

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

C-122 F  
Form C-122 Yates  
Revised 9-1-65

RECEIVED

SEP 11 1980

|                                                                                                                           |  |                          |                                             |                            |  |                                       |  |
|---------------------------------------------------------------------------------------------------------------------------|--|--------------------------|---------------------------------------------|----------------------------|--|---------------------------------------|--|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |  |                          |                                             | Test Date<br>7-14-80       |  | SEP 11 1980                           |  |
| Company<br>Yates Petroleum Corp.                                                                                          |  |                          | Connection<br>Transwestern Pipeline Company |                            |  | O. C. D.<br>ARTESIA, OFFICE           |  |
| Pool<br>Wildcat Abo <i>Pecos Slope - Abo Gas</i>                                                                          |  |                          | Formation<br>Abo                            |                            |  | Unit<br>NM 10893                      |  |
| Completion Date<br>2-18-80                                                                                                |  | Total Depth<br>4647' KB  |                                             | Plug Back TD<br>4609' KB   |  | Elevation<br>3832' KB                 |  |
| Csg. Size<br>4-1/2"                                                                                                       |  | Wt.<br>9.5#              |                                             | d<br>4.090                 |  | Set At<br>4646'                       |  |
| Perforations:<br>From 4012 To 4022' KB                                                                                    |  | Perforations:<br>From To |                                             | Perforations:<br>From To   |  | Well No.<br>1                         |  |
| Thq. Size<br>2-7/8"                                                                                                       |  | Wt.<br>6.5#              |                                             | d<br>2.441                 |  | Set At<br>3972'                       |  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br>Single                                                         |  |                          |                                             | Packer Set At<br>3972' KB  |  | County<br>Chaves                      |  |
| Producing Thru<br>Tubing                                                                                                  |  | Reservoir Temp. °F<br>94 |                                             | Mean Annual Temp. °F<br>62 |  | Baro. Press. - P <sub>g</sub><br>13.2 |  |
| L<br>4012                                                                                                                 |  | H<br>4012                |                                             | G <sub>g</sub><br>0.644    |  | % CO <sub>2</sub><br>0.03             |  |
|                                                                                                                           |  |                          |                                             | % N <sub>2</sub><br>5.10   |  | % 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        |                  |   |              |                 |                      |             | 1006            | 91          |                 |                  | Months   |
| 1.        | 2.067 x 0.625    |   |              | 690             | 12                   | 75          | 985             | 88          |                 |                  | 1 hour   |
| 2.        |                  |   |              | 690             | 23                   | 75          | 969             | 90          |                 |                  | 1 hour   |
| 3.        |                  |   |              | 691             | 43                   | 76          | 947             | 91          |                 |                  | 1 hour   |
| 4.        |                  |   |              | 692             | 85                   | 76          | 899             | 92          |                 |                  | 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                         | 1.866                 | 91.86            | 703.2                   | .9859                 | 1.246                         | 1.058                                   | 223                  |
| 2                         | 1.866                 | 127.18           | 703.2                   | .9859                 | 1.246                         | 1.058                                   | 308                  |
| 3                         | 1.866                 | 174.01           | 704.2                   | .9850                 | 1.246                         | 1.058                                   | 422                  |
| 4                         | 1.866                 | 244.83           | 705.2                   | .9850                 | 1.246                         | 1.058                                   | 593                  |
| 5                         |                       |                  |                         |                       |                               |                                         |                      |

| NO. | P <sub>f</sub> | Temp. °R | T <sub>f</sub> | Z     | Gas/Liquid Hydrocarbon Ratio          | Mcf/lbl.     |
|-----|----------------|----------|----------------|-------|---------------------------------------|--------------|
| 1.  | 1.064          | 535      | 1.490          | .8932 | A.P.I. Gravity of Liquid Hydrocarbons |              |
| 2.  | 1.064          | 535      | 1.490          | .8932 | Specific Gravity Separator Gas        | 0.644        |
| 3.  | 1.066          | 536      | 1.493          | .8933 | Specific Gravity Flowing Fluid        | .644         |
| 4.  | 1.067          | 536      | 1.493          | .8932 | Critical Pressure                     | 661 P.S.I.A. |
| 5.  |                |          |                |       | Critical Temperature                  | 359 °R       |

| P <sub>c</sub> 1142.3    P <sub>c</sub> <sup>2</sup> 1305 |                             |                             |                             |                                                           | (1) $\frac{P_c^2}{P_c^2 - P_w^2} = 4.8155$                    |  | (2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.8979$ |  |
|-----------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------------------------------------|---------------------------------------------------------------|--|-------------------------------------------------------------|--|
| NO.                                                       | P <sub>f</sub> <sup>2</sup> | P <sub>w</sub> <sup>2</sup> | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> | $AOI = Q \left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1718$ |  |                                                             |  |
| 1                                                         |                             |                             | 1242                        | 63                                                        |                                                               |  |                                                             |  |
| 2                                                         |                             |                             | 1201                        | 104                                                       |                                                               |  |                                                             |  |
| 3                                                         |                             |                             | 1147                        | 158                                                       |                                                               |  |                                                             |  |
| 4                                                         |                             |                             | 1034                        | 271                                                       |                                                               |  |                                                             |  |
| 5                                                         |                             |                             |                             |                                                           |                                                               |  |                                                             |  |

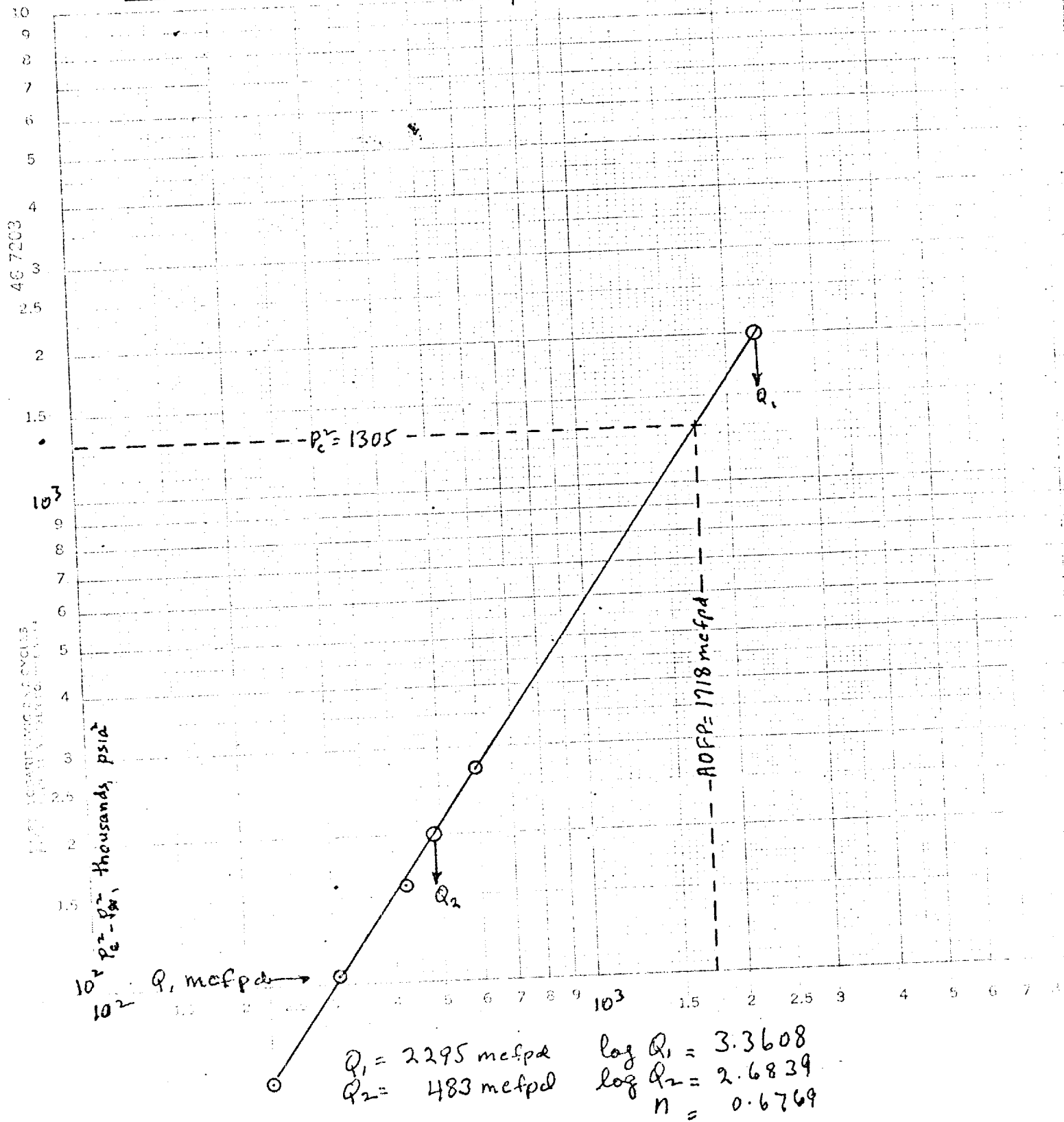
|                    |  |      |              |                |          |          |        |
|--------------------|--|------|--------------|----------------|----------|----------|--------|
| Absolute Open Flow |  | 1718 | Mcf @ 15.025 | Angle of Slope | 55.9 deg | Slope, n | 0.6769 |
|--------------------|--|------|--------------|----------------|----------|----------|--------|

Remarks: Static pressures by Bennett Wireline; Flowing pressures by DWT.  
Calculations worksheet C-122D attached. NOTE: Well performance better than anticipated; orifice plate was too small.

|                         |                               |                                 |             |
|-------------------------|-------------------------------|---------------------------------|-------------|
| Approved By Commission: | Conducted By:<br>David Weaver | Calculated By:<br>Eddie Mahfood | Checked By: |
|-------------------------|-------------------------------|---------------------------------|-------------|

YPC- Godfrey MP Federal No.1

G-10-7s-25B, Wildcat Abo, Eddy Co., N.Mex



WORKSHEET FOR CALCULATION OF ST. IC COLUMN WELLHEAD PRESSURE (PW)

DATE: 7-14-80

COMPANY: YPC LEASE: Godfrey MP Refinery WELL NO.: 7S Range: 25E

LOCATION: Unit: G Section: 10 Township: 7S Range: 25E

L: 4012 H: 4012 L/H: 1.000 G: 0.644 %CO<sub>2</sub>: 0.03 %N<sub>2</sub>: 5.10 %H<sub>2</sub>S: Nil

2/8 - 3970 (5.955) = 23655  
4 1/2 - 4250 (7.28) = 30950  
4012 (7.071) = 28357

42.5% H<sub>2</sub>O P<sub>Cr</sub>: 799 T<sub>Cr</sub>: 409

| LINE                                                                                      | 1       | 2       | 3       | 4       | 1 | 2 | 3 | 4 |
|-------------------------------------------------------------------------------------------|---------|---------|---------|---------|---|---|---|---|
| 1 Qm                                                                                      | 0.223   | 0.308   | 0.422   | 0.593   |   |   |   |   |
| 2 Tw (W.H. °R)                                                                            | 538     | 540     | 541     | 542     |   |   |   |   |
| 3 Ts (B.H. °R)                                                                            | 554     | 553     | 553     | 552     |   |   |   |   |
| 4 T = (Tw + Ts) / 2                                                                       | 546     | 546.5   | 547     | 547     |   |   |   |   |
| 5 Z (Est.)                                                                                | 0.805   | .809    | .812    | .822    |   |   |   |   |
| 6 TZ                                                                                      | 425.02  | 429.53  | 442.12  | 449.63  |   |   |   |   |
| 7 CH/TZ                                                                                   | 6.0777  | 5.879   | 5.8446  | 5.7469  |   |   |   |   |
| 8 e <sup>s</sup> (Table XIV)                                                              | 1.25607 | 1.24665 | 1.2450  | 1.2405  |   |   |   |   |
| 9 1-e <sup>s</sup> (Table XIV)                                                            |         | .19785  | 0.1968  | 0.1960  |   |   |   |   |
| 10 P <sub>1</sub>                                                                         | 1019.2  | 998.2   | 982.2   | 960.2   |   |   |   |   |
| 11 P <sub>2</sub> 2/1000                                                                  | 1038.8  | 996.46  | 964.9   | 832.1   |   |   |   |   |
| 12 F <sub>1</sub> (Table XV)                                                              | 0.22299 | 0.22046 | 0.21917 | 0.21816 |   |   |   |   |
| 13 F <sub>c</sub> = F <sub>1</sub> TZ                                                     |         | 4.2353  | 4.2603  | 4.2799  |   |   |   |   |
| 14 F <sub>c</sub> Q <sub>m</sub>                                                          |         | 0.19445 | 1.3122  | 1.806   |   |   |   |   |
| 15 L/H (F <sub>c</sub> Q <sub>m</sub> ) <sup>2</sup>                                      |         | 0.892   | 1.722   | 3.262   |   |   |   |   |
| 16 F <sub>w</sub> = L/H (F <sub>c</sub> Q <sub>m</sub> ) <sup>2</sup> (1-e <sup>s</sup> ) |         | 0.18    | 0.3     | 0.6     |   |   |   |   |
| 17 P <sub>w</sub> <sup>2</sup> = P <sub>1</sub> <sup>2</sup> + F <sub>w</sub>             |         | 996.58  | 965.0   | 833.4   |   |   |   |   |
| 18 P <sub>s</sub> <sup>2</sup> = e <sup>s</sup> P <sub>w</sub> <sup>2</sup>               |         | 1204.8  | 1201.4  | 1033.8  |   |   |   |   |
| 19 P <sub>s</sub>                                                                         |         | 1142.3  | 1114.6  | 1071.2  |   |   |   |   |
| 20 P = (P <sub>1</sub> + P <sub>s</sub> ) / 2                                             |         | 1080.7  | 1056.4  | 1015.2  |   |   |   |   |
| 21 P <sub>i</sub> = (P/P <sub>Cr</sub> )                                                  |         | 1.353   | 1.322   | 1.271   |   |   |   |   |
| 22 T <sub>i</sub> = (T/T <sub>Cr</sub> )                                                  |         | 1.3154  | 1.335   | 1.337   |   |   |   |   |
| 23 Z (Table XI)                                                                           |         | .790    | 0.805   | 0.809   |   |   |   |   |