

NEW MEXICO OIL CONSERVATION COMMISSION  
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELLS

-121  
Revised 9-1-60

JUN 21 1972

|                                                                                                                           |                |                                  |                                   |                                       |                         |                      |             |
|---------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------|-----------------------------------|---------------------------------------|-------------------------|----------------------|-------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |                |                                  |                                   | Test Date<br>5/23/72                  |                         | ARTESIA, OFFICE      |             |
| Company<br>Black River Corporation                                                                                        |                |                                  |                                   | Connection<br>El Paso Natural Gas Co. |                         |                      |             |
| Loc.<br>Washington Ranch                                                                                                  |                |                                  |                                   | Formation<br>Morrow                   |                         | Unit<br>G            |             |
| Completion Date<br>5/17/72                                                                                                |                | Total Depth<br>7030              |                                   | Plug back TD<br>7003                  |                         | Elevation<br>3731 KB |             |
| Farm or Lease Name<br>Cities 3 Federal                                                                                    |                |                                  |                                   | Well No.<br>27                        |                         |                      |             |
| Well Size<br>5-1/2                                                                                                        | Wt.<br>14-15.5 | Set Pt.<br>7030                  | Perforations<br>From 6907 To 6930 | Unit<br>G                             |                         | Sec.<br>3            | Twp.<br>26S |
| Well Size<br>2-7/8                                                                                                        | Wt.<br>6.5     | Set Pt.<br>2.441                 | Perforations<br>From 6872 To      | Rang.<br>24E                          |                         |                      |             |
| Type Well - Single - Branches - G.G. or G.G. Multiple<br>Multiple                                                         |                |                                  |                                   | Packer Set At                         |                         | County<br>Eddy       |             |
| Producing Form<br>Tubing                                                                                                  |                | Reservoir Temp. °F<br>132 @ 6918 |                                   | Mean Annual Temp. °F<br>68            |                         | State<br>New Mexico  |             |
| Baro. Press. - P <sub>a</sub><br>13.2                                                                                     |                | Prover                           |                                   | Meter Run<br>4"                       |                         | Taps<br>Flange       |             |
| 6918                                                                                                                      | 6918           | G <sub>g</sub><br>0.58           | % CO <sub>2</sub><br>0.56         | % N <sub>2</sub><br>2.78              | % H <sub>2</sub> S<br>- |                      |             |

  

| FLOW DATA |                  |              |             |                            |          | TUBING DATA |          | GASING DATA |          | Location of Flow |
|-----------|------------------|--------------|-------------|----------------------------|----------|-------------|----------|-------------|----------|------------------|
| NO.       | Prover Line Size | Orifice Size | Press. psia | Diff. In. H <sub>2</sub> O | Temp. °F | Press. psia | Temp. °F | Press. psia | Temp. °F |                  |
| 1         | 164 Hrs.         |              |             |                            |          | 2460        |          |             |          |                  |
| 2         | 4                | X            | 2.250       | 380                        | 8        | 80          | 2070     | 77          |          | 1 hr             |
| 3         | 4                | X            | 2.250       | 410                        | 20.5     | 65          | 1924     | 79          |          | 1 hr             |
| 4         | 4                | X            | 2.250       | 445                        | 38.5     | 72          | 1784     | 82          |          | 1 hr             |
| 5         | 4                | X            | 2.250       | 445                        | 53.0     | 60          | 1687     | 84          |          | 1 hr             |

  

| RATE OF FLOW CALCULATIONS |                       |                  |                         |                                  |                               |                                         |                      |
|---------------------------|-----------------------|------------------|-------------------------|----------------------------------|-------------------------------|-----------------------------------------|----------------------|
| NO.                       | Coefficient (24 Hour) | $\sqrt{P_w P_a}$ | Pressure P <sub>a</sub> | Flow Temp. Factor F <sub>t</sub> | Gravity Factor F <sub>g</sub> | Super. Compres. Factor, F <sub>pv</sub> | Rate of Flow Q, Mc/d |
| 1                         | 25.64                 | 56.10            | 393.2                   | 0.9813                           | 1.313                         | 1.026                                   | 1,901.490            |
| 2                         | 25.64                 | 93.15            | 423.2                   | 0.9952                           | 1.313                         | 1.031                                   | 3,217.619            |
| 3                         | 25.64                 | 132.80           | 458.2                   | 0.9887                           | 1.313                         | 1.031                                   | 4,557.262            |
| 4                         | 25.64                 | 155.80           | 458.2                   | 1.0000                           | 1.313                         | 1.034                                   | 5,423.389            |

  

| NO. | P <sub>a</sub> | Temp. °R | T <sub>r</sub> | Z    | Gas Liquid Hydrocarbon Ratio          | Dry Gas   | Mc/d     |
|-----|----------------|----------|----------------|------|---------------------------------------|-----------|----------|
| 1   | .57            | 540      | 1.57           | .950 | A.P.I. Gravity of Liquid Hydrocarbons |           |          |
| 2   | .62            | 525      | 1.52           | .940 | Specific Gravity Separator Gas        | 0.580     |          |
| 3   | .65            | 532      | 1.54           | .941 | Specific Gravity Flowing Fluid        | X X X X X |          |
| 4   | .65            | 520      | 1.51           | .936 | Critical Pressure                     | 684       | P.S.I.A. |
|     |                |          |                |      | Critical Temperature                  | 345       | R        |

  

|        |                                    |         |        |  |  |  |
|--------|------------------------------------|---------|--------|--|--|--|
| 2473.2 | P <sub>a</sub> <sup>2</sup> 6116.7 |         |        |  |  |  |
| 4339.7 | P <sub>a</sub> <sup>2</sup>        | 4365.01 | 1751.7 |  |  |  |
| 3752.7 | P <sub>a</sub> <sup>2</sup>        | 3826.16 | 2290.5 |  |  |  |
| 3229.9 | P <sub>a</sub> <sup>2</sup>        | 3378.67 | 2738.0 |  |  |  |
| 2890.7 | P <sub>a</sub> <sup>2</sup>        | 3103.21 | 3013.5 |  |  |  |

  

$$(1) \frac{P_a^2}{P_a^2 - P_w^2} = 2.0298$$

$$AOF = Q \left[ \frac{P_a^2}{P_a^2 - P_w^2} \right]^n = 11,008$$

$$(2) \left[ \frac{P_a^2}{P_a^2 - P_w^2} \right]^n = 2.0298$$

  

|                    |        |               |                  |     |          |       |
|--------------------|--------|---------------|------------------|-----|----------|-------|
| Adjusted Open Flow | 11,008 | Mo/d @ 15.025 | Angle of Slope @ | 45° | Slope, n | 1.000 |
|--------------------|--------|---------------|------------------|-----|----------|-------|

  

|                         |                              |                               |             |
|-------------------------|------------------------------|-------------------------------|-------------|
| Approved By Commission: | Conducted By:<br>J. T. Berry | Calculated By:<br>J. T. Berry | Checked By: |
|-------------------------|------------------------------|-------------------------------|-------------|