

## NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Tubb Formation Tubb County Lea  
Initial X Annual \_\_\_\_\_ Special \_\_\_\_\_ Date of Test 2-7 to 2-11-61  
Company Anderson-Prichard Oil Corp. Lease Western-Federal Well No. 1  
Unit D Sec. 5 Twp. 23 Rge. 38 Purchaser Northern Natural Gas Company  
Casing 7 Wt. 234 I.D. 6.366 Set at 2053 Perf. 6106 To 6227  
Tubing 2-1/16 Wt. 3.25 I.D. 1.750 Set at 6059 Perf. Open To \_\_\_\_\_  
Gas Pay: From 6106 To 6227 L 6059 xG Mix .769 GL 4659 Bar. Press. 13.2  
Producing Thru: Casing \_\_\_\_\_ Tubing X Type Well Gas, Oil, Oil Triple  
Date of Completion: 1-18-61 Packer 6500' Single-Bradenhead-G. G. or G.O. Dual  
Reservoir Temp. 95° F.

## OBSERVED DATA

Tested Through (Rohr) (Gauge) (Meter) Type Taps Flange

| No. | Flow Data   |                |             | Tubing Data          |           | Casing Data |           | Duration of Flow Hr. |
|-----|-------------|----------------|-------------|----------------------|-----------|-------------|-----------|----------------------|
|     | (Line) Size | (Orifice) Size | Press. psig | Diff. h <sub>w</sub> | Temp. °F. | Press. psig | Temp. °F. |                      |
| SI  | 4"          | 1.000          |             |                      |           | 1947        | 63        | SI 72 hrs.           |
| 1.  | "           | "              | 480         | 45.0                 | 43        | 1790        | 64        | 24                   |
| 2.  | "           | "              | 490         | 76.0                 | 44        | 1677        | 67        | 24                   |
| 3.  | "           | "              | 490         | 90.0                 | 45        | 1637        | 68        | 24                   |
| 4.  | "           | "              | 485         | 96.0                 | 46        | 1597        | 69        | 24                   |
| 5.  |             |                |             |                      |           |             |           |                      |

## FLOW CALCULATIONS

| No. | Coefficient (24-Hour) | $\sqrt{h_{wpf}}$ | Pressure psia | Flow Temp. Factor F <sub>t</sub> | Gravity Factor F <sub>g</sub> | Compress. Factor F <sub>pv</sub> | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|----------------------------------|-------------------------------|----------------------------------|------------------------------------|
| 1.  | 6.135                 | 148.98           |               | 1.0168                           | .9292                         | 1.068                            | 922.2                              |
| 2.  | "                     | 195.56           |               | 1.0157                           | .9292                         | 1.071                            | 1,213                              |
| 3.  | "                     | 212.81           |               | 1.0147                           | .9292                         | 1.071                            | 1,317                              |
| 4.  | "                     | 218.69           |               | 1.0137                           | .9292                         | 1.068                            | 1,350                              |
| 5.  |                       |                  |               |                                  |                               |                                  |                                    |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 32,400 cf/bbl.  
Gravity of Liquid Hydrocarbons 68 deg.  
F<sub>c</sub> 13.99 (1-e<sup>-s</sup>) 0.274

Specific Gravity Separator Gas .695  
Specific Gravity Flowing Fluid .7093  
P<sub>c</sub> 1960.2 P<sub>c</sub> 3842.4

| No. | 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> (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. P <sub>w</sub> | P <sub>w</sub> /P <sub>c</sub> |
|-----|-----------------------|-----------------------------|------------------|---------------------------------|------------------------------------------------------|-----------------------------|----------------------------------------------------------|---------------------|--------------------------------|
| 1.  | 1803.2                | 3251.5                      | 12.901           | 166.43                          | 45.6                                                 | 3297.1                      | 545.3                                                    | 1815.8              | 92.6                           |
| 2.  | 1690.2                | 2856.8                      | 16.970           | 287.98                          | 78.9                                                 | 2935.7                      | 906.7                                                    | 1713.4              | 87.4                           |
| 3.  | 1650.2                | 2723.2                      | 18.425           | 339.48                          | 93.0                                                 | 2816.2                      | 1026.2                                                   | 1678.1              | 85.6                           |
| 4.  | 1610.2                | 2592.7                      | 18.886           | 356.68                          | 97.7                                                 | 2690.4                      | 1152.0                                                   | 1640.2              | 83.7                           |
| 5.  |                       |                             |                  |                                 |                                                      |                             |                                                          |                     |                                |

Absolute Potential: 2750 MCFPD; n .566

COMPANY El Paso Natural Gas Company

ADDRESS Jal. New Mexico

AGENT and TITLE J. B. Murray, Gas Engineer

WITNESSED E. C. Stangle

COMPANY Anderson-Prichard Oil Corporation

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.

$F_{pv}$  = Supercompressibility 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  $P_t$ .

ANDERSON-PRICHARD OIL CORP.  
 WESTERN-FEDERAL #1  
 D-5-23-38  
 LEA CO., NEW MEXICO  
 2-11-61

