

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

Form C-122  
 Revised 9-1-65

*dsf*  
*File*

|                                                                                                                        |          |                                |                       |                                   |                      |                                        |              |                                           |          |
|------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------|-----------------------|-----------------------------------|----------------------|----------------------------------------|--------------|-------------------------------------------|----------|
| Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |          |                                |                       |                                   |                      | Test Date 10/27/82                     |              | RECEIVED                                  |          |
| Company Yates Petroleum Corporation                                                                                    |          |                                |                       |                                   |                      | Connection Transwestern Pipeline       |              | JAN 03 1983                               |          |
| Pool Pecos Slope - Abo Gas                                                                                             |          |                                |                       |                                   |                      | Formation Abo                          |              | Unit O. C. D.                             |          |
| Completion Date 6/23/82                                                                                                |          | Total Depth 4225'              |                       | Plug Back TD 4161'                |                      | Elevation 3599' GL                     |              | Form. or Lease Name Cummings "TO" Federal |          |
| Csg. Size 4 1/2"                                                                                                       | Wt. 9.5# | ID 4.090                       | Set At 4221'          | Perforations: From 4037' To 4045' |                      | Well No. 1                             |              |                                           |          |
| Trq. Size 2 3/8"                                                                                                       | Wt. 4.7# | ID 1.995                       | Set At 3978'          | Perforations: From To             |                      | Unit N                                 | Sec. 11      | Twp. 8S                                   | Rge. 25E |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple                                                                |          |                                |                       |                                   |                      | Packer Set At 3978'                    |              | County Chaves                             |          |
| Producing Thru Tubing                                                                                                  |          | Reservoir Temp. °F 101 @ 3978' |                       | Mean Annual Temp. °F 62           |                      | Baro. Press. - P <sub>a</sub> 13.2 psi |              | State New Mexico                          |          |
| L 3978                                                                                                                 | H 3978   | Gg .657                        | % CO <sub>2</sub> .07 | % N <sub>2</sub> 7.31             | % H <sub>2</sub> S 0 | Prover -                               | Meter Run 2" | Type Flanged                              |          |

| 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. |                  |
| 51        |                  |   |              |                 |                      |             | 992             |             |                 |                  |
| 1.        | 2.067            | x | 1.125        | 520             | 8.5                  | 72          | 867             | 62          |                 |                  |
| 2.        | 2.067            | x | 1.125        | 520             | 9.6                  | 72          | 842             | 62          |                 |                  |
| 3.        | 2.067            | x | 1.125        | 525             | 13.0                 | 72          | 818             | 62          |                 |                  |
| 4.        | 2.067            | x | 1.125        | 530             | 17.0                 | 72          | 770             | 62          |                 |                  |
| 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 Fg | Super Compress. Factor, Fpv | Rate of Flow Q, Mcf/d |
| 1                         | 6.393                 | 67.4             | 533.2                   | .9887                 | 1.234             | 1.044                       | 549                   |
| 2                         | 6.393                 | 71.7             | 533.2                   | .9887                 | 1.234             | 1.044                       | 584                   |
| 3                         | 6.393                 | 83.5             | 538.2                   | .9887                 | 1.234             | 1.045                       | 681                   |
| 4                         | 6.393                 | 96.1             | 543.2                   | .9887                 | 1.234             | 1.045                       | 783                   |
| 5                         |                       |                  |                         |                       |                   |                             |                       |

| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z    | Gas Liquid Hydrocarbon Ratio | A.P.I. Gravity of Liquid Hydrocarbons | Specific Gravity Separator Gas | Specific Gravity Flowing Fluid | Critical Pressure | Critical Temperature |
|-----|----------------|----------|----------------|------|------------------------------|---------------------------------------|--------------------------------|--------------------------------|-------------------|----------------------|
| 1.  | .81            | 532      | 1.49           | .917 | Dry                          | --                                    | .657                           | X X X X X X X X                | 658               | 358                  |
| 2.  | .81            | 532      | 1.49           | .917 |                              |                                       |                                | X X X X X                      |                   |                      |
| 3.  | .82            | 532      | 1.49           | .916 |                              |                                       |                                |                                |                   |                      |
| 4.  | .83            | 532      | 1.49           | .916 |                              |                                       |                                |                                |                   |                      |
| 5.  |                |          |                |      |                              |                                       |                                |                                |                   |                      |

| NO. | P <sub>r</sub> <sup>2</sup> | P <sub>w</sub> | P <sub>w</sub> <sup>2</sup> | P <sub>r</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
|-----|-----------------------------|----------------|-----------------------------|-----------------------------------------------------------|
| 1   | 774.8                       |                | 778.9                       | 231.5                                                     |
| 2   | 731.4                       |                | 736.1                       | 274.3                                                     |
| 3   | 690.9                       |                | 697.4                       | 313.0                                                     |
| 4   | 613.4                       |                | 622.0                       | 388.4                                                     |
| 5   |                             |                |                             |                                                           |

(1)  $\frac{P_r^2}{P_r^2 - P_w^2} = 2.601$

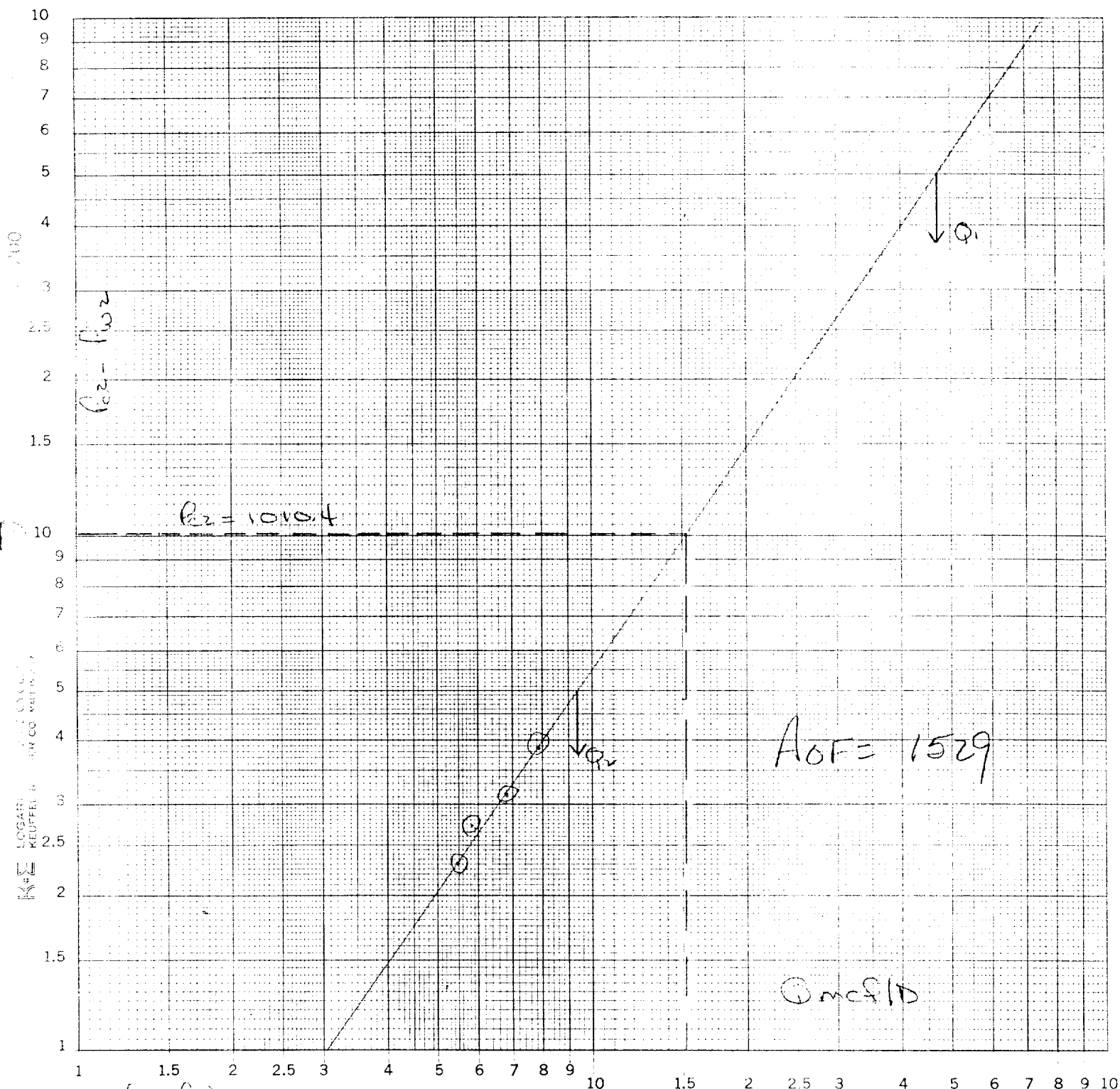
AOR = Q  $\left[ \frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 1529$

(2)  $\left[ \frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 1.953$

|                                        |                  |              |
|----------------------------------------|------------------|--------------|
| Absolute Open Flow 1529 Mcf/d @ 15.025 | Angle of Slope 0 | Slope, n .70 |
| Remarks:                               |                  |              |
| Approved By Commission:                |                  |              |
| Conducted By: David Weaver             |                  |              |
| Calculated By: Andie Alderson          |                  |              |
| Checked By:                            |                  |              |

Tex Petroleum Corporation  
 Cummings "C" Federal #1  
 Well No. 11-85-25E  
 Charles County



$$\begin{aligned} (P_1 - P_2)_1 &= 5000 \\ (P_1 - P_2)_2 &= 500 \\ Q_1 &= 470.4 \\ Q_2 &= 939 \end{aligned}$$

$$\begin{aligned} \log Q_1 &= 2.67247 \\ \log Q_2 &= 2.97267 \\ n &= .69980 = .70 \end{aligned}$$

COMPANY Yates Petroleum Corp LEASE Channing to Federal WELL NO. 1 DATE 12/1/52

LOCATION: Unit D Section 11 Township 25 Range 25E

L 3178 H 3138 L/H 1 G .657 %CO<sub>2</sub> .07 %N<sub>2</sub> 7.31 %H<sub>2</sub>S 0

d 1.135 F<sub>1</sub> .01823 GH 2614 P<sub>cr</sub> 1672 T<sub>cr</sub> 362

TABLE 10.1

| LINE                                                                                      | 1ST     | 2ND    | 3RD    | 4TH    |  |  |  |  |  |
|-------------------------------------------------------------------------------------------|---------|--------|--------|--------|--|--|--|--|--|
| 1 Q <sub>m</sub>                                                                          | .541    | .541   | .541   | .743   |  |  |  |  |  |
| 2 T <sub>w</sub> (W.H. °R)                                                                | 522     | 522    | 522    | 522    |  |  |  |  |  |
| 3 T <sub>s</sub> (B.H. °R)                                                                | 561     | 561    | 561    | 561    |  |  |  |  |  |
| 4 T = (Lw + 1s)                                                                           | 541.5   | 541.5  | 541.5  | 541.5  |  |  |  |  |  |
| 5 Z (Est.)                                                                                | .866    | .866   | .866   | .879   |  |  |  |  |  |
| 6 T <sub>2</sub>                                                                          | 1168.94 | 471.11 | 472.10 | 175.98 |  |  |  |  |  |
| 7 GH/T <sub>2</sub>                                                                       | 5.571   | 5.549  | 5.536  | 5.492  |  |  |  |  |  |
| 8 e <sup>s</sup> (Table XIV)                                                              | 1.232   | 1.231  | 1.231  | 1.229  |  |  |  |  |  |
| 9 1-e <sup>s</sup> (Table XIV)                                                            | .188    | .188   | .188   | .186   |  |  |  |  |  |
| 10 P <sub>t</sub>                                                                         | 880.2   | 855.2  | 851.2  | 783.2  |  |  |  |  |  |
| 11 P <sub>t</sub> 2/1000                                                                  | 774.8   | 731.4  | 690.9  | 613.4  |  |  |  |  |  |
| 12 F <sub>1</sub> (Table XV)                                                              | .01823  | .01823 | .01823 | .01823 |  |  |  |  |  |
| 13 F <sub>2</sub> = F <sub>1</sub> T <sub>2</sub>                                         | 8.549   | 8.538  | 8.468  | 8.677  |  |  |  |  |  |
| 14 F <sub>3</sub> G <sub>m</sub>                                                          | 4.693   | 5.016  | 5.462  | 6.714  |  |  |  |  |  |
| 15 L/H (F <sub>2</sub> Q <sub>m</sub> ) <sup>2</sup>                                      | 2.027   | 25.156 | 34.364 | 46.161 |  |  |  |  |  |
| 16 F <sub>3</sub> = L/H (F <sub>2</sub> Q <sub>m</sub> ) <sup>2</sup> (1-e <sup>s</sup> ) | 4.141   | 4.729  | 6.460  | 8.586  |  |  |  |  |  |
| 17 P <sub>w</sub> <sup>2</sup> = P <sub>t</sub> <sup>2</sup> + F <sub>w</sub>             | 778.7   | 736.1  | 674.4  | 622.0  |  |  |  |  |  |
| 18 F <sub>3</sub> <sup>2</sup> = e <sup>s</sup> P <sub>w</sub> <sup>2</sup>               | 959.6   | 966.1  | 888.4  | 764.4  |  |  |  |  |  |
| 19 F <sub>3</sub>                                                                         | 979.6   | 951.9  | 936.8  | 874.3  |  |  |  |  |  |
| 20 F = (F <sub>3</sub> + P <sub>s</sub> )                                                 | 929.9   | 903.6  | 884.7  | 828.8  |  |  |  |  |  |
| 21 F <sub>1</sub> = P/P <sub>cr</sub>                                                     | 1.38    | 1.34   | 1.31   | 1.27   |  |  |  |  |  |
| 22 T <sub>r</sub> = (T/T <sub>cr</sub> )                                                  | .47     | .44    | .43    | .41    |  |  |  |  |  |
| 23 Z (Table XI)                                                                           | .866    | .876   | .872   | .87    |  |  |  |  |  |