

## NEW MEXICO OIL CONSERVATION COMMISSION

ELVIS A. U...  
GAS ENGINEER

Form C-122

Revised 12-1-55

HOBBS OFFICE 000  
MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Eumont Formation SE-0 County Lea  
Initial            Annual            Special x Date of Test 7-14-56  
Company Phillips Petroleum Co. Lease New "Q" Well No. 2  
Unit NE 1/4 Sec. 26 Twp. 20S Rge. 36E Purchaser Permian Basin Pipeline  
Casing 7" Wt. 24# I.D. 6.336 Set at 3701' Perf. 3540 To 3670  
Tubing 2" Wt. 4.7# I.D. 1.930" Set at 3662' Perf.            To             
Gas Pay: From 3540 To 3670 L 3662 xG 0.675 -GL 2472 Bar.Press. 13.2  
Producing Thru: Casing            Tubing x Type Well single  
Single-Bradenhead-G. G. or G.O. Dual  
Date of Completion: 12-30-46 Packer 3518' Reservoir Temp.           

## OBSERVED DATA

Tested Through (Prover) (Choke) (Meter) Type Taps flange

| No. | Flow Data                  |                              |                |                         |              | Tubing Data    |              | Casing Data    |              | Duration of Flow Hr. |
|-----|----------------------------|------------------------------|----------------|-------------------------|--------------|----------------|--------------|----------------|--------------|----------------------|
|     | (Prover)<br>(Line)<br>Size | (Choke)<br>(Orifice)<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. |                      |
| SI  |                            |                              |                |                         |              | 922.6          |              |                |              | 72 SI                |
| 1.  | 4"                         | 1.75"                        | 466.0          | 7.1                     | 80           | 803.8          |              |                |              | 24-1/4               |
| 2.  | 4"                         | 1.75                         | 472.8          | 13.8                    | 64           | 730.2          |              |                |              | 24                   |
| 3.  | 4"                         | 1.75                         | 474.7          | 20.6                    | 65           | 688.5          |              |                |              | 24                   |
| 4.  | 4"                         | 1.75                         | 474.6          | 31.9                    | 71           | 537.7          |              |                |              | 25-1/4               |
| 5.  |                            |                              |                |                         |              |                |              |                |              |                      |

## FLOW CALCULATIONS

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_{wpf}}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 21.69                    | 58.3             |                  | .9813                                  | .9427                               | 1.051                                  | 1193                                     |
| 2.  | "                        | 31.9             |                  | .9962                                  | "                                   | 1.058                                  | 1770                                     |
| 3.  | "                        | 100.2            |                  | .9952                                  | "                                   | 1.058                                  | 2159                                     |
| 4.  | "                        | 124.7            |                  | .9896                                  | "                                   | 1.055                                  | 2529                                     |
| 5.  |                          |                  |                  |                                        |                                     |                                        |                                          |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 155,800 cf/bbl.  
Gravity of Liquid Hydrocarbons            deg.  
F<sub>c</sub> 9.936 (1-e<sup>-s</sup>) 0.156

Specific Gravity Separator Gas             
Specific Gravity Flowing Fluid .675  
P<sub>c</sub> 935.8 P<sub>c</sub> 875.7

| No. | P <sub>w</sub><br>P <sub>t</sub> (psia) | P <sub>t</sub> <sup>2</sup> | F <sub>c</sub> Q | (F <sub>c</sub> Q) <sup>2</sup> | (F <sub>c</sub> Q) <sup>2</sup><br>(1-e <sup>-s</sup> ) | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> -P <sub>w</sub> <sup>2</sup> | Cal.<br>P <sub>w</sub> | P <sub>w</sub><br>P <sub>c</sub> |
|-----|-----------------------------------------|-----------------------------|------------------|---------------------------------|---------------------------------------------------------|-----------------------------|----------------------------------------------------------|------------------------|----------------------------------|
| 1.  | 817.0                                   | 667.5                       | 10.54            | 111.1                           | 17.3                                                    | 684.8                       | 190.9                                                    | 261.5                  | .279                             |
| 2.  | 743.4                                   | 552.6                       | 17.59            | 309.2                           | 30.7                                                    | 583.3                       | 292.4                                                    | 241.9                  | .258                             |
| 3.  | 671.7                                   | 451.2                       | 21.45            | 460.1                           | 45.7                                                    | 496.9                       | 378.8                                                    | 232.5                  | .238                             |
| 4.  | 550.9                                   | 303.5                       | 25.05            | 627.5                           | 62.3                                                    | 365.8                       | 509.9                                                    | 191.3                  | .204                             |
| 5.  |                                         |                             |                  |                                 |                                                         |                             |                                                          |                        |                                  |

Absolute Potential: 4260 MCFPD; n 0.81COMPANY Phillips Petroleum Co.ADDRESS Box 2105 Hobbs, N.M.AGENT and TITLE W. A. Roberts District Production Supt.WITNESSED NoneCOMPANY           

REMARKS

## INSTRUCTIONS

This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable. Three copies of this form and the back pressure curve shall be filed with the Commission at Box 871, Santa Fe.

The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

## NOMENCLATURE

- $Q$  = Actual rate of flow at end of flow period at W. H. working pressure ( $P_w$ ).  
MCF/da. @ 15.025 psia and 60° F.
- $P_c$  = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater.  
psia
- $P_w$  = Static wellhead working pressure as determined at the end of flow period.  
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- $P_t$  = Flowing wellhead pressure (tubing if flowing through tubing, casing if  
flowing through casing.) psia
- $P_f$  = Meter pressure, psia.
- $h_w$  = Differential meter pressure, inches water.
- $F_g$  = Gravity correction factor.
- $F_t$  = Flowing temperature correction factor.
- $F_{pv}$  = Supercompressability factor.
- $n$  = Slope of back pressure curve.

Note: If  $P_w$  cannot be taken because of manner of completion or condition of well, then  $P_w$  must be calculated by adding the pressure drop due to friction within the flow string to  $P_t$ .