

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

SF  
File ✓  
122  
Yates  
Form C-122  
Revised 9-1-65

RECEIVED

|                                                                                                                           |             |                                  |                           |                                         |                           |                                       |                                     |                                               |  |
|---------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------|---------------------------|-----------------------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------------------|--|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |             |                                  |                           |                                         | Test Date<br>12-10-79     |                                       | DEC 28 1979                         |                                               |  |
| Company<br>Yates Petroleum Corp.                                                                                          |             |                                  |                           | Connection<br>Transwestern Pipeline Co. |                           |                                       |                                     | O. C. D.                                      |  |
| Pool<br>Red Lake<br>E. Atoka Morrow                                                                                       |             |                                  |                           | Formation<br>Morrow                     |                           |                                       |                                     | Unit<br>ARTESIA, OFFICE                       |  |
| Completion Date<br>6-29-79                                                                                                |             | Total Depth<br>10021' KB         |                           | Plug Back TD<br>9977' KB                |                           | Elevation<br>3438' KB                 |                                     | Farm or Lease Name<br>Rio Pecos "KO" Fed. Com |  |
| Csg. Size<br>5-1/2"                                                                                                       | Wt.<br>17#  | d<br>4.892                       | Set At<br>10019' KB       | Perforations:<br>From 9720 To 9736'     |                           |                                       | Well No.<br>1                       |                                               |  |
| Tbg. Size<br>2-3/8"                                                                                                       | Wt.<br>4.7# | d<br>1.995                       | Set At<br>9718'           | Perforations:<br>From 9690 To 9692      |                           |                                       | Unit Sec. Twp. Rge.<br>A 28 18S 27E |                                               |  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br>Single                                                         |             |                                  |                           | Packer Set At<br>9690' KB               |                           | County<br>Eddy                        |                                     |                                               |  |
| Producing Thru<br>Tubing                                                                                                  |             | Reservoir Temp. °F<br>153 @ 9721 |                           | Mean Annual Temp. °F<br>62              |                           | Baro. Press. - P <sub>a</sub><br>13.2 |                                     | State<br>New Mexico                           |  |
| L<br>9721                                                                                                                 | H<br>9721   | G <sub>g</sub><br>.596           | % CO <sub>2</sub><br>0.62 | % N <sub>2</sub><br>0.47                | % H <sub>2</sub> S<br>Nil | Prover                                | Meter Run<br>2"                     | Taps<br>Flange                                |  |

| FLOW DATA |                  |   |              |                 |                      | TUBING DATA |                 | CASING DATA |                 | Duration of Flow |        |
|-----------|------------------|---|--------------|-----------------|----------------------|-------------|-----------------|-------------|-----------------|------------------|--------|
| NO.       | Prover Line Size | X | Orifice Size | Press. p.s.i.g. | Diff. h <sub>w</sub> | Temp. °F    | Press. p.s.i.g. | Temp. °F    | Press. p.s.i.g. | Temp. °F         |        |
| SI        |                  |   |              |                 |                      |             | 2240            | 41          |                 |                  | Days   |
| 1.        | 2.067 x 1.000    |   |              | 420             | 9                    | 75          | 1900            | 44          |                 |                  | 1 hour |
| 2.        |                  |   |              | 421             | 18                   | 75          | 1746            | 48          |                 |                  | 1 hour |
| 3.        |                  |   |              | 422             | 32                   | 75          | 1405            | 53          |                 |                  | 1 hour |
| 4.        |                  |   |              | 423             | 65                   | 75          | 1185            | 59          |                 |                  | 1 hour |
| 5.        |                  |   |              |                 |                      |             |                 |             |                 |                  |        |

| RATE OF FLOW CALCULATIONS |                       |                  |                         |                       |                               |                                         |                      |
|---------------------------|-----------------------|------------------|-------------------------|-----------------------|-------------------------------|-----------------------------------------|----------------------|
| NO.                       | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure P <sub>m</sub> | Flow Temp. Factor Ft. | Gravity Factor F <sub>g</sub> | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1                         | 4.946                 | 62.44            | 433.2                   | .9859                 | 1.295                         | 1.0313                                  | 406                  |
| 2                         | 4.946                 | 88.41            | 434.2                   | .9859                 | 1.295                         | 1.0313                                  | 576                  |
| 3                         | 4.946                 | 126.90           | 435.2                   | .9859                 | 1.295                         | 1.0311                                  | 826                  |
| 4                         | 4.946                 | 168.38           | 436.2                   | .9859                 | 1.295                         | 1.0311                                  | 1096                 |
| 5                         |                       |                  |                         |                       |                               |                                         |                      |

| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z     | Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.          |
|-----|----------------|----------|----------------|-------|------------------------------------------------------|
| 1   | 0.643          | 535      | 1.511          | .9402 | A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.     |
| 2   | 0.644          | 535      | 1.511          | .9403 | Specific Gravity Separator Gas 0.595 X X X X X X X X |
| 3   | 0.646          | 535      | 1.511          | .9405 | Specific Gravity Flowing Fluid X X X X X 0.596       |
| 4   | 0.647          | 535      | 1.511          | .9406 | Critical Pressure 674 P.S.I.A. 722 P.S.I.A.          |
| 5   |                |          |                |       | Critical Temperature 354 R 369 R                     |

| P <sub>c</sub> 3414.2    P <sub>c</sub> <sup>2</sup> 11657 |                             |                |                             | (1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.5453$                |  | (2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.5453$ |  |
|------------------------------------------------------------|-----------------------------|----------------|-----------------------------|-----------------------------------------------------------|--|-------------------------------------------------------------|--|
| NO.                                                        | P <sub>r</sub> <sup>2</sup> | 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                                                          |                             |                | 9319                        | 2338                                                      |  |                                                             |  |
| 2                                                          |                             |                | 8369                        | 3288                                                      |  |                                                             |  |
| 3                                                          |                             |                | 6565                        | 5092                                                      |  |                                                             |  |
| 4                                                          |                             |                | 5624                        | 6033                                                      |  |                                                             |  |
| 5                                                          |                             |                |                             |                                                           |  |                                                             |  |

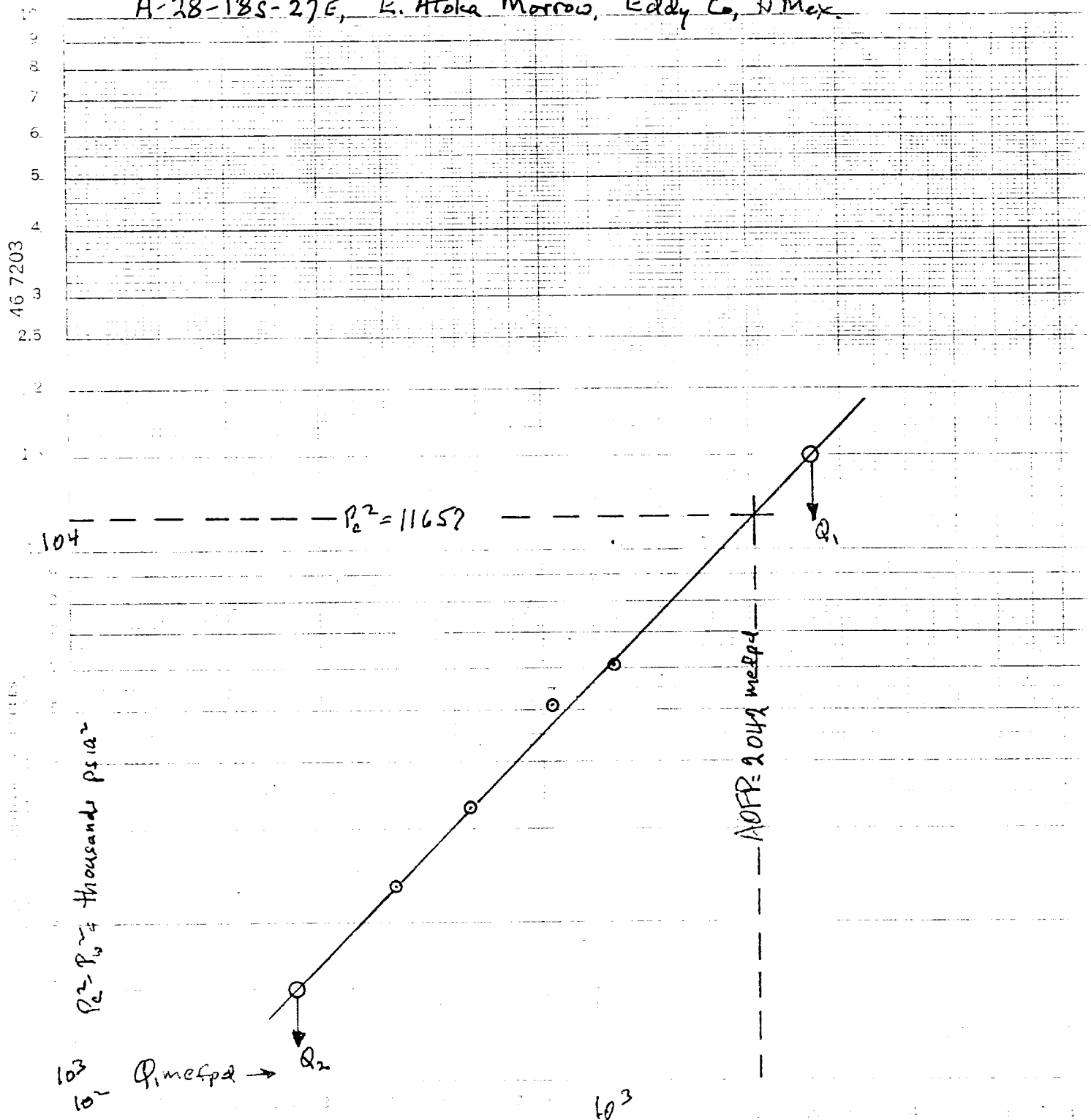
  

|                                       |  |  |  |                           |  |                |  |
|---------------------------------------|--|--|--|---------------------------|--|----------------|--|
| Absolute Open Flow 2042 Mcfd @ 15.025 |  |  |  | Angle of Slope 45 degrees |  | Slope, n 1.000 |  |
|---------------------------------------|--|--|--|---------------------------|--|----------------|--|

|                                                                                                                                                  |                             |                                 |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|-------------|
| Remarks: Static pressures by Bennett Wireline; Flowing pressures by DWT. Worksheet C-122D attached. NOTE: Well was still cleaning up load water. |                             |                                 |             |
| Approved By Commission:                                                                                                                          | Conducted By:<br>Don Weaver | Calculated By:<br>Eddie Mahfood | Checked By: |

YPC- Rio Pecos KO Federal Com No.1  
 A-28-18S-27E, E. Atoka Morrow, Eddy Co, N Mex.



$$Q_1 = 2650 \text{ mcfpd}$$

$$Q_2 = 265 \text{ mcfpd}$$

$$\log Q_1 = 3.42325$$

$$\log Q_2 = 2.42325$$

$$n = 0.00000$$

COMPANY Ypc LEASE Rio Pecos KO field WELL NO. 1 DATE 12-10-79

LOCATION: Unit A Section 25 Township 15E Range 27E

|   |      |   |      |     |       |   |      |                   |     |                  |      |                    |    |
|---|------|---|------|-----|-------|---|------|-------------------|-----|------------------|------|--------------------|----|
| L | 9721 | H | 9721 | L/H | 1.000 | C | 5.96 | % CO <sub>2</sub> | 0.6 | % N <sub>2</sub> | 0.46 | % H <sub>2</sub> S | NH |
|---|------|---|------|-----|-------|---|------|-------------------|-----|------------------|------|--------------------|----|

|      |          |       |      |          |    |        |     |     |
|------|----------|-------|------|----------|----|--------|-----|-----|
| 28-2 | 96530.00 | 28530 | 2.00 | 0.016116 | GH | 5292.0 | 722 | 329 |
| 28-2 | 2518.4   | 2408  |      |          |    |        |     |     |

[illegible]

| LINE                                 | S1               | 1                | 2                | 3                |                  |  |  |     |
|--------------------------------------|------------------|------------------|------------------|------------------|------------------|--|--|-----|
| 1 $Q_m$                              | -                | 0.406            | 0.576            | 0.826            | 1.096            |  |  | 1.0 |
| 2 $T_w$ (W.H. °R)                    | 501              | 504              | 508              | 513              | 519              |  |  |     |
| 3 $T_s$ (B.H. °R)                    | 610              | 613              | 612              | 612              | 611              |  |  |     |
| 4 $T = \frac{(T_w + T_s)}{2}$        | 555              | 558.5            | 560              | 562.5            | 565              |  |  | 565 |
| 5 Z (Est.)                           | 0.778            | 0.777            | 0.782            | 0.796            | 0.810            |  |  |     |
| 6 TZ                                 | 433.35           | 433.95           | 437.92           | 447.75           | 457.65           |  |  |     |
| 7 GH/TZ                              | 12.377           | 13.350           | 13.230           | 12.9396          | 12.660           |  |  |     |
| 8 $e^s$ (Table XIV)                  | 1.6510           | 1.6498           | 1.64235          | 1.62455          | 1.6076           |  |  |     |
| 9 $1 - e^s$ (Table XIV)              |                  | 0.3939           | 0.3911           | 0.3844           | 0.3980           |  |  |     |
| 10 $P_1$                             | 225.22           | 1912.2           | 1759.2           | 1418.2           | 1198.2           |  |  |     |
| 11 $P_1^2/1000$                      | 5076.4           | 3660.3           | 3094.8           | 2011.3           | 1435.7           |  |  |     |
| 12 $F_r$ (Table XV)                  | 0.50126          | 0.50066          | 0.49613          | 0.48523          | 0.47474          |  |  |     |
| 13 $F_c = F_r TZ$                    |                  | 9.1237           | 7.1889           | 7.3503           | 7.5128           |  |  |     |
| 14 $F_c Q_m$                         |                  | 2.8922           | 4.1408           | 6.0713           | 8.234            |  |  |     |
| 15 $L/H (F_c Q_m)^2$                 |                  | 8.365            | 17.15            | 36.86            | 67.80            |  |  |     |
| 16 $F_w = L/H (F_c Q_m)^2 (1 - e^s)$ |                  | 2.3              | 6.7              | 14.2             | 25.6             |  |  |     |
| 17 $P_w^2 = P_1^2 + F_w^2$           | 8387.0<br>3274.8 | 6044.2<br>3274.8 | 5093.7<br>3274.8 | 3290.5<br>3274.8 | 2349.2<br>3274.8 |  |  |     |
| 18 $P_s^2 = e^s P_w^2$               | 11656.8          | 9319.0           | 8368.5           | 6565.3           | 5624.0           |  |  |     |
| 19 $P_s$                             | 3414.2           | 3052.7           | 2892.8           | 2562.3           | 2371.5           |  |  |     |
| 20 $P = \frac{(P_1 + P_s)}{2}$       | 7822.7           | 2483.0           | 2326.0           | 1990.2           | 1784.8           |  |  |     |
| 21 $P_r = (P/P_{cl})$                | 3.92             | 3.439            | 3.222            | 2.786            | 2.472            |  |  |     |
| 22 $T_r = (T/T_{cl})$                | 1.50             | 1.5135           | 1.518            | 1.524            | 1.531            |  |  |     |
| 23 Z (Table XI)                      | 1.778            | 0.777            | 0.782            | 0.796            | 0.810            |  |  |     |