NEW MEXICO OIL CONSERVATION COMMSSION

# MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

| | | | | | |
|---|---|---|---|---|---|
| Type Test: 4-POINT [X] Initial [ ] Annual [ ] Special | | | | Test Date: 4-4-86 | |
| Company: SUN EXPLORATION & Production | | Connection: TO AIR | | | |
| Pool: Gem (Morrow) | | Formation: MORROW | | | Unit: L, Sec. 16, T-19, R-33 |
| Completion Date: 4-3-86 | Total Depth: 13712 | | Plug Back T.D.: 13647 | Elevation: 3645 | Farm or Lease Name: MADERO STATE COM |
| Csg. Size: 5.5 / Wt.: 2023 / d: / Set At: 13712 | | | Perforations: From 13128 To 13320 | | Well No.: 1 |
| Tbg. Size: 2.875 / Wt.: 6.5 / d: / Set At: 13002 | | | Perforations: From To | | Unit: I / Sec.: 16 / Twp.: 19S / Rge.: 33E |
| Type Well – Single – Bradenhead – G.G. or G.O. Multiple: SINGLE | | | Packer Set At: 13000 | | County: LEA |
| Producing Thru: TUBING | Reservoir Temp. °F: 240 @ 13224 | Mean Annual Temp. °F: 60° | Baro. Press. – $P_a$: 13.2 | | State: NEW MEXICO |

| L | H | Gg | % $CO_2$ | % $N_2$ | % $H_2S$ | Prover | Meter Run | Taps |
|---|---|---|---|---|---|---|---|---|
| 13224 | 13224 | 0.633 | 1.30 | 0.42 | 0 | 0 | 4.0 | FLANGE |

| | 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 | | | | | 4392 | | 5986 | 240 | 18.7 |
| 1. | 4.03 X 1.000 | 700 | 4.0 | 100 | 3952 | | 5517 | 240 | 1.0 |
| 2. | 4.03 X 1.000 | 700 | 8.2 | 100 | 3670 | | 5174 | 240 | 1.0 |
| 3. | 4.03 X 1.000 | 700 | 22.0 | 102 | 3452 | | 4902 | 240 | 1.0 |
| 4. | 4.03 X 1.000 | 710 | 42.0 | 102 | 3302 | | 4726 | 240 | 1.0 |
| 5. | | | | | | | | | |

## RATE OF FLOW CALCULATIONS

| NO. | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure $P_m$ | Flow Temp. Factor Ft. | Gravity Factor Fg | Supor Compress. Factor, Fpv | Rate of Flow Q, Mcfd |
|---|---|---|---|---|---|---|---|
| 1 | 4.75 | 53.41 | 713.2 | 0.9636 | 1.2566 | 1.0515 | 323 |
| 2 | 4.75 | 76.71 | 713.2 | 0.9636 | 1.2566 | 1.0515 | 464 |
| 3 | 4.75 | 125.26 | 713.2 | 0.9619 | 1.2566 | 1.0507 | 756 |
| 4 | 4.75 | 174.28 | 723.2 | 0.9619 | 1.2566 | 1.0514 | 1053 |
| 5 | | | | | | | |

| NO. | $P_t$ | Temp. °R | $T_f$ | Z |
|---|---|---|---|---|
| 1 | 1.06 | 560 | 1.53 | 0.905 |
| 2. | 1.06 | 560 | 1.53 | 0.905 |
| 3. | 1.06 | 562 | 1.54 | 0.905 |
| 4. | 1.07 | 562 | 1.54 | 0.905 |
| 5 | | | | |

Gas Liquid Hydrocarbon Ratio: 21.633 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons: 48.9 Deg.
Specific Gravity Separator Gas: 0.633 / XXXXXXXXXX
Specific Gravity Flowing Fluid: XXXXX / 0.760
Critical Pressure: 676 P.S.I.A. / 669 P.S.I.A.
Critical Temperature: 366 R / 405 R

$P_c$ 4342.2 $P_c^2$ 18854

| NO | $P_t^2$ | $P_w$ | $P_w^2$ | $P_c^2 - P_w^2$ |
|---|---|---|---|---|
| 1 | | 3938 | 15509 | 3345 |
| 2 | | 3649 | 13312 | 5542 |
| 3 | | 3423 | 11719 | 7135 |
| 4 | | 3280 | 10758 | 8096 |
| 5 | | | | |

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.3287$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2.3287$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2451$

Absolute Open Flow: 2451 Mcfd @ 15.025 | Angle of Slope @: 45.0 | Slope, n: 1.000

Remarks: MEASURE WITH B.H.P. ELEMENT

| Approved By Commission | Conducted By | Calculated By | Checked By |
|---|---|---|---|
| SEP 3 1986 | BENNETT & CATHEY | RICHARD TOWNLEY | |