

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

Form C-122

45F.
File

RECEIVED

| | | | | | |
|---|---------------|---|---|--|------|
| Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special | | Test Date 3/3/88 | | APR 22 '88 | |
| Company Yates Petroleum Corporation | | | Connection Transwestern Pipeline Company | | |
| Pool Undes Pecos Slope ACO | | | Formation Abo | | Unit |
| Completion Date 1/24/83 | | Total Depth 4175.0' | | Plug Back TD 4111.0' | |
| Elevation 3599.3' | | Farm or Lease Name Crosby TV Federal | | | |
| Csg Size 4.500" | Wt. 9.500# | d 4.090" | Set At 4175.0' | Perforations: From 3805.0' To 4024.0' | |
| Tbg Size 2.375" | Wt. 4.700# | d 1.995" | Set At 3772.0' | Perforations: From 0.0' To 0.0' | |
| Type Well Single | | | | Packer Set At 3772.0' | |
| Producing Thru Tubing | | Resv. Temp. °F 89 @ 3914' | | Mean Temp. °F 62.0 | |
| L 3772.0' | | H 3772.0' | | Baro. Press. - Pa 13.2 psia. | |
| Gg .662 | | %CO2 .05 | | %N2 .01 | |
| %H2S 0.00 | | Prover 0.000" | | Meter Run 2.000" | |
| Taps Flange | | County Chaves | | State New Mexico | |

| FLOW DATA | | | | | TUBING DATA | | CASING DATA | | Duration of Flow |
|-----------|----------------------------|-------------|----------|----------|-------------|----------|-------------|----------|------------------|
| NO | Prover Orifice Size X Size | Press. psig | Diff. hw | Temp. °F | Press. psig | Temp. °F | Press. psig | Temp. °F | |
| SI | 0.000 X 0.000 | 0 | 0.0 | 40 | 680 | 0 | 0 | 0 | 0 hrs. |
| 1. | 2.067 X 1.125 | 145 | 3.2 | 40 | 386 | 62 | 0 | 0 | 24 hrs. |
| 2. | 2.067 X 1.125 | 140 | 4.1 | 40 | 281 | 62 | 0 | 0 | 24 hrs. |
| 3. | 2.067 X 1.125 | 135 | 5.1 | 40 | 227 | 62 | 0 | 0 | 24 hrs. |
| 4. | 2.067 X 1.125 | 130 | 6.0 | 40 | 130 | 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 (24 HOUR) | \sqrt{hwPm} | Pressure Pm | Flow Temp Factor Ft. | Gravity Factor Fg | Super Compress. Fact. Fpv | Rate of Flow Q, Mcfd |
|----|-----------------------|---------------|-------------|----------------------|-------------------|---------------------------|----------------------|
| 1. | 6.397 | 22.50 | 158.20 | 1.020 | 1.229 | 1.018 | 184 |
| 2. | 6.397 | 25.06 | 153.20 | 1.020 | 1.229 | 1.017 | 204 |
| 3. | 6.397 | 27.49 | 148.20 | 1.020 | 1.229 | 1.017 | 224 |
| 4. | 6.397 | 29.31 | 143.20 | 1.020 | 1.229 | 1.016 | 239 |
| 5. | 0.000 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0 |

| NO | Fr | Temp. °R | Tr | Z | Gas Liquid Hydrocarbon Ratio Dry Mcf/bbl. |
|----|------|----------|------|-------|--|
| 1. | .24 | 500 | 1.33 | .965 | A.P.I. Gravity of Liquid Hydrocarbons 0.800 Deg. |
| 2. | .23 | 500 | 1.33 | .967 | Specific Gravity Separator Gas .662 |
| 3. | .22 | 500 | 1.33 | .968 | Specific Gravity Flowing Fluid .662 |
| 4. | .21 | 500 | 1.33 | .969 | Critical Pressure 670.0 PSIA |
| 5. | 0.00 | 0 | 0.00 | 0.000 | Critical Temperature 376.3°R |

| NO | Pt ² | Pw | Pw ² | Pc ² -Pw ² (1) | $\frac{Pc^2}{Pc^2-Pw^2} = 1.0451$ | (2) $\left[\frac{Pc^2}{Pc^2-Pw^2} \right]^n = 1.0328$ |
|----|-----------------|-------|-----------------|--------------------------------------|-----------------------------------|--|
| 1. | 159.4 | 399.8 | 159.8 | 320.7 | | |
| 2. | 86.6 | 295.2 | 87.1 | 393.4 | | |
| 3. | 57.7 | 241.6 | 58.4 | 422.1 | | |
| 4. | 20.5 | 146.0 | 21.3 | 459.2 | | |
| 5. | 0.0 | 0.0 | 0.0 | 0.0 | | |

AOF = $Q \left[\frac{Pc^2}{Pc^2-Pw^2} \right]^n = 247 \text{ Mcfd}$

Absolute Open Flow 247 Mcfd @ 15.025 Angle of Slope, θ 36 Slope, n .730

Remarks:

| | | | |
|--------------|-------------------------------|------------------------------------|-------------|
| Approved By: | Conducted By: David Weaver | Calculated By: Andrea Carpenter | Checked By: |
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WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

Adopted 9-1-65

DATE 4/22/88

COMPANY Yates Petroleum Corporation LEASE Crosby TV Federal WELL NO. 1

LOCATION: Unit A Section 15 Township 8S Range 25E

L 3772.0 H 3772.0 L/H 1.000 G .662 %O2 .05 %N2 .01 %H2S 0.00

d 1.995 Fr .017777 GH 2497.1 Pcr 670.0 Tcr 376.3

| LINE | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|--|----------|----------|----------|----------|----------|
| 1 Qm | .184 | .204 | .224 | .239 | 0.000 |
| 2 Tw(W.H.°R) | 522.0 | 522.0 | 522.0 | 522.0 | 0.0 |
| 3 Ts(B.H.°R) | 549.0 | 549.0 | 549.0 | 549.0 | 0.0 |
| 4 T=(Tw+Ts)/2 | 535.5 | 535.5 | 535.5 | 535.5 | 0.0 |
| 5 Z(Est.) | .927 | .947 | .957 | .975 | 0.000 |
| 6 TZ | 496.4 | 506.9 | 512.2 | 522.0 | 0.0 |
| 7 GH/TZ | 5.030 | 4.927 | 4.875 | 4.784 | 0.000 |
| 8 e ^s (Table XIV) | 1.208 | 1.203 | 1.201 | 1.196 | 0.000 |
| 9 1-e ^{-s} (Table XIV) | .172 | .169 | .167 | .164 | 0.000 |
| 10 Pt | 399.2 | 294.2 | 240.2 | 143.2 | 0.0 |
| 11 Pt ² /1000 | 159.4 | 86.6 | 57.7 | 20.5 | 0.0 |
| 12 Fr(Table XV) | .017777 | .017777 | .017777 | .017777 | 0.000000 |
| 13 Fc=FrTZ | 8.827 | 9.011 | 9.107 | 9.280 | 0.000 |
| 14 FcQm | 1.620 | 1.842 | 2.041 | 2.216 | 0.000 |
| 15 L/H(FcQm) ² | 2.626 | 3.392 | 4.164 | 4.909 | 0.000 |
| 16 Fw=L/H(FcQm) ² (1-e ^{-s}) | .451 | .572 | .696 | .806 | 0.000 |
| 17 Pw ² =Pt ² +Fw | 159.8 | 87.1 | 58.4 | 21.3 | 0.0 |
| 18 Ps ² =e ^s Pw ² | 193.0 | 104.8 | 70.1 | 25.5 | 0.0 |
| 19 Ps | 439.3 | 323.7 | 264.8 | 159.7 | 0.0 |
| 20 P=(Pt+Ps)/2 | 419.2 | 309.0 | 252.5 | 151.4 | 0.0 |
| 21 Pr=(P/Pcr) | .63 | .46 | .38 | .23 | 0.00 |
| 22 Tr=(T/Tcr) | 1.42 | 1.42 | 1.42 | 1.42 | 0.00 |
| 23 Z(Table XI) | .927 | .947 | .957 | .975 | 0.000 |

| | |
|----------|-----------------------------|
| Company | Yates Petroleum Corporation |
| Well | Crosby TV Federal No. 1 |
| Location | R, 15-8S-25E |
| County | Chaves |
| Date | 4/22/88 |

