

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

c/SF  
Form O-122.1  
RECEIVED *F. 10*

FEB 3 1983

|                                                                                                                           |               |                              |                   |                                             |                       |                                 |                                |                                    |
|---------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------|-------------------|---------------------------------------------|-----------------------|---------------------------------|--------------------------------|------------------------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |               |                              |                   |                                             | Test Date<br>11/28/82 |                                 |                                |                                    |
| Company<br>Yates Petroleum Corporation                                                                                    |               |                              |                   | Connection<br>Transwestern Pipeline Company |                       |                                 | O. C. D.<br>ARTESIA, OFFICE    |                                    |
| Pool<br>Pecos Slope - Abo Pool                                                                                            |               |                              |                   | Formation<br>Abo                            |                       |                                 | Unit                           |                                    |
| Completion Date<br>6/9/82                                                                                                 |               | Total Depth<br>4253.0'       |                   | Plug Back TD<br>4193.0'                     |                       | Elevation<br>3686.0'            |                                | Farm or Lease Name<br>Caudill "R2" |
| Csg Size<br>4.500"                                                                                                        | Wt.<br>9.500# | d<br>4.090"                  | Set At<br>4250.0' | Perforations:<br>From 3891.0' To 4074.0'    |                       |                                 | Well No.<br>2                  |                                    |
| Tbg Size<br>2.375"                                                                                                        | Wt.<br>4.700# | d<br>1.995"                  | Set At<br>3821.0' | Perforations:<br>From 0.0' To 0.0'          |                       |                                 | Unit Sec Twp Rge<br>K 8 6S 26E |                                    |
| Type Well<br>Single                                                                                                       |               |                              |                   | Packer Set At<br>3822.0'                    |                       | County<br>Chaves                |                                |                                    |
| Producing Thru<br>Tubing                                                                                                  |               | Resv. Temp. °F<br>98 @ 3821' |                   | Mean Temp. °F<br>62.0                       |                       | Baro. Press. - Pa<br>13.2 psia. |                                | State<br>New Mexico                |
| L<br>3821.0'                                                                                                              | H<br>3821.0'  | Gg<br>.645                   | %CO2<br>.09       | %N2<br>5.78                                 | %H2S<br>0.00          | Prover<br>0.000"                | Meter Run<br>2.000"            | Taps<br>Flange                     |

| FLOW DATA |                               |                |             |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of<br>Flow |
|-----------|-------------------------------|----------------|-------------|-------------|----------------|-------------|----------------|-------------|------------------------|
| NO        | Prover Orifice<br>Size X Size | Press.<br>psig | Diff.<br>hw | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                        |
| SI        | 0.000 X 0.000                 | 0              | 0.0         | 70          | 1010           | 0           | 0              | 0           | 0 hrs.                 |
| 1.        | 2.067 X 1.000                 | 430            | 47.2        | 70          | 922            | 62          | 0              | 0           | 24 hrs.                |
| 2.        | 2.067 X 1.000                 | 450            | 56.5        | 70          | 906            | 62          | 0              | 0           | 24 hrs.                |
| 3.        | 2.067 X 1.000                 | 470            | 61.0        | 70          | 885            | 62          | 0              | 0           | 24 hrs.                |
| 4.        | 2.067 X 1.000                 | 480            | 81.9        | 70          | 866            | 62          | 0              | 0           | 24 hrs.                |
| 5.        | 0.000 X 0.000                 | 0              | 0.0         | 0           | 0              | 0           | 0              | 0           | 0 hrs.                 |

RATE OF FLOW CALCULATIONS

| NO | Coefficient<br>(24 HOUR) | √hwPm  | Pressure<br>Pm | Flow Temp<br>Factor<br>Ft. | Gravity<br>Factor<br>Fg | Super<br>Compress.<br>Fact. Fpv | Rate of Flow<br>Q, Mcfd |
|----|--------------------------|--------|----------------|----------------------------|-------------------------|---------------------------------|-------------------------|
| 1. | 4.947                    | 144.63 | 443.20         | .991                       | 1.245                   | 1.035                           | 913                     |
| 2. | 4.947                    | 161.77 | 463.20         | .991                       | 1.245                   | 1.036                           | 1023                    |
| 3. | 4.947                    | 171.68 | 483.20         | .991                       | 1.245                   | 1.038                           | 1087                    |
| 4. | 4.947                    | 200.98 | 493.20         | .991                       | 1.245                   | 1.039                           | 1274                    |
| 5. | 0.000                    | 0.00   | 0.00           | 0.000                      | 0.000                   | 0.000                           | 0                       |

| NO | Pr   | Temp.<br>°R | Tr   | Z     | Gas Liquid Hydrocarbon Ratio _____ Dry _____ Mcf/bbl. | A.P.I. Gravity of Liquid Hydrocarbons _____ 0.000 Deg. |
|----|------|-------------|------|-------|-------------------------------------------------------|--------------------------------------------------------|
| 1. | .67  | 530         | 1.49 | .934  | Specific Gravity Separator Gas .645                   | xxxxxxxxxxxxxx                                         |
| 2. | .70  | 530         | 1.49 | .931  | Specific Gravity Flowing Fluid xxxxxx                 | .645                                                   |
| 3. | .73  | 530         | 1.49 | .928  | Critical Pressure _____ 661.1 PSIA                    | 661.1 PSIA                                             |
| 4. | .75  | 530         | 1.49 | .927  | Critical Temperature _____ 354.5°R                    | 354.5°R                                                |
| 5. | 0.00 | 0           | 0.00 | 0.000 |                                                       |                                                        |

Pc 1023.2 Pc² 1046.9

| NO | Pt²   | √Pw   | Pw²   | Pc²-Pw² (1) | $\frac{Pc²}{Pc²-Pw²} = 4.1272$ | (2) $\left[ \frac{Pc²}{Pc²-Pw²} \right]^n = 2.8678$ |
|----|-------|-------|-------|-------------|--------------------------------|-----------------------------------------------------|
| 1. | 874.6 | 940.7 | 885.0 | 162.0       |                                |                                                     |
| 2. | 844.9 | 926.3 | 858.0 | 189.0       |                                |                                                     |
| 3. | 806.8 | 906.4 | 821.5 | 225.4       |                                |                                                     |
| 4. | 773.0 | 890.7 | 793.3 | 253.6       |                                |                                                     |
| 5. | 0.0   | 0.0   | 0.0   | 0.0         |                                |                                                     |

$$ROF = Q \left[ \frac{Pc²}{Pc²-Pw²} \right]^n = 3653 \text{ Mcfd}$$

Absolute Open Flow      3653 Mcfd @ 15.025    Angle of Slope, 0    37    Slope, n .743  
Remarks: \_\_\_\_\_

|              |                               |                                  |             |
|--------------|-------------------------------|----------------------------------|-------------|
| Approved By: | Conducted By:<br>David Weaver | Calculated By:<br>Andie Alderson | Checked By: |
|--------------|-------------------------------|----------------------------------|-------------|

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

Adopted 9-1-65

DATE 2/1/83

COMPANY Yates Petroleum Corporation LEASE Caudill "R2" WELL NO. 2

LOCATION: Unit K Section 8 Township 6S Range 26E

L 3821.0 H 3821.0 L/H 1.000 G .645 %CO<sub>2</sub> .09 %N<sub>2</sub> 5.78 %H<sub>2</sub>S 0.00

d 1.995 Fr .017777 GH 2464.5 Pcr 661.1 Tcr 354.5

| LINE                                               | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|----------------------------------------------------|----------|----------|----------|----------|----------|
| 1 Om                                               | .913     | 1.023    | 1.087    | 1.274    | 0.000    |
| 2 Tw(W.H.%R)                                       | 522.0    | 522.0    | 522.0    | 522.0    | 0.0      |
| 3 Ts(B.H.%R)                                       | 558.0    | 558.0    | 558.0    | 558.0    | 0.0      |
| 4 T=(Tw+Ts)/2                                      | 540.0    | 540.0    | 540.0    | 540.0    | 0.0      |
| 5 Z(Est.)                                          | .868     | .870     | .872     | .875     | 0.000    |
| 6 TZ                                               | 468.7    | 469.7    | 471.1    | 472.3    | 0.0      |
| 7 GH/TZ                                            | 5.259    | 5.247    | 5.232    | 5.219    | 0.000    |
| 8 e <sup>s</sup> (Table XIV)                       | 1.218    | 1.217    | 1.217    | 1.216    | 0.000    |
| 9 1-e <sup>-s</sup> (Table XIV)                    | .179     | .178     | .178     | .178     | 0.000    |
| 10 Pt                                              | 935.2    | 919.2    | 898.2    | 879.2    | 0.0      |
| 11 Pt <sup>2</sup> /1000                           | 874.6    | 844.9    | 806.8    | 773.0    | 0.0      |
| 12 Fr(Table XV)                                    | .017777  | .017777  | .017777  | .017777  | 0.000000 |
| 13 Fc=FrTZ                                         | 8.331    | 8.356    | 8.374    | 8.401    | 0.000    |
| 14 FcOm                                            | 7.607    | 8.548    | 9.105    | 10.702   | 0.000    |
| 15 L/H(FcOm) <sup>2</sup>                          | 57.868   | 73.062   | 82.907   | 114.528  | 0.000    |
| 16 Fw=L/H(FcOm) <sup>2</sup> (1-e <sup>-s</sup> )  | 10.357   | 13.041   | 14.770   | 20.343   | 0.000    |
| 17 Pw <sup>2</sup> =Pt <sup>2</sup> +Fw            | 885.0    | 858.0    | 821.5    | 793.3    | 0.0      |
| 18 Ps <sup>2</sup> =e <sup>s</sup> Pw <sup>2</sup> | 1077.9   | 1044.4   | 999.6    | 964.7    | 0.0      |
| 19 Ps                                              | 1038.2   | 1022.0   | 999.8    | 982.2    | 0.0      |
| 20 P=(Pt+Ps)/2                                     | 986.7    | 970.6    | 949.0    | 930.7    | 0.0      |
| 21 Pr=(P/Pcr)                                      | 1.49     | 1.47     | 1.44     | 1.41     | 0.00     |
| 22 Tr=(T/Tcr)                                      | 1.52     | 1.52     | 1.52     | 1.52     | 0.00     |
| 23 Z(Table XI)                                     | .868     | .870     | .872     | .875     | 0.000    |

|          |                             |
|----------|-----------------------------|
| Company  | Yates Petroleum Corporation |
| Well     | Caudill "R2" No. 2          |
| Location | K, 8-6S-26E                 |
| County   | Chaves                      |
| Date     | 2/1/83                      |

