

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

Form C-122

**RECEIVED**

|                                                 |               |                              |                   |                                             |                          |                                 |                            |                                         |
|-------------------------------------------------|---------------|------------------------------|-------------------|---------------------------------------------|--------------------------|---------------------------------|----------------------------|-----------------------------------------|
| Type Test<br>[X] Initial [ ] Annual [ ] Special |               |                              |                   |                                             | Test Date<br>11/14/82    |                                 | JAN 20 1983                |                                         |
| Company<br>Yates Petroleum Corporation          |               |                              |                   | Connection<br>Transwestern Pipeline Company |                          |                                 | O. C. D.<br>ARTESIA OFFICE |                                         |
| Pool<br>Pecos Slope - Abo Gas                   |               |                              |                   | Formation<br>Abo                            |                          |                                 | Unit                       |                                         |
| Completion Date<br>4/27/82                      |               | Total Depth<br>4040.0'       |                   | Plug Back TD<br>3978.0'                     |                          | Elevation<br>4031.0'            |                            | Farm or Lease Name<br>Redman "OY" State |
| Csg Size<br>4.500"                              | Wt.<br>9.500# | d<br>4.090"                  | Set Rt<br>4031.0' | Perforations:<br>From 3628.0' To 3978.0'    |                          | Well No.<br>6                   |                            |                                         |
| Tbg Size<br>2.375"                              | Wt.<br>4.700# | d<br>1.995"                  | Set Rt<br>3583.0' | Perforations:<br>From 0.0' To 0.0'          |                          | Unit Sec Top Rge<br>K 26 48 24E |                            |                                         |
| Type Well<br>Single                             |               |                              |                   |                                             | Packer Set Rt<br>3583.0' |                                 | County<br>Chaves           |                                         |
| Producing Thru<br>Tubing                        |               | Resv. Temp. °F<br>94 @ 3803' |                   | Mean Temp. °F<br>62.0                       |                          | Baro. Press. - Pa<br>13.2 psia. |                            | State<br>New Mexico                     |
| L<br>3583.0'                                    | H<br>3583.0'  | Gg<br>.656                   | %CO2<br>.07       | %N2<br>6.74                                 | %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          | 980            | 0           | 0              | 0           | 0 hrs.                 |
| 1.        | 2.067 X .625                  | 135            | 22.4        | 72          | 828            | 62          | 0              | 0           | 24 hrs.                |
| 2.        | 2.067 X .625                  | 140            | 34.2        | 72          | 774            | 62          | 0              | 0           | 24 hrs.                |
| 3.        | 2.067 X .625                  | 150            | 72.2        | 70          | 610            | 62          | 0              | 0           | 24 hrs.                |
| 4.        | 2.067 X .625                  | 160            | 95.0        | 70          | 460            | 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) | 1/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. | 1.866                    | 57.62  | 148.20         | .989                       | 1.235                   | 1.010                           | 133                     |
| 2. | 1.866                    | 72.38  | 153.20         | .989                       | 1.235                   | 1.011                           | 167                     |
| 3. | 1.866                    | 108.55 | 163.20         | .991                       | 1.235                   | 1.012                           | 251                     |
| 4. | 1.866                    | 128.27 | 173.20         | .991                       | 1.235                   | 1.013                           | 297                     |
| 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<br>Dry   | Mcf/bbl.              |
|----|------|-------------|------|-------|---------------------------------------|-----------------------|
| 1. | .23  | 532         | 1.49 | .979  | A.P.I. Gravity of Liquid Hydrocarbons | 0.000 Deg.            |
| 2. | .23  | 532         | 1.49 | .979  | Specific Gravity Separator Gas        | .656 xxxxxxxxxxxxxx   |
| 3. | .25  | 530         | 1.48 | .976  | Specific Gravity Flowing Fluid        | xxxxxx .656           |
| 4. | .26  | 530         | 1.48 | .975  | Critical Pressure                     | 658.0 PSIA 658.0 PSIA |
| 5. | 0.00 | 0           | 0.00 | 0.000 | Critical Temperature                  | 358.0°R 358.0°R       |

|    |                 |                 |                 |                                  |                                                                                                                |
|----|-----------------|-----------------|-----------------|----------------------------------|----------------------------------------------------------------------------------------------------------------|
| Pc | 993.2           | Pc <sup>2</sup> | 986.4           |                                  |                                                                                                                |
| NO | Pt <sup>2</sup> | Pw              | Pw <sup>2</sup> | Pc <sup>2</sup> -Pw <sup>2</sup> | (1) $\frac{Pc^2}{Pc^2-Pw^2} = \frac{1.6515}{}$ (2) $\left[ \frac{Pc^2}{Pc^2-Pw^2} \right]^n = \frac{1.5203}{}$ |
| 1. | 707.6           | 841.3           | 707.8           | 278.6                            | AOF = 0 $\left[ \frac{Pc^2}{Pc^2-Pw^2} \right]^n = \frac{381 \text{ Mcfd}}{}$                                  |
| 2. | 619.7           | 787.4           | 620.0           | 366.4                            |                                                                                                                |
| 3. | 388.4           | 623.8           | 389.2           | 597.3                            |                                                                                                                |
| 4. | 223.9           | 474.4           | 225.0           | 761.4                            |                                                                                                                |
| 5. | 0.0             | 0.0             | 0.0             | 0.0                              |                                                                                                                |

$$(1) \frac{Pc^2}{Pc^2 - Pw^2} = 1.6515 \quad (2) \left[ \frac{Pc^2}{Pc^2 - Pw^2} \right]^n = 1.5203$$

$$AOF = Q \left[ \frac{Pc^2}{Pc^2 - Pw^2} \right]^n = 381 \text{ Mcfd}$$

Absolute Open Flow 381 Mcfd @ 15.025 Angle of Slope, 0 40 Slope, n .835  
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 1/18/83

COMPANY Vates Petroleum Corporation LEASE Redman "OY" State WELL NO. 6

LOCATION: Unit K Section 26 Township 4S Range 24E

L 3583.0 H 3583.0 L/H 1.000 G .656 %O<sub>2</sub> .07 %N<sub>2</sub> 6.74 %H<sub>2</sub>S 0.00

d 1.995 Fr .017777 GH 2350.4 Pcr 658.0 Tcr 358.0

| LINE                                               | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|----------------------------------------------------|----------|----------|----------|----------|----------|
| 1 Qm                                               | .133     | .167     | .251     | .297     | 0.000    |
| 2 Tw(W.H.°R)                                       | 522.0    | 522.0    | 522.0    | 522.0    | 0.0      |
| 3 Ts(B.H.°R)                                       | 554.0    | 554.0    | 554.0    | 554.0    | 0.0      |
| 4 T=(Tw+Ts)/2                                      | 538.0    | 538.0    | 538.0    | 538.0    | 0.0      |
| 5 Z(Est.)                                          | .874     | .881     | .905     | .927     | 0.000    |
| 6 TZ                                               | 470.0    | 474.1    | 486.8    | 498.9    | 0.0      |
| 7 GH/TZ                                            | 5.000    | 4.958    | 4.828    | 4.711    | 0.000    |
| 8 e <sup>s</sup> (Table XIV)                       | 1.206    | 1.204    | 1.198    | 1.193    | 0.000    |
| 9 1-e <sup>-s</sup> (Table XIV)                    | .171     | .170     | .166     | .162     | 0.000    |
| 10 Pt                                              | 841.2    | 787.2    | 623.2    | 473.2    | 0.0      |
| 11 Pt <sup>2</sup> /1000                           | 707.6    | 619.7    | 388.4    | 223.9    | 0.0      |
| 12 Fr(Table XV)                                    | .017777  | .017777  | .017777  | .017777  | 0.000000 |
| 13 Fc=FrTZ                                         | 8.363    | 8.428    | 8.658    | 8.869    | 0.000    |
| 14 FcQm                                            | 1.109    | 1.405    | 2.171    | 2.630    | 0.000    |
| 15 L/H(FcQm) <sup>2</sup>                          | 1.230    | 1.973    | 4.711    | 6.916    | 0.000    |
| 16 Fw=L/H(FcQm) <sup>2</sup> (1-e <sup>-s</sup> )  | .210     | .335     | .780     | 1.120    | 0.000    |
| 17 Pw <sup>2</sup> =Pt <sup>2</sup> +Fw            | 707.8    | 620.0    | 389.2    | 225.0    | 0.0      |
| 18 Ps <sup>2</sup> =e <sup>s</sup> Pw <sup>2</sup> | 853.7    | 746.7    | 466.4    | 268.5    | 0.0      |
| 19 Ps                                              | 924.0    | 864.1    | 682.9    | 518.2    | 0.0      |
| 20 P=(Pt+Ps)/2                                     | 882.6    | 825.7    | 653.1    | 495.7    | 0.0      |
| 21 Pr=(P/Pcr)                                      | 1.34     | 1.25     | .99      | .75      | 0.00     |
| 22 Tr=(T/Tcr)                                      | 1.50     | 1.50     | 1.50     | 1.50     | 0.00     |
| 23 Z(Table XI)                                     | .874     | .881     | .905     | .927     | 0.000    |

|          |                             |
|----------|-----------------------------|
| Company  | Yates Petroleum Corporation |
| Well     | Redman "OY" State No. 6     |
| Location | K, 26-48-24E                |
| County   | Chaves                      |
| Date     | 1/18/83                     |

$P_c = 986.4$

