# APPENDIX B
# PROCESS CHEMICAL DATA

# ORE DATA
# FROM 5 AREA MINES

## Ore Data Summary from 5 Area Mines

| Sample Name | | Whirlwind 1 | Whirlwind 2 | Whirlwind 3 | Slick Rock Mine | Paradox Valley Mine | Packrat Mine | Energy Queen Mine | Min Value | Max Value | Mean Value |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyses** | **Units** | | | | | | | | | | |
| **Major Ions** | | | | | | | | | | | |
| Alkalinity | mg/L | 36 | 36 | 42 | 22 | 54 | 47 | 31 | 22 | 54 | 38.3 |
| Bicarbonate | mg/L | 29 | 43 | 41 | 27 | 66 | 58 | 38 | 27 | 66 | 43.1 |
| Calcium | mg/L | 5.1 | 16.1 | 8.8 | 34.3 | 150 | 17.1 | 11.0 | 5.1 | 150 | 34.6 |
| Chloride | mg/L | ND | ND | ND | 14 | 7 | 6 | 7 | 6 | 14 | 8.5 |
| Fluoride | mg/L | ND | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | ND | 0.1 | 0.2 | 0.12 |
| Magnesium | mg/L | 1.2 | 2.8 | 2.3 | 4.1 | 4.1 | 5.2 | 1.0 | 1.0 | 5.2 | 3.0 |
| Nitrate | mg/L | ND | ND | ND | 9.6 | 6.3 | 2.4 | 3.9 | 2.4 | 9.6 | 5.6 |
| Nitrate+Nitrite | mg/L | ND | ND | ND | 9.6 | 6.3 | 2.4 | 3.9 | 2.4 | 9.6 | 5.6 |
| Phosphorus | mg/L | ND | ND | ND | ND | 0.1 | ND | 0.1 | 0.1 | 0.1 | 0.10 |
| Potassium | mg/L | ND | ND | 2.2 | ND | ND | ND | ND | 2.2 | 2.2 | 2.2 |
| Silica | mg/L | 3.5 | 3.8 | 4.4 | 4.6 | 2.7 | 2.4 | 6.2 | 2.4 | 6.2 | 3.9 |
| Sodium | mg/L | 9.3 | 10.7 | 11.8 | 14 | 9 | 26 | 7 | 7 | 26 | 12.5 |
| Sulfate | mg/L | 3 | 33 | 15 | 77 | 342 | 54 | 3 | 3 | 342 | 75.3 |
| **Physical Properties** | | | | | | | | | | | |
| Conductivity | umhos/cm | 87.4 | 159 | 125 | 250 | 91 | 49 | 450 | 49 | 450 | 173.1 |
| Hardness | mg/L | 17.8 | 51.6 | 31.2 | 102 | 391 | 64 | 31 | 17.8 | 391 | 98.4 |
| pH | s.u. | 10.1 | 9.89 | 9.87 | 8.02 | 8.44 | 6.58 | 7.90 | 6.58 | 10.1 | 8.7 |
| TDS | mg/L | 38 | 104 | 82 | 165 | 577 | 150 | 57 | 38 | 577 | 167.6 |
| **Total Metals** | | | | | | | | | | | |
| Aluminum | mg/kg | 16800 | 14500 | 24300 | 12900 | 11500 | 19400 | 11900 | 11500 | 24300 | 15900 |
| Antimony | mg/kg | ND | ND | ND | ND | 0.9 | ND | ND | 0.9 | 0.9 | 0.9 |
| Arsenic | mg/kg | 221 | 387 | 387 | 9.6 | 12.9 | 112 | 43.2 | 9.6 | 387 | 167.5 |
| Barium | mg/kg | 966 | 68.1 | 128 | 267 | 780 | 385 | 772 | 68.1 | 966 | 480.9 |
| Beryllium | mg/kg | 0.6 | 1.0 | 2.3 | ND | ND | 0.6 | 0.9 | 0.6 | 2.3 | 1.08 |
| Boron | mg/kg | 9.5 | 48.3 | 36.6 | 26 | 41 | 6 | 7 | 6 | 48.3 | 24.9 |
| Cadmium | mg/kg | ND | 2.2 | 0.6 | 2.0 | 3.8 | 1.0 | 3.5 | 0.6 | 3.8 | 2.2 |
| Calcium | mg/kg | 9410 | 10800 | 4180 | 26600 | 36200 | 17400 | 129100 | 4180 | 129100 | 33384.3 |
| Chromium | mg/kg | 5.2 | 6.1 | 9.6 | 7.3 | 7.2 | 5.2 | 5.4 | 5.2 | 9.6 | 6.6 |
| Copper | mg/kg | 4.0 | 10.1 | 12.7 | 15.6 | 30.9 | 14.4 | 29.2 | 4 | 30.9 | 16.7 |
| Iron | mg/kg | 5890 | 10700 | 11200 | 7520 | 5350 | 9020 | 6590 | 5350 | 11200 | 8038.6 |
| Lead | mg/kg | 852 | 117 | 1470 | 43.1 | 23.6 | 32.2 | 181 | 23.6 | 1470 | 388.4 |
| Magnesium | mg/kg | 6560 | 5610 | 7990 | 17300 | 7220 | 9440 | 5810 | 5610 | 17300 | 8561.4 |
| Manganese | mg/kg | 77.4 | 104 | 64.9 | 354 | 290 | 151 | 95.4 | 64.9 | 354 | 162.4 |
| Mercury | mg/kg | ND | ND | ND | 0.09 | 0.13 | 0.15 | 0.29 | 0.09 | 0.29 | 0.17 |
| Molybdenum | mg/kg | 1.2 | 39.6 | 40.0 | 21.8 | 45.1 | 1.7 | 71.3 | 1.2 | 71.3 | 31.5 |
| Nickel | mg/kg | 12.0 | 16.1 | 22.9 | 4.3 | 4.4 | 6.4 | 3.3 | 3.3 | 22.9 | 9.9 |
| Phosphorus | mg/kg | 170 | 294 | 297 | 177 | 189 | 130 | 251 | 130 | 297 | 215.4 |
| Potassium | mg/kg | 3250 | 3000 | 6020 | 3080 | 3410 | 2890 | 1320 | 1320 | 6020 | 3281.4 |
| Selenium | mg/kg | 282 | 28.7 | 410 | 64.2 | 97.9 | 120 | 57.4 | 28.7 | 410 | 151.5 |
| Silica | mg/kg | 1090 | 1400 | 1290 | 1070 | 1380 | 1030 | 1180 | 1030 | 1400 | 1205.7 |
| Silver | mg/kg | 0.9 | 0.8 | 1.5 | ND | ND | ND | 2.0 | 0.8 | 2 | 1.3 |
| Sodium | mg/kg | 93.6 | ND | ND | 202 | 147 | 441 | ND | 93.6 | 441 | 220.9 |
| Thallium | mg/kg | ND | 2.3 | 2.1 | ND | ND | 0.9 | 1.1 | 0.9 | 2.3 | 1.6 |
| Uranium | mg/kg | 474 | 4000 | 5100 | 1160 | 984 | 883 | 12100 | 474 | 5100 | 3528.7 |
| Vanadium | mg/kg | 8020 | 3940 | 14500 | 5980 | 3920 | 14500 | 9150 | 3920 | 14500 | 8572.9 |
| Zinc | mg/kg | 36.3 | 355 | 59.5 | 45.0 | 58.0 | 69.6 | 240 | 36.3 | 355 | 123.3 |
| **Extractable Metals** | | | | | | | | | | | |
| Aluminum | mg/kg | 0.2 | ND | 0.2 | ND | ND | ND | ND | 0.2 | 0.2 | 0.2 |
| Antimony | mg/kg | 0.003 | 0.004 | 0.008 | 0.003 | 0.003 | 0.002 | 0.004 | 0.002 | 0.008 | 0.0039 |
| Arsenic | mg/kg | 0.715 | 0.228 | 1.15 | 0.043 | 0.028 | 0.427 | 0.048 | 0.028 | 1.15 | 0.38 |
| Cadmium | mg/kg | ND | ND | ND | 0.004 | 0.003 | 0.002 | 0.006 | 0.002 | 0.006 | 0.0038 |
| Copper | mg/kg | ND | ND | ND | 1.05 | 1.33 | 0.10 | 0.96 | 0.1 | 1.33 | 0.86 |
| Iron | mg/kg | 0.09 | 0.03 | 0.07 | 0.07 | 0.04 | ND | ND | 0.03 | 0.09 | 0.06 |
| Lead | mg/kg | 0.004 | ND | 0.001 | 1.23 | 1.32 | 0.089 | 0.018 | 0.001 | 1.32 | 0.44 |
| Manganese | mg/kg | ND | ND | ND | ND | 0.04 | 0.02 | ND | 0.02 | 0.04 | 0.03 |
| Molybdenum | mg/kg | ND | 0.3 | 0.8 | 0.3 | 0.8 | ND | 0.3 | 0.3 | 0.8 | 0.5 |
| Nickel | mg/kg | ND | ND | ND | 0.10 | 0.06 | ND | ND | 0.06 | 0.1 | 0.08 |
| Selenium | mg/kg | 0.216 | 0.064 | 0.173 | 0.242 | 0.250 | 0.528 | 0.019 | 0.019 | 0.528 | 0.21 |
| Uranium | mg/kg | 0.110 | 1.60 | 1.09 | 0.0213 | 0.0225 | 0.0824 | 0.0458 | 0.0213 | 1.6 | 0.42 |
| Vanadium | mg/kg | 0.5 | 0.1 | 0.5 | 4.5 | 41.3 | 8.9 | 1.2 | 0.1 | 41.3 | 8.1 |
| Zinc | mg/kg | 0.02 | 0.02 | 0.02 | 17.7 | 12.5 | 2.81 | 0.91 | 0.02 | 17.7 | 4.9 |
| **Total Radionuclides** | | | | | | | | | | | |
| Uranium | pCi/g | 320.898 | 2708 | 3452.7 | 785 | 666 | 598 | 8192 | 321 | 3453 | 2389 |
| Gross alpha | pCi/g | 429 | 2520 | 6960 | 2130 | 1630 | 2770 | 17000 | 429 | 17000 | 4777 |
| Gross beta | pCi/g | 406 | 2310 | 2920 | 1640 | 1190 | 1690 | 12400 | 406 | 12400 | 3222.3 |
| Radium-226 | pCi/g | 113 | 482 | 1170 | 335 | 274 | 334 | 2070 | 113 | 1170 | 682.6 |
| Radium-228 | pCi/g | 1.0 | 3.7 | 4.3 | ND | ND | 2.9 | - - - - - - | 1 | 4.3 | 2.98 |
| **Extractable Radionuclides** | | | | | | | | | | | |
| Gross alpha | pCi/g | 140 | 1310 | 1130 | 89.3 | 68.7 | 94.4 | 350 | 68.7 | 1310 | 454.6 |
| Gross beta | pCi/g | 70.9 | 444 | 1030 | 43.8 | 25.8 | 42.8 | 189 | 25.8 | 1030 | 263.8 |
| Radium-226 | pCi/g | 6.7 | 24.2 | 7.3 | 17.1 | 2.0 | 2.7 | 36.8 | 2 | 36.8 | 13.8 |
| Radium-228 | pCi/g | 12.2 | 13.4 | 7.8 | ND | 8.3 | ND | ND | 7.8 | 13.4 | 10.4 |

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# LABORATORY ANALYTICAL REPORT

Revised Date: 03/13/07
Report Date: 02/26/07
Collection Date: 01/18/07
DateReceived: 01/26/07
Matrix: Solid

Client: Energy Fuels Resources Corporation
Project: Whirlwind
Lab ID: C07011040-003
Client Sample ID: 129451 (WW 01)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 2.5 | % | | 0.1 | | USDA23c | 01/29/07 10:00 / mjb |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 16800 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:17 / bws |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Arsenic | 221 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Barium | 966 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Beryllium | 0.6 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Boron | 9.5 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Cadmium | ND | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Calcium | 9410 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Chromium | 5.2 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Copper | 4.0 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Iron | 5890 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 15:12 / cp |
| Lead | 852 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Magnesium | 6560 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Manganese | 77.4 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Mercury | ND | mg/kg-dry | | 0.05 | | SW7471A | 02/21/07 11:19 / kes |
| Molybdenum | 1.2 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Nickel | 12.0 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Phosphorus | 170 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Potassium | 3250 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Selenium | 282 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Silica | 1090 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Silver | 0.9 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Sodium | 93.6 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:14 / cp |
| Thallium | ND | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Uranium | 474 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| Uranium, U3O8 | 558 | mg/kg-dry | | 0.6 | | SW6020 | 02/01/07 17:51 / bws |
| Vanadium | 8020 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:17 / bws |
| Vanadium, V2O5 | 14300 | mg/kg-dry | | 0.9 | | SW6020 | 02/02/07 21:17 / bws |
| Zinc | 36.3 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:51 / bws |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 429 | pCi/g-dry | | 1.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Alpha precision (±) | 3.9 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta | 406 | pCi/g-dry | | 2.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta precision (±) | 2.1 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Radium 226 | 113 | pCi/g-dry | | 0.1 | | E903.0 | 02/14/07 11:54 / trs |
| Radium 226 precision (±) | 1.2 | pCi/g-dry | | | | E903.0 | 02/14/07 11:54 / trs |
| Radium 228 | 1.0 | pCi/g-dry | | 0.1 | | RA-05 | 02/08/07 15:40 / plj |
| Radium 228 precision (±) | 0.1 | pCi/g-dry | | | | RA-05 | 02/08/07 15:40 / plj |

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

Revised Date: 03/13/07
Report Date: 02/26/07
Collection Date: 01/18/07
DateReceived: 01/26/07
Matrix: Solid

Client: Energy Fuels Resources Corporation
Project: Whirlwind
Lab ID: C07011040-002
Client Sample ID: 129451 (WW 01)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 36 | mg/L | | 1 | | A2320 B | 02/01/07 15:20 / lm |
| Bicarbonate as HCO3 | 29 | mg/L | | 1 | | A2320 B | 02/01/07 15:20 / lm |
| Calcium | 5.1 | mg/L | | 0.5 | | E200.7 | 02/20/07 17:57 / ts |
| Chloride | ND | mg/L | | 1 | | A4500-Cl B | 01/31/07 15:32 / jl |
| Fluoride | ND | mg/L | | 0.1 | | A4500-F C | 02/02/07 13:46 / lm |
| Magnesium | 1.2 | mg/L | | 0.5 | | E200.7 | 02/20/07 17:57 / ts |
| Nitrogen, Nitrate as N | ND | mg/L | | 0.1 | | E353.2 | 02/23/07 15:11 / sec |
| Nitrogen, Nitrate+Nitrite as N | ND | mg/L | | 0.1 | | E353.2 | 02/01/07 13:20 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/30/07 16:53 / jal |
| Phosphorus | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 17:57 / ts |
| Potassium | ND | mg/L | | 0.5 | | E200.7 | 02/20/07 17:57 / ts |
| Silica | 3.5 | mg/L | | 0.1 | | E200.7 | 02/20/07 17:57 / ts |
| Sodium | 9.3 | mg/L | | 0.5 | | E200.7 | 02/20/07 17:57 / ts |
| Sulfate | 3 | mg/L | | 1 | | A4500-SO4 E | 01/31/07 13:43 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 0.50 | | E376.1 | 01/31/07 11:21 / jl |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 87.4 | umhos/cm | | 1.0 | | A2510 B | 01/31/07 10:10 / lm |
| Hardness as CaCO3 | 17.8 | mg/L | | 6.5 | | A2340 B | 02/23/07 15:10 / sec |
| pH | 10.1 | s.u. | | 0.01 | | A4500-H B | 01/31/07 10:10 / lm |
| Solids, Total Dissolved TDS @ 180 C | 38 | mg/L | | 10 | | A2540 C | 01/31/07 14:33 / lm |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | 0.2 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:12 / bws |
| Antimony | 0.003 | mg/L | | 0.001 | | E200.8 | 02/01/07 00:12 / bws |
| Arsenic | 0.715 | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:12 / bws |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 02/01/07 00:12 / bws |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:12 / bws |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 17:57 / ts |
| Cadmium | ND | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:12 / bws |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:12 / bws |
| Copper | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:12 / bws |
| Iron | 0.09 | mg/L | | 0.03 | | E200.7 | 02/20/07 17:57 / ts |
| Lead | 0.004 | mg/L | | 0.001 | | E200.8 | 02/01/07 00:12 / bws |
| Manganese | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:12 / bws |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:12 / bws |
| Molybdenum | ND | mg/L | | 0.1 | | E200.8 | 02/01/07 00:12 / bws |
| Nickel | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:12 / bws |
| Selenium | 0.216 | mg/L | D | 0.004 | | E200.8 | 02/01/07 00:12 / bws |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:12 / bws |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:12 / bws |

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| | | Revised Date: | 03/13/07 |
| Client: | Energy Fuels Resources Corporation | Report Date: | 02/26/07 |
| Project: | Whirlwind | Collection Date: | 01/18/07 |
| Lab ID: | C07011040-002 | DateReceived: | 01/26/07 |
| Client Sample ID: | 129451 (WW 01) | Matrix: | Solid |

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Uranium | 0.110 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:12 / bws |
| Uranium, U3O8 | 0.130 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:12 / bws |
| Vanadium | 0.5 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:12 / bws |
| Vanadium, V2O5 | 0.8 | mg/L | | 0.2 | | E200.8 | 02/01/07 00:12 / bws |
| Zinc | 0.02 | mg/L | | 0.01 | | E200.8 | 02/01/07 00:12 / bws |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 140 | pCi/L | | 1.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Alpha precision (±) | 3.4 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta | 70.9 | pCi/L | | 2.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta precision (±) | 2.3 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Radium 226 | 6.7 | pCi/L | | 0.2 | | E903.0 | 02/13/07 15:49 / trs |
| Radium 226 precision (±) | 2.0 | pCi/L | | | | E903.0 | 02/13/07 15:49 / trs |
| Radium 228 | 12.2 | pCi/L | | 1.0 | | RA-05 | 02/07/07 14:07 / plj |
| Radium 228 precision (±) | 4.7 | pCi/L | | | | RA-05 | 02/07/07 14:07 / plj |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | 0.038 | % | | | | Calculation | 02/23/07 15:14 / sec |
| Anions | 0.787 | meq/L | | | | Calculation | 02/23/07 15:14 / sec |
| Cations | 0.787 | meq/L | | | | Calculation | 02/23/07 15:14 / sec |
| Solids, Total Dissolved Calculated | 44.0 | mg/L | | | | Calculation | 02/23/07 15:14 / sec |
| TDS Balance (0.80 - 1.20) | 0.860 | dec. % | | | | Calculation | 02/23/07 15:14 / sec |

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# LABORATORY ANALYTICAL REPORT

Revised Date: 03/13/07
Report Date: 02/26/07
Collection Date: 01/18/07
DateReceived: 01/26/07
Matrix: Solid

Client: Energy Fuels Resources Corporation
Project: Whirlwind
Lab ID: C07011040-006
Client Sample ID: 129452 (WW 02)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 2.7 | % | | 0.1 | | USDA23c | 01/29/07 10:00 / mjb |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 14500 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:24 / bws |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Arsenic | 387 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Barium | 68.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Beryllium | 1.0 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Boron | 48.3 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Cadmium | 2.2 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Calcium | 10800 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Chromium | 6.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Copper | 10.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Iron | 10700 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 15:15 / cp |
| Lead | 117 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Magnesium | 5610 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Manganese | 104 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Mercury | ND | mg/kg-dry | | 0.05 | | SW7471A | 02/21/07 11:21 / kes |
| Molybdenum | 39.6 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Nickel | 16.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Phosphorus | 294 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Potassium | 3000 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Selenium | 28.7 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Silica | 1400 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Silver | 0.8 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Sodium | ND | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:18 / cp |
| Thallium | 2.3 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Uranium | 4000 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| Uranium, U3O8 | 4720 | mg/kg-dry | | 0.6 | | SW6020 | 02/01/07 17:58 / bws |
| Vanadium | 3940 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:24 / bws |
| Vanadium, V2O5 | 7030 | mg/kg-dry | | 0.9 | | SW6020 | 02/02/07 21:24 / bws |
| Zinc | 355 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 17:58 / bws |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 2520 | pCi/g-dry | | 1.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Alpha precision (±) | 9.5 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta | 2310 | pCi/g-dry | | 2.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta precision (±) | 4.8 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Radium 226 | 482 | pCi/g-dry | | 0.1 | | E903.0 | 02/14/07 11:54 / trs |
| Radium 226 precision (±) | 2.6 | pCi/g-dry | | | | E903.0 | 02/14/07 11:54 / trs |
| Radium 228 | 3.7 | pCi/g-dry | | 0.1 | | RA-05 | 02/08/07 15:40 / plj |
| Radium 228 precision (±) | 0.2 | pCi/g-dry | | | | RA-05 | 02/08/07 15:40 / plj |

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# LABORATORY ANALYTICAL REPORT

**Revised Date:** 03/13/07
**Report Date:** 02/26/07
**Collection Date:** 01/18/07
**DateReceived:** 01/26/07
**Matrix:** Solid

**Client:** Energy Fuels Resources Corporation
**Project:** Whirlwind
**Lab ID:** C07011040-005
**Client Sample ID:** 129452 (WW 02)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 36 | mg/L | | 1 | | A2320 B | 02/01/07 15:36 / lm |
| Bicarbonate as HCO3 | 43 | mg/L | | 1 | | A2320 B | 02/01/07 15:36 / lm |
| Calcium | 16.1 | mg/L | | 0.5 | | E200.7 | 02/20/07 18:11 / ts |
| Chloride | ND | mg/L | | 1 | | A4500-Cl B | 01/31/07 15:34 / jl |
| Fluoride | 0.1 | mg/L | | 0.1 | | A4500-F C | 02/02/07 13:46 / lm |
| Magnesium | 2.8 | mg/L | | 0.5 | | E200.7 | 02/20/07 18:11 / ts |
| Nitrogen, Nitrate as N | ND | mg/L | | 0.1 | | E353.2 | 02/23/07 15:11 / sec |
| Nitrogen, Nitrate+Nitrite as N | NO | mg/L | | 0.1 | | E353.2 | 02/01/07 13:22 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/30/07 16:53 / jal |
| Phosphorus | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 18:11 / ts |
| Potassium | ND | mg/L | | 0.5 | | E200.7 | 02/20/07 18:11 / ts |
| Silica | 3.8 | mg/L | | 0.1 | | E200.7 | 02/20/07 18:11 / ts |
| Sodium | 10.7 | mg/L | | 0.5 | | E200.7 | 02/20/07 18:11 / ts |
| Sulfate | 33 | mg/L | | 1 | | A4500-SO4 E | 01/31/07 13:55 / ijl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 0.50 | | E376.1 | 01/31/07 11:28 / jl |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 159 | umhos/cm | | 1.0 | | A2510 B | 01/31/07 10:12 / lm |
| Hardness as CaCO3 | 51.6 | mg/L | | 6.5 | | A2340 B | 02/23/07 15:10 / sec |
| pH | 9.89 | s.u. | | 0.01 | | A4500-H B | 01/31/07 10:12 / lm |
| Solids, Total Dissolved TDS @ 180 C | 104 | mg/L | | 10 | | A2540 C | 01/31/07 14:35 / lm |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | ND | mg/L | | 0.1 | | E200.8 | 02/01/07 00:42 / bws |
| Antimony | 0.004 | mg/L | | 0.001 | | E200.8 | 02/01/07 00:42 / bws |
| Arsenic | 0.228 | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:42 / bws |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 02/01/07 00:42 / bws |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:42 / bws |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 18:11 / ts |
| Cadmium | ND | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:42 / bws |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:42 / bws |
| Copper | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:42 / bws |
| Iron | 0.03 | mg/L | | 0.03 | | E200.7 | 02/20/07 18:11 / ts |
| Lead | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:42 / bws |
| Manganese | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:42 / bws |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:42 / bws |
| Molybdenum | 0.3 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:42 / bws |
| Nickel | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:42 / bws |
| Selenium | 0.064 | mg/L | D | 0.004 | | E200.8 | 02/01/07 00:42 / bws |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:42 / bws |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:42 / bws |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| | | Revised Date: | 03/13/07 |
| Client: | Energy Fuels Resources Corporation | Report Date: | 02/26/07 |
| Project: | Whirlwind | Collection Date: | 01/18/07 |
| Lab ID: | C07011040-005 | DateReceived: | 01/26/07 |
| Client Sample ID: | 129452 (WW 02) | Matrix: | Solid |

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Uranium | 1.60 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:42 / bws |
| Uranium, U3O8 | 1.88 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:42 / bws |
| Vanadium | 0.1 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:42 / bws |
| Vanadium, V2O5 | 0.2 | mg/L | | 0.2 | | E200.8 | 02/01/07 00:42 / bws |
| Zinc | 0.02 | mg/L | | 0.01 | | E200.8 | 02/01/07 00:42 / bws |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 1310 | pCi/L | | 1.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Alpha precision (±) | 9.9 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta | 444 | pCi/L | | 2.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta precision (±) | 4.9 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Radium 226 | 24.2 | pCi/L | | 0.2 | | E903.0 | 02/13/07 16:59 / lrs |
| Radium 226 precision (±) | 3.5 | pCi/L | | | | E903.0 | 02/13/07 16:59 / trs |
| Radium 228 | 13.4 | pCi/L | | 1.0 | | RA-05 | 02/07/07 14:07 / plj |
| Radium 228 precision (±) | 4.8 | pCi/L | | | | RA-05 | 02/07/07 14:07 / plj |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | 3.25 | % | | | | Calculation | 02/23/07 15:22 / sec |
| Anions | 1.42 | meq/L | | | | Calculation | 02/23/07 15:22 / sec |
| Cations | 1.51 | meq/L | | | | Calculation | 02/23/07 15:22 / sec |
| Solids, Total Dissolved Calculated | 89.0 | mg/L | | | | Calculation | 02/23/07 15:22 / sec |
| TDS Balance (0.80 - 1.20) | 1.17 | dec. % | | | | Calculation | 02/23/07 15:22 / sec |

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# LABORATORY ANALYTICAL REPORT

**Revised Date:** 03/13/07
**Report Date:** 02/26/07
**Collection Date:** 01/18/07
**DateReceived:** 01/26/07
**Matrix:** Solid

**Client:** Energy Fuels Resources Corporation
**Project:** Whirlwind
**Lab ID:** C07011040-009
**Client Sample ID:** 129453 (WW 03)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 1.5 | % | | 0.1 | | USDA23c | 01/29/07 10:00 / mjb |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 24300 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:32 / bws |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Arsenic | 387 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Barium | 128 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Beryllium | 2.3 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Boron | 36.6 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Cadmium | 0.6 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Calcium | 4180 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Chromium | 9.6 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Copper | 12.7 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Iron | 11200 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 15:35 / cp |
| Lead | 1470 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Magnesium | 7990 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Manganese | 64.9 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Mercury | ND | mg/kg-dry | | 0.05 | | SW7471A | 02/21/07 11:24 / kes |
| Molybdenum | 40.0 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Nickel | 22.9 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Phosphorus | 297 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Potassium | 6020 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Selenium | 410 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Silica | 1290 | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Silver | 1.5 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Sodium | ND | mg/kg-dry | | 5.0 | | SW6010B | 02/14/07 16:21 / cp |
| Thallium | 2.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Uranium | 5100 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| Uranium, U3O8 | 6020 | mg/kg-dry | | 0.6 | | SW6020 | 02/01/07 18:06 / bws |
| Vanadium | 14500 | mg/kg-dry | | 0.5 | | SW6020 | 02/02/07 21:32 / bws |
| Vanadium, V2O5 | 25900 | mg/kg-dry | | 0.9 | | SW6020 | 02/02/07 21:32 / bws |
| Zinc | 59.5 | mg/kg-dry | | 0.5 | | SW6020 | 02/01/07 18:06 / bws |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 6960 | pCi/g-dry | | 1.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Alpha precision (±) | 10.3 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta | 2920 | pCi/g-dry | | 2.0 | | E900.0 | 01/29/07 12:00 / res |
| Gross Beta precision (±) | 5.4 | pCi/g-dry | | | | E900.0 | 01/29/07 12:00 / res |
| Radium 226 | 1170 | pCi/g-dry | | 0.1 | | E903.0 | 02/14/07 11:54 / trs |
| Radium 226 precision (±) | 4.7 | pCi/g-dry | | | | E903.0 | 02/14/07 11:54 / trs |
| Radium 228 | 4.3 | pCi/g-dry | | 0.1 | | RA-05 | 02/08/07 15:40 / plj |
| Radium 228 precision (±) | 0.2 | pCi/g-dry | | | | RA-05 | 02/08/07 15:40 / plj |

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# LABORATORY ANALYTICAL REPORT

**Revised Date:** 03/13/07
**Report Date:** 02/26/07
**Collection Date:** 01/18/07
**DateReceived:** 01/26/07
**Matrix:** Solid

**Client:** Energy Fuels Resources Corporation
**Project:** Whirlwind
**Lab ID:** C07011040-008
**Client Sample ID:** 129453 (WW 03)

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 42 | mg/L | | 1 | | A2320 B | 02/01/07 15:37 / lm |
| Bicarbonate as HCO3 | 41 | mg/L | | 1 | | A2320 B | 02/01/07 15:37 / lm |
| Calcium | 8.8 | mg/L | | 0.5 | | E200.7 | 02/21/07 14:50 / ts |
| Chloride | ND | mg/L | | 1 | | A4500-Cl B | 01/31/07 15:36 / jl |
| Fluoride | 0.1 | mg/L | | 0.1 | | A4500-F C | 02/02/07 13:48 / lm |
| Magnesium | 2.3 | mg/L | | 0.5 | | E200.7 | 02/21/07 14:50 / ts |
| Nitrogen, Nitrate as N | ND | mg/L | | 0.1 | | E353.2 | 02/23/07 15:11 / sec |
| Nitrogen, Nitrate+Nitrite as N | ND | mg/L | | 0.1 | | E353.2 | 02/01/07 13:25 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/30/07 16:54 / jal |
| Phosphorus | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 18:14 / ts |
| Potassium | 2.2 | mg/L | | 0.5 | | E200.7 | 02/21/07 14:50 / ts |
| Silica | 4.4 | mg/L | | 0.1 | | E200.7 | 02/20/07 18:14 / ts |
| Sodium | 11.8 | mg/L | | 0.5 | | E200.7 | 02/21/07 14:50 / ts |
| Sulfate | 15 | mg/L | | 1 | | A4500-SO4 E | 01/31/07 14:14 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | 0.56 | mg/L | | 0.50 | | E376.1 | 01/31/07 11:33 / jl |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 125 | umhos/cm | | 1.0 | | A2510 B | 01/31/07 10:13 / lm |
| Hardness as CaCO3 | 31.2 | mg/L | | 6.5 | | A2340 B | 02/23/07 15:10 / sec |
| pH | 9.87 | s.u. | | 0.01 | | A4500-H B | 01/31/07 10:13 / lm |
| Solids, Total Dissolved TDS @ 180 C | 82 | mg/L | | 10 | | A2540 C | 01/31/07 14:35 / lm |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | 0.2 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:49 / bws |
| Antimony | 0.008 | mg/L | | 0.001 | | E200.8 | 02/01/07 00:49 / bws |
| Arsenic | 1.15 | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:49 / bws |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 02/01/07 00:49 / bws |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:49 / bws |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 02/20/07 18:14 / ts |
| Cadmium | ND | mg/L | D | 0.002 | | E200.8 | 02/01/07 00:49 / bws |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:49 / bws |
| Copper | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:49 / bws |
| Iron | 0.07 | mg/L | | 0.03 | | E200.7 | 02/21/07 14:50 / ts |
| Lead | 0.001 | mg/L | | 0.001 | | E200.8 | 02/01/07 00:49 / bws |
| Manganese | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:49 / bws |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:49 / bws |
| Molybdenum | 0.8 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:49 / bws |
| Nickel | ND | mg/L | | 0.05 | | E200.8 | 02/01/07 00:49 / bws |
| Selenium | 0.173 | mg/L | D | 0.004 | | E200.8 | 02/01/07 00:49 / bws |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 02/01/07 00:49 / bws |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 02/01/07 00:49 / bws |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| | | Revised Date: | 03/13/07 |
| Client: | Energy Fuels Resources Corporation | Report Date: | 02/26/07 |
| Project: | Whirlwind | Collection Date: | 01/18/07 |
| Lab ID: | C07011040-008 | DateReceived: | 01/26/07 |
| Client Sample ID: | 129453 (WW 03) | Matrix: | Solid |

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Uranium | 1.09 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:49 / bws |
| Uranium, U3O8 | 1.28 | mg/L | D | 0.0004 | | E200.8 | 02/01/07 00:49 / bws |
| Vanadium | 0.5 | mg/L | | 0.1 | | E200.8 | 02/01/07 00:49 / bws |
| Vanadium, V2O5 | 0.9 | mg/L | | 0.2 | | E200.8 | 02/01/07 00:49 / bws |
| Zinc | 0.02 | mg/L | | 0.01 | | E200.8 | 02/01/07 00:49 / bws |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 1130 | pCi/L | | 1.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Alpha precision (±) | 13.0 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta | 1030 | pCi/L | | 2.0 | | E900.0 | 02/11/07 02:00 / res |
| Gross Beta precision (±) | 7.3 | pCi/L | | | | E900.0 | 02/11/07 02:00 / res |
| Radium 226 | 134 | pCi/L | | 0.2 | | E903.0 | 02/13/07 16:59 / trs |
| Radium 226 precision (±) | 7.8 | pCi/L | | | | E903.0 | 02/13/07 16:59 / trs |
| Radium 228 | 16.4 | pCi/L | | 1.0 | | RA-05 | 02/07/07 14:07 / plj |
| Radium 228 precision (±) | 4.8 | pCi/L | | | | RA-05 | 02/07/07 14:07 / plj |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | 3.26 | % | | | | Calculation | 02/23/07 15:30 / sec |
| Anions | 1.15 | meq/L | | | | Calculation | 02/23/07 15:30 / sec |
| Cations | 1.23 | meq/L | | | | Calculation | 02/23/07 15:30 / sec |
| Solids, Total Dissolved Calculated | 70.0 | mg/L | | | | Calculation | 02/23/07 15:30 / sec |
| TDS Balance (0.80 - 1.20) | 1.17 | dec. % | | | | Calculation | 02/23/07 15:30 / sec |

Report Definitions:
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QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-001
**Client Sample ID** Energy Queen Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 3.2 | % | | 0.1 | | USDA23c | 01/17/08 10:38 / lb |
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 31 | mg/L | | 10 | | A2320 B | 01/18/08 13:34 / bas |
| Bicarbonate as HCO3 | 38 | mg/L | | 10 | | A2320 B | 01/18/08 13:34 / bas |
| Calcium | 11.0 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:05 / cp |
| Chloride | 7 | mg/L | | 1 | | A4500-Cl B | 01/18/08 13:12 / ljl |
| Fluoride | ND | mg/L | | 0.1 | | A4500-F C | 01/18/08 10:05 / bas |
| Magnesium | 1.0 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:05 / cp |
| Nitrogen, Nitrate as N | 3.9 | mg/L | | 0.1 | | E353.2 | 01/21/08 17:02 / sec |
| Nitrogen, Nitrate+Nitrite as N | 3.9 | mg/L | | 0.1 | | E353.2 | 01/17/08 11:53 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/18/08 13:19 / jal |
| Phosphorus | 0.1 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:05 / cp |
| Potassium | ND | mg/L | D | 10 | | E200.7 | 01/30/08 15:05 / cp |
| Silica | 6.2 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:05 / cp |
| Sodium | 7 | mg/L | D | 5 | | E200.7 | 01/30/08 15:05 / cp |
| Sulfate | 3 | mg/L | | 1 | | A4500-SO4 E | 01/17/08 12:34 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 1 | | A4500-S F | 01/17/08 16:51 / jp |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 450 | umhos/cm | | 1 | | A2510 B | 01/17/08 13:47 / gg |
| Hardness as CaCO3 | 31 | mg/L | | 6 | | A2340 B | 02/05/08 12:44 / sw |
| pH | 7.90 | s.u. | | 0.01 | | A4500-H B | 01/17/08 13:47 / gg |
| Solids, Total Dissolved TDS @ 180 C | 57 | mg/L | H | 10 | | A2540 C | 01/31/08 14:20 / gg |
| - H-Original analysis was done within hold time. Data is from recheck analysis. | | | | | | | |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:05 / cp |
| Antimony | 0.004 | mg/L | | 0.001 | | E200.8 | 01/29/08 00:41 / ts |
| Arsenic | 0.048 | mg/L | | 0.001 | | E200.8 | 01/29/08 00:41 / ts |
| Barium | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:05 / cp |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 00:41 / ts |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:05 / cp |
| Cadmium | 0.006 | mg/L | | 0.001 | | E200.8 | 01/29/08 00:41 / ts |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 00:41 / ts |
| Copper | 0.96 | mg/L | | 0.01 | | E200.8 | 01/29/08 00:41 / ts |
| Iron | ND | mg/L | | 0.03 | | E200.7 | 01/30/08 15:05 / cp |
| Lead | 0.018 | mg/L | | 0.001 | | E200.8 | 02/04/08 20:04 / ts |
| Manganese | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 00:41 / ts |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 02/04/08 20:04 / ts |

**Report Definitions:**
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D - RL increased due to sample matrix interference.
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ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-001
**Client Sample ID** Energy Queen Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Molybdenum | 0.3 | mg/L | | 0.1 | | E200.8 | 01/29/08 00:41 / ts |
| Nickel | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 00:41 / ts |
| Selenium | 0.019 | mg/L | | 0.001 | | E200.8 | 01/29/08 00:41 / ts |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 00:41 / ts |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 02/04/08 20:04 / ts |
| Uranium | 0.0458 | mg/L | | 0.0003 | | E200.8 | 02/04/08 20:04 / ts |
| Uranium, U3O8 | 0.0540 | mg/L | | 0.0004 | | E200.8 | 02/04/08 20:04 / ts |
| Vanadium | 1.2 | mg/L | | 0.1 | | E200.8 | 01/29/08 00:41 / ts |
| Vanadium, V2O5 | 2.1 | mg/L | | 0.2 | | E200.8 | 01/29/08 00:41 / ts |
| Zinc | 0.91 | mg/L | | 0.01 | | E200.8 | 02/04/08 20:04 / ts |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 11900 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:01 / cp |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Arsenic | 43.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Barium | 772 | mg/kg-dry | D | 0.6 | | SW6010B | 01/25/08 18:01 / cp |
| Beryllium | 0.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Boron | 7 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:44 / cp |
| Cadmium | 3.5 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Calcium | 12900 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:01 / cp |
| Chromium | 5.4 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Copper | 29.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Iron | 6590 | mg/kg-dry | D | 6 | | SW6010B | 01/25/08 18:01 / cp |
| Lead | 181 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Magnesium | 5810 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:44 / cp |
| Manganese | 95.4 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:44 / cp |
| Mercury | 0.29 | mg/kg-dry | | 0.05 | | SW7471A | 01/23/08 10:05 / rw |
| Molybdenum | 71.3 | mg/kg-dry | | 0.5 | | SW6020 | 02/05/08 16:48 / ts |
| Nickel | 3.3 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Phosphorus | 251 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:44 / cp |
| Potassium | 1320 | mg/kg-dry | D | 6 | | SW6010B | 01/25/08 18:44 / cp |
| Selenium | 57.4 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Silica | 1180 | mg/kg-dry | D | 40 | | SW6010B | 01/25/08 18:01 / cp |
| Silver | 2.0 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Sodium | ND | mg/kg-dry | D | 10 | | SW6010B | 01/25/08 18:44 / cp |
| Thallium | 1.1 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:47 / sml |
| Uranium | 12100 | mg/kg-dry | D | 0.6 | | SW6010B | 01/25/08 18:01 / cp |
| Uranium, U3O8 | 14300 | mg/kg-dry | | 0.7 | | SW6010B | 01/25/08 18:01 / cp |
| Vanadium | 9150 | mg/kg-dry | D | 2 | | SW6010B | 01/25/08 18:01 / cp |
| Vanadium, V2O5 | 16300 | mg/kg-dry | D | 3 | | SW6010B | 01/25/08 18:01 / cp |
| Zinc | 240 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:44 / cp |

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-001
**Client Sample ID** Energy Queen Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - GAMMA** | | | | | | | |
| Radium 226 | 2070 | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 226 precision (±) | 5.7 | pCi/g-dry | | | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 228 | ND | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 350 | pCi/L | | 1.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Alpha precision (±) | 5.5 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta | 189 | pCi/L | | 2.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta precision (±) | 3.5 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Radium 226 | 36.8 | pCi/L | | 0.2 | | E903.0 | 01/30/08 15:10 / trs |
| Radium 226 precision (±) | 5.0 | pCi/L | | | | E903.0 | 01/30/08 15:10 / trs |
| Radium 228 | ND | pCi/L | | 1.0 | | RA-05 | 01/25/08 09:55 / plj |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 17000 | pCi/g-dry | | 1.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Alpha precision (±) | 25.0 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta | 12400 | pCi/g-dry | | 2.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta precision (±) | 11.7 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | -3.32 | % | | | | Calculation | 02/12/08 16:22 / sw |
| Anions | 1.16 | meq/L | | | | Calculation | 02/12/08 16:22 / sw |
| Cations | 1.08 | meq/L | | | | Calculation | 02/12/08 16:22 / sw |
| Solids, Total Dissolved Calculated | 71.0 | mg/L | | | | Calculation | 02/12/08 16:22 / sw |
| TDS Balance (0.80 - 1.20) | 0.800 | dec. % | | | | Calculation | 02/12/08 16:22 / sw |

**Report Definitions:**
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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-002
**Client Sample ID** Packrat Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 4.0 | % | | 0.1 | | USDA23c | 01/17/08 10:39 / lb |
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 47 | mg/L | | 10 | | A2320 B | 01/18/08 14:12 / bas |
| Bicarbonate as HCO3 | 58 | mg/L | | 10 | | A2320 B | 01/18/08 14:12 / bas |
| Calcium | 17.1 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:08 / cp |
| Chloride | 6 | mg/L | | 1 | | A4500-Cl B | 01/18/08 13:19 / ljl |
| Fluoride | 0.2 | mg/L | | 0.1 | | A4500-F C | 01/18/08 10:10 / bas |
| Magnesium | 5.2 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:08 / cp |
| Nitrogen, Nitrate as N | 2.4 | mg/L | | 0.1 | | E353.2 | 01/21/08 17:02 / sec |
| Nitrogen, Nitrate+Nitrite as N | 2.4 | mg/L | | 0.1 | | E353.2 | 01/17/08 11:55 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/18/08 13:19 / jal |
| Phosphorus | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:08 / cp |
| Potassium | ND | mg/L | D | 10 | | E200.7 | 01/30/08 15:08 / cp |
| Silica | 2.4 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:08 / cp |
| Sodium | 26 | mg/L | D | 5 | | E200.7 | 01/30/08 15:08 / cp |
| Sulfate | 54 | mg/L | | 1 | | A4500-SO4 E | 01/17/08 12:41 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 1 | | A4500-S F | 01/17/08 16:53 / jp |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 49 | umhos/cm | | 1 | | A2510 B | 01/17/08 13:51 / gg |
| Hardness as CaCO3 | 64 | mg/L | | 6 | | A2340 B | 01/31/08 11:42 / sec |
| pH | 6.58 | s.u. | | 0.01 | | A4500-H B | 01/17/08 13:51 / gg |
| Solids, Total Dissolved TDS @ 180 C | 150 | mg/L | H | 10 | | A2540 C | 01/31/08 14:21 / gg |
| - H-Original analysis was done within hold time. Data is from recheck analysis. | | | | | | | |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:08 / cp |
| Antimony | 0.002 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Arsenic | 0.427 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 01/29/08 02:10 / ts |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:08 / cp |
| Cadmium | 0.002 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 02:10 / ts |
| Copper | 0.10 | mg/L | | 0.01 | | E200.8 | 01/29/08 02:10 / ts |
| Iron | ND | mg/L | | 0.03 | | E200.7 | 01/30/08 15:08 / cp |
| Lead | 0.089 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Manganese | 0.02 | mg/L | | 0.01 | | E200.8 | 01/29/08 02:10 / ts |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-002
**Client Sample ID** Packrat Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Molybdenum | ND | mg/L | | 0.1 | | E200.8 | 01/29/08 02:10 / ts |
| Nickel | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 02:10 / ts |
| Selenium | 0.528 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 02:10 / ts |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:10 / ts |
| Uranium | 0.0824 | mg/L | | 0.0003 | | E200.8 | 01/29/08 02:10 / ts |
| Uranium, U3O8 | 0.0971 | mg/L | | 0.0004 | | E200.8 | 01/29/08 02:10 / ts |
| Vanadium | 8.9 | mg/L | | 0.1 | | E200.8 | 01/29/08 02:10 / ts |
| Vanadium, V2O5 | 15.9 | mg/L | | 0.2 | | E200.8 | 01/29/08 02:10 / ts |
| Zinc | 2.81 | mg/L | | 0.01 | | E200.7 | 01/30/08 15:08 / cp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 19400 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:04 / cp |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Arsenic | 112 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Barium | 385 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Beryllium | 0.6 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Boron | 6 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:47 / cp |
| Cadmium | 1.0 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Calcium | 17400 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:04 / cp |
| Chromium | 5.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Copper | 14.4 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Iron | 9020 | mg/kg-dry | D | 6 | | SW6010B | 01/25/08 18:04 / cp |
| Lead | 32.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Magnesium | 9440 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:04 / cp |
| Manganese | 151 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Mercury | 0.15 | mg/kg-dry | | 0.05 | | SW7471A | 01/23/08 10:08 / rw |
| Molybdenum | 1.7 | mg/kg-dry | | 0.5 | | SW6020 | 02/05/08 16:55 / ts |
| Nickel | 6.4 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Phosphorus | 130 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:47 / cp |
| Potassium | 2890 | mg/kg-dry | D | 6 | | SW6010B | 01/25/08 18:47 / cp |
| Selenium | 120 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Silica | 1030 | mg/kg-dry | D | 30 | | SW6010B | 01/25/08 18:04 / cp |
| Silver | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Sodium | 441 | mg/kg-dry | D | 10 | | SW6010B | 01/25/08 18:47 / cp |
| Thallium | 0.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |
| Uranium | 883 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:47 / cp |
| Uranium, U3O8 | 1040 | mg/kg-dry | | 0.6 | | SW6010B | 01/25/08 18:47 / cp |
| Vanadium | 14500 | mg/kg-dry | D | 2 | | SW6010B | 01/25/08 18:04 / cp |
| Vanadium, V2O5 | 26000 | mg/kg-dry | D | 3 | | SW6010B | 01/25/08 18:04 / cp |
| Zinc | 69.6 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 21:55 / sml |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-002
**Client Sample ID** Packrat Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - GAMMA** | | | | | | | |
| Radium 226 | 334 | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 226 precision (±) | 2.9 | pCi/g-dry | | | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 228 | ND | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 94.4 | pCi/L | | 1.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Alpha precision (±) | 2.7 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta | 42.8 | pCi/L | | 2.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta precision (±) | 2.1 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Radium 226 | 2.7 | pCi/L | | 0.2 | | E903.0 | 01/30/08 15:10 / trs |
| Radium 226 precision (±) | 1.5 | pCi/L | | | | E903.0 | 01/30/08 15:10 / trs |
| Radium 228 | ND | pCi/L | | 1.0 | | RA-05 | 01/25/08 09:55 / plj |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 2770 | pCi/g-dry | | 1.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Alpha precision (±) | 10.1 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta | 1690 | pCi/g-dry | | 2.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta precision (±) | 4.4 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | 1.88 | % | | | | Calculation | 02/12/08 16:23 / sw |
| Anions | 2.41 | meq/L | | | | Calculation | 02/12/08 16:23 / sw |
| Cations | 2.50 | meq/L | | | | Calculation | 02/12/08 16:23 / sw |
| Solids, Total Dissolved Calculated | 153 | mg/L | | | | Calculation | 02/12/08 16:23 / sw |
| TDS Balance (0.80 - 1.20) | 0.980 | dec. % | | | | Calculation | 02/12/08 16:23 / sw |

**Report Definitions:**
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-003
**Client Sample ID** Paradox Valley Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 4.9 | % | | 0.1 | | USDA23c | 01/17/08 10:39 / lb |
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 54 | mg/L | | 10 | | A2320 B | 01/18/08 13:49 / bas |
| Bicarbonate as HCO3 | 66 | mg/L | | 10 | | A2320 B | 01/18/08 13:49 / bas |
| Calcium | 150 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:11 / cp |
| Chloride | 7 | mg/L | | 1 | | A4500-Cl B | 01/18/08 13:24 / ljl |
| Fluoride | 0.1 | mg/L | | 0.1 | | A4500-F C | 01/18/08 10:18 / bas |
| Magnesium | 4.1 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:11 / cp |
| Nitrogen, Nitrate as N | 6.3 | mg/L | | 0.1 | | E353.2 | 01/21/08 17:02 / sec |
| Nitrogen, Nitrate+Nitrite as N | 6.3 | mg/L | | 0.2 | | E353.2 | 01/17/08 12:09 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/18/08 13:28 / jal |
| Phosphorus | 0.1 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:11 / cp |
| Potassium | ND | mg/L | D | 10 | | E200.7 | 01/30/08 15:11 / cp |
| Silica | 2.7 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:11 / cp |
| Sodium | 9 | mg/L | D | 5 | | E200.7 | 01/30/08 15:11 / cp |
| Sulfate | 342 | mg/L | D | 6 | | A4500-SO4 E | 01/17/08 12:51 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 1 | | A4500-S F | 01/17/08 16:56 / jp |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 91 | umhos/cm | | 1 | | A2510 B | 01/17/08 13:54 / gg |
| Hardness as CaCO3 | 391 | mg/L | | 6 | | A2340 B | 01/31/08 14:07 / sw |
| pH | 8.44 | s.u. | | 0.01 | | A4500-H B | 01/17/08 13:54 / gg |
| Solids, Total Dissolved TDS @ 180 C | 577 | mg/L | | 10 | | A2540 C | 01/17/08 15:33 / dd |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:11 / cp |
| Antimony | 0.003 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Arsenic | 0.028 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 01/29/08 02:17 / ts |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:11 / cp |
| Cadmium | 0.003 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 02:17 / ts |
| Copper | 1.33 | mg/L | | 0.01 | | E200.8 | 01/29/08 02:17 / ts |
| Iron | 0.04 | mg/L | | 0.03 | | E200.7 | 01/30/08 15:11 / cp |
| Lead | 1.32 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Manganese | 0.04 | mg/L | | 0.01 | | E200.8 | 01/29/08 02:17 / ts |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |

**Report Definitions:**
RL - Analyte reporting limit.
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D - RL increased due to sample matrix interference.
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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-003
**Client Sample ID** Paradox Valley Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Molybdenum | 0.8 | mg/L | | 0.1 | | E200.8 | 01/29/08 02:17 / ts |
| Nickel | 0.06 | mg/L | | 0.05 | | E200.8 | 01/29/08 02:17 / ts |
| Selenium | 0.250 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 02:17 / ts |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:17 / ts |
| Uranium | 0.0225 | mg/L | | 0.0003 | | E200.8 | 01/29/08 02:17 / ts |
| Uranium, U3O8 | 0.0265 | mg/L | | 0.0004 | | E200.8 | 01/29/08 02:17 / ts |
| Vanadium | 41.3 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:11 / cp |
| Vanadium, V2O5 | 73.8 | mg/L | | 0.2 | | E200.7 | 01/30/08 15:11 / cp |
| Zinc | 12.5 | mg/L | | 0.01 | | E200.7 | 01/30/08 15:11 / cp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 11500 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:07 / cp |
| Antimony | 0.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Arsenic | 12.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Barium | 780 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Beryllium | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Boron | 41 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:50 / cp |
| Cadmium | 3.8 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Calcium | 36200 | mg/kg-dry | D | 30 | | SW6010B | 01/25/08 18:07 / cp |
| Chromium | 7.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Copper | 30.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Iron | 5350 | mg/kg-dry | D | 8 | | SW6010B | 01/25/08 18:07 / cp |
| Lead | 23.6 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Magnesium | 7220 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:07 / cp |
| Manganese | 290 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Mercury | 0.13 | mg/kg-dry | | 0.05 | | SW7471A | 01/23/08 10:10 / rw |
| Molybdenum | 45.1 | mg/kg-dry | | 0.5 | | SW6020 | 02/05/08 17:02 / ts |
| Nickel | 4.4 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Phosphorus | 189 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:50 / cp |
| Potassium | 3410 | mg/kg-dry | D | 9 | | SW6010B | 01/25/08 18:50 / cp |
| Selenium | 97.9 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Silica | 1380 | mg/kg-dry | D | 50 | | SW6010B | 01/25/08 18:07 / cp |
| Silver | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Sodium | 147 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:50 / cp |
| Thallium | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |
| Uranium | 984 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:50 / cp |
| Uranium, U3O8 | 1160 | mg/kg-dry | | 0.6 | | SW6010B | 01/25/08 18:50 / cp |
| Vanadium | 3920 | mg/kg-dry | D | 2 | | SW6010B | 01/25/08 18:07 / cp |
| Vanadium, V2O5 | 6990 | mg/kg-dry | D | 4 | | SW6010B | 01/25/08 18:07 / cp |
| Zinc | 58.0 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:25 / sml |

**Report Definitions:**
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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-003
**Client Sample ID** Paradox Valley Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - GAMMA** | | | | | | | |
| Radium 226 | 274 | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 226 precision (±) | 2.7 | pCi/g-dry | | | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 228 | ND | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 68.7 | pCi/L | | 1.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Alpha precision (±) | 1.8 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta | 25.8 | pCi/L | | 2.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta precision (±) | 1.8 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Radium 226 | 2.0 | pCi/L | | 0.2 | | E903.0 | 01/30/08 15:10 / trs |
| Radium 226 precision (±) | 1.4 | pCi/L | | | | E903.0 | 01/30/08 15:10 / trs |
| Radium 228 | 8.3 | pCi/L | | 1.0 | | RA-05 | 01/25/08 09:55 / plj |
| Radium 228 precision (±) | 4.9 | pCi/L | | | | RA-05 | 01/25/08 09:55 / plj |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 1630 | pCi/g-dry | | 1.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Alpha precision (±) | 7.8 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta | 1190 | pCi/g-dry | | 2.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta precision (±) | 3.7 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | -3.19 | % | | | | Calculation | 02/12/08 16:24 / sw |
| Anions | 8.86 | meq/L | | | | Calculation | 02/12/08 16:24 / sw |
| Cations | 8.32 | meq/L | | | | Calculation | 02/12/08 16:24 / sw |
| Solids, Total Dissolved Calculated | 579 | mg/L | | | | Calculation | 02/12/08 16:24 / sw |
| TDS Balance (0.80 - 1.20) | 1.00 | dec. % | | | | Calculation | 02/12/08 16:24 / sw |

**Report Definitions:**
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-004
**Client Sample ID** Slick Rock Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Lime as CaCO3 | 7.4 | % | | 0.1 | | USDA23c | 01/17/08 10:40 / lb |
| **MAJOR IONS - SPLP EXTRACTABLE** | | | | | | | |
| Alkalinity, Total as CaCO3 | 22 | mg/L | | 10 | | A2320 B | 01/18/08 14:19 / bas |
| Bicarbonate as HCO3 | 27 | mg/L | | 10 | | A2320 B | 01/18/08 14:19 / bas |
| Calcium | 34.3 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:17 / cp |
| Chloride | 14 | mg/L | | 1 | | A4500-Cl B | 01/18/08 13:28 / ljl |
| Fluoride | 0.1 | mg/L | | 0.1 | | A4500-F C | 01/18/08 10:21 / bas |
| Magnesium | 4.1 | mg/L | | 0.5 | | E200.7 | 01/30/08 15:17 / cp |
| Nitrogen, Nitrate as N | 9.6 | mg/L | | 0.1 | | E353.2 | 01/21/08 17:02 / sec |
| Nitrogen, Nitrate+Nitrite as N | 9.6 | mg/L | | 0.2 | | E353.2 | 01/17/08 12:12 / jal |
| Nitrogen, Nitrite as N | ND | mg/L | | 0.1 | | A4500-NO2 B | 01/18/08 13:20 / jal |
| Phosphorus | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:17 / cp |
| Potassium | ND | mg/L | D | 10 | | E200.7 | 01/30/08 15:17 / cp |
| Silica | 4.6 | mg/L | | 0.1 | | E200.7 | 01/30/08 15:17 / cp |
| Sodium | 14 | mg/L | D | 5 | | E200.7 | 01/30/08 15:17 / cp |
| Sulfate | 77 | mg/L | | 1 | | A4500-SO4 E | 01/17/08 12:53 / ljl |
| **NON-METALS - SPLP EXTRACTABLE** | | | | | | | |
| Sulfide | ND | mg/L | | 1 | | A4500-S F | 01/17/08 16:58 / jp |
| **PHYSICAL PROPERTIES - SPLP EXTRACTABLE** | | | | | | | |
| Conductivity | 250 | umhos/cm | | 1 | | A2510 B | 01/17/08 13:56 / gg |
| Hardness as CaCO3 | 102 | mg/L | | 6 | | A2340 B | 01/31/08 11:42 / sec |
| pH | 8.02 | s.u. | | 0.01 | | A4500-H B | 01/17/08 13:56 / gg |
| Solids, Total Dissolved TDS @ 180 C | 165 | mg/L | H | 10 | | A2540 C | 01/31/08 14:21 / gg |
| - H-Original analysis was done within hold time. Data is from recheck analysis. | | | | | | | |
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Aluminum | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:17 / cp |
| Antimony | 0.003 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Arsenic | 0.043 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Barium | ND | mg/L | | 0.1 | | E200.8 | 01/29/08 02:23 / ts |
| Beryllium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 01/30/08 15:17 / cp |
| Cadmium | 0.004 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Chromium | ND | mg/L | | 0.05 | | E200.8 | 01/29/08 02:23 / ts |
| Copper | 1.05 | mg/L | | 0.01 | | E200.8 | 01/29/08 02:23 / ts |
| Iron | 0.07 | mg/L | | 0.03 | | E200.7 | 01/30/08 15:17 / cp |
| Lead | 1.23 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Manganese | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 02:23 / ts |
| Mercury | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-004
**Client Sample ID** Slick Rock Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - SPLP EXTRACTABLE** | | | | | | | |
| Molybdenum | 0.3 | mg/L | | 0.1 | | E200.8 | 01/29/08 02:23 / ts |
| Nickel | 0.10 | mg/L | | 0.05 | | E200.8 | 01/29/08 02:23 / ts |
| Selenium | 0.242 | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Silver | ND | mg/L | | 0.01 | | E200.8 | 01/29/08 02:23 / ts |
| Thallium | ND | mg/L | | 0.001 | | E200.8 | 01/29/08 02:23 / ts |
| Uranium | 0.0213 | mg/L | | 0.0003 | | E200.8 | 01/29/08 02:23 / ts |
| Uranium, U3O8 | 0.0251 | mg/L | | 0.0004 | | E200.8 | 01/29/08 02:23 / ts |
| Vanadium | 4.5 | mg/L | | 0.1 | | E200.8 | 01/29/08 02:23 / ts |
| Vanadium, V2O5 | 8.1 | mg/L | | 0.2 | | E200.8 | 01/29/08 02:23 / ts |
| Zinc | 17.7 | mg/L | | 0.01 | | E200.7 | 01/30/08 15:17 / cp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 12900 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:11 / cp |
| Antimony | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Arsenic | 9.6 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Barium | 267 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Beryllium | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Boron | 26 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:54 / cp |
| Cadmium | 2.0 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Calcium | 26600 | mg/kg-dry | D | 30 | | SW6010B | 01/25/08 18:11 / cp |
| Chromium | 7.3 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Copper | 15.6 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Iron | 7520 | mg/kg-dry | D | 8 | | SW6010B | 01/25/08 18:11 / cp |
| Lead | 43.1 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Magnesium | 17300 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:11 / cp |
| Manganese | 354 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:54 / cp |
| Mercury | 0.09 | mg/kg-dry | | 0.05 | | SW7471A | 01/23/08 10:12 / rw |
| Molybdenum | 21.8 | mg/kg-dry | | 0.5 | | SW6020 | 02/05/08 17:08 / ts |
| Nickel | 4.3 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Phosphorus | 177 | mg/kg-dry | | 5 | | SW6010B | 01/25/08 18:54 / cp |
| Potassium | 3080 | mg/kg-dry | D | 8 | | SW6010B | 01/25/08 18:54 / cp |
| Selenium | 64.2 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Silica | 1070 | mg/kg-dry | D | 9 | | SW6010B | 01/25/08 18:54 / cp |
| Silver | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Sodium | 202 | mg/kg-dry | D | 20 | | SW6010B | 01/25/08 18:54 / cp |
| Thallium | ND | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |
| Uranium | 1160 | mg/kg-dry | | 0.5 | | SW6010B | 01/25/08 18:54 / cp |
| Uranium, U3O8 | 1360 | mg/kg-dry | | 0.6 | | SW6010B | 01/25/08 18:54 / cp |
| Vanadium | 5980 | mg/kg-dry | D | 2 | | SW6010B | 01/25/08 18:11 / cp |
| Vanadium, V2O5 | 10700 | mg/kg-dry | D | 4 | | SW6010B | 01/25/08 18:11 / cp |
| Zinc | 45.0 | mg/kg-dry | | 0.5 | | SW6020 | 01/31/08 22:32 / sml |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** Energy Fuels Resources Corporation
**Project:** Pinon Ridge Mill
**Lab ID:** C08010695-004
**Client Sample ID** Slick Rock Mine Ore

**Report Date:** 03/13/08
**Collection Date:** 01/10/08
**DateReceived:** 01/16/08
**Matrix:** Solid

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - GAMMA** | | | | | | | |
| Radium 226 | 335 | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 226 precision (±) | 3.0 | pCi/g-dry | | | | E901.1 | 01/31/08 16:32 / dpb |
| Radium 228 | ND | pCi/g-dry | | 0.1 | | E901.1 | 01/31/08 16:32 / dpb |
| **RADIONUCLIDES - SPLP EXTRACTABLE** | | | | | | | |
| Gross Alpha | 89.3 | pCi/L | | 1.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Alpha precision (±) | 2.6 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta | 43.8 | pCi/L | | 2.0 | | E900.0 | 02/09/08 05:46 / res |
| Gross Beta precision (±) | 2.1 | pCi/L | | | | E900.0 | 02/09/08 05:46 / res |
| Radium 226 | 17.1 | pCi/L | | 0.2 | | E903.0 | 01/30/08 15:10 / trs |
| Radium 226 precision (±) | 3.1 | pCi/L | | | | E903.0 | 01/30/08 15:10 / trs |
| Radium 228 | ND | pCi/L | | 1.0 | | RA-05 | 01/25/08 09:55 / plj |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 2130 | pCi/g-dry | | 1.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Alpha precision (±) | 8.8 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta | 1640 | pCi/g-dry | | 2.0 | | E900.0 | 01/21/08 12:00 / crw |
| Gross Beta precision (±) | 4.3 | pCi/g-dry | | | | E900.0 | 01/21/08 12:00 / crw |
| **DATA QUALITY** | | | | | | | |
| A/C Balance (± 5) | -5.76 | % | | | | Calculation | 02/12/08 16:27 / sw |
| Anions | 3.11 | meq/L | | | | Calculation | 02/12/08 16:27 / sw |
| Cations | 2.78 | meq/L | | | | Calculation | 02/12/08 16:27 / sw |
| Solids, Total Dissolved Calculated | 207 | mg/L | | | | Calculation | 02/12/08 16:27 / sw |
| TDS Balance (0.80 - 1.20) | 0.800 | dec. % | | | | Calculation | 02/12/08 16:27 / sw |

- The Anion / Cation balance was confirmed by re-analysis.

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# URANIUM MINE WATER TREATMENT PRECIPITANT FROM WHIRLWIND MINE

## Whirlwind Uranium Mine Water Treatment Precipitant Data Summary

| Sample ID | | Treated Water | Whirlwind Sludge | Sedimentation Tank Sludge | Settling Tank | Min Value | Max Value | Mean Value |
|---|---|---|---|---|---|---|---|---|
| Date | | 4/30/2008 | 9/9/2008 | 4/13/2009 | 7/27/2009 | | | |
| | Unit | | | | | | | |
| **Total Metals** | | | | | | | | |
| Aluminum | mg/kg-dry | // | // | // | 10600 | 10600 | 10600 | 10600 |
| Antimony | mg/kg-dry | // | // | // | 3.4 | 3.4 | 3.4 | 3.4 |
| Arsenic | mg/kg-dry | // | // | // | 311 | 311 | 311 | 311 |
| Barium | mg/kg-dry | // | // | // | 39100 | 39100 | 39100 | 39100 |
| Beryllium | mg/kg-dry | // | // | // | <0.5 | <0.5 | <0.5 | <0.5 |
| Boron | mg/kg-dry | // | // | // | 14.1 | 14.1 | 14.1 | 14.1 |
| Cadmium | mg/kg-dry | // | // | // | 2.5 | 2.5 | 2.5 | 2.5 |
| Calcium | mg/kg-dry | // | // | // | 6380 | 6380 | 6380 | 6380 |
| Chromium | mg/kg-dry | // | // | // | 153 | 153 | 153 | 153 |
| Copper | mg/kg-dry | // | // | // | 74.8 | 74.8 | 74.8 | 74.8 |
| Iron | mg/kg-dry | // | // | // | 330000 | 330000 | 330000 | 330000 |
| Lead | mg/kg-dry | // | // | // | 4.7 | 4.7 | 4.7 | 4.7 |
| Magnesium | mg/kg-dry | // | // | // | 919 | 919 | 919 | 919 |
| Manganese | mg/kg-dry | // | // | // | 143 | 143 | 143 | 143 |
| Molybdenum | mg/kg-dry | // | // | // | 68.5 | 68.5 | 68.5 | 68.5 |
| Nickel | mg/kg-dry | // | // | // | 30.3 | 30.3 | 30.3 | 30.3 |
| Phosphorus | mg/kg-dry | // | // | // | 424 | 424 | 424 | 424 |
| Potassium | mg/kg-dry | // | // | // | 661 | 661 | 661 | 661 |
| Selenium | mg/kg-dry | // | // | // | 59.5 | 59.5 | 59.5 | 59.5 |
| Silica | mg/kg-dry | // | // | // | 5040 | 5040 | 5040 | 5040 |
| Sodium | mg/kg-dry | // | // | // | 1460 | 1460 | 1460 | 1460 |
| Uranium | mg/kg-dry | 929 | 778 | 526 | 1010 | 526 | 1010 | 810.75 |
| Vanadium | mg/kg-dry | // | // | // | 726 | 726 | 726 | 726 |
| Zinc | mg/kg-dry | // | // | // | 296 | 296 | 296 | 296 |
| **TCLP Metals** | | | | | | | | |
| Arsenic | mg/L | <0.5 | <0.5 | // | <0.5 | N/A | N/A | N/A |
| Barium | mg/L | <10 | 16 | // | <10 | 16 | 16 | 16 |
| Cadmium | mg/L | <0.1 | <0.1 | // | <0.1 | N/A | N/A | N/A |
| Chromium | mg/L | <0.5 | <0.5 | // | <0.5 | N/A | N/A | N/A |
| Lead | mg/L | <0.5 | >0.5 | // | <0.5 | N/A | N/A | N/A |
| Mercury | mg/L | <0.02 | <0.02 | // | <0.02 | N/A | N/A | N/A |
| Selenium | mg/L | <0.1 | <0.1 | // | <0.1 | N/A | N/A | N/A |
| Silver | mg/L | <0.5 | <0.5 | // | <0.5 | N/A | N/A | N/A |
| **Total Radionuclides** | | | | | | | | |
| Uranium | ρCi/g-dry | 629 | 527 | 356 | 684 | 356 | 684 | 549 |
| Gross Alpha | ρCi/g-dry | // | // | // | 230 | 230 | 230 | 230 |
| Gross Beta | ρCi/g-dry | // | // | // | 148 | 148 | 148 | 148 |
| Radium 226 | ρCi/g-dry | 2 | 2.9 | 4.2 | 4.1 | 2 | 4.2 | 3.3 |
| Radium 228 | ρCi/g-dry | // | // | // | 0.6 | 0.6 | 0.6 | 0.6 |

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# LABORATORY ANALYTICAL REPORT

Client: Energy Fuels Resources Corporation
Project: Whirlwind Mine CO-0047562
Lab ID: C08050107-002
Client Sample ID: Treated Water

Report Date: 06/04/08
Collection Date: 04/30/08 15:30
DateReceived: 05/02/08
Matrix: Soil

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **PHYSICAL PROPERTIES** | | | | | | | |
| Filterable | Yes | | | | | SW1311 | 05/06/08 13:25 / dcj |
| **METALS - TOTAL** | | | | | | | |
| Uranium | 929 | mg/kg-dry | | 0.02 | | SW6020 | 06/03/08 09:19 / sml |
| **METALS - TCLP** | | | | | | | |
| Arsenic | ND | mg/L | | 0.5 | 5 | SW6010B | 05/15/08 02:18 / cp |
| Barium | ND | mg/L | | 10 | 100 | SW6010B | 05/15/08 02:18 / cp |
| Cadmium | ND | mg/L | | 0.1 | 1 | SW6010B | 05/15/08 02:18 / cp |
| Chromium | ND | mg/L | | 0.5 | 5 | SW6010B | 05/15/08 02:18 / cp |
| Lead | ND | mg/L | | 0.5 | 5 | SW6010B | 05/15/08 02 18 / cp |
| Mercury | ND | mg/L | | 0.02 | 0.2 | SW7470A | 05/07/08 12:11 / ae |
| Selenium | ND | mg/L | | 0.1 | 1 | SW6010B | 05/15/08 02.18 / cp |
| Silver | ND | mg/L | | 0.5 | 5 | SW6010B | 05/15/08 02.18 / cp |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Radium 226 | 2.0 | pCi/g-dry | | | | E903.0 | 05/28/08 18:11 / trs |
| Radium 226 precision (±) | 0.1 | pCi/g-dry | | | | E903.0 | 05/28/08 18:11 / trs |
| Radium 226 MDC | 0.03 | pCi/g-dry | | | | E903.0 | 05/28/08 18.11 / trs |

Report Definitions:
RL - Analyte reporting limit
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

Client: Energy Fuels Resources Corporation
Project: Whirlwind
Lab ID: C08090526-001
Client Sample ID: WW Sludge

Report Date: 10/14/08
Collection Date: 09/09/08 14:00
DateReceived: 09/12/08
Matrix: Soil

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **PHYSICAL PROPERTIES** | | | | | | | |
| Filterable | Yes | | | | | SW1311 | 09/17/08 14:48 / dcj |
| **METALS - TOTAL** | | | | | | | |
| Uranium | 778 | mg/kg-dry | | 0.5 | | SW6020 | 09/24/08 01:31 / ts |
| **METALS - TCLP** | | | | | | | |
| Arsenic | ND | mg/L | | 0.5 | 5 | SW6010B | 09/17/08 21:54 / cp |
| Barium | 16 | mg/L | | 10 | 100 | SW6010B | 09/17/08 21:54 / cp |
| Cadmium | ND | mg/L | | 0.1 | 1 | SW6010B | 09/17/08 21:54 / cp |
| Chromium | ND | mg/L | | 0.5 | 5 | SW6010B | 09/17/08 21:54 / cp |
| Lead | ND | mg/L | | 0.5 | 5 | SW6010B | 09/17/08 21:54 / cp |
| Mercury | ND | mg/L | | 0.02 | 0.2 | SW7470A | 09/24/08 15:51 / ae |
| Selenium | ND | mg/L | | 0.1 | 1 | SW6010B | 09/17/08 21:54 / cp |
| Silver | ND | mg/L | | 0.5 | 5 | SW6010B | 09/17/08 21:54 / cp |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Radium 226 | 2.9 | pCi/g-dry | | | | E903.0 | 10/09/08 09:28 / trs |
| Radium 226 precision (±) | 0.2 | pCi/g-dry | | | | E903.0 | 10/09/08 09:28 / trs |
| Radium 226 MDC | 0.05 | pCi/g-dry | | | | E903.0 | 10/09/08 09:28 / trs |

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

Client: Energy Fuels Resources Corporation
Project: Whirlwind Mine
Lab ID: C09040501-001
Client Sample ID: Sedimentation Tank Sludge

Report Date: 06/01/09
Collection Date: 04/13/09 14:30
DateReceived: 04/15/09
Matrix: Sludge

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - TOTAL** | | | | | | | |
| Uranium | 526 | mg/kg-dry | | 0 5 | | SW6020 | 04/22/09 05:12 / sml |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Radium 226 | 4 2 | pCi/g-dry | | | | E903.0 | 05/26/09 14:01 / trs |
| Radium 226 precision (±) | 0 3 | pCi/g-dry | | | | E903.0 | 05/26/09 14:01 / trs |
| Radium 226 MDC | 0.09 | pCi/g-dry | | | | E903.0 | 05/26/09 14 01 / trs |

Report Definitions:
RL - Analyte reporting limit
QCL Quality control limit
MDC - Minimum detectable concentration
MCL - Maximum contaminant level
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

Revised Date: 09/10/09
Report Date: 08/11/09
Collection Date: 07/27/09 10:30
DateReceived: 07/28/09
Matrix: Solid

Client: Energy Fuels Resources Corporation
Project: Treatment Solids
Lab ID: C09071057-001
Client Sample ID: Settling Tank

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **AGRONOMIC PROPERTIES** | | | | | | | |
| Moisture | 73.7 | % | | 0.1 | | USDA26 | 07/29/09 10.40 / mkf |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Filterable | No | | | | | SW1311 | 08/18/09 09:49 / dcj |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 10600 | mg/kg-dry | D | 2.8 | | SW6020 | 08/03/09 22:34 / sml |
| Antimony | 3.4 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Arsenic | 311 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Barium | 39100 | mg/kg-dry | | 0.5 | | SW6020 | 08/04/09 12:07 / sml |
| Beryllium | ND | mg/kg-dry | | 0.5 | | SW6020 | 08/04/09 12 07 / sml |
| Boron | 14.1 | mg/kg-dry | | 5 0 | | SW6020 | 08/04/09 12:07 / sml |
| Cadmium | 2.5 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22 34 / sml |
| Calcium | 6380 | mg/kg-dry | D | 9.0 | | SW6010B | 08/03/09 23.51 / cp |
| Chromium | 153 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22.34 / sml |
| Copper | 74.8 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Iron | 330000 | mg/kg-dry | D | 20.2 | | SW6020 | 08/29/09 06 15 / sml |
| Lead | 4.7 | mg/kg-dry | | 0 5 | | SW6020 | 08/03/09 22:34 / sml |
| Magnesium | 919 | mg/kg-dry | | 5.0 | | SW6010B | 08/11/09 01:10 / cp |
| Manganese | 143 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Mercury | ND | mg/kg-dry | | 0.050 | | SW7471A | 07/29/09 16.46 / aae |
| Molybdenum | 68.5 | mg/kg-dry | | 0 5 | | SW6020 | 08/03/09 22:34 / sml |
| Nickel | 30.3 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Phosphorus | 424 | mg/kg-dry | | 5.0 | | SW6010B | 08/11/09 01 10 / cp |
| Potassium | 661 | mg/kg-dry | D | 6.4 | | SW6010B | 08/03/09 23.51 / cp |
| Selenium | 59.5 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Silica | 5040 | mg/kg-dry | D | 13.9 | | SW6010B | 08/03/09 23.51 / cp |
| Silver | ND | mg/kg-dry | | 0 5 | | SW6010B | 08/03/09 23:51 / cp |
| Sodium | 1460 | mg/kg-dry | D | 37.6 | | SW6010B | 08/03/09 23:51 / cp |
| Thallium | ND | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Uranium | 1010 | mg/kg-dry | | 0 5 | | SW6020 | 08/03/09 22:34 / sml |
| Uranium, U3O8 | 1200 | mg/kg-dry | | 0.6 | | SW6020 | 08/03/09 22:34 / sml |
| Vanadium | 726 | mg/kg-dry | | 0.5 | | SW6020 | 08/03/09 22:34 / sml |
| Vanadium, V2O5 | 1290 | mg/kg-dry | | 0.9 | | SW6020 | 08/03/09 22.34 / sml |
| Zinc | 296 | mg/kg-dry | | 0.5 | | SW6020 | 08/04/09 12:07 / sml |
| **METALS - TCLP EXTRACTABLE** | | | | | | | |
| Arsenic | ND | mg/L | | 0.5 | 5 | SW6010B | 08/21/09 01:33 / cp |
| Barium | ND | mg/L | | 10 | 100 | SW6010B | 08/21/09 01.33 / cp |
| Cadmium | ND | mg/L | | 0 1 | 1 | SW6010B | 08/21/09 01.33 / cp |
| Chromium | ND | mg/L | | 0 5 | 5 | SW6010B | 08/21/09 01.33 / cp |
| Lead | ND | mg/L | | 0 5 | 5 | SW6010B | 08/21/09 01.33 / cp |

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit
D - RL increased due to sample matrix interference
MCL - Maximum contaminant level
ND - Not detected at the reporting limit

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# LABORATORY ANALYTICAL REPORT

Revised Date: 09/10/09
Report Date: 08/11/09
Collection Date: 07/27/09 10:30
DateReceived: 07/28/09
Matrix: Solid

Client: Energy Fuels Resources Corporation
Project: Treatment Solids
Lab ID: C09071057-001
Client Sample ID: Settling Tank

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **METALS - TCLP EXTRACTABLE** | | | | | | | |
| Mercury | ND | mg/L | | 0.02 | 0.2 | SW7470A | 08/20/09 11:36 / jp |
| Selenium | ND | mg/L | | 0.1 | 1 | SW6010B | 08/21/09 01 33 / cp |
| Silver | ND | mg/L | | 0.5 | 5 | SW6010B | 08/21/09 01.33 / cp |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 230 | pCi/g-dry | | | | E900.0 | 09/01/09 00.27 / cgr |
| Gross Alpha precision (±) | 7.6 | pCi/g-dry | | | | E900.0 | 09/01/09 00 27 / cgr |
| Gross Beta | 148 | pCi/g-dry | | | | E900 0 | 09/01/09 00.27 / cgr |
| Gross Beta precision (±) | 4.9 | pCi/g-dry | | | | E900.0 | 09/01/09 00:27 / cgr |
| Radium 226 | 4.1 | pCi/g-dry | | | | E903.0 | 09/01/09 16 40 / trs |
| Radium 226 precision (±) | 0.3 | pCi/g-dry | | | | E903.0 | 09/01/09 16.40 / trs |
| Radium 226 MDC | 0.09 | pCi/g-dry | | | | E903 0 | 09/01/09 16 40 / trs |
| Radium 228 | 0.6 | pCi/g-dry | | | | RA-05 | 08/28/09 13.52 / plj |
| Radium 228 precision (±) | 0.3 | pCi/g-dry | | | | RA-05 | 08/28/09 13 52 / plj |
| Radium 228 MDC | 0.5 | pCi/g-dry | | | | RA-05 | 08/28/09 13:52 / plj |

Report Definitions:
RL - Analyte reporting limit
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL Maximum contaminant level
ND - Not detected at the reporting limit

# TAILINGS SOLUTION DATA
# FROM WHITE MESA MILL

## White Mesa Mill Tailings Solution Data Summary

| | Cell ID | #1a | #1b | #1c | #1d | #1e | #1f | #3a | #3b | #3c | #3d | #3e | #3f | Minimum Value | Maximum Value | Mean Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analyses** | **Units** | | | | | | | | | | | | | | | |
| **Major Ions** | | | | | | | | | | | | | | | | |
| Calcium | mg/L | 343 | 291 | 285 | 308 | 297 | 320 | 406 | 429 | 397 | 413 | 432 | 433 | 285 | 433 | 362.83 |
| Carbonate as CaCO3 | mg/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | N/A | N/A | N/A |
| Chloride | mg/L | 7690 | 5420 | 4630 | 7720 | 8000 | 6910 | 2770 | 2670 | 2670 | 2110 | 2140 | 2400 | 2110 | 8000 | 4594.17 |
| Fluoride | mg/L | 1780 | 2330 | 2240 | 4440 | 4010 | 3230 | 709 | 759 | 733 | 615 | 580 | 605 | 580 | 4440 | 1835.92 |
| Magnesium | mg/L | 6800 | 4940 | 4220 | 6850 | 6720 | 6300 | 3850 | 3830 | 3640 | 3100 | 2500 | 3400 | 2500 | 6850 | 4679.17 |
| Ammonia as N | mg/L | 3510 | 2350 | 2140 | 4520 | 3410 | 4190 | 1390 | 1480 | 1420 | 1160 | 1110 | 1250 | 1110 | 4520 | 2327.50 |
| Nitrate+Nitrite | mg/L | 47.0 | 35.5 | 29.8 | 46.6 | 49.2 | 42.7 | 21.0 | 20.9 | 21.5 | 17.0 | 19.1 | 20.6 | 17.0 | 49.2 | 30.91 |
| Phosphorus | mg/L | 353 | 246 | 200 | 344 | 341 | 318 | 124 | 120 | 120 | 89.4 | 88.1 | 108 | 88.1 | 353 | 204.29 |
| Potassium | mg/L | 828 | 522 | 441 | 718 | 712 | 661 | 285 | 283 | 268 | 219 | 221 | 250 | 219 | 828 | 450.67 |
| Sodium | mg/L | 9950 | 7160 | 6150 | 9910 | 9630 | 9030 | 3820 | 3770 | 3270 | 2620 | 2660 | 3050 | 2620 | 9950 | 5918.33 |
| Sulfate | mg/L | 72900 | 52000 | 44900 | 73700 | 71300 | 67200 | 37100 | 37300 | 32800 | 29800 | 29800 | 33600 | 29800 | 73700 | 48533.33 |
| **Total Metals** | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 2460 | 1790 | 1560 | 2530 | 2480 | 2340 | 1640 | 1640 | 1570 | 1330 | 1330 | 1480 | 1330 | 2530 | 1845.83 |
| Arsenic | mg/L | 146 | 104 | 83.6 | 142 | 141 | 111 | 38.4 | 38.5 | 36.2 | 25.8 | 26.1 | 31.8 | 25.8 | 146 | 77.03 |
| Barium | mg/L | 0.036 | 0.055 | 0.093 | 0.035 | 0.039 | 0.070 | 0.021 | 0.035 | 0.032 | 0.028 | 0.046 | 0.039 | 0.021 | 0.093 | 0.04 |
| Beryllium | mg/L | 0.499 | 0.402 | 0.347 | 0.532 | 0.545 | 0.527 | 0.462 | 0.464 | 0.461 | 0.373 | 0.386 | 0.435 | 0.347 | 0.545 | 0.45 |
| Boron | mg/L | 8.04 | 8.33 | 6.93 | 11.3 | 11.3 | 10.4 | 5.24 | 5.23 | 4.94 | 3.95 | 4.00 | 4.61 | 3.95 | 11.3 | 7.02 |
| Cadmium | mg/L | 4.41 | 3.27 | 2.66 | 4.40 | 4.48 | 4.72 | 2.24 | 2.13 | 2.04 | 1.64 | 1.64 | 2.06 | 1.64 | 4.72 | 2.97 |
| Chromium | mg/L | 7.07 | 5.46 | 4.77 | 7.13 | 7.17 | 6.59 | 4.12 | 4.12 | 3.90 | 3.20 | 3.28 | 3.83 | 3.20 | 7.17 | 5.05 |
| Copper | mg/L | 227 | 168 | 140 | 233 | 237 | 175 | 97.8 | 99.9 | 95.5 | 72.2 | 72.7 | 84.6 | 72.2 | 237 | 141.89 |
| Iron | mg/L | 3220 | 2300 | 1940 | 3290 | 3190 | 2980 | 1440 | 1430 | 1360 | 1080 | 1100 | 1260 | 1080 | 3290 | 2049.17 |
| Lead | mg/L | 3.17 | 3.42 | 3.60 | 3.21 | 3.15 | 3.81 | 2.03 | 2.27 | 2.01 | 2.81 | 2.94 | 2.98 | 2.01 | 3.81 | 2.95 |
| Manganese | mg/L | 179 | 139 | 126 | 178 | 181 | 172 | 152 | 156 | 149 | 131 | 130 | 146 | 126 | 181 | 153.25 |
| Molybdenum | mg/L | 56.6 | 41.1 | 34.2 | 58.4 | 59.2 | 53.8 | 14.3 | 14.0 | 13.0 | 9.64 | 10.0 | 12.6 | 9.64 | 59.2 | 31.40 |
| Nickel | mg/L | 42.7 | 31.4 | 26.7 | 43.5 | 44.4 | 33.0 | 23.3 | 23.6 | 22.4 | 17.8 | 17.9 | 20.5 | 17.8 | 44.4 | 28.93 |
| Selenium | mg/L | 2.24 | 1.65 | 1.39 | 2.10 | 2.03 | 1.76 | 1.12 | 0.98 | 0.95 | 0.81 | 0.65 | 0.95 | 0.65 | 2.24 | 1.39 |
| Titanium | mg/L | 33.2 | 25.7 | 20.9 | 33.2 | 33.3151 | 31.9 | 9.64 | 9.64 | 8.97 | 6.47 | 7.05 | 8.68 | 6.47 | 33.3151 | 19.06 |
| Uranium | mg/L | 154 | 112 | 95.1 | 151 | 151 | 144 | 78.3 | 77.0 | 70.3 | 56.1 | 56.7 | 68.9 | 56.1 | 154 | 101.20 |
| Vanadium | mg/L | 393 | 301 | 257 | 392 | 389 | 356 | 174 | 173 | 165 | 136 | 140 | 162 | 136 | 393 | 253.17 |
| Zirconium | mg/L | 38.5 | 21.2 | 13.5 | 25.7 | 22.9 | 23.9 | 4.13 | 3.06 | 3.01 | 2.28 | 4.89 | 2.84 | 2.28 | 38.5 | 13.83 |
| Uranium | pCi/L | 104258 | 75824 | 64383 | 102227 | 102227 | 97488 | 53009 | 52129 | 47593 | 37980 | 38386 | 46645 | 75959 | 104258 | 68512 |
| **Total Radionuclides** | | | | | | | | | | | | | | | | |
| Gross Alpha | pCi/L | 185000 | 135000 | 142000 | 189000 | 188000 | 177000 | 105000 | 107000 | 111000 | 96500 | 96000 | 94000 | 94000 | 189000 | 135458 |
| Gross Beta | pCi/L | 114000 | 89700 | 78200 | 110000 | 116000 | 105000 | 63600 | 60000 | 59800 | 46900 | 47500 | 52800 | 46900 | 116000 | 78625 |
| Lead 210 | pCi/L | 4700 | 3800 | 2900 | 3500 | 4000 | 4000 | 880 | 870 | 990 | 750 | 680 | 780 | 680 | 4700 | 2321 |
| Ra-226 | pCi/L | 1690 | 1210 | 1070 | 1590 | 1620 | 1470 | 970 | 1190 | 1200 | 818 | 751 | 1070 | 751 | 1690 | 1221 |
| Th-230 | pCi/L | 23700 | 21800 | 15900 | 27500 | 26500 | 25500 | 13700 | 15100 | 14100 | 8980 | 10400 | 12000 | 8980 | 27500 | 17932 |
| Th-232 | pCi/L | 109 | 33.4 | 62.5 | 113 | 116 | 121 | 91 | 64.6 | 102 | 51.8 | 54 | 49.4 | 33.4 | 121 | 81 |

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# ANALYTICAL SUMMARY REPORT

April 25, 2003

Harold Roberts
International Uranium (USA) Corp
1050 17th St
Ste 950
Denver, CO 80265

Workorder No.: C03030680

Project Name: Cell Sampling

Energy Laboratories Inc. received the following 12 samples from International Uranium (USA) Corp on 3/24/2003 for analysis.

| Sample ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| C03030680-001 | Cell #1 (a) | 03/17/03 0:00 | 03/24/03 | Aqueous | Alkalinity<br>Chloride<br>Fluoride<br>Metals by ICP, Total<br>Metals by ICP-MS, Total<br>Nitrogen, Ammonia<br>Nitrogen, Nitrate + Nitrite<br>Metals Digestion by EPA 200.2<br>Gross Alpha, Gross Beta<br>Lead 210, Total<br>Radium 226, Total<br>Thorium, Isotopic<br>Solids, Total Dissolved |
| C03030680-002 | Cell #1 (b) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-003 | Cell #1 c | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-004 | Cell #1 (d) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-005 | Cell #1 (e) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-006 | Cell #1 (f) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-007 | Cell #3 (a) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-008 | Cell #3 (b) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-009 | Cell #3 c | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-010 | Cell #3 (d) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-011 | Cell #3 (e) e | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |
| C03030680-012 | Cell #3 (f) | 03/17/03 0:00 | 03/24/03 | Aqueous | Same As Above |

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

**Report Approved By:** R.A. Gaitis
ROGER A. GAITIS
LABORATORY SUPERVISOR

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-001
**Client Sample ID:** Cell #1 (a)

**Report Date:** 04/28/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 343 | mg/L | D | 4.4 | | E200.7 | 04/14/03 09:56 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:23 / slb |
| Chloride | 7690 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 14:52 / jl |
| Fluoride | 1780 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:03 / slb |
| Magnesium | 6800 | mg/L | D | 5.7 | | E200.7 | 04/14/03 09:56 / ts |
| Nitrogen, Ammonia as N | 3510 | mg/L | D | 200 | | A4500-NH3 G | 03/31/03 10:29 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 47.0 | mg/L | D | 0.8 | | E353.2 | 03/26/03 15:18 / rwk |
| Phosphorus | 353 | mg/L | | 0.10 | | E200.7 | 04/14/03 09:53 / ts |
| Potassium | 828 | mg/L | D | 4.6 | | E200.7 | 04/14/03 09:56 / ts |
| Sodium | 9950 | mg/L | D | 6.9 | | E200.7 | 04/14/03 09:56 / ts |
| Sulfate | 72900 | mg/L | D | 6.1 | | E200.7 | 04/14/03 09:56 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 1.80 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:23 / slb |
| Solids, Total Dissolved TDS @ 180 C | 110000 | mg/L | H | 10 | | A2540 C | 03/26/03 12:37 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 2460 | mg/L | D | 0.13 | | E200.7 | 04/14/03 09:56 / ts |
| Arsenic | 146 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:35 / smd |
| Barium | 0.036 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:35 / smd |
| Beryllium | 0.499 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:35 / smd |
| Boron | 8.04 | mg/L | | 0.10 | | E200.7 | 04/14/03 09:29 / ts |
| Cadmium | 4.41 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:35 / smd |
| Chromium | 7.07 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:35 / smd |
| Copper | 227 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:35 / smd |
| Iron | 3220 | mg/L | D | 0.48 | | E200.7 | 04/14/03 09:56 / ts |
| Lead | 3.17 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:35 / smd |
| Manganese | 179 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:35 / smd |
| Molybdenum | 56.6 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:35 / smd |
| Nickel | 42.7 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:35 / smd |
| Selenium | 2.24 | mg/L | D | 0.05 | | E200.8 | 04/11/03 13:35 / smd |
| Titanium | 33.2 | mg/L | D | 0.01 | | E200.8 | 04/11/03 13:35 / smd |
| Uranium | 154 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:35 / smd |
| Vanadium | 393 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:35 / smd |
| Zirconium | 38.5 | mg/L | | 0.001 | | E200.8 | 04/11/03 13:35 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-001
**Client Sample ID:** Cell #1 (a)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 185000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1540 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 114000 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 898 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 4700 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 43 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1690 | pCi/L | | 0.2 | | E903.0 | 04/06/03 09:45 / es |
| Radium 226 precision (±) | 60.7 | pCi/L | | | | E903.0 | 04/06/03 09:45 / es |
| Thorium 230 | 23700 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 480 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 109 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 32.9 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-002
**Client Sample ID:** Cell #1 (b)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 291 | mg/L | | 1.0 | | E200.7 | 04/14/03 09:59 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:25 / slb |
| Chloride | 5420 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 14:54 / jl |
| Fluoride | 2330 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:06 / slb |
| Magnesium | 4940 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:02 / ts |
| Nitrogen, Ammonia as N | 2350 | mg/L | D | 80 | | A4500-NH3 G | 03/31/03 10:30 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 35.5 | mg/L | D | 0.8 | | E353.2 | 03/25/03 15:20 / rwk |
| Phosphorus | 246 | mg/L | | 0.10 | | E200.7 | 04/14/03 09:59 / ts |
| Potassium | 522 | mg/L | | 1.0 | | E200.7 | 04/14/03 09:59 / ts |
| Sodium | 7160 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:02 / ts |
| Sulfate | 52000 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:02 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 1.94 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:25 / slb |
| Solids, Total Dissolved TDS @ 180 C | 76600 | mg/L | H | 10 | | A2540 C | 03/26/03 15:57 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1790 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:02 / ts |
| Arsenic | 104 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:52 / smd |
| Barium | 0.055 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:52 / smd |
| Beryllium | 0.402 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:52 / smd |
| Boron | 8.33 | mg/L | D | 0.22 | | E200.7 | 04/14/03 09:59 / ts |
| Cadmium | 3.27 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:52 / smd |
| Chromium | 5.46 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:52 / smd |
| Copper | 168 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:52 / smd |
| Iron | 2300 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:02 / ts |
| Lead | 3.42 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:52 / smd |
| Manganese | 139 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:52 / smd |
| Molybdenum | 41.1 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:52 / smd |
| Nickel | 31.4 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:52 / smd |
| Selenium | 1.65 | mg/L | D | 0.05 | | E200.8 | 04/11/03 13:52 / smd |
| Titanium | 25.7 | mg/L | D | 0.01 | | E200.8 | 04/11/03 13:52 / smd |
| Uranium | 112 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:52 / smd |
| Vanadium | 301 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:52 / smd |
| Zirconium | 21.2 | mg/L | | 0.001 | | E200.8 | 04/11/03 13:52 / smd |

**Report Definitions:**
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QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-002
**Client Sample ID:** Cell #1 (b)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 135000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1100 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 89700 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 664 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 3800 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 16:00 / ph |
| Lead 210 precision (±) | 39 | pCi/L | | | | NERHL-65-4 | 12/30/99 16:00 / ph |
| Radium 226 | 1210 | pCi/L | | 0.2 | | E903.0 | 04/06/03 10:32 / es |
| Radium 226 precision (±) | 43.5 | pCi/L | | | | E903.0 | 04/06/03 10:32 / es |
| Thorium 230 | 21800 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 475 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 105 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 33.4 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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030680R0004

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-003
**Client Sample ID:** Cell #1 c

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 285 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:06 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:27 / slb |
| Chloride | 4630 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 14:55 / jl |
| Fluoride | 2240 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:09 / slb |
| Magnesium | 4220 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:08 / ts |
| Nitrogen, Ammonia as N | 2140 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 10:33 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 29.8 | mg/L | D | 0.8 | | E353.2 | 03/25/03 15:23 / rwk |
| Phosphorus | 200 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:05 / ts |
| Potassium | 441 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:05 / ts |
| Sodium | 6150 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:08 / ts |
| Sulfate | 44900 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:08 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.00 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:27 / slb |
| Solids, Total Dissolved TDS @ 180 C | 64700 | mg/L | H | 10 | | A2540 C | 03/26/03 15:58 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1560 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:08 / ts |
| Arsenic | 83.6 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:57 / smd |
| Barium | 0.093 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:57 / smd |
| Beryllium | 0.347 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:57 / smd |
| Boron | 6.93 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:05 / ts |
| Cadmium | 2.66 | mg/L | D | 0.008 | | E200.8 | 04/11/03 13:57 / smd |
| Chromium | 4.77 | mg/L | D | 0.02 | | E200.8 | 04/11/03 13:57 / smd |
| Copper | 140 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:57 / smd |
| Iron | 1940 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:08 / ts |
| Lead | 3.60 | mg/L | D | 0.003 | | E200.8 | 04/11/03 13:57 / smd |
| Manganese | 126 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:57 / smd |
| Molybdenum | 34.2 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:57 / smd |
| Nickel | 26.7 | mg/L | D | 0.005 | | E200.8 | 04/11/03 13:57 / smd |
| Selenium | 1.39 | mg/L | D | 0.05 | | E200.8 | 04/11/03 13:57 / smd |
| Titanium | 20.9 | mg/L | D | 0.01 | | E200.8 | 04/11/03 13:57 / smd |
| Uranium | 95.1 | mg/L | D | 0.004 | | E200.8 | 04/11/03 13:57 / smd |
| Vanadium | 257 | mg/L | D | 0.006 | | E200.8 | 04/11/03 13:57 / smd |
| Zirconium | 13.5 | mg/L | | 0.001 | | E200.8 | 04/11/03 13:57 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-003
**Client Sample ID:** Cell #1 c

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 142000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1160 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 78200 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 630 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 2900 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 34 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1070 | pCi/L | | 0.2 | | E903.0 | 04/06/03 11:22 / es |
| Radium 226 precision (±) | 38.4 | pCi/L | | | | E903.0 | 04/06/03 11:22 / es |
| Thorium 230 | 15900 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 399 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 62.5 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 25.5 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-004
**Client Sample ID:** Cell #1 (d)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | MCL/ RL QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | |
| Calcium | 308 | mg/L | | 1.0 | E200.7 | 04/14/03 10:11 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | A2320 B | 03/27/03 11:43 / slb |
| Chloride | 7720 | mg/L | | 1.0 | A4500-Cl B | 03/27/03 14:57 / jl |
| Fluoride | 4440 | mg/L | | 0.1 | A4500-F C | 03/31/03 14:13 / slb |
| Magnesium | 6950 | mg/L | D | 5.7 | E200.7 | 04/14/03 10:14 / ts |
| Nitrogen, Ammonia as N | 4520 | mg/L | D | 200 | A4500-NH3 G | 03/31/03 10:35 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 46.6 | mg/L | D | 0.8 | E353.2 | 03/25/03 15:25 / rwk |
| Phosphorus | 344 | mg/L | | 0.10 | E200.7 | 04/14/03 10:11 / ts |
| Potassium | 718 | mg/L | | 1.0 | E200.7 | 04/14/03 10:11 / ts |
| Sodium | 9910 | mg/L | D | 6.9 | E200.7 | 04/14/03 10:14 / ts |
| Sulfate | 73700 | mg/L | D | 6.1 | E200.7 | 04/14/03 10:14 / ts |
| **PHYSICAL PROPERTIES** | | | | | | |
| pH | 1.81 | s.u. | | 0.010 | A2320 B | 03/27/03 11:43 / slb |
| Solids, Total Dissolved TDS @ 180 C | 109000 | mg/L | H | 10 | A2540 C | 03/26/03 15:58 / sp |
| **METALS - TOTAL** | | | | | | |
| Aluminum | 2530 | mg/L | D | 0.13 | E200.7 | 04/14/03 10:14 / ts |
| Arsenic | 142 | mg/L | D | 0.02 | E200.8 | 04/11/03 14:18 / smd |
| Barium | 0.035 | mg/L | D | 0.008 | E200.8 | 04/11/03 14:18 / smd |
| Beryllium | 0.532 | mg/L | D | 0.003 | E200.8 | 04/11/03 14:18 / smd |
| Boron | 11.3 | mg/L | D | 0.22 | E200.7 | 04/14/03 10:11 / ts |
| Cadmium | 4.40 | mg/L | D | 0.008 | E200.8 | 04/11/03 14:18 / smd |
| Chromium | 7.13 | mg/L | D | 0.02 | E200.8 | 04/11/03 14:18 / smd |
| Copper | 233 | mg/L | D | 0.006 | E200.8 | 04/11/03 14:18 / smd |
| Iron | 3290 | mg/L | D | 0.48 | E200.7 | 04/14/03 10:14 / ts |
| Lead | 3.21 | mg/L | D | 0.003 | E200.8 | 04/11/03 14:18 / smd |
| Manganese | 178 | mg/L | D | 0.004 | E200.8 | 04/11/03 14:18 / smd |
| Molybdenum | 58.4 | mg/L | D | 0.005 | E200.8 | 04/11/03 14:18 / smd |
| Nickel | 43.5 | mg/L | D | 0.005 | E200.8 | 04/11/03 14:18 / smd |
| Selenium | 2.10 | mg/L | D | 0.05 | E200.8 | 04/11/03 14:18 / smd |
| Titanium | 33.2 | mg/L | D | 0.01 | E200.8 | 04/11/03 14:18 / smd |
| Uranium | 151 | mg/L | D | 0.004 | E200.8 | 04/11/03 14:18 / smd |
| Vanadium | 392 | mg/L | D | 0.006 | E200.8 | 04/11/03 14:18 / smd |
| Zirconium | 25.7 | mg/L | | 0.001 | E200.8 | 04/11/03 14:18 / smd |

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-004
**Client Sample ID:** Cell #1 (d)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 189000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1570 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 110000 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 884 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 3500 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 37 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1590 | pCi/L | | 0.2 | | E903.0 | 04/06/03 12:00 / es |
| Radium 226 precision (±) | 56.9 | pCi/L | | | | E903.0 | 04/06/03 12:00 / es |
| Thorium 230 | 27500 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 620 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 113 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 40.4 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-005
**Client Sample ID:** Cell #1 (e)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 297 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:34 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:45 / slb |
| Chloride | 8000 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 14:58 / jl |
| Fluoride | 4010 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:20 / slb |
| Magnesium | 6720 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:37 / ts |
| Nitrogen, Ammonia as N | 3410 | mg/L | D | 200 | | A4500-NH3 G | 03/31/03 10:36 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 49.2 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:07 / rwk |
| Phosphorus | 341 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:34 / ts |
| Potassium | 712 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:34 / ts |
| Sodium | 9630 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:37 / ts |
| Sulfate | 71300 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:37 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 1.83 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:45 / slb |
| Solids, Total Dissolved TDS @ 180 C | 109000 | mg/L | H | 10 | | A2540 C | 03/26/03 15:59 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 2480 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:37 / ts |
| Arsenic | 141 | mg/L | D | 0.02 | | E200.8 | 04/11/03 14:29 / smd |
| Barium | 0.039 | mg/L | D | 0.008 | | E200.8 | 04/11/03 14:29 / smd |
| Beryllium | 0.545 | mg/L | D | 0.003 | | E200.8 | 04/11/03 14:29 / smd |
| Boron | 11.3 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:34 / ts |
| Cadmium | 4.48 | mg/L | D | 0.008 | | E200.8 | 04/11/03 14:29 / smd |
| Chromium | 7.17 | mg/L | D | 0.02 | | E200.8 | 04/11/03 14:29 / smd |
| Copper | 237 | mg/L | D | 0.006 | | E200.8 | 04/11/03 14:29 / smd |
| Iron | 3190 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:37 / ts |
| Lead | 3.15 | mg/L | D | 0.003 | | E200.8 | 04/11/03 14:29 / smd |
| Manganese | 181 | mg/L | D | 0.004 | | E200.8 | 04/11/03 14:29 / smd |
| Molybdenum | 59.2 | mg/L | D | 0.005 | | E200.8 | 04/11/03 14:29 / smd |
| Nickel | 44.4 | mg/L | D | 0.005 | | E200.8 | 04/11/03 14:29 / smd |
| Selenium | 2.03 | mg/L | D | 0.05 | | E200.8 | 04/11/03 14:29 / smd |
| Titanium | 33.3 | mg/L | D | 0.01 | | E200.8 | 04/11/03 14:29 / smd |
| Uranium | 151 | mg/L | D | 0.004 | | E200.8 | 04/11/03 14:29 / smd |
| Vanadium | 389 | mg/L | D | 0.006 | | E200.8 | 04/11/03 14:29 / smd |
| Zirconium | 22.9 | mg/L | | 0.001 | | E200.8 | 04/11/03 14:29 / smd |

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H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-005
**Client Sample ID:** Cell #1 (o)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 188000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1550 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 116000 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 903 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 4000 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 40 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1620 | pCi/L | | 0.2 | | E903.0 | 04/06/03 12:36 / es |
| Radium 226 precision (±) | 58.2 | pCi/L | | | | E903.0 | 04/06/03 12:36 / es |
| Thorium 230 | 26500 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 599 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 116 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 40.2 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-006
**Client Sample ID:** Cell #1 (f)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 320 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:40 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:47 / slb |
| Chloride | 6910 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:00 / jl |
| Fluoride | 3230 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:23 / slb |
| Magnesium | 6300 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:43 / ts |
| Nitrogen, Ammonia as N | 4190 | mg/L | D | 200 | | A4500-NH3 G | 03/31/03 10:44 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 42.7 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:09 / rwk |
| Phosphorus | 318 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:40 / ts |
| Potassium | 661 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:40 / ts |
| Sodium | 9030 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:43 / ts |
| Sulfate | 67200 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:43 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 1.87 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:47 / slb |
| Solids, Total Dissolved TDS @ 180 C | 98900 | mg/L | H | 10 | | A2540 C | 03/26/03 15:59 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 2340 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:43 / ts |
| Arsenic | 111 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:23 / smd |
| Barium | 0.070 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:23 / smd |
| Beryllium | 0.527 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:23 / smd |
| Boron | 10.4 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:40 / ts |
| Cadmium | 4.72 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:23 / smd |
| Chromium | 6.59 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:23 / smd |
| Copper | 175 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:23 / smd |
| Iron | 2980 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:43 / ts |
| Lead | 3.81 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:23 / smd |
| Manganese | 172 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:23 / smd |
| Molybdenum | 53.8 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:23 / smd |
| Nickel | 33.0 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:23 / smd |
| Selenium | 1.76 | mg/L | D | 0.05 | | E200.8 | 04/11/03 20:23 / smd |
| Titanium | 31.9 | mg/L | D | 0.01 | | E200.8 | 04/11/03 20:23 / smd |
| Uranium | 144 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:23 / smd |
| Vanadium | 356 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:23 / smd |
| Zirconium | 23.9 | mg/L | | 0.001 | | E200.8 | 04/11/03 20:23 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-006
**Client Sample ID:** Cell #1 (f)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 177000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1540 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 105000 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 870 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 4000 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 40 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1470 | pCi/L | | 0.2 | | E903.0 | 04/06/03 13:16 / es |
| Radium 226 precision (±) | 52.6 | pCi/L | | | | E903.0 | 04/06/03 13:16 / es |
| Thorium 230 | 25500 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 573 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 121 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 40.0 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-007
**Client Sample ID:** Cell #3 (a)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 406 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:46 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:49 / slb |
| Chloride | 2770 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:01 / jl |
| Fluoride | 709 | mg/L | | 0.1 | | A4500-F C | 03/31/03 15:32 / slb |
| Magnesium | 3850 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:49 / ts |
| Nitrogen, Ammonia as N | 1390 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 10:46 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 21.0 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:12 / rwk |
| Phosphorus | 124 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:46 / ts |
| Potassium | 285 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:46 / ts |
| Sodium | 3820 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:49 / ts |
| Sulfate | 37100 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:49 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.26 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:49 / slb |
| Solids, Total Dissolved TDS @ 180 C | 57800 | mg/L | H | 10 | | A2540 C | 03/26/03 15:59 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1640 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:49 / ts |
| Arsenic | 38.4 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:28 / smd |
| Barium | 0.021 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:28 / smd |
| Beryllium | 0.462 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:28 / smd |
| Boron | 5.24 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:46 / ts |
| Cadmium | 2.24 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:28 / smd |
| Chromium | 4.12 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:28 / smd |
| Copper | 97.8 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:28 / smd |
| Iron | 1440 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:49 / ts |
| Lead | 2.03 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:28 / smd |
| Manganese | 152 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:28 / smd |
| Molybdenum | 14.3 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:28 / smd |
| Nickel | 23.3 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:28 / smd |
| Selenium | 1.12 | mg/L | D | 0.05 | | E200.8 | 04/11/03 20:28 / smd |
| Titanium | 9.64 | mg/L | D | 0.01 | | E200.8 | 04/11/03 20:28 / smd |
| Uranium | 78.3 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:28 / smd |
| Vanadium | 174 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:28 / smd |
| Zirconium | 4.13 | mg/L | | 0.001 | | E200.8 | 04/11/03 20:28 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-007
**Client Sample ID:** Cell #3 (a)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 105000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1000 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 63600 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 572 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 880 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 21 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 970 | pCi/L | | 0.2 | | E903.0 | 04/06/03 14:08 / es |
| Radium 226 precision (±) | 34.9 | pCi/L | | | | E903.0 | 04/06/03 14:08 / es |
| Thorium 230 | 13700 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 457 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 91.0 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 38.0 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-008
**Client Sample ID:** Cell #3 (b)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 429 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:52 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:51 / slb |
| Chloride | 2670 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:06 / jl |
| Fluoride | 759 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:29 / slb |
| Magnesium | 3830 | mg/L | D | 5.7 | | E200.7 | 04/14/03 10:55 / ts |
| Nitrogen, Ammonia as N | 1480 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 10:49 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 20.9 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:14 / rwk |
| Phosphorus | 120 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:52 / ts |
| Potassium | 283 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:52 / ts |
| Sodium | 3770 | mg/L | D | 6.9 | | E200.7 | 04/14/03 10:55 / ts |
| Sulfate | 37300 | mg/L | D | 6.1 | | E200.7 | 04/14/03 10:55 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.26 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:51 / slb |
| Solids, Total Dissolved TDS @ 180 C | 57300 | mg/L | H | 10 | | A2540 C | 03/26/03 16:00 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1640 | mg/L | D | 0.13 | | E200.7 | 04/14/03 10:55 / ts |
| Arsenic | 38.5 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:33 / smd |
| Barium | 0.035 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:33 / smd |
| Beryllium | 0.464 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:33 / smd |
| Boron | 5.23 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:52 / ts |
| Cadmium | 2.13 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:33 / smd |
| Chromium | 4.12 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:33 / smd |
| Copper | 99.9 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:33 / smd |
| Iron | 1430 | mg/L | D | 0.48 | | E200.7 | 04/14/03 10:55 / ts |
| Lead | 2.27 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:33 / smd |
| Manganese | 156 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:33 / smd |
| Molybdenum | 14.0 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:33 / smd |
| Nickel | 23.6 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:33 / smd |
| Selenium | 0.98 | mg/L | D | 0.05 | | E200.8 | 04/11/03 20:33 / smd |
| Titanium | 9.64 | mg/L | D | 0.01 | | E200.8 | 04/11/03 20:33 / smd |
| Uranium | 77.0 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:33 / smd |
| Vanadium | 173 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:33 / smd |
| Zirconium | 3.06 | mg/L | | 0.001 | | E200.8 | 04/11/03 20:33 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-008
**Client Sample ID:** Cell #3 (b)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 107000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1010 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 60000 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 557 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 870 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 20 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1190 | pCi/L | | 0.2 | | E903.0 | 04/06/03 14:52 / es |
| Radium 226 precision (±) | 42.8 | pCi/L | | | | E903.0 | 04/06/03 14:52 / es |
| Thorium 230 | 15100 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 501 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 64.6 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 33.8 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-009
**Client Sample ID:** Cell #3 c

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 397 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:58 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:53 / slb |
| Chloride | 2670 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:08 / jl |
| Fluoride | 733 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:32 / slb |
| Magnesium | 3640 | mg/L | D | 5.7 | | E200.7 | 04/14/03 11:01 / ts |
| Nitrogen, Ammonia as N | 1420 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 10:51 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 21.5 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:17 / rwk |
| Phosphorus | 120 | mg/L | | 0.10 | | E200.7 | 04/14/03 10:58 / ts |
| Potassium | 268 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:58 / ts |
| Sodium | 3270 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:58 / ts |
| Sulfate | 32800 | mg/L | | 1.0 | | E200.7 | 04/14/03 10:58 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.26 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:53 / slb |
| Solids, Total Dissolved TDS @ 180 C | 56400 | mg/L | H | 10 | | A2540 C | 03/26/03 16:00 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1570 | mg/L | D | 0.13 | | E200.7 | 04/14/03 11:01 / ts |
| Arsenic | 36.2 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:39 / smd |
| Barium | 0.032 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:39 / smd |
| Beryllium | 0.461 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:39 / smd |
| Boron | 4.94 | mg/L | D | 0.22 | | E200.7 | 04/14/03 10:58 / ts |
| Cadmium | 2.04 | mg/L | D | 0.008 | | E200.8 | 04/11/03 20:39 / smd |
| Chromium | 3.90 | mg/L | D | 0.02 | | E200.8 | 04/11/03 20:39 / smd |
| Copper | 95.5 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:39 / smd |
| Iron | 1360 | mg/L | D | 0.48 | | E200.7 | 04/14/03 11:01 / ts |
| Lead | 2.01 | mg/L | D | 0.003 | | E200.8 | 04/11/03 20:39 / smd |
| Manganese | 149 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:39 / smd |
| Molybdenum | 13.0 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:39 / smd |
| Nickel | 22.4 | mg/L | D | 0.005 | | E200.8 | 04/11/03 20:39 / smd |
| Selenium | 0.95 | mg/L | D | 0.05 | | E200.8 | 04/11/03 20:39 / smd |
| Titanium | 8.97 | mg/L | D | 0.01 | | E200.8 | 04/11/03 20:39 / smd |
| Uranium | 70.3 | mg/L | D | 0.004 | | E200.8 | 04/11/03 20:39 / smd |
| Vanadium | 165 | mg/L | D | 0.006 | | E200.8 | 04/11/03 20:39 / smd |
| Zirconium | 3.01 | mg/L | | 0.001 | | E200.8 | 04/11/03 20:39 / smd |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-009
**Client Sample ID:** Cell #3 c

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 111000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 1030 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 59800 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 556 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 990 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 22 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1200 | pCi/L | | 0.2 | | E903.0 | 04/06/03 15:40 / es |
| Radium 226 precision (±) | 43.0 | pCi/L | | | | E903.0 | 04/06/03 15:40 / es |
| Thorium 230 | 14100 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 501 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 102 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 43.6 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-010
**Client Sample ID:** Cell #3 (d)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 413 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:15 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 11:54 / slb |
| Chloride | 2110 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:09 / jl |
| Fluoride | 615 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:34 / slb |
| Magnesium | 3100 | mg/L | D | 5.7 | | E200.7 | 04/14/03 11:18 / ts |
| Nitrogen, Ammonia as N | 1160 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 10:52 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 17.0 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:27 / rwk |
| Phosphorus | 89.4 | mg/L | | 0.10 | | E200.7 | 04/14/03 11:15 / ts |
| Potassium | 219 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:15 / ts |
| Sodium | 2620 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:15 / ts |
| Sulfate | 29800 | mg/L | D | 6.1 | | E200.7 | 04/14/03 11:18 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.33 | s.u. | | 0.010 | | A2320 B | 03/27/03 11:54 / slb |
| Solids, Total Dissolved TDS @ 180 C | 43100 | mg/L | H | 10 | | A2540 C | 03/26/03 16:02 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1330 | mg/L | D | 0.13 | | E200.7 | 04/14/03 11:18 / ts |
| Arsenic | 25.8 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:00 / smd |
| Barium | 0.028 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:00 / smd |
| Beryllium | 0.373 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:00 / smd |
| Boron | 3.95 | mg/L | D | 0.22 | | E200.7 | 04/14/03 11:15 / ts |
| Cadmium | 1.64 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:00 / smd |
| Chromium | 3.20 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:00 / smd |
| Copper | 72.2 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:00 / smd |
| Iron | 1080 | mg/L | D | 0.48 | | E200.7 | 04/14/03 11:18 / ts |
| Lead | 2.81 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:00 / smd |
| Manganese | 131 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:00 / smd |
| Molybdenum | 9.64 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:00 / smd |
| Nickel | 17.8 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:00 / smd |
| Selenium | 0.81 | mg/L | D | 0.05 | | E200.8 | 04/11/03 21:00 / smd |
| Titanium | 6.47 | mg/L | D | 0.01 | | E200.8 | 04/11/03 21:00 / smd |
| Uranium | 56.1 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:00 / smd |
| Vanadium | 136 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:00 / smd |
| Zirconium | 2.28 | mg/L | | 0.001 | | E200.8 | 04/11/03 21:00 / smd |

**Report Definitions:**
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QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-010
**Client Sample ID:** Cell #3 (d)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 96500 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 983 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 46900 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 504 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 750 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 19 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 818 | pCi/L | | 0.2 | | E903.0 | 04/06/03 16:36 / es |
| Radium 226 precision (±) | 29.4 | pCi/L | | | | E903.0 | 04/06/03 16:36 / es |
| Thorium 230 | 8980 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 358 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 51.8 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 28.1 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-011
**Client Sample ID:** Cell #3 (e)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 432 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:21 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 13:14 / slb |
| Chloride | 2140 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:13 / jl |
| Fluoride | 580 | mg/L | | 0.1 | | A4500-F C | 03/31/03 14:37 / slb |
| Magnesium | 2500 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:21 / ts |
| Nitrogen, Ammonia as N | 1110 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 11:03 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 19.1 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:29 / rwk |
| Phosphorus | 88.1 | mg/L | | 0.10 | | E200.7 | 04/14/03 11:21 / ts |
| Potassium | 221 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:21 / ts |
| Sodium | 2660 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:21 / ts |
| Sulfate | 29800 | mg/L | D | 6.1 | | E200.7 | 04/14/03 11:24 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.29 | s.u. | | 0.010 | | A2320 B | 03/27/03 13:14 / slb |
| Solids, Total Dissolved TDS @ 180 C | 44400 | mg/L | H | 10 | | A2540 C | 03/26/03 16:03 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1330 | mg/L | D | 0.13 | | E200.7 | 04/14/03 11:24 / ts |
| Arsenic | 26.1 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:16 / smd |
| Barium | 0.046 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:16 / smd |
| Beryllium | 0.386 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:16 / smd |
| Boron | 4.00 | mg/L | D | 0.22 | | E200.7 | 04/14/03 11:21 / ts |
| Cadmium | 1.64 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:16 / smd |
| Chromium | 3.28 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:16 / smd |
| Copper | 72.7 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:16 / smd |
| Iron | 1100 | mg/L | D | 0.48 | | E200.7 | 04/14/03 11:24 / ts |
| Lead | 2.94 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:16 / smd |
| Manganese | 130 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:16 / smd |
| Molybdenum | 10.0 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:16 / smd |
| Nickel | 17.9 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:16 / smd |
| Selenium | 0.65 | mg/L | D | 0.05 | | E200.8 | 04/11/03 21:16 / smd |
| Titanium | 7.05 | mg/L | D | 0.01 | | E200.8 | 04/11/03 21:16 / smd |
| Uranium | 56.7 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:16 / smd |
| Vanadium | 140 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:16 / smd |
| Zirconium | 4.89 | mg/L | | 0.001 | | E200.8 | 04/11/03 21:16 / smd |

**Report Definitions:**
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D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-011
**Client Sample ID:** Cell #3 (e)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 96000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 983 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 47500 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 507 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 680 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 19 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 751 | pCi/L | | 0.2 | | E903.0 | 04/06/03 17:33 / es |
| Radium 226 precision (±) | 27.0 | pCi/L | | | | E903.0 | 04/06/03 17:33 / es |
| Thorium 230 | 10400 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 408 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 54.0 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 30.5 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
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QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-012
**Client Sample ID:** Cell #3 (f)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Calcium | 433 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:27 / ts |
| Carbonate as CO3 | ND | mg/L | | 1.0 | | A2320 B | 03/27/03 13:19 / slb |
| Chloride | 2400 | mg/L | | 1.0 | | A4500-Cl B | 03/27/03 15:15 / jl |
| Fluoride | 605 | mg/L | | 0.1 | | A4500-F C | 03/31/03 15:36 / slb |
| Magnesium | 3400 | mg/L | D | 5.7 | | E200.7 | 04/14/03 11:30 / ts |
| Nitrogen, Ammonia as N | 1250 | mg/L | D | 30 | | A4500-NH3 G | 03/31/03 11:05 / rwk |
| Nitrogen, Nitrate+Nitrite as N | 20.6 | mg/L | D | 0.8 | | E353.2 | 03/25/03 16:32 / rwk |
| Phosphorus | 108 | mg/L | | 0.10 | | E200.7 | 04/14/03 11:27 / ts |
| Potassium | 250 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:27 / ts |
| Sodium | 3050 | mg/L | | 1.0 | | E200.7 | 04/14/03 11:27 / ts |
| Sulfate | 33600 | mg/L | D | 6.1 | | E200.7 | 04/14/03 11:30 / ts |
| **PHYSICAL PROPERTIES** | | | | | | | |
| pH | 2.24 | s.u. | | 0.010 | | A2320 B | 03/27/03 13:19 / slb |
| Solids, Total Dissolved TDS @ 180 C | 50800 | mg/L | H | 10 | | A2540 C | 03/26/03 16:03 / sp |
| **METALS - TOTAL** | | | | | | | |
| Aluminum | 1480 | mg/L | D | 0.13 | | E200.7 | 04/14/03 11:30 / ts |
| Arsenic | 31.8 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:21 / smd |
| Barium | 0.039 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:21 / smd |
| Beryllium | 0.435 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:21 / smd |
| Boron | 4.61 | mg/L | D | 0.22 | | E200.7 | 04/14/03 11:27 / ts |
| Cadmium | 2.06 | mg/L | D | 0.008 | | E200.8 | 04/11/03 21:21 / smd |
| Chromium | 3.83 | mg/L | D | 0.02 | | E200.8 | 04/11/03 21:21 / smd |
| Copper | 84.6 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:21 / smd |
| Iron | 1260 | mg/L | D | 0.48 | | E200.7 | 04/14/03 11:30 / ts |
| Lead | 2.98 | mg/L | D | 0.003 | | E200.8 | 04/11/03 21:21 / smd |
| Manganese | 146 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:21 / smd |
| Molybdenum | 12.6 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:21 / smd |
| Nickel | 20.5 | mg/L | D | 0.005 | | E200.8 | 04/11/03 21:21 / smd |
| Selenium | 0.95 | mg/L | D | 0.05 | | E200.8 | 04/11/03 21:21 / smd |
| Titanium | 8.68 | mg/L | D | 0.01 | | E200.8 | 04/11/03 21:21 / smd |
| Uranium | 68.9 | mg/L | D | 0.004 | | E200.8 | 04/11/03 21:21 / smd |
| Vanadium | 162 | mg/L | D | 0.006 | | E200.8 | 04/11/03 21:21 / smd |
| Zirconium | 2.84 | mg/L | | 0.001 | | E200.8 | 04/11/03 21:21 / smd |

**Report Definitions:**
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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# LABORATORY ANALYTICAL REPORT

**Client:** International Uranium (USA) Corp
**Project:** Cell Sampling
**Lab ID:** C03030680-012
**Client Sample ID:** Cell #3 (f)

**Report Date:** 04/25/03
**Collection Date:** 03/17/03
**Date Received:** 03/24/03
**Matrix:** Aqueous

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 94000 | pCi/L | | 1.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Alpha precision (±) | 961 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta | 52800 | pCi/L | | 2.0 | | E900.0 | 03/31/03 12:00 / rs |
| Gross Beta precision (±) | 529 | pCi/L | | | | E900.0 | 03/31/03 12:00 / rs |
| Lead 210 | 780 | pCi/L | | 2.7 | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Lead 210 precision (±) | 20 | pCi/L | | | | NERHL-65-4 | 12/30/99 18:00 / ph |
| Radium 226 | 1070 | pCi/L | | 0.2 | | E903.0 | 04/06/03 18:22 / es |
| Radium 226 precision (±) | 38.6 | pCi/L | | | | E903.0 | 04/06/03 18:22 / es |
| Thorium 230 | 12000 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 230 precision (±) | 436 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 | 49.4 | pCi/L | | 0.2 | | E907.0 | 04/08/03 10:30 / ph |
| Thorium 232 precision (±) | 29.1 | pCi/L | | | | E907.0 | 04/08/03 10:30 / ph |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

TRACKING NO. PAGE NO.
030680R0024

# AMENABILITY OF URAVAN MINERAL BELT ORE TO PIÑON MILL LEACH CONDITIONS STUDY

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# AMENABILITY OF URAVAN MINERAL BELT ORE SAMPLES TO PINON MILL LEACH CONDITIONS

**Studies performed for:**

**Energy Fuels Resources Corporation**
**Suite 600**
**44 Union Boulevard**
**Lakewood, Colorado 80228**

**October 31, 2008**

NOV 0 4 2008

METALLURGICAL AND CHEMICAL PROCESSING CONSULTING ENGINEERS

# AMENABILITY OF URAVAN MINERAL BELT ORE SAMPLES TO PINON MILL LEACH CONDITIONS

## Summary

Hot, sulfuric acid leaching tests were performed on five representative samples of Uravan Mineral Belt uranium/vanadium ores. The samples were from the West Sunday, Pandora, Pack Rat, JD-8, and Energy Queen mines. The ores were ground to minus 28-mesh and leached for 24 hours at 85°C at strong sulfuric acid and oxidizing conditions. Dissolutions of the uranium ranged from 94.9% to 99.4%. Vanadium dissolutions ranged from 92.8% to 97.7%.

Settling tests were performed on the leach slurries. With flocculant additions of 0.021 to 0.035 lb Percol 351 per short ton the slurries settled to 47 to 74% solids. Unit areas for the settling ranged from 1.4 to 3.5 sq ft/st/day.

A simulated raffinate was prepared and neutralized to 4.5 and 7.5 pH to determine the deportment of the soluble ions if the leached and solution tailings were to be neutralized.

## Introduction

Energy Fuels Resources Corporation is planning the construction of a chemical processing plant in the Paradox Valley of Colorado to recover uranium and vanadium from Uravan Mineral Belt ores. Both feasibility and preliminary engineering studies have been prepared for this plant. However, no preliminary testing of typical ores was done prior to the studies.

The present program was initiated to gather data on the reagent requirements and leaching response for typical Uravan Mineral Belt ores. In addition the leach solutions provided information as to the types and amounts of impurities that also dissolved during the leach. Settling data on the leached slurries also provided confirming information for the assumptions used in the engineering studies.

## Samples

Five buckets of sample were received March 31, 2008 for amenability testing. The samples were identified as:

| | |
|---|---|
| West Sunday | 65 pounds |
| Pandora | 65 pounds |
| Pack Rat | 56 pounds |
| JD-8 | 73 pounds |
| Energy Queen | 60 pounds |

The samples were transferred to Hazen Research, Inc. for crushing, blending, splitting portions for test purposes, and preparing head analytical pulps. The intent had been to make the splits from material crushed to 8 mesh. However, because of the soft nature of the ore, the crushed material tended to be finer than 8 mesh.

The chemical analyses of the ore samples are shown in Table 1. The uranium grades ranged from 0.19% to 1.03% $U_3O_8$. The vanadium grades ranged from 1.10% to 3.73% $V_2O_5$. The carbonate content of the ores ranged from 0.96% to 6.53%.

The mineralogical analyses of the ore samples are shown in Table 2. The ores principally are quartz with minor amounts of silicates (mica, chlorite, and feldspar) and carbonates (calcite and dolomite). One sample, JD-8, contained an estimated 8% gypsum.

## Leaching

Two sets of leaching tests were performed. The goal for the first set was to determine the acid and oxidant requirements to produce a leach pulp containing 70 g $H_2SO_4$/L and an oxidation potential greater than 520 mv after 24 hours of leaching.

The procedure used was to charge the 500-gram samples to an 8-inch batch rod mill. Add 300 grams water, close and rotate for 15 minutes. Check the quantity of plus 28-mesh and plus 48-mesh. If they appear to be about 5% and 30% respectively, the grind would be terminated. The standard rod charge and the 15 minute grind produced very fine material. As successive batches of the ores were ground both the rod charge and grinding time were reduced considerably. Even at that the ore was over-ground with respect to the target values. The grinds to the two sets of leaches were:

| | First Set | Second Set |
|---|---|---|
| West Sunday | 2.3% >48-mesh | 0% >48-mesh |
| Pandora | 2.7% | 3.1% |
| Pack Rat | 4.7% | 4.0% |
| JD-8 | 0% | 0% |
| Energy Queen | 35% | 10% |

The ground ore was filtered and transferred into a tared, 2-liter resin kettle. Water was added until the contents weighed 925 grams, 54% solids. The resin kettle was placed in a water bath, the contents were stirred with propeller agitator, and heated to 85 C. When 70° C was reached, 1 gram sulfuric acid per mL solution was added to obtain a pH of 0.7. All additions of acid were recorded. This pH level was maintained 30 minutes. A small sample of the slurry was filtered, cooled, and the free acid measured. The sample was returned to the resin kettle and sufficient 1 g/mL acid was added to bring the free acid concentration up to 80 grams per liter. After another 30 minutes a small sample was taken, filtered and the free acid determined. If necessary, the acid content was adjusted again, to 85 g/L.

The oxidation potential then was measured. If below 520 absolute millivolts, sodium chlorate was added slowly in increments until 520 mv was achieved. The additions of sodium chlorate were recorded. Fifteen to 30 minutes after the sodium chlorate additions, a small sample was taken, filtered and the free acid determined. If necessary, acid was added to adjust to 85 g/L.

The slurries were agitated for two hours, the pH, emf, and free acid were measured and adjusted, if necessary. The pH, emf, and free acid were measured and adjusted if necessary about every two hours until 7 to 8 hours after starting the test. The leaches then continued for 24 hours total. The free acid, pH, and emf were measured on a filtered aliquot prior to terminating the tests.

The leached slurries were filtered and washed. The residues were dried and pulps for analysis prepared. The filtrate was measured for free acid and submitted for analysis.

Results from these tests are summarized in Table 3 and the data sheets are included in Appendix A. The uranium dissolutions ranged from 98.4% to 99.3%. The vanadium dissolutions ranged from 82.6% fo 98.9%. The acid additions ranged from 372 lb/st to 580 lb/st. The acid consumptions ranged from 236 lb/st to 504 lb/st. The sodium chlorate additions ranged from 4.0 to 6.8 lb/st.

The ore slurries for the second set of tests had approximately the same amount of sulfuric acid as was added to the first tests. This acid was added before heating to 85° C. After one hour, a sodium chlorate addition of approximately the same amount as was added to the first tests was made. The emf was checked periodically for 19 to 20 hours and more sodium chlorate was added when the emf was significantly lower than 520 mv. At 24 hours, the slurries were used for settling tests, then filtered and washed.

Results from the second set of tests also are summarized in Table 3 and the data sheets are included in Appendix A. The uranium dissolutions ranged from 94.9% to 99.4%. The vanadium dissolutions ranged from 92.8% fo 97.7%. The acid additions ranged from 400 lb/st to 640 lb/st. The acid consumptions ranged from 311 lb/st to 552 lb/st. The sodium chlorate additions ranged from 6.7 to 9.6 lb/st.

The filtrates from the leaches were submitted for a suite of analyses. The analyses are listed in Table 4. Aluminum, iron, and magnesium are the major impurities in the leach solutions.

The wet filter cakes from the second set of leaches were wet screened at 270-mesh. The plus 270-mesh and minus 270-mesh fractions for each sample were dried and the particle size

distributions of the plus from 50- to 270- mesh were determined. These size distributions are listed in Table 5.

The minus 270-mesh fraction from the Pandora ore was used to determine the fine particle size distribution. The dry, minus 270-mesh material was pushed through a 48-mesh screen and blended. Aliquots of the blended material were dispersed in water using an ultrasound probe to provide the sample for the Coulter Laser Particle Size Analyzer. One aliquot had sodium hypochlorite added to destroy any residual flocculant bonds that might aggregate the particles. The size distribution is shown in Figure 1. Note that 5 to 10% of the particle volume was in particles coarser than 270 mesh. Both aliquots measured showed the same distribution indicating that these plus 270-mesh particles were aggregates formed during drying of the material and were not related to the residual flocculant. The soaking and dispersion times should have been longer to ensure dispersion of the plus 270-mesh aggregates.

The mean value of the material was 21.6 μm and the median value was 10.8 μm. About 75% was finer than 35 μm and 25% was finer than 3.6 μm.

## Thickener Sizing

Kynch-type settling tests were performed using the pulps from the second set of tests. The pulps were transferred to 2-liter graduated cylinders and diluted to about 1800 mL with hot water. Diluted flocculant then was added while the slurry was mixed by plunging and retracting a perforated plate through the slurry. Except for the Pandora slurry, this method of addition was suitable to incorporate the coarser sand particles in the flocculated fines. The sands in the Pandora slurry were not efficiently incorporated in the flocs. The settling characteristics of this pulp probably would have been better had the flocculant been added throughout the pulp using a pipet fitted with a disc to mix the slurry and distribute the flocculant.

The settling test results are summarized in Table 6 and the data sheets are included in Appendix B. The flocculant additions ranged from 0.021 to 0.035 lb/st. The initial pulp densities were 18 to 21 percent solids and the terminal densities were 47 to 74 percent solids. The test on the Pandora tailings had the lowest terminal density. Unit areas calculated to achieve the terminal densities ranged from 1.4 to 3.5 sq ft/st/day. The poorly flocculated Pandora tailings did not require the largest area, but required 3.3 sq ft/st/day.

## Raffinate Neutralization

Two tests were performed to determine the levels of soluble components in solvent extraction raffinate before and after neutralization to 4.5 and 7.5 pH. Filtrates from the first set of tests on the Pandora and Pack Rat ores were used. The filtrates first were neutralized to 1.8 pH by contacting with ground ore. The Slurry was filtered and the filtrates were heated and sodium chlorate was added to oxidize the vanadium to 5-valent. The solutions then were contacted with

two successive volumes of a used solvent that initially was 10% Alamine 336 and 3% decyl alcohol in kerosine. The solvent had been used earlier in a molybdenum extraction pilot plant and the molybdenum had been stripped using ammonium hydroxide.

After the extraction of the bulk of the uranium and vanadium, the pH was adjusted by slowly adding a slurry of hydrated lime. In both tests, the 4.5 pH target was exceeded slightly and the pH was stabilized at 4.5 by the addition of more raffinate. After the pH was steady for one hour, an aliquot of the slurry was removed, filtered, and preserved for analysis. Additional hydrated lime then was added to the balance of the slurry. Again the 7.5 pH target was exceeded slightly and the pH was brought back to 7.5 by the addition of 1 g/mL sulfuric acid. After the pH was steady for one hour, an aliquot of the slurry was removed, filtered, and preserved for analysis.

The analyses on the raffinates and neutralized raffinates are listed in Table 7. The major impurities, aluminum and iron, essentially were removed by 4.5 pH.

**Table 1**

## CHEMICAL ANALYSES OF ENERGY FUELS RESOURCES ORE SAMPLES

| | | West Sunday | Pandora | Pack Rat | JD-8 | Energy Queen |
|---|---|---|---|---|---|---|
| Calcium | % | 2.47 | 2.53 | 0.84 | 2.99 | 1.71 |
| Carbon, total | % | 0.69 | 1.38 | 0.84 | 0.89 | 0.58 |
| Carbon, as CO3 | % | 3.55 | 6.53 | 0.96 | 3.44 | 2.55 |
| Carbon, organic | % | <0.01 | 0.07 | 0.65 | 0.20 | 0.07 |
| Iron | % | 1.08 | 1.09 | 1.21 | 0.72 | 0.68 |
| Magnesium | % | 0.78 | 0.59 | 1.10 | 1.20 | 0.54 |
| Molybdenum | % | 0.0037 | 0.0025 | <0.0005 | 0.0095 | 0.0142 |
| Phosphorus, as P2O5 | % | 0.075 | 0.074 | 0.082 | 0.064 | 0.058 |
| Sodium | % | 0.233 | 0.036 | 0.114 | 0.047 | 0.010 |
| Sulfur | % | 0.13 | 0.40 | 0.12 | 1.46 | 0.14 |
| Uranium, as U3O8 | % | 0.252 | 0.266 | 0.527 | 0.186 | 1.03 |
| Vanadium, as V2O5 | % | 1.43 | 1.63 | 3.73 | 1.10 | 1.34 |

**Table 2**

## MINERALOGICAL ANALYSES OF ENERGY FUELS RESOURCES ORE SAMPLES

| Mineral Name | Chemical formula | West Sunday | Pandora | Pack Rat | JD-8 | Energy Queen |
|---|---|---|---|---|---|---|
| Quartz | $SiO_2$ | 78 | 70 | 72 | 68 | 80 |
| Mica/Illite | $(K,Na,Ca)(Al,Mg,Fe,V)_2(Si,Al)_4O_{10}(OH,F)_2$ | <5 | 8 | 5 | <5 | <5? |
| Chlorite | $(Mg,Fe,Al)_6(Si,Al)_4O_{10}(OH)$ | | | 13 | | 5 |
| K-feldspar | $KAlSi_3O_8$ | <5 | 5 | <5 | 8 | <5 |
| Plagioclase feldspar | $(Na,Ca)Al(Si,Al)_3O_8$ | <5 | | | | |
| Calcite | $CaCO_3$ | 7 | 7 | <3 | | 5 |
| Dolomite | $Ca(Mg,Fe)(CO_3)_2$ | | 7 | | 12 | |
| Pyrite | $FeS_2$ | | <1 | | | <1? |
| Gypsum | $CaSO_4 \cdot 2H_2O$ | | | | 8 | |
| Carnotite | $K_2(UO_2)_2V_2O_8 \cdot xH_2O$ | | <2? | <2? | | |
| Unidentified | ? | <5 | <5 | <5 | <5 | <5 |

**Table 3**

## SUMMARY OF LEACHING RESULTS ON URAVAN MINERAL BELT ORE SAMPLES

| Sample | Head Analysis, % | | | Sulfuric Acid, lb/st | | NaClO3 | Soluble, % of Recovered | | | Residue, % |
|---|---|---|---|---|---|---|---|---|---|---|
| | $U_3O_8$ | V | Mo | Added | Consumed | Added, lb/st | $U_3O_8$ | V | Mo | $U_3O_8$ |
| **Screening Test Results** | | | | | | | | | | |
| West Sunday | 0.252 | 0.81 | 0.0037 | 528 | 406 | 6.24 | 98.7 | 96.0 | 5 | 0.003 |
| Pandora | 0.266 | 0.92 | 0.0025 | 556 | 422 | 6.84 | 98.4 | 89.8 | 4 | 0.004 |
| Pack Rat | 0.527 | 2.11 | 0.0005 | 580 | 504 | 5.60 | 98.5 | 82.6 | 2 | 0.007 |
| JD-8 | 0.186 | 0.62 | 0.0095 | 372 | 236 | 4.00 | 98.8 | 95.8 | 6 | 0.002 |
| Energy Queen | 1.03 | 0.76 | 0.0142 | 432 | 241 | 5.32 | 99.3 | 98.9 | 7 | 0.008 |
| **Confirming Test Results** | | | | | | | | | | |
| | | | | | | | | | Mesh | |
| West Sunday | 0.252 | 0.81 | 0.0037 | 520 | 445 | 9.6 | 94.9 | 97.7 | >270 | 0.002 |
| | | | | | | | | | <270 | 0.022 |
| Pandora | 0.266 | 0.92 | 0.0025 | 560 | 437 | 7.6 | 99.5 | 94.3 | >270 | 0.001 |
| | | | | | | | | | <270 | 0.003 |
| Pack Rat | 0.527 | 2.11 | 0.0005 | 640 | 552 | 7.2 | 99.3 | 94.5 | >270 | 0.004 |
| | | | | | | | | | <270 | 0.003 |
| JD-8 | 0.186 | 0.62 | 0.0095 | 400 | 311 | 6.7 | 99.4 | 92.8 | >270 | 0.001 |
| | | | | | | | | | <270 | 0.002 |
| Energy Queen | 1.03 | 0.76 | 0.0142 | 400 | 331 | 7.2 | 99.1 | 96.9 | >270 | 0.009 |
| | | | | | | | | | <270 | 0.011 |

**Table 4**

# CONCENTRATIONS IN LEACH SOLUTIONS

| | | West Sunday | Pandora | Pack Rat | JD-8 | Energy Queen |
|---|---|---|---|---|---|---|
| | | | | | | |
| Uranium as $U_3O_8$ | mg/L | 553 | 576 | 1047 | 388 | 2235 |
| Vanadium | mg/L | 1900 | 1870 | 4400 | 1260 | 1780 |
| Aluminum | mg/L | 3000 | 1430 | 4570 | 1590 | 2180 |
| Calcium | mg/L | 700 | 670 | 650 | 660 | 620 |
| Chromium | mg/L | 28 | 3.1 | 2.9 | 2.5 | 4.8 |
| Iron | mg/L | 2310 | 1490 | 2170 | 810 | 1140 |
| Magnesium | mg/L | 1640 | 1110 | 2220 | 2340 | 1260 |
| Manganese | mg/L | 56 | 86 | 20 | 33 | 28 |
| Molybdenum | mg/L | 18 | 4.2 | 1.5 | 15 | 31 |
| Phosphorus | mg/L | 55 | 42 | 44 | 38 | 48 |
| Potassium | mg/L | 590 | 790 | 1110 | 400 | 270 |
| Sodium | mg/L | 300 | 280 | 320 | 200 | 220 |
| | | | | | | |

**Table 5**

# PARTICLE SIZE DISTRIBUTION IN LEACH TAILINGS

| Size | West Sunday | | Pandora | | Pack Rat | | JD-8 | | Energy Queen | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Weight Percent | | Weight Percent | | Weight Percent | | Weight Percent | | Weight Percent | |
| Mesh | Fraction | Passing | Fraction | Passing | Fraction | Passing | Fraction | Passing | Fraction | Passing |
| | | | | | | | | | | |
| 30 | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% |
| 40 | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% | 0.0% | 100.0% |
| 50 | 0.0% | 100.0% | 1.8% | 98.2% | 2.5% | 97.5% | 0.6% | 99.3% | 7.5% | 92.5% |
| 60 | 0.0% | 100.0% | 6.4% | 91.8% | 7.0% | 90.5% | 3.7% | 95.6% | 13.2% | 79.2% |
| 80 | 0.1% | 99.9% | 20.7% | 71.1% | 17.0% | 73.6% | 17.5% | 78.1% | 23.6% | 55.6% |
| 100 | 0.1% | 99.8% | 10.5% | 60.6% | 9.8% | 63.8% | 11.2% | 67.0% | 10.6% | 45.0% |
| 140 | 0.6% | 99.2% | 17.7% | 43.0% | 23.6% | 40.2% | 23.6% | 43.4% | 16.7% | 28.3% |
| 200 | 17.4% | 81.8% | 10.2% | 32.8% | 15.7% | 24.5% | 14.3% | 29.1% | 8.2% | 20.1% |
| 270 | 21.0% | 60.8% | 4.6% | 28.2% | 6.2% | 18.3% | 6.1% | 23.0% | 3.9% | 16.2% |
| -270 | 60.8% | 0.0% | 28.2% | 0.0% | 18.3% | 0.0% | 23.0% | 0.0% | 16.2% | 0.0% |

**Table 6**

# THICKENER SIZING FOR LEACH TAILINGS

| | West Sunday | Pandora | Pack Rat | JD-8 | Energy Queen |
|---|---|---|---|---|---|
| Percol 351, lb/st | 0.021 | 0.033 | 0.035 | 0.023 | 0.022 |
| Initial pulp solids, % | 21 | 19 | 18 | 20 | 21 |
| Terminal solids, % | 57 | 47 | 61 | 61 | 74 |
| Unit Area, sq ft/stpd | 1.36 | 3.26 | 3.45 | 2.50 | 1.83 |

Note: Both the Pandora and the Pack Rat showed significant segregation of sands and slimes. Flocculant to the tests was just added as the slurry was being mixed. The sands in the Pandora and Pack Rat pulps did not suspend well and did not get included in the flocs. These tails would have settled much better had the flocculant been added throughout the mixture while it was being mixed.

## Table 7

## ANALYSIS OF RAFFINATES BEFORE AND AFTER NEUTRALIZATION

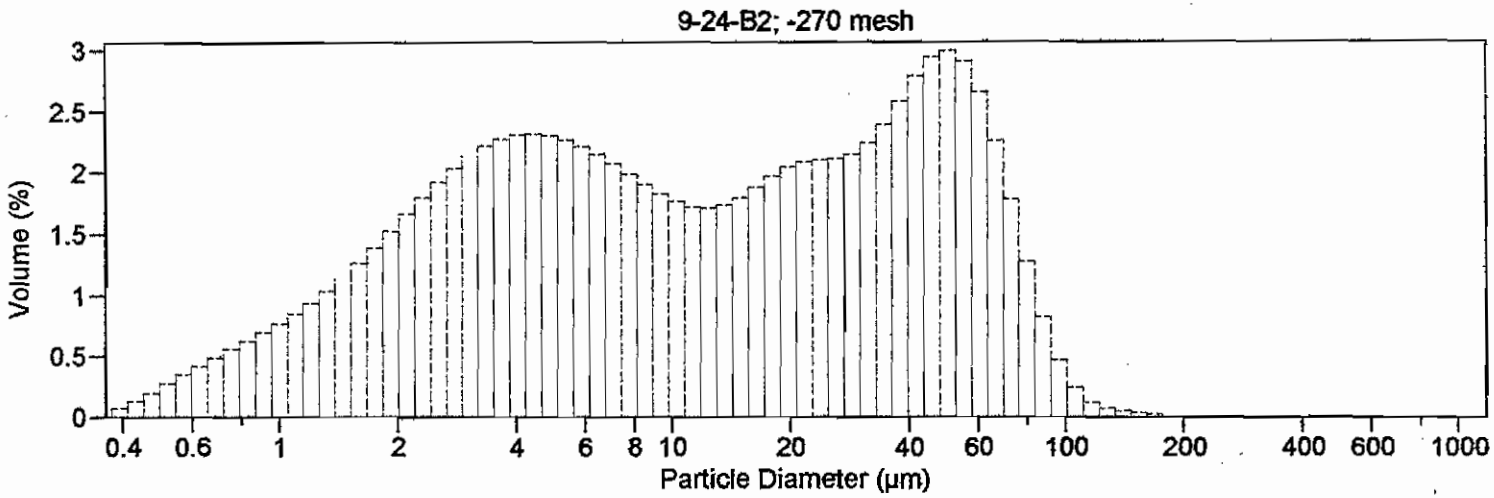
| | | Pandora | | | | Pack Rat | | |
|---|---|---|---|---|---|---|---|---|
| Element | | Raffinate | 4.5 pH | 7.5 pH | | Raffinate | 4.5 pH | 7.5 pH |
| Aluminum | mg/L | 2100 | 12.6 | 0.5 | | 5960 | 5.6 | 0.6 |
| Antimony | mg/L | ND <0.05 | ND <0.05 | ND <0.05 | | ND <0.05 | ND <0.05 | ND <0.05 |
| Arsenic | mg/L | 11.5 | 0.031 | ND <0.001 | | 58.9 | ND <0.001 | ND <0.001 |
| Barium | mg/L | 0.3 | 0.3 | 0.3 | | 0.5 | 0.3 | 0.1 |
| Beryllium | mg/L | 0.2 | ND <0.01 | ND <0.01 | | 0.28 | ND <0.01 | ND <0.01 |
| Boron | mg/L | 2.7 | 1.3 | 1.1 | | 1.5 | 0.8 | 0.2 |
| Cadmium | mg/L | 1.19 | 0.94 | 0.82 | | 3.67 | 1.04 | 0.06 |
| Chromium | mg/L | 3.27 | 2.48 | ND <0.05 | | 2.56 | ND <0.05 | ND <0.05 |
| Copper | mg/L | 3.96 | 0.33 | 0.14 | | 5.62 | 0.26 | 0.11 |
| Iron | mg/L | 2760 | 0.36 | 0.13 | | 2190 | 8.09 | 0.62 |
| Lead | mg/L | 3.07 | ND <0.05 | ND <0.05 | | 0.52 | ND <0.05 | ND <0.05 |
| Manganese | mg/L | 259 | 227 | 192 | | 45.6 | 23.2 | 2.63 |
| Mercury | mg/L | ND <0.001 | ND <0.001 | ND <0.001 | | ND <0.001 | ND <0.001 | ND <0.001 |
| Molybdenum | mg/L | 0.2 | ND <0.1 | ND <0.1 | | 0.4 | ND <0.1 | ND <0.1 |
| Nickel | mg/L | 7.96 | 4.97 | 4.5 | | 8.83 | 2.51 | 5.93 |
| Selenium | mg/L | 5.49 | 2.02 | 1.84 | | 14 | 7.68 | 5.93 |
| Silver | mg/L | 0.34 | 0.03 | ND <0.01 | | 0.53 | ND <0.01 | ND <0.01 |
| Thallium | mg/L | ND <0.1 | ND <0.1 | ND <0.1 | | ND <0.1 | ND <0.1 | ND <0.1 |
| Uranium | mg/L | 366 | 60.2 | 2.36 | | 369 | 15.6 | 0.057 |
| Vanadium | mg/L | 97.9 | 0.6 | ND <0.1 | | 195 | 0.4 | 0.2 |
| Zinc | mg/L | 48.4 | 25.3 | 9.35 | | 40.6 | 3.48 | 0.07 |

Note: ND - not detected, followed by limit of detection

Uranium and vanadium values in the raffinate samples are not typical. Batch liquid extractions were performed to remove the bulk of the uranium and vanadium, but additional time was not available to attempt complete extraction.

**Figure 1**

# SIZE DISTRIBUTION IN <270-MESH PANDORA LEACH TAILINGS




Volume Statistics (Arithmetic) untitled.$01

Calculations from 0.375 µm to 948 µm

| | | | |
|---|---|---|---|
| Volume | 100.0% | | |
| Mean: | 21.62 µm | S.D.: | 23.62 µm |
| Median: | 10.81 µm | C.V.: | 109% |
| D(3,2): | 4.418 µm | | |
| Mode: | 50.23 µm | | |

| % < | 10 | 25 | 50 | 75 | 90 |
|---|---|---|---|---|---|
| Size µm | 1.690 | 3.591 | 10.81 | 34.98 | 57.48 |

| Particle Diameter µm | Volume % < |
|---|---|
| 2.000 | 12.7 |
| 5.000 | 33.2 |
| 10.00 | 48.5 |
| 15.00 | 56.1 |
| 20.00 | 62.0 |
| 30.00 | 71.2 |
| 40.00 | 78.7 |
| 50.00 | 85.6 |
| 70.00 | 95.2 |
| 100.0 | 99.4 |

Size Analysis Determined Using COULTER LS Particle Size Analyzer
By: Phillips Enterprises, LLC

# APPENDIX A

# LEACHING DATA SHEETS

| J.E. Litz & Associates, L.L.C. | | |
|---|---|---|
| Metallurgical & Chemical Processing Consulta | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 7/29/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 7-29-A West Sunday**

Purpose: Amenability of **West Sunday** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 5 minutes 2.3% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 until stable 0.7 pH
3. Periodically add 1000 g/L H2SO4 to maintain 80 g/L free acid, NaClO3 to reach 520 mv
3. Up to 8 hour, adjust acid to 80 g/L and emf to 520 mv.
4. At 24 hours, filter and wash pulp

| Time | 13:14 | 13:35 | 15:25 | 17:00 | 20:28 | 7:35 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 21 | 131 | 226 | 434 | 1101 | | | | |
| Temperature | 37 | 59 | 89 | 88 | 80 | 79 | | | | |
| pH read | 7.33 | 0.70 | 0.98 | 0.72 | 0.58 | 0.64 | | | | |
| pH adjusted | 0.70 | 0.60 | 0.60 | 0.52 | 0.54 | | | | | |
| mL acid | 50 | 20 | 25 | 25 | 12 | | | | | |
| H2SO4, g/L | | | 38 | 44 | 56 | 60 | | | | |
| mv read | | 516 | 453 | 494 | 504 | 486 | | | | |
| mv adjusted | | 734 | 578 | 540 | 567 | | | | | |
| NaClO3, g | | 0.34 | 0.42 | 0.20 | 0.30 | 0.30 | | | 6.2 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.252 | 0.0037 | 0.81 | 1.08 | | 1.260 | 0.019 | 4.050 | |
| 7-29-A-1 | Filtrate | 890 | 1.14 | 0.0010 | 3.89 | 3.37 | 34.3 | 1.01 | 0.0008 | 3.46 | 30.5 |
| 7-29-A-2 | Residue | 461.0 | 0.003 | | 0.0315 | | | 0.014 | 0.0 | 0.15 | |
| | | | | | Soluble, percent | | | 98.7% | 100% | 96.0% | |
| | | | | | Balance | | | 82% | 5% | 89% | |

| | | |
|---|---|---|
| Acid added | 132 grams | 528 lb/st |
| Acid residual | 30.5 grams | |
| Consumed | 101 grams | 406 lb/st |

| J.E. Litz & Associates, L.L.C. | | | |
|---|---|---|---|
| Metallurgical & Chemical Processing Consulta | | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street | (303) 854-2035 | | Date: 7/29/2008 |
| Golden, CO 80403 | FAX (303) 273-0494 | | |

**Test No: 7-29-B Pandora**

Purpose: Amenability of **Pandora** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 5 minutes 2.7% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 until stable 0.7 pH
3. Periodically add 1000 g/L H2SO4 to maintain 80 g/L free acid, NaClO3 to reach 520 mv
3. Up to 8 hour, adjust acid to 80 g/L and emf to 520 mv.
4. At 24 hours, filter and wash pulp

| Time | 13:19 | 13:40 | 15:30 | 17:05 | 20:48 | 7:35 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 21 | 131 | 226 | 449 | 1096 | | | | |
| Temperature | 49 | 73 | 84 | 87 | 83 | 80 | | | | |
| pH read | 6.90 | 0.73 | 0.57 | 0.58 | 0.53 | 0.56 | | | | |
| pH adjusted | 0.65 | 0.53 | 0.52 | 0.50 | 0.51 | | | | | |
| mL acid | 73 | 30 | 15 | 15 | 6 | | | | | |
| H2SO4, g/L | | | 63 | 58 | 71 | 70 | | | | |
| mv read | | 455 | 482 | 491 | 493 | 470 | | | | |
| mv adjusted | | 547 | 546 | 531 | 540 | | | | | |
| NaClO3, g | | 0.41 | 0.36 | 0.22 | 0.30 | 0.42 | | | 6.8 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.266 | 0.0025 | 0.92 | | | 1.330 | 0.013 | 4.600 | |
| | | | | | | | | | | | |
| 7-29-B-1 | Filtrate | 1020 | 1.15 | 0.0005 | 4.02 | 2.98 | 32.8 | 1.17 | 0.0005 | 4.10 | 33.5 |
| | | | | | | | | | | | |
| 7-29-B-2 | Residue | 470.0 | 0.004 | | 0.099 | | | 0.019 | | 0.465 | |
| | | | | | | | | | | | |
| | | | | | Soluble, percent | | | 98.4% | 100% | 89.8% | |
| | | | | | Balance | | | 90% | 4% | 99% | |

| | | |
|---|---|---|
| Acid added | 139 grams | 556 lb/st |
| Acid residual | 33.5 grams | |
| Consumed | 106 grams | 422 lb/st |

J.E. Litz & Associates, L.L.C.
Metallurgical & Chemical Processing Consulta
5906 McIntyre Street (303) 854-2035
Golden, CO 80403 FAX (303) 273-0494

# Plateau Ore Grind / Leach Test

Project No.: 08-7-1
Date: 7/29/2008

**Test No: 7-29-C Pack Rat**

Purpose: Amenability of **Pack Rat** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 5 minutes 4.7% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 until stable 0.7 pH
3. Periodically add 1000 g/L H2SO4 to maintain 80 g/L free acid, NaClO3 to reach 520 mv
3. Up to 8 hour, adjust acid to 80 g/L and emf to 520 mv.
4. At 24 hours, filter and wash pulp

| Time | 13:28 | 13:45 | 15:22 | 17:10 | 20:48 | 7:40 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 17 | 114 | 222 | 440 | 1092 | | | | |
| Temperature | 72 | 87 | 88 | 85 | 90 | 87 | | | | |
| pH read | 6.24 | 0.79 | 1.03 | 0.84 | 0.69 | 0.78 | | | | |
| pH adjusted | 0.60 | 0.57 | 0.65 | 0.51 | 0.69 | | | | | |
| mL acid | 50 | 20 | 20 | 25 | 15 | 15 | | | | |
| H2SO4, g/L | | | 43 | 42 | 51 | 37 | | | | |
| mv read | | 616 | 460 | 477 | 485 | 498 | | | | |
| mv adjusted | | 615 | 531 | 531 | 577 | | | | | |
| NaClO3, g | | | 0.30 | 0.35 | 0.50 | 0.25 | | | 5.6 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.527 | 0.0005 | 2.11 | | | 2.64 | 0.0025 | 10.55 | |
| 7-29-C-1 | Filtrate | 980 | 1.94 | 0.0001 | 8.77 | 4.16 | 19.4 | 1.90 | 0.0000 | 8.59 | 19.0 |
| 7-29-C-2 | Residue | 412.6 | 0.0070 | | 0.4400 | | | 0.03 | | 1.82 | |
| | | | | | Soluble, percent | | | 98.5% | 100% | 82.6% | |
| | | | | | Balance | | | 73% | 2% | 99% | |

| | | |
|---|---|---|
| Acid added | 145 grams | 580 lb/st |
| Acid residual | 19.0 grams | |
| Consumed | 126 grams | 504 lb/st |

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|---|---|---|---|
| Metallurgical & Chemical Processing Consultar | | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street | (303) 854-2035 | | Date: 7/28/2008 |
| Golden, CO 80403 | FAX (303) 273-0494 | | |

**Test No: 7-28-D JD-8**

Purpose: Amenability of **JD-8** ore to Pinon Amenability

Procedure:
1 Grind **500** grams ore in light charge rod mill for 5 minutes 0.0% >48 mesh
2 Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 until stable 0.7 pH
3 Periodically add 1000 g/L H2SO4 to maintain 80 g/L free acid, NaClO3 to reach 520 mv
3 Up to 8 hour, adjust acid to 80 g/L and emf to 520 mv.
4 At 24 hours, filter and wash pulp

| Time | 8:25 | 8:39 | 8:59 | 9:40 | 11:18 | 13:40 | 16:10 | 20:57 | 8:28 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 14 | 34 | 75 | 173 | 315 | 465 | 752 | 1443 | |
| Temperature | 54 | 72 | 84 | 84 | 88 | 88 | 87 | 85 | 82 | |
| pH read | 6.60 | 0.76 | 0.92 | 0.99 | 0.60 | 0.46 | 0.36 | 0.46 | 0.40 | |
| pH adjusted | 0.63 | | 0.83 | | 0.45 | 0.39 | 0.40 | | | |
| mL acid | 50 | | | 27 | | 5 | 11 | | | |
| H2SO4, g/L | | | | 20 | 28 | 50 | 59 | | | |
| mv read | | 504 | 508 | 505 | 522 | 490 | 545 | 521.0 | 502.0 | |
| mv adjusted | | 675 | 671 | | 530 | 570 | 530 | | | |
| NaClO3, g | | 0.25 | 0.30 | 0.23 | | 0.22 | | | 4.0 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.186 | 0.0095 | 0.62 | | | 0.93 | 0.05 | 3.10 | |
| | | | | | | | | | | | |
| 7-28-D-1 | Filtrate | 940 | 0.80 | 0.0030 | 3.28 | 1.90 | 36.3 | 0.75 | 0.0028 | 3.08 | 34.1 |
| | | | | | | | | | | | |
| 7-28-D-2 | Residue | 457.4 | 0.002 | | 0.0297 | | | 0.01 | | 0.14 | |
| | | | | | | | | | | | |
| | | | | | Soluble, percent | | | 98.8% | 100% | 95.8% | |
| | | | | | Balance | | | 82% | 6% | 104% | |

| | | |
|---|---|---|
| Acid added | 93 grams | 372 lb/st |
| Acid residual | 34.1 grams | |
| Consumed | 59 grams | 236 lb/st |

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|---|---|---|
| Metallurgical & Chemical Processing Consulta | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 7/28/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 7-28-E Energy Queen**

Purpose: Amenability of **Energy Queen** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 5 minutes 35% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 until stable 0.7 pH
3. Periodically add 1000 g/L H2SO4 to maintain 80 g/L free acid, NaClO3 to reach 520 mv
3. Up to 8 hour, adjust acid to 80 g/L and emf to 520 mv.
4. At 24 hours, filter and wash pulp

| Time | 8:33 | 8:44 | 9:03 | 9:45 | 11:22 | 13:40 | 16:10 | 20:57 | 8:55 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 11 | 30 | 72 | 169 | 307 | 457 | 744 | 1462 | |
| Temperature | 48 | 62 | 75 | 82 | 86 | 88 | 85 | 87 | 80 | |
| pH read | 6.90 | 0.50 | 0.52 | 0.93 | 0.79 | 0.60 | 0.48 | 0.40 | 0.36 | |
| pH adjusted | 0.71 | | 0.56 | | 0.37 | 0.47 | 0.46 | | | |
| mL acid | 50 | | | 23 | | 15 | 20 | | | |
| H2SO4, g/L | | | | 25 | 17 | 70 | 42 | | | |
| mv read | | 675 | 510 | 482 | 508 | 484 | 521 | 509 | 520 | |
| mv adjusted | | | 707 | | 526 | 533 | 520 | | | |
| NaClO3, g | | | 0.29 | 0.43 | 0.10 | 0.26 | | 0.25 | 5.3 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 1.03 | 0.0142 | 0.76 | | | 5.15 | 0.07 | 3.80 | |
| | | | | | | | | | | | |
| 7-28-E-1 | Filtrate | 1170 | 4.28 | 0.0044 | 3.76 | 2.32 | 40.8 | 5.01 | 0.0051 | 4.40 | 47.7 |
| | | | | | | | | | | | |
| 7-28-E-2 | Residue | 468.5 | 0.008 | | 0.0103 | | | 0.04 | | 0.05 | |
| | | | | | | | | | | | |
| | | | | | Soluble, percent | | | 99.3% | 100% | 98.9% | |
| | | | | | Balance | | | 98% | 7% | 117% | |

| | | |
|---|---|---|
| Acid added | 108 grams | 432 lb/st |
| Acid residual | 47.7 grams | |
| Consumed | 60 grams | 241 lb/st |

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|---|---|---|
| Metallurgical & Chemical Processing Consultar | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 9/24/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 9-24-A West Sunday**

Purpose: Amenability of **West Sunday** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 3 minutes 0% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 Heat to 85
3. After one hour add sodium chlorate.
3. Monitor pH and emf for 24 hours. Adjust emf if is falls significantly below 520 mv
4. At 24 hours, use pulp for settling tests, then filter and wash.

| Time | 13:15 | 13:33 | 13:55 | 15:15 | 15:23 | 15:55 | 17:30 | 22:15 | 8:15 | 12:30 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | | | | | | | | | | |
| Temperature | | 68 | 81 | 52 | 70 | 95 | 91 | 75 | 82 | 92 |
| pH read | | | | | | | | | | |
| pH adjusted | | | | | | | | | | |
| mL acid | 130 | | | | | | | | | |
| H2SO4, g/L | | | | | | | | | | |
| mv read | | | 454 | 526 | | | | 474 | 493 | 527 |
| mv adjusted | | | | | | | | | | |
| NaClO3, g | | | 1.6 | 0.2 | | | | 0.4 | 0.3 | |
| | | | | | | | | 9.6 | lb/st NaClO3 | |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.252 | 0.0037 | 0.81 | 1.08 | | 1.260 | 0.019 | 4.050 | |
| | | | | | | | | | | | |
| 9-24-A-1 | Filtrate | 2110 | 0.553 | 0.018 | 1.90 | 2.31 | 8.9 | 1.167 | 0.038 | 4.009 | 18.9 |
| | | | | | | | | | | | |
| 9-24-A-2A | Residue | 185.0 | 0.002 | | 0.0073 | | | 0.004 | | 0.014 | |
| 9-24-A-2B | <270 | 266.5 | 0.022 | | 0.0308 | | | 0.059 | | 0.082 | |

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|---|---|---|
| Metallurgical & Chemical Processing Consultar | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 9/24/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 9-24-B Pandora**

Purpose: Amenability of **JD-8** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 3 minutes 3.1% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 Heat to 85
3. After one hour add sodium chlorate.
3. Monitor pH and emf for 24 hours. Adjust emf if is falls significantly below 520 mv
4. At 24 hours, use pulp for settling tests, then filter and wash.

| Time | 13:15 | 13:33 | 13:55 | 15:15 | 15:26 | 15:55 | 17:30 | 22:00 | 8:00 | 12:30 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | | | | | | | | | | |
| Temperature | | 69 | 89 | 96 | 91 | 91 | 90 | 88 | 88 | 88 |
| pH read | | | | | | | | | | |
| pH adjusted | | | | | | | | | | |
| mL acid | 140 | | | | | | | | | |
| H2SO4, g/L | | | 467 | 541 | | | | 487 | 496 | 516 |
| mv read | | | | | | | | | | |
| mv adjusted | | | | | | | | | | |
| NaClO3, g | | | 1.7 | 0.2 | | | | 0.4 | 0.3 | |
| | | | | | | | | 7.6 | lb/st NaClO3 | |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.266 | 0.0025 | 0.92 | | | 1.330 | 0.013 | 4.600 | |
| | | | | | | | | | | | |
| 9-24-B-1 | Filtrate | 2370 | 0.576 | 0.004 | 1.87 | 1.49 | 13.0 | 1.365 | 0.009 | 4.432 | 30.8 |
| | | | | | | | | | | | |
| 9-24-B-2A | Residue | 335.9 | 0.001 | | 0.0278 | | | 0.003 | | 0.093 | |
| 9-24-B-2B | <270 | 131.1 | 0.003 | | 0.1314 | | | 0.004 | | 0.172 | |

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|---|---|---|
| Metallurgical & Chemical Processing Consultar | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 9/16/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 9-16-C Pack Rat**

Purpose: Amenability of **Pack Rat** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 3 minutes 4.0% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 Heat to 85 C.
3. After one hour add sodium chlorate.
3. Monitor pH and emf for 24 hours. Adjust emf if is falls significantly below 520 mv
4. At 24 hours, use pulp for settling tests, then filter and wash.

| Time | 10:50 | 12:00 | 13:00 | 14:15 | 14:30 | 15:00 | 18:20/ 19:00 | 22:55 | 7:50 | 11:50 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 70 | 130 | 205 | 220 | 250 | 490 | 725 | 1200 | 1500 |
| Temperature | | 82 | 55 | 58 | 88 | 96 | 43/88 | 93 | 90 | 87 |
| pH read | | | | | | | | | | |
| pH adjusted | | | | | | | | | | |
| mL acid | 160 | | | | | | | | | |
| H2SO4, g/L | | | | | | | | | | |
| mv read | | 450 | 695 | 635 | | 580 | 500 | 605 | 553 | 542 |
| mv adjusted | | | | | | | | | | |
| NaClO3, g | | 1.8 | | | | | | | 7.2 | lb/st NaClO3 |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.527 | 0.0005 | 2.11 | | | 2.635 | 0.0025 | 10.55 | |
| | | | | | | | | | | | |
| 9-16-C-1 | Filtrate | 2320 | 1.047 | 0.002 | 4.40 | 2.17 | 9.4 | 2.429 | 0.005 | 10.208 | 21.9 |
| | | | | | | | | | | | |
| 9-16-C-2B | Residue | 346.2 | 0.0040 | | 0.0561 | | | 0.014 | | 0.194 | |
| 9-16-C-2A | <270 | 76.4 | 0.0030 | | 0.5160 | | | 0.002 | | 0.394 | |
| | | | | | Soluble, percent | | | 99.3% | | 94.5% | |
| | | | | | Balance | | | 92.8% | 185.6% | 102% | |

| | | | | |
|---|---|---|---|---|
| Acid added | 160 | grams | 640 | lb/st |
| Acid residual | 21.9 | grams | | |
| Consumed | 138 | grams | 552 | lb/st |

| J.E. Litz & Associates, L.L.C. | | |
|---|---|---|
| Metallurgical & Chemical Processing Consultar | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 9/3/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 9-3-D JD-8**

Purpose: Amenability of **JD-8** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 3 minutes 1% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 Heat to 85
3. After one hour add sodium chlorate.
3. Monitor pH and emf for 24 hours. Adjust emf if is falls significantly below 520 mv
4. At 24 hours, use pulp for settling tests, then filter and wash.

| Time | 9:30 | 10:40 | 11:55 | 13:30 | 15:10 | 16:45 | 22:50 | 9:00 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 70 | 145 | 240 | 340 | 435 | 800 | 1410 | | |
| Temperature | | 88 | 88 | 87 | 87 | 86 | 82 | 80 | | |
| pH read | | | | | | | | | | |
| pH adjusted | | | | | | | | | | |
| mL acid | 100 | | | | | | | | | |
| H2SO4, g/L | | | | | | | | | | |
| mv read | | 488 | 592 | 550 | 532 | 521 | 476 | 520 | | |
| mv adjusted | | | | | | | | | | |
| NaClO3, g | | 1.30 | | | | | 0.37 | 6.7 | lb/st NaClO3 | |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 0.186 | 0.0095 | 0.62 | | | 0.930 | 0.048 | 3.100 | |
| | | | | | | | | | | | |
| 9-3-D-1 | Filtrate | 2240 | 0.388 | 0.015 | 1.26 | 0.81 | 9.9 | 0.869 | 0.034 | 2.822 | 22.2 |
| | | | | | | | | | | | |
| 9-3-D-2B | Residue | 337.5 | 0.001 | | 0.0154 | | | 0.003 | | 0.052 | |
| 9-3-D-2A | <270 | 100.1 | 0.002 | | 0.1680 | | | 0.002 | | 0.168 | |

| J.E. Litz & Associates, L.L.C. | | |
|---|---|---|
| Metallurgical & Chemical Processing Consultai | **Plateau Ore Grind / Leach Test** | Project No.: 08-7-1 |
| 5906 McIntyre Street (303) 854-2035 | | Date: 9/3/2008 |
| Golden, CO 80403 FAX (303) 273-0494 | | |

**Test No: 9-3-E Energy Queen**

Purpose: Amenability of **Energy Queen** ore to Pinon Amenability

Procedure:
1. Grind **500** grams ore in light charge rod mill for 6 minutes 10% >48 mesh
2. Transfer ground ore to **2000** mL kettle Add 1000g/L H2SO4 Heat to 85
3. After one hour add sodium chlorate.
3. Monitor pH and emf for 24 hours. Adjust emf if is falls significantly below 520 mv
4. At 24 hours, use pulp for settling tests, then filter and wash.

| Time | 9:30 | 10:40 | 12:00 | 13:30 | 15:10 | 16:45 | 22:55 | 9:00 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Minutes | 0 | 70 | 150 | 240 | 340 | 435 | 805 | 1410 | | |
| Temperature | | 82 | 80 | 96 | 95 | 95 | 89 | 92 | | |
| pH read | | | | | | | | | | |
| pH adjusted | | | | | | | | | | |
| mL acid | 100 | | | | | | | | | |
| H2SO4, g/L | | | | | | | | | | |
| mv read | | 465 | 720 | 526 | 502 | 533 | 492 | 526 | | |
| mv adjusted | | | | | | | | | | |
| NaClO3, g | | 1.30 | | | 0.23 | | 0.28 | 7.2 | lb/st NaClO3 | |

| | Descr- | wt/vol | Analysis % or g/L | | | | | Grams in sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | iption | gm/ml | U3O8 | Mo | V | Fe | H2SO4 | U3O8 | Mo | V | H2SO4 |
| | Ore Head | 500 | 1.03 | 0.0142 | 0.76 | | | 5.150 | 0.071 | 3.800 | |
| | | | | | | | | | | | |
| 9-3-E-1 | Filtrate | 2140 | 2.24 | 0.031 | 1.78 | 1.14 | 8.1 | 4.8 | 0.066 | 3.8 | 17.3 |
| | | | | | | | | | | | |
| 9-3-E-2B | Residue | 389.8 | 0.009 | | 0.0154 | | | 0.035 | | 0.060 | |
| 9-3-E-2A | <270 | 74.9 | 0.011 | | 0.0824 | | | 0.008 | | 0.062 | |

# APPENDIX B

# SETTLING DATA SHEETS

J.E. Litz & Associates, L.L.C.
Metallurgical & Chemical Processing Consultants
5906 McIntyre Street (303) 854-2035
Golden, CO 80403 FAX (303) 273-0494

# SETTLING TEST
## DATA AND CALCULATION SHEET

Project No.: 08-4-1
Date: 9/25/2008

### Modified Kynch Procedure

Test No: A2

Feed Pulp: West Sunday

Feed Percent Solids 20.8%
Density, g/L 1175

Flocculant
Type: Percol 351 — 5 mL, 1 g/L — 0.021 Dose, lb/st

Free Settling Rate, ft/hr: 4.1

Terminal Percent Solids 57.3%
Density, g/L 1454

| Settling Rate | |
|---|---|
| Time min | Level mL |
| 0 | 1940 |
| 1 | 1700 |
| 3 | 1320 |
| 4 | 1160 |
| 5 | 960 |
| 9 | 820 |
| 11 | 760 |
| 14 | 710 |
| 17 | 680 |
| 22 | 660 |
| 27 | 640 |
| 39 | 620 |
| 63 | 600 |
| 93 | 600 |
| 125 | 580 |
| 177 | 560 |
| 1097 | 560 |

| | Feed Pulp | Terminal Pulp | Clear Liquor |
|---|---|---|---|
| Volume, mL | 1910 | 560 | 1350 |
| Gross pulp wt., g | 2682 | | |
| Tare, g | 438 | | |
| Net pulp wt., g | 2244 | 814 | 1430 |
| | | | |
| Net dry wt., g | 467 | | |
| Density, g/L | 1175 | 1454 | 1059 |
| Solids, % | 21 | 57 | |

Rake installed at 1 min

Rake rotation 6 min/rev

Thickener Unit Area Calculation

Initial Height, Ho 1.20 ft

Initial pulp density, Co (g solids/L, )

Co = 244.50 = 0.0077 st/ft3

Terminal Density 57.3% solids
Critical time, Tx 0.0125 days
Unit Area 1.36 ft2/t/day

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**SETTLING TEST**
**DATA AND CALCULATION SHEET**

Project No.: 08-4-1
Date: 9/25/2008

**Modified Kynch Procedure**

Test No: B2

Feed Pulp Pandora

Feed Percent Solids 19.2%
Density, g/L 1187

Flocculant
Type Percol 351 7.5 mL, 1 g/L 0.033 Dose, lb/st

Free Settling Rate, ft/hr
4.4

Terminal Percent Solids 46.7%
Density, g/L 1465

| Settling Rate | |
|---|---|
| Time min | Level mL |
| 0 | 2010 |
| 1 | 1950 |
| 2 | 1880 |
| 3 | 1820 |
| 4 | 1770 |
| 5 | 1720 |
| 6 | 1660 |
| 7 | 1620 |
| 9 | 1520 |
| 11 | 1430 |
| 13 | 1360 |
| 19 | 1200 |
| 31 | 1060 |
| 55 | 900 |
| 85 | 800 |
| 117 | 770 |
| 169 | 730 |
| 1089 | 660 |

| | Feed Pulp | Terminal Pulp | Clear Liquor |
|---|---|---|---|
| Volume, mL | 1980 | 660 | 1320 |
| Gross pulp wt., g | 2821 | | |
| Tare, g | 471 | | |
| Net pulp wt., g | 2350 | 967 | 1383 |
| | | | |
| Net dry wt., g | 451.5 | | |
| Density, g/L | 1187 | 1465 | 1048 |
| Solids, % | 19 | 47 | |

Rake installed at 1 min

Rake rotation 6 min/rev

Thickener Unit Area Calculation

Initial Height, Ho 1.40 ft

Initial pulp density, Co (g solids/L, )

Co = 228.03 = 0.0071 st/ft3

Terminal Density 46.7% solids
Critical time, Tx 0.0326 days
Unit Area 3.26 ft2/t/day

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# SETTLING TEST
## DATA AND CALCULATION SHEET

Project No.: 08-4-1
Date: 9/17/2008

### Modified Kynch Procedure

Test No: C2

Feed Pulp: Pack Rat

Feed Percent Solids 18.1%
Density, g/L 1121

Flocculant
Type: Percol 351 — 7.5 mL, 1 g/L — 0.035 Dose, lb/st

Free Settling Rate, ft/hr: 4.7

Terminal Percent Solids 61.0%
Density, g/L 1333

| Settling Rate | |
|---|---|
| Time min | Level mL |
| 0 | 2080 |
| 1 | 1980 |
| 2 | 1820 |
| 3 | 1720 |
| 4 | 1620 |
| 5 | 1500 |
| 6 | 1420 |
| 7 | 1330 |
| 8 | 1260 |
| 10 | 1130 |
| 12 | 1020 |
| 13 | 1000 |
| 16 | 900 |
| 19 | 820 |
| 22 | 780 |
| 25 | 720 |
| 47 | 580 |
| 70 | 570 |
| 103 | 540 |
| 321 | 520 |
| 1440 | 520 |
| | |
| | |
| | |
| | |
| | |
| | |

| | Feed Pulp | Terminal Pulp | Clear Liquor |
|---|---|---|---|
| Volume, mL | 2080 | 520 | 1560 |
| Gross pulp wt., g | 3264 | | |
| Tare, g | 933 | | |
| Net pulp wt., g | 2331 | 693 | 1638 |
| | | | |
| Net dry wt., g | 422.6 | | |
| Density, g/L | 1121 | 1333 | 1050 |
| Solids, % | 18 | 61 | |

Rake installed at _____ min

Rake rotation _____ min/rev

Thickener Unit Area Calculation

Initial Height, Ho 1.42 ft

Initial pulp density, Co (g solids/L, )

Co = 203.17 = 0.0064 st/ft3

Terminal Density 61.0% solids
Critical time, Tx 0.03125 days
Unit Area 3.45 ft2/t/day

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# SETTLING TEST
## DATA AND CALCULATION SHEET

Project No.: 08-4-1
Date: 9/4/2008

### Modified Kynch Procedure

Test No: D2

Feed Pulp JD-8

Feed Percent Solids 20.0%
Density, g/L 1188

Flocculant
Type Percol 351 5 mL, 1 g/L 0.023 Dose, lb/st

Free Settling Rate, ft/hr
3.7

Terminal Percent Solids 61.1%
Density, g/L 1629

| Settling Rate | |
|---|---|
| Time min | Level mL |
| 0 | 1850 |
| 1 | 1620 |
| 2 | 1500 |
| 3 | 1380 |
| 4 | 1280 |
| 5 | 1180 |
| 7 | 1010 |
| 10 | 880 |
| 15 | 740 |
| 20 | 670 |
| 30 | 600 |
| 60 | 530 |
| 92 | 500 |
| 158 | 490 |
| 1440 | 440 |

| | Feed Pulp | Terminal Pulp | Clear Liquor |
|---|---|---|---|
| Volume, mL | 1840 | 440 | 1400 |
| Gross pulp wt., g | 2657.6 | | |
| Tare, g | 470.9 | | |
| Net pulp wt., g | 2186.7 | 717 | 1470 |
| Net dry wt., g | 437.6 | | |
| Density, g/L | 1188 | 1629 | 1050 |
| Solids, % | 20 | 61 | |

Rake installed at 1 min

Rake rotation 6 min/rev

Thickener Unit Area Calculation

Initial Height, Ho 1.23 ft

Initial pulp density, Co (g solids/L, )

Co = 237.83 = 0.0074 st/ft3

Terminal Density 61.1% solids
Critical time, Tx 0.0229 days
Unit Area 2.50 ft2/t/day

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**SETTLING TEST**
**DATA AND CALCULATION SHEET**

Project No.: 08-4-1
Date: 9/4/2008

**Modified Kynch Procedure**

Test No: E2

Feed Pulp Energy Queen

Feed Percent Solids 21.2%
Density, g/L 1124

Flocculant
Type Percol 351 5 mL, 1 g/L 0.022 Dose, lb/st

Free Settling Rate, ft/hr
-4.7

Terminal Percent Solids 74.0%
Density, g/L 1336

| Settling Rate | |
|---|---|
| Time min | Level in |
| 0 | 15.625 |
| 1 | 13.25 |
| 2 | 11.875 |
| 3 | 10.125 |
| 4 | 9 |
| 5 | 8 |
| 6 | 7.5 |
| 8 | 6.5 |
| 10 | 6.25 |
| 15 | 5.625 |
| 20 | 5.375 |
| 30 | 4.875 |
| 55 | 4.5 |
| 86 | 4.375 |
| 152 | 4.125 |
| 1440 | 3.75 |

| | Feed Pulp | Terminal Pulp | Clear Liquor |
|---|---|---|---|
| Volume, mL | 1950 | 470 | 1480 |
| Gross pulp wt., g | 3124 | | |
| Tare, g | 933 | | |
| Net pulp wt., g | 2191 | 628 | 1563 |
| | | | |
| Net dry wt., g | 464.7 | | |
| Density, g/L | 1124 | 1336 | 1056 |
| Solids, % | 21 | 74 | |

Rake installed at 1 min

Rake rotation 6 min/rev

Thickener Unit Area Calculation

Initial Height, Ho 1.30 ft

Initial pulp density, Co (g solids/L, )

Co = 238.31 = 0.0075 st/ft3

Terminal Density 74.0% solids
Critical time, Tx 0.0177 days
Unit Area 1.83 ft2/t/day

# APPENDIX C
# SAMPLE REPORTABLE QUANTITY CALCULATIONS

# SAMPLE REPORTABLE QUANTITY CALCULATIONS

## Anhydrous Ammonia - 99.5%

Specific gravity (SG) = 0.62
Reportable Quantity (RQ) = 100 lbs
RQ of solution = RQ of Ammonia ÷ (SG X density of H2O X Percent purity)
RQ of solution = 100 lbs ÷ (0.62 X 8.34 lb/gal X 0.995) ≈ 19 gal

## Uranium Ore

Arsenic content (max) = 112 mg/kg
Arsenic RQ = 1 lb
RQ of ore (arsenic) = RQ of arsenic ÷ (arsenic content ÷ 1000000 mg/kg) ÷ 2000 lb/ton
RQ of ore (arsenic) = 1 lb ÷ (112 mg/kg ÷ 1000000 mg/kg) ÷ 2000 lb/ton ≈ 4.5 ton
Calculate lead and selenium similarly

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Uranium content (max) = 1160 mg/kg
Uranium RQ = 0.1 Ci
RQ of ore (uranium) = RQ of uranium ÷ (uranium content X Specific Activity of Uranium) X 1012 pCi/Ci ÷ 454 g/lb ÷ 2000 lb/ton
RQ of ore (uranium) = 0.1 Ci ÷ (1160 mg/kg X 0.677 pCi/mg) X $10^{12}$ pCi/Ci ÷ 454 g/lb ÷ 2000 lb/ton ≈ 140 tons

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Radium-226 content (max) = 335 pCi/g
Radium-226 RQ = 0.1 Ci
RQ of ore (radium-226) = RQ of radium-226 ÷ (radium content) X 1012 pCi/Ci ÷ 454 g/lb ÷ 2000 lb/ton
RQ of ore (radium-226) = 0.1 Ci ÷ (335 pCi/g) X $10^{12}$ pCi/Ci ÷ 454 g/lb ÷ 2000 lb/ton ≈ 329 tons

## Tailings Solution

SG = 1.07
Arsenic content (max) = 146 mg/L
Arsenic RQ = 1 lb
RQ of tailings solution (arsenic) = RQ of arsenic ÷ (arsenic content X density of water ÷ SG ÷ 1000000 mg/kg)
RQ of tailings solution (arsenic) = 1 lb ÷ (146 mg/L X 1 L/kg ÷ 1.07 ÷ 1000000 mg/kg) ≈ 7,300 gallons
Calculate lead and selenium similarly

---

Uranium content (max) = 154 mg/L
Uranium RQ = 0.1 Ci
RQ of tailings solution (uranium) = RQ of uranium ÷ (uranium content X Specific Activity of Uranium) X $10^{12}$ pCi/Ci ÷ 3.8 L/gal
RQ of tailings solution (uranium) = 0.1 Ci ÷ (154 mg/L X 677 pCi/mg) X $10^{12}$ pCi/Ci ÷ 3.8 L/gal ≈ 252,000 gallons

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Thorium-230 content (max) = 27,500 pCi/L
Thorium-230 RQ = 0.01 Ci
RQ of tailings solution (Thorium-230) = RQ of Thorium-230 ÷ Thorium-230 content X $10^{12}$ pCi/Ci ÷ 3.8 L/gal
RQ of tailings solution (Thorium-230) = 0.01 Ci ÷ 27,500 pCi/L X $10^{12}$ pCi/Ci ÷ 3.8 L/gal ≈ 96,000 gallons

## Uranium SX Loaded Organic

Uranium content (max) = 1.77 g/L
Uranium RQ = 0.1 Ci
RQ of loaded organic (uranium) = RQ of uranium ÷ (uranium content X Specific Activity of Uranium) X $10^{12}$ pCi/Ci ÷ 3.8 L/gal
RQ of loaded organic (uranium) = 0.1 Ci ÷ (1.77 g/L X 677 pCi/mg X 1000 mg/g) X $10^{12}$ pCi/Ci ÷ 3.8 L/gal ≈ 22,000 gallons