCI/L |
| DISSOLVED PO 210 | LABORATORY | PCI/L |
| DISSOLVED PO4 | LABORATORY | MG/L |
| DISSOLVED PO4 AS P | LABORATORY | MG/L |
| DISSOLVED RA 226 | LABORATORY | PCI/L |
| DISSOLVED RA 228 | LABORATORY | PCI/L |
| DISSOLVED RB | LABORATORY | MG/L |
| DISSOLVED SB | LABORATORY | MG/L |
| DISSOLVED SE | LABORATORY | MG/L |
| DISSOLVED SEO3 | LABORATORY | MG/L |
| DISSOLVED SEO4 | LABORATORY | MG/L |
| DISSOLVED SI | LABORATORY | MG/L |
| DISSOLVED SIO2 | LABORATORY | MG/L |

Table 3. Continued.

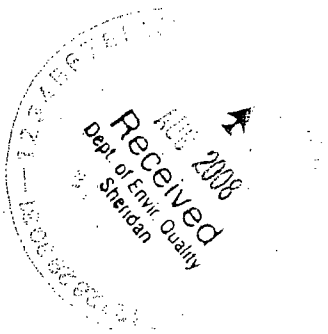
| PARAMETER_NAME | PARAMETER_TYPE | UNITS |
|---|---|---|
| DISSOLVED SIO2 AS SI | LABORATORY | MG/L |
| DISSOLVED SIO2 AS SIO2 | LABORATORY | MG/L |
| DISSOLVED SO2 | LABORATORY | MG/L |
| DISSOLVED SO4 | LABORATORY | MG/L |
| DISSOLVED TH 230 | LABORATORY | PCI/L |
| DISSOLVED TL | LABORATORY | MG/L |
| DISSOLVED U | LABORATORY | MG/L |
| DISSOLVED V | LABORATORY | MG/L |
| DISSOLVED ZN | LABORATORY | MG/L |
| DO | LABORATORY | MG/L |
| ETHYLENE GLYCOL | LABORATORY | MG/L |
| FE BACTERIA | LABORATORY | |
| FECAL COLIFORMS | LABORATORY | MG/L |
| FECAL STREPTOCOCCI | LABORATORY | MG/L |
| FIELD DO | FIELD | MG/L |
| FIELD EH | FIELD | MVOLTS |
| FIELD METAL ALKALINITY | FIELD | MG/L |
| FIELD PH | FIELD | STANDARD |
| FIELD PHENOL ALKALINITY | FIELD | MG/L |
| FIELD SP CONDUCTANCE AT 25 C | FIELD | UMHOS/CM |
| FIELD TDS | FIELD | MG/L |
| FIELD TOTAL ALKALINITY AS CACO3 | FIELD | MG/L |
| FIELD TSS | FIELD | MG/L |
| FIELD TURBIDITY NTU | FIELD | NTU |
| FIELD WATER TEMP | FIELD | C |
| GROSS ALPHA | LABORATORY | PCI/L |
| GROSS ALPHA PRECISION | LABORATORY | PCI/L |
| GROSS BETA | LABORATORY | PCI/L |
| GROSS BETA PRECISION | LABORATORY | PCI/L |
| HARDNESS AS CACO3 | LABORATORY | MG/L |
| HARDNESS AS CO3 | LABORATORY | MG/L |
| HARDNESS CA/MG AS CACO3 | LABORATORY | MG/L |
| HCO3 ALKALINITY | LABORATORY | MG/L |
| HCO3 AS HCO3 | LABORATORY | MG/L |
| ION DIFFERENCE | LABORATORY | MEQ/L |
| METAL ALKALINITY | LABORATORY | MG/L |
| NH3 AS N | LABORATORY | MG/L |
| NO2 AS N | LABORATORY | MG/L |
| NO2/NO3 | LABORATORY | MG/L |
| NO3 AS N | LABORATORY | MG/L |
| NO3\NO2 | LABORATORY | MG/L |
| OH AS CACO3 | LABORATORY | MG/L |
| OH AS HCO3 | LABORATORY | MG/L |
| OH AS OH | LABORATORY | MG/L |
| OIL AND GREASE | LABORATORY | MG/L |
| ORGANIC N - N | LABORATORY | MG/L |
| ORTHOPHOSPHATE AS P | LABORATORY | MG/L |
| P AS P | LABORATORY | MG/L |
| PERCENT CLAY | LABORATORY | % |
| PERCENT SAND | LABORATORY | % |
| PERCENT SILT | LABORATORY | % |
| PH | LABORATORY | STANDARD |
| PHENOL ALKALINITY | LABORATORY | MG/L |
| PHENOLS | LABORATORY | MG/L |
| RA 226 PRECISION | LABORATORY | PCI/L |
| RA 228 PRECISION | LABORATORY | PCI/L |
| RESIDUAL NA2CO3 | LABORATORY | MG/L |
| S BACTERIA | LABORATORY | |
| SAR | LABORATORY | PERCENT |
| SI AS SI | LABORATORY | MG/L |
| SI AS SIO2 | LABORATORY | MG/L |
| SP CONDUCTANCE | LABORATORY | UMHOS/CM |
| SP CONDUCTANCE AT 25 C | LABORATORY | UMHOS/CM |
| SUSPENDED PB 210 | LABORATORY | PCI/L |
| SUSPENDED PO 210 | LABORATORY | PCI/L |
| SUSPENDED RA 226 | LABORATORY | PCI/L |
| SUSPENDED RA 228 | LABORATORY | PCI/L |
| SUSPENDED TH 230 | LABORATORY | PCI/L |

Table 3. Continued.

| PARAMETER NAME | PARAMETER TYPE | UNITS |
|---|---|---|
| SUSPENDED U | LABORATORY | PCI/L |
| TDS CALCULATED | LABORATORY | MG/L |
| TDS DRIED AT 103 C | LABORATORY | MG/L |
| TDS DRIED AT 105 C | LABORATORY | MG/L |
| TDS DRIED AT 108 C | LABORATORY | MG/L |
| TDS DRIED AT 180 C | LABORATORY | MG/L |
| TDS DRIED AT UNSPECIFIED | LABORATORY | MG/L |
| TDS MEASURED ANALYTICALLY | LABORATORY | MG/L |
| TDS MEASURED ANALYTICALLY DRIED AT 105 C | LABORATORY | MG/L |
| TDS RATIO ANAL/CALC | LABORATORY | RATIO |
| TOC | LABORATORY | MG/L |
| TOTAL ACIDITY AS CACO3 | LABORATORY | MG/L |
| TOTAL AG | LABORATORY | MG/L |
| TOTAL AL | LABORATORY | MG/L |
| TOTAL ALKALINITY | LABORATORY | MG/L |
| TOTAL ALKALINITY AS CACO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY AS CACO3 AT PH 3.7 | LABORATORY | MG/L |
| TOTAL ALKALINITY AS CACO3 AT PH 4.5 | LABORATORY | MG/L |
| TOTAL ALKALINITY AS CO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY AS HCO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY CO3 AS CACO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY CO3 AS CO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY HCO3 AS CACO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY HCO3 AS HCO3 | LABORATORY | MG/L |
| TOTAL ALKALINITY OH AS OH | LABORATORY | MG/L |
| TOTAL AS | LABORATORY | MG/L |
| TOTAL B | LABORATORY | MG/L |
| TOTAL BA | LABORATORY | MG/L |
| TOTAL BE | LABORATORY | MG/L |
| TOTAL CA | LABORATORY | MG/L |
| TOTAL CACO3 AS CACO3 | LABORATORY | MG/L |
| TOTAL CD | LABORATORY | MG/L |
| TOTAL CL | LABORATORY | MG/L |
| TOTAL CN | LABORATORY | MG/L |
| TOTAL CO | LABORATORY | MG/L |
| TOTAL CO3 AS CO3 | LABORATORY | MG/L |
| TOTAL COLIFORMS | LABORATORY | MG/L |
| TOTAL CR | LABORATORY | MG/L |
| TOTAL CR-6 | LABORATORY | MG/L |
| TOTAL CU | LABORATORY | MG/L |
| TOTAL F | LABORATORY | MG/L |
| TOTAL FE | LABORATORY | MG/L |
| TOTAL HARDNESS AS CACO3 | LABORATORY | MG/L |
| TOTAL HCO3 AS HCO3 | LABORATORY | MG/L |
| TOTAL HG | LABORATORY | MG/L |
| TOTAL K | LABORATORY | MG/L |
| TOTAL MG | LABORATORY | MG/L |
| TOTAL MN | LABORATORY | MG/L |
| TOTAL MO | LABORATORY | MG/L |
| TOTAL NA | LABORATORY | MG/L |
| TOTAL NH3 AS N | LABORATORY | MG/L |
| TOTAL NH4 AS N | LABORATORY | MG/L |
| TOTAL NI | LABORATORY | MG/L |
| TOTAL NO2 + NO3 AS N | LABORATORY | MG/L |
| TOTAL NO2 AS N | LABORATORY | MG/L |
| TOTAL NO3 AS N | LABORATORY | MG/L |
| TOTAL OH AS OH | LABORATORY | MG/L |
| TOTAL P | LABORATORY | MG/L |
| TOTAL P AS P | LABORATORY | MG/L |
| TOTAL PB | LABORATORY | MG/L |
| TOTAL PB 210 | LABORATORY | PCI/L |
| TOTAL PO 210 | LABORATORY | PCI/L |
| TOTAL PO4 | LABORATORY | MG/L |
| TOTAL RA 226 | LABORATORY | PCI/L |
| TOTAL RA 228 | LABORATORY | PCI/L |
| TOTAL SB | LABORATORY | MG/L |
| TOTAL SE | LABORATORY | MG/L |
| TOTAL SETTLEABLE SOLIDS | LABORATORY | MG/L |

Table 3. Continued.

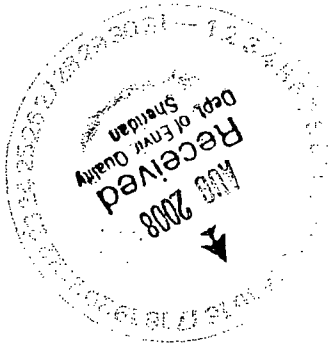
| PARAMETER NAME | PARAMETER TYPE | UNITS |
|---|---|---|
| TOTAL SI | LABORATORY | MG/L |
| TOTAL SO4 | LABORATORY | MG/L |
| TOTAL TH 230 | LABORATORY | PCI/L |
| TOTAL TL | LABORATORY | MG/L |
| TOTAL U | LABORATORY | MG/L |
| TOTAL V | LABORATORY | MG/L |
| TOTAL ZN | LABORATORY | MG/L |
| TPH 418.1 | LABORATORY | |
| TSS | LABORATORY | MG/L |
| TSS DRIED AT 105 C | LABORATORY | MG/L |
| TURBIDITY | LABORATORY | NTU or JTU |
| TURBIDITY JTU | LABORATORY | JTU |
| TURBIDITY NTU | LABORATORY | NTU |
| WATER TEMP | LABORATORY | C |



New surface water station

| STATUS | MINE_NAME | SAMP_STATION_NAME | SAMP_STATION_TYPE | ELEV | STREAM_NAME | DRAINAGE_AREA | NORTHING | EASTING | DATUM | FLOW_MEAS_EQUIP | TOWNSHIP | RANGE | SECTION | FIRST_QUARTER | SECOND_QUARTER | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACTIVE | ISL Inc. | ISL-SW-01 | STREAM STATION | 6850 | ANTELOPE CREEK | 13.5 | 1146987.21 | 856394.68 | NAD 1927 | CREST GAGE | 41N | 71W | 23 | NW | | GRAB SAMPLES TAKEN |
| | | | (i.e., stream station, reservoir, spring, stockpond) | (in feet) | (stream or waterbody name) | (in square miles) | | | | (i.e., crest gage, weir, Parshall flume, recorder) | | | | | | |

| MINE_NAME | SAMP_STATION_NAME | MEAS_DATE | FLOWRATE | FLOW_MEAS_METHOD | FLOW_MEAS_EQUIP | FLOW_MEAS_TYPE | COMMENTS |
|---|---|---|---|---|---|---|---|
| ISL Inc. | ISL-SW-01 | 6/23/2003 | 0.86 | RATING CURVE | WEIR/RECORDER | PEAK DAILY | Recording |
| ISL Inc. | ISL-SW-02 | 8/23/2004 | 7.1 | RECORDER | PARSHALL FLUME | MEAN DAILY | General Storm |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | (ft3/sec) | (i.e., recorder, rating curve, formula, etc) | (i.e., crest gage, weir, Parshall flume, recorder) | (i.e., peak daily, mean daily, instantaneous) | |




MDK:8/8/2008