NEW MEXICO OIL CONSERVATION COMMSSION

# MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

| | | | | | |
|---|---|---|---|---|---|
| Type Test: [X] Initial [ ] Annual [ ] Special | | | | Test Date: 8/29/85 | |
| Company: Shell Western E&P Inc. | | | Connection: None | | |
| Pool: Antelope Ridge Morrow | | | Formation: Morrow | | Unit: Antelope Ridge Unit |
| Completion Date: 8/29/85 | Total Depth: 13,660' | | Plug Back TD: -- | Elevation: 3529'GL | Farm or Lease Name: Antelope Ridge |
| Csg. Size: 5" liner / Wt.: 18, 15 / d: -- / Set At: 13,655' | | | Perforations: From 12,935' To 13,443' | | Well No.: 10 |
| Tbg. Size: 2-1/2' / Wt.: -- / d: 2.441 / Set At: 12,750' | | | Perforations: From To | | Unit: L / Sec.: 3 / Twp.: 24-S / Rge.: 34-E |
| Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single | | | Packer Set At: 12,750' | | County: Lea |
| Producing Thru: Tbg | Reservoir Temp. °F: 180 @ 13,139 | | Mean Annual Temp. °F: 82 | Baro. Press. – $P_a$: 13.2 | State: New Mexico |

| L | H | Gg | % $CO_2$ | % $N_2$ | % $H_2S$ | Prover | Meter Run | Taps |
|---|---|---|---|---|---|---|---|---|
| 13,139 | -- | 0.583 | 1.46 | .23 | -- | -- | 4.026 | Flg |

| | FLOW DATA | | | | | TUBING DATA | | CASING DATA | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Prover Line Size | X Orifice Size | Press. p.s.i.g. | Diff. $h_w$ | Temp. °F | Press. p.s.i.g. | Temp. °F | Press. p.s.i.g. | Temp. °F | Duration of Flow |
| SI | | | | | | 2,412 | 70 | | | |
| 1. | 4.026 | 1.250 | 205 | 14 | 86 | 2,264 | 76 | Packer | | 1 hr |
| 2. | " | " | 199 | 30.5 | 92 | 2,206 | 78 | | | " |
| 3. | " | " | 200 | 54 | 91 | 2,159 | 80 | | | " |
| 4. | " | " | 500 | 56 | 89 | 1,993 | 79 | | | " |
| 5. | | | | | | | | | | |

## RATE OF FLOW CALCULATIONS

| NO. | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure $P_m$ | Flow Temp. Factor Ft. | Gravity Factor Fg | Super Compress. Factor, Fpv | Rate of Flow Q, Mcfd |
|---|---|---|---|---|---|---|---|
| 1 | 7.469 | 55.27 | 218.2 | .9759 | 1.310 | 1.014 | .535 |
| 2 | " | 80.45 | 212.2 | .9706 | " | 1.013 | .774 |
| 3 | " | 107.30 | 213.2 | .9715 | " | 1.013 | 1,033 |
| 4 | " | 169.53 | 513.2 | .9732 | " | 1.032 | 1,666 |
| 5. | | | | | | | |

| NO. | $P_t$ | Temp. °R | $T_f$ | Z |
|---|---|---|---|---|
| 1. | 3.97 | 536 | 168 | .848 |
| 2. | 3.84 | 538 | 168 | .847 |
| 3. | 3.75 | 540 | 168 | .848 |
| 4. | 3.48 | 539 | 168 | .850 |
| 5. | | | | |

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons -- Deg.
Specific Gravity Separator Gas 0.580 XXXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure 676 P.S.I.A. _____ P.S.I.A.
Critical Temperature 349 R _____ R

$P_c$ 2425.2 $P_c^2$ 5881.6

| NO | $P_t^2$ | $P_w$ | $P_w^2$ | $P_c^2 - P_w^2$ |
|---|---|---|---|---|
| 1 | | | 5191.4 | 690.2 |
| 2 | | | 4935.0 | 946.6 |
| 3 | | | 4731.6 | 1145.0 |
| 4 | | | 4072.0 | 1809.6 |
| 5 | | | | |

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 8.522$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 8.522$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 4.559$

Absolute Open Flow 4.559 Mcfd @ 15.025 Angle of Slope θ 45 Slope, n 1.000

Remarks:

| Approved By Commission: | Conducted By: | Calculated By: | Checked By: |
|---|---|---|---|
| | C. S. Robertson | C. S. Robertson | |