

## NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool undesignated Formation San Andres County LeaInitial            Annual X Special            Date of Test 6-15-64Company Pan American Petr. Corp Lease Federal A #2 G.W.G. Well No. 2Unit G Sec. 13 Twp. 9S Rge. 35E Purchaser Sinclair Oil & Gas Co.Liner 5 1/2" Wt. 17.4 / I.D. 4.892 Set at 4880 Perf. 4810 To 4820Casing 7-5/8" Wt. 24.4 & 25.4 / Avg. I.D. 7.000 Set at 4820Tubing 2 3/8" Wt. 4.7 I.D. 1.995 Set at 4690 Perf. open To           Gas Pay: From 4810 To 4820 L 4690 xG .820 -GL 384.6 Bar. Press. 13.2Producing Thru: Casing            Tubing X Type Well single

Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: 3-24-64 Packer yes Reservoir Temp.           

## OBSERVED DATA

Tested Through (140/160) (100/100) (Meter) Type Taps flange

| No. | Flow Data            |                        |             |                      |           | Tubing Data |           | Casing Data |           | Duration of Flow Hr. |
|-----|----------------------|------------------------|-------------|----------------------|-----------|-------------|-----------|-------------|-----------|----------------------|
|     | (Prover) (Line) Size | (Choke) (Orifice) Size | Press. psig | Diff. h <sub>w</sub> | Temp. °F. | Press. psig | Temp. °F. | Press. psig | Temp. °F. |                      |
| 1   |                      |                        |             |                      |           | 1299        |           |             |           | 72                   |
| 2   | 4                    | 1.500                  | 426.0       | 14.69                | 68        | 902         |           |             |           | 24                   |
| 3   | "                    | "                      | 437.3       | 17.41                | 66        | 829         |           |             |           | 24                   |
| 4   | "                    | "                      | 446.5       | 25.92                | 72        | 653         |           |             |           | 24                   |
| 5   | "                    | "                      | 458.9       | 27.38                | 79        | 574         |           |             |           | 24                   |
| 6   | "                    | "                      | 428.6       | 34.45                | 75        | 517         |           |             |           | 24                   |

## FLOW CALCULATIONS

| Coef. | 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     | 13.99                 | 80.32            | 439.2         | .9924                            | .8554                         | 1.078                            | 1.028                              |
| 2     | "                     | 97.89            | 450.3         | .9943                            | "                             | 1.080                            | 1.258                              |
| 3     | "                     | 109.2            | 459.7         | .9887                            | "                             | 1.079                            | 1.408                              |
| 4     | "                     | 113.7            | 472.1         | .9822                            | "                             | 1.078                            | 1.441                              |
| 5     | "                     | 122.37           | 441.8         | .9859                            | "                             | 1.072                            | 1.758                              |

## PRESSURE CALCULATIONS

Liquid Hydrocarbon Ratio Neg. cf/bbl.  
viscosity of Liquid Hydrocarbons            deg.  
9.936 (1-e<sup>-S</sup>) .233Specific Gravity Separator Gas .820  
Specific Gravity Flowing Fluid - -  
P<sub>c</sub> 1322 P<sub>c</sub><sup>2</sup> 1722

| 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> |
|---|-----------------------------|------------------|---------------------------------|---|-----------------------------|--|------------------------|----------------------------------|
| 915.2                                   | 837.6                       | 10.21            | 104.2                           | 24.28   | 861.9                       | 860.1  | 928.4                  |                                  |
| 842.2                                   | 709.3                       | 12.50            | 156.3                           | 36.42   | 745.7                       | 976.3  | 863.5                  |                                  |
| 666.2                                   | 443.8                       | 13.99            | 195.7                           | 45.60   | 489.4                       | 1233   | 699.6                  |                                  |
| 587.2                                   | 344.8                       | 14.32            | 205.1                           | 47.79   | 392.6                       | 1329   | 626.6                  |                                  |
| 530.2                                   | 281.1                       | 17.47            | 305.2                           | 71.11   | 352.2                       | 1370   | 593.5                  |                                  |

Absolute Potential: 2.026 MCFPD; n .976855ANY Sinclair Oil & Gas Co.ESS Box 1470; Midland, Texas; Mr. Fred RogersT and TITLE Roger Farneth, Instrument TechnicianWESSED Original Signed By: J. W. Meek, Area EngineerNY Pan American Petroleum Corporation - Box 66 - Hobbs, New Mexico 88240

## REMARKS

Unable to obtain point alignment, so drew average line to determine  
n slopes

## 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  $P_t$ .

JUL 15 8 51 AM '64

HOBBES RESEARCH CO. C.