STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-122
Revised 10-1-78

CISF File

# MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

RECEIVED
SEP 24 1991
O. C. D.
ARTESIA, OFFICE

| | | | |
|---|---|---|---|
| Type Test: [X] Initial [ ] Annual [ ] Special | | | Test Date: 09-16-91 |
| Company: Unocal | Connection: Union Oil Co. of Calif. | | Unit |
| Pool: N. Sand Dunes Morrow | Formation: Morrow | | |
| Completion Date: 09-08-91 | Total Depth: 15500 | Plug Back TD: 14,750' | Elevation |
| Farm or Lease Name: Barclay Federal | | | |
| Csg. Size: 4 1/2" / Wt. / d / Set At: 15,388' | Perforations: From 14400 To 14414 | | Well No.: 1 |
| Tbg. Size: 2 3/8 / Wt.: 4.7 / d: 1.995 / Set At: 14,376' | Perforations: From To | | Unit: N / Sec.: 1 / Twp.: 23S / Rge.: 31E |
| Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single | Packer Set At: 14344 | | County: Eddy |
| Producing Thru: Tubing | Reservoir Temp. °F: 144 @ 14407 | 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 |
|---|---|---|---|---|---|---|---|---|
| 14407 | *14407 | .583 | .74 | .62 | | | 2.067" | flange |

| NO. | FLOW DATA: Prover Line Size X Orifice Size | Press. p.s.i.g. | Diff. $h_w$ | Temp. °F | TUBING DATA: Press. p.s.i.g. | Temp. °F | CASING DATA: Press. p.s.i.g. | Temp. °F | Duration of Flow |
|---|---|---|---|---|---|---|---|---|---|
| SI | | | | | 6007 | | PKR | | 72 hrs. |
| 1. | 2 X 1.500 | 681 | 9.61 | 78 | 5820 | | PKR | | 1 hr. |
| 2. | 2 X 1.500 | 722 | 29.16 | 70 | 5652 | | PKR | | 1 hr. |
| 3. | 2 X 1.500 | 743 | 46.92 | 68 | 5528 | | PKR | | 1 hr. |
| 4. | 2 X 1.500 | 775 | 68.90 | 64 | 5354 | | PKR | | 1 hr. |
| 5. | 2 X 1.500 | 808 | 90.30 | 60 | 5256 | | PKR | | 1 hr. |

## 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 | 12.76 | 81.68 | 694.2 | .9877 | 1.310 | 1.055 | 1,423 |
| 2. | 12.76 | 146.42 | 735.2 | .9905 | 1.310 | 1.058 | 2,565 |
| 3. | 12.76 | 188.36 | 756.2 | .9924 | 1.310 | 1.059 | 3,309 |
| 4. | 12.76 | 233.04 | 788.2 | .9962 | 1.310 | 1.071 | 4,156 |
| 5. | 12.76 | 272.31 | 821.2 | 1.000 | 1.310 | 1.074 | 4,884 |

| NO. | $P_t$ | Temp. °R | $T_t$ | Z |
|---|---|---|---|---|
| 1. | 1.03 | 533 | 1.52 | .899 |
| 2. | 1.09 | 530 | 1.51 | .894 |
| 3. | 1.12 | 528 | 1.50 | .891 |
| 4. | 1.17 | 524 | 1.49 | .872 |
| 5. | 1.22 | 520 | 1.48 | .867 |

Gas Liquid Hydrocarbon Ratio 685.8 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 48.1 @ 60 Deg.
Specific Gravity Separator Gas .583 XXXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure 672 P.S.I.A. P.S.I.A.
Critical Temperature 350 R R

$P_c$ 6061.8 $P_c^2$ 36745.4

| NO | $P_t^2$ | $P_w$ | $P_w^2$ | $P_c^2 - P_w^2$ |
|---|---|---|---|---|
| 1 | ** | 5884.6 | 34628.5 | 2116.9 |
| 2 | ** | 5755.7 | 33128.1 | 3617.3 |
| 3 | ** | 5661.1 | 32048.1 | 4697.3 |
| 4 | ** | 5393.6 | 29090.9 | 7654.5 |
| 5 | ** | 3407.6 | 29242.1 | 7503.3 |

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 4.897$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 4.897$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 23.941$

Absolute Open Flow 23,941 Mcfd @ 15.025 Angle of Slope θ 45 Slope, n 1.000

Remarks: *=BHP Instrument set @ this depth
**= calculated known BHPs & corrected back to surface
Well made 1 BBL of 48.1 API gravity CONDENSATE during test

| Approved By Division | Conducted By: | Calculated By: | Checked By: |
|---|---|---|---|
| | Pro Well Testers | BM | BM |