

Submit in duplicate to  
appropriate district office  
See Rule 401 & Rule 1122

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-122  
Revised 4-1-1991

# OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

## MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

|                                                                                                                           |               |                      |                   |                                     |                                                     |                         |                                                  |                                                          |                |
|---------------------------------------------------------------------------------------------------------------------------|---------------|----------------------|-------------------|-------------------------------------|-----------------------------------------------------|-------------------------|--------------------------------------------------|----------------------------------------------------------|----------------|
| Operator<br>E.G.L. Resources Inc.                                                                                         |               |                      |                   |                                     | Lease or Unit Name<br>RIO BLANCO 4 FED 30-025-34515 |                         |                                                  |                                                          |                |
| Test Type<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |               |                      |                   |                                     | Test Date<br>9/20/2003                              |                         | Well No.<br>#1                                   |                                                          |                |
| Completion Date<br>9/19/03                                                                                                |               | Total Depth<br>14597 |                   | Plug Back TD<br>14597               |                                                     | Elevation<br>3404 GL    |                                                  | Unit Ltr - Sec - TWP - Rge.<br>Unit F, Sec 4, T23S, R34E |                |
| Csg. Size<br>5.000                                                                                                        | Wt.<br>18.000 | d<br>4.281           | Set At<br>14488   | Perforation:<br>From 14497 To 14597 |                                                     |                         | County<br>LEA                                    |                                                          |                |
| Tbg. Size<br>2.875                                                                                                        | Wt.<br>6.500  | d<br>2.441           | Set At<br>10587   | Perforation:<br>From To             |                                                     |                         | Pool<br>Wildcat Ball Lake, Devonian, North (Gas) |                                                          |                |
| Type Well-Single-Bradenhead-G.G. or G.O. Multiple<br>SINGLE                                                               |               |                      |                   |                                     | Packer Set At<br>10587                              |                         | Formation<br>DEVONIAN                            |                                                          |                |
| Producing Thru<br>TUBING                                                                                                  |               | Reservoir Temp.F     |                   | Mean Annual Temp.F<br>70            |                                                     | Baro. Pressure<br>13.20 |                                                  | Connection                                               |                |
| L<br>14590                                                                                                                | H<br>14590    | Gg<br>.612           | % CO <sub>2</sub> | % N <sub>2</sub><br>2.51            | % H <sub>2</sub> S<br>0                             | Prover<br>METER         |                                                  | Meter Run<br>4.026                                       | Taps<br>FLANGE |

| Flow Data        |                                        |                |                         |            | Tubing Data    |            | Casing Data    |            | SIP/Flow<br>Duration<br>( HRS.) |
|------------------|----------------------------------------|----------------|-------------------------|------------|----------------|------------|----------------|------------|---------------------------------|
| No.              | ( Prover )<br>Line Size x Orifice Size | Press.<br>PSIG | Diff.<br>h <sub>w</sub> | Temp.<br>F | Press.<br>PSIG | Temp.<br>F | Press.<br>PSIG | Temp.<br>F |                                 |
| Shut-in Pressure |                                        |                |                         |            | 4445           | 70         |                |            | 38                              |
| 1.               | 4.03 x 1.75                            | 52.00          | 19.00                   | 90         | 4370           | 73         |                |            | 1                               |
| 2.               | 4.03 x 1.75                            | 111.00         | 83.00                   | 90         | 4100           | 66         |                |            | 1                               |
| 3.               | 4.03 x 1.75                            | 152.00         | 256.00                  | 78         | 3480           | 56         |                |            | 1                               |
| 4.               | 4.03 x 1.75                            | 209.00         | 304.00                  | 34         | 3320           | 61         |                |            | 1                               |

## RATE OF FLOW CALCULATIONS

| No. | Coefficient<br>( 24 Hour ) | $\sqrt{h_w P_m}$ | Pressure<br>P <sub>m</sub> | Flow Temp.<br>FACTOR F <sub>t</sub> | Gravity<br>FACTOR F <sub>g</sub> | Super Compress.<br>FACTOR F <sub>pv</sub> | Rate of Flow<br>Mcf/Day |
|-----|----------------------------|------------------|----------------------------|-------------------------------------|----------------------------------|-------------------------------------------|-------------------------|
| 1.  | 14.930                     | 35.197           | 65.2                       | .9723                               | 1.2783                           | 1.0043                                    | 656.0                   |
| 2.  | 14.930                     | 101.531          | 124.2                      | .9723                               | 1.2783                           | 1.0083                                    | 1899.7                  |
| 3.  | 14.930                     | 205.648          | 165.2                      | .9831                               | 1.2783                           | 1.0119                                    | 3904.4                  |
| 4.  | 14.930                     | 259.902          | 222.2                      | 1.0260                              | 1.2783                           | 1.0215                                    | 5198.3                  |

| No. | P <sub>r</sub> | TEMP. | T <sub>r</sub> | Z     |
|-----|----------------|-------|----------------|-------|
| 1.  | .098           | 550   | 1.554          | .9914 |
| 2.  | .186           | 550   | 1.554          | .9837 |
| 3.  | .248           | 538   | 1.520          | .9767 |
| 4.  | .333           | 494   | 1.396          | .9584 |

|                                    |          |          |
|------------------------------------|----------|----------|
| Gas-Liquid Hydrocarbon Ratio       |          | Mcf/Day  |
| API Gravity of Liquid Hydrocarbons |          | Deg.     |
| Specific Gravity Separator Gas     | .612     |          |
| Specific Gravity Flowing Fluid     | .612     |          |
| Critical Pressure                  | 666 PSIA | 666 PSIA |
| Critical Temperature               | 353 R    | 353 R    |

$$P_C = 4458.2 \quad P_C^2 = 19875.6$$

| No. | P <sub>w</sub> | P <sub>w</sub> <sup>2</sup> | P <sub>C</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
|-----|----------------|-----------------------------|-----------------------------------------------------------|
| 1.  | 4384.3         | 19221                       | 653.820                                                   |
| 2.  | 4121.0         | 16982                       | 2892.656                                                  |
| 3.  | 3526.2         | 12434                       | 7441.443                                                  |
| 4.  | 3392.7         | 11510                       | 8365.015                                                  |

$$(1) \frac{P_C^2}{P_C^2 - P_W^2} = \frac{2.376}{1.976} \quad (2) \left[ \frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 1.976$$

$$AOF = Q \left[ \frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 10270$$

|                                                                                                                                            |                                |                              |                                     |      |          |      |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------|-------------------------------------|------|----------|------|
| Absolute Open Flow                                                                                                                         | 10270                          | Mcf/Day @ 15.025             | Angle of Slope -                    | 51.8 | Slope, n | .787 |
| Remarks<br>OPEN UNCASSED 4 1/8" HOLE FROM 14488 TO 14590.<br>AFTER TEST COMPLETED, SHUT IN WELL WAS BACK AT SHUT IN PRESSURE IN 35 MINUTES |                                |                              |                                     |      |          |      |
| Approved By Division:<br><i>Paul B. Rackley</i>                                                                                            | Conducted By:<br>LARRY RACKLEY | Calculated By:<br>BPT System | Checked By:<br><i>Larry Rackley</i> |      |          |      |

**GAS WELL BACK PRESSURE CURVE**

**WELL TESTER: LARRY RACKLEY**

**TEST DATE: 9/20/2003**

**RIO BLANCO 4 FED #1**

**LEA ,NM.**

**Exponent n: 0.7867**

