STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-122
Revised 10-1-78

# MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

| | | | | |
|---|---|---|---|---|
| Type Test: [X] Initial [ ] Annual [ ] Special | | | Test Date: 3/23/81 | RECEIVED SEP 2 1981 |
| Company: Pogo Producing Company | | Connection: None | | |
| Pool: ~~North Loving~~ | | Formation: Atoka | | Unit: C |
| Completion Date: 3/23/81 | Total Depth: 12852 | Plug Back TD: 12811 | Elevation: 3068 KB / 3046 GR | Farm or Lease Name: Nel Com |
| Csg. Size: 7 5/8" OD | Wt.: 26.4 / 29.7 / 18.0 | d: 6.969 / 6.875 / 4.276 | Set At: 10219 / 9927 / 12852 | Perforations: From 11585 To 11605 |
| | | | | Well No.: 1 |
| Tbg. Size: 2 3/8" | Wt.: 4.7 | d: 1.995 | Set At: 11500 | Perforations: Open Ended From To |
| | | | | Unit: K Sec.: 9 Twp.: 23s Rge.: 28e |
| Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single | | | Packer Set At: 11500' | County: Eddy |
| Producing Thru: Tubing | Reservoir Temp. °F: 178 @ 11500' | 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 |
|---|---|---|---|---|---|---|---|---|
| 11595 | – | 0.5726 | 0.500 | 0.634 | – | | 2.90 | F |

| NO. | Prover Line Size | X | Orifice Size | Press. p.s.i.g. | Diff. $h_w$ | Temp. °F | TUBING DATA Press. p.s.i.g. DWT | TUBING DATA Temp. °F | CASING DATA Press. p.s.i.g. | CASING DATA Temp. °F | Duration of Flow |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SI | | | | | | | 6530 | | PACKER | | 46.5 hrs |
| 1. | 2.9 | 5.5/48 | 1.500 | 625 | 11 | 91 | 6137 | 60 | | | 1.0 hr |
| 2. | 2.9 | 7/48 | 1.500 | 605 | 22 | 90 | 5933 | 60 | | | 1.0 hr |
| 3. | 2.9 | 9/48 | 1.500 | 600 | 40 | 82 | 5627 | 60 | | | 1.0 hr |
| 4. | 2.9 | 11/48 | 1.500 | 640 | 80 | 56 | 4950 | 60 | | | 1.0 hr |
| 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 | 11.23 | 83.79 | 638.2 | 0.9715 | 1.321 | 1.038 | 1253.47 |
| 2 | 11.23 | 116.62 | 618.2 | 0.9723 | 1.321 | 1.036 | 1742.67 |
| 3 | 11.23 | 156.61 | 613.2 | 0.9795 | 1.321 | 1.039 | 2364.41 |
| 4 | 11.23 | 228.60 | 653.2 | 1.0040 | 1.321 | 1.051 | 3578.45 |
| 5 | | | | | | | |

| NO. | $P_t$ | Temp. °R | $T_t$ | Z |
|---|---|---|---|---|
| 1 | 0.95 | 551 | 1.61 | 0.929 |
| 2 | 0.92 | 550 | 1.61 | 0.931 |
| 3 | 0.91 | 542 | 1.58 | 0.926 |
| 4 | 0.97 | 516 | 1.51 | 0.906 |
| 5 | | | | |

Gas Liquid Hydrocarbon Ratio: Dry Gas Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons: Sp. Gr 0.5503 Deg.
Specific Gravity Separator Gas: 0.5726 XXXXXXXXX
Specific Gravity Flowing Fluid: XXXXX
Critical Pressure: 675 P.S.I.A. – P.S.I.A.
Critical Temperature: 342 R – R

$P_c$ 7812.2 $P_c^2$ 61030.5

| NO | $P_t$ | $P_w$ * | $P_w^2$ | $P_c^2 - P_w^2$ |
|---|---|---|---|---|
| 1 | | 7419.2 | 55044.2 | 5986.0 |
| 2 | | 7219.2 | 52116.9 | 8913.6 |
| 3 | | 6917.2 | 47847.7 | 13182.8 |
| 4 | | 6268.2 | 39290.3 | 21740.2 |
| 5 | | | | |

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.81$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2.29$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 8195$

Absolute Open Flow: 8195 Mcfd @ 15.025
Angle of Slope θ: 51° 20'
Slope, n: 0.800

Remarks: BOTTOM HOLE PRESSURE @ (-8549) 11595' USED FOR PRESSURE CALCULATIONS
TOP OF 5" LINER @ 9927'

Joe A. Coleman

| Approved By Division | Conducted By: | Calculated By: | Checked By: |
|---|---|---|---|
| | JARREL SERVICES, INC. | Joe A. Coleman | PE #2208 Joe A. Coleman |