# NEW MEXICO OIL CONSERVATION COMMISSION

Hobbs office mno

Form C-122

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Revised 12-1-55

Pool **Jalmat**  Formation **Yates**  County **Lea**

Initial_____ Annual_____ Special **x**  Date of Test **5-27/5-31-57**

Company **Phillips Petroleum Company**  Lease **Woolworth Group 3**  Well No. **2**

Unit **H**  Sec. **6**  Twp. **25**  Rge. **37**  Purchaser **El Paso Natural Gas.**

Casing **7**  Wt. **24**  I.D._____  Set at **3371**  Perf. **2900**  To **3050**

Tubing **2**  Wt. **4.7** I.D._____  Set at **2964**  Perf._____  To_____

Gas Pay: From **2900** To **3050**  L **2964**  xG **.660**  -GL **1956**  Bar.Press. **13.2**

Producing Thru: Casing_____ Tubing **x**  Type Well **single**

Date of Completion: **2-14-55**  Packer **2871**  Single-Bradenhead-G. G. or G.O. Dual
Reservoir Temp._____

## OBSERVED DATA

Tested Through (Prover) (Choke) (Meter)  Type Taps_____

| No. | (Prover) (Line) Size | (Choke) (Orifice) Size | Flow Data Press. psig | Diff. $h_w$ | Temp. °F. | Tubing Data Press. psig | Temp. °F. | Casing Data Press. psig | Temp. °F. | Duration of Flow Hr. |
|---|---|---|---|---|---|---|---|---|---|---|
| SI |  |  |  |  |  | 560 |  |  |  | 72 |
| 1. | 4" | 0.750" | 525 | 9.0 | 74 | 545 |  |  |  | 24 |
| 2. | 4" | 0.750" | 540 | 12.25 | 72 | 541 |  |  |  | 24 |
| 3. | 4" | 0.750" | 522 | 16.0 | 73 | 538 |  |  |  | 24 |
| 4. | Increase in line pressure on 4th rate of flow - Unable to obtain 4th point. |  |  |  |  |  |  |  |  |  |
| 5. |  |  |  |  |  |  |  |  |  |  |

## FLOW CALCULATIONS

| No. | Coefficient (24-Hour) | $\sqrt{h_w p_f}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|---|---|---|---|---|---|---|---|
| 1. | 3.435 | 69.69 |  | .9868 | .9535 | 1.054 | 237 |
| 2. | " | 82.31 |  | .9887 | .9535 | 1.054 | 281 |
| 3. | " | 92.52 |  | .9877 | .9535 | 1.054 | 315 |
| 4. |  |  |  |  |  |  |  |
| 5. |  |  |  |  |  |  |  |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio_____ cf/bbl.
Gravity of Liquid Hydrocarbons_____ deg.
$F_c$ **9.936**  $(1-e^{-s})$ **0.126**

Specific Gravity Separator Gas_____
Specific Gravity Flowing Fluid_____
$P_c$ **573.2**  $P_c^2$ **328.6**

| No. | $P_w$ $P_t$ (psia) | $P_t^2$ | $F_c Q$ | $(F_c Q)^2$ | $(F_c Q)^2$ $(1-e^{-s})$ | $P_w^2$ | $P_c^2 - P_w^2$ | Cal. $P_w$ | $\frac{P_w}{P_c}$ |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 558.2 | 311.6 | 2.35 | 5.52 | .70 | 312.3 | 16.3 | 558 | .975 |
| 2. | 554.2 | 307.1 | 2.79 | 7.78 | .98 | 308.1 | 20.5 | 554 | .966 |
| 3. | 551.2 | 303.8 | 3.13 | 9.80 | 1.23 | 305.0 | 23.6 | 551 | .961 |
| 4. |  |  |  |  |  |  |  |  |  |
| 5. |  |  |  |  |  |  |  |  |  |

Absolute Potential: **1,650** MCFPD; n **.640**

COMPANY **Phillips Petroleum Company**
ADDRESS **Box 2105, Hobbs, N.M.**
AGENT and TITLE **W. C. Rodgers, District Production Superintendent**
WITNESSED_____
COMPANY_____

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 $P_t$.