

## NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Eumont Gas Formation Queen County Lea  
Initial - Annual X Special - Date of Test Feb. 25, 1957  
Company N. B. Hunt Lease Mittie Weatherly Well No. 1  
Unit E Sec. 21 Twp. 21-S Rge. 37-E Purchaser Phillips Petroleum Co.  
Casing 5.5 Wt. 15.5 I.D. 4.950 Set at 3502 Perf. Open Hole 76  
Tubing 2.375 Wt. 4.7 I.D. 1.995 Set at 3775 Perf. - To -  
Gas Pay: From 3502 To 3790 L 3502 xG .680 -GL 2390 Bar.Press. 13.2  
Producing Thru: Casing - Tubing X Type Well Single  
Date of Completion: 1-4-39 Packer None Single-Bradenhead-G. G. or G.O. Dual  
Reservoir Temp. 90° F

## 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  | 4"                         | 2.0"                         |                |                         |              | 401            | 65           | 401            | 65           | 72                   |
| 1.  | 4"                         | 2.0"                         | 18             | 4.0                     | 70           | 281            | 66           | 365            | 65           | 24                   |
| 2.  | 4"                         | 2.0"                         | 18             | 11.0                    | 69           | 254            | 68           | 334            | 65           | 24                   |
| 3.  | 4"                         | 2.0"                         | 18             | 22.0                    | 69           | 213            | 69           | 298            | 65           | 22                   |
| 4.  | 4"                         | 2.0"                         | 18             | 36.0                    | 70           | 168            | 72           | 255            | 65           | 21                   |
| 5.  |                            |                              |                |                         |              |                |              |                |              |                      |

## FLOW CALCULATIONS

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w p_f}$ | 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.  | 25.58                    | 11.18            | 31.2             | .9905                                  | .9393                               | 1.004                                  | 267                                      |
| 2.  | 25.58                    | 18.53            | 31.2             | .9915                                  | .9393                               | 1.004                                  | 443                                      |
| 3.  | 25.58                    | 26.20            | 31.2             | .9915                                  | .9393                               | 1.004                                  | 626                                      |
| 4.  | 25.58                    | 33.58            | 31.2             | .9905                                  | .9393                               | 1.004                                  | 802                                      |
| 5.  |                          |                  |                  |                                        |                                     |                                        |                                          |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio Dry Gas cf/bbl.  
Gravity of Liquid Hydrocarbons - deg.  
F<sub>c</sub> P<sub>w</sub> Measured (1-e<sup>-s</sup>)

Specific Gravity Separator Gas .680  
Specific Gravity Flowing Fluid -  
P<sub>c</sub> 414.2 P<sub>c</sub><sup>2</sup> 171.4

| 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.  | 378.2                                   |                             |                  |                                 |                                                         | 142.9                       | 28.5                                                     |                        | 91.4                             |
| 2.  | 347.2                                   |                             |                  |                                 |                                                         | 120.4                       | 51.0                                                     |                        | 83.7                             |
| 3.  | 311.2                                   |                             |                  |                                 |                                                         | 96.7                        | 74.7                                                     |                        | 75.1                             |
| 4.  | 268.2                                   |                             |                  |                                 |                                                         | 71.8                        | 99.6                                                     |                        | 64.7                             |
| 5.  |                                         |                             |                  |                                 |                                                         |                             |                                                          |                        |                                  |

Absolute Potential: 1270 MCFPD; n .87COMPANY N. B. HuntADDRESS 700 Mercantile Bank Building, Dallas 1, TexasAGENT and TITLE J. M. Barrett - Petroleum EngineerWITNESSED -COMPANY -

REMARKS

ELVIS A. UTZ  
GAS ENGINEER

## 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  $P_t$ .