

APR 19 11 33 AM '66

Form C-122

Revised 12-1-55

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool UNDESIGNATED Formation MARROW GAS County LEA

Initial X Annual          Special          Date of Test 4-11-66

Company PENNZOIL COMPANY Lease BRIDGES STATE Well No. 1

Unit A Sec. 11 Twp. 17 S Rge. 34 E Purchaser NONE

Casing 7" Wt. 29 I.D. 6.184 Set at 12150 Perf. 11960 To 11979

Tubing 2 3/8 Wt. 4.7 I.D. 1.995 Set at 11911 Perf. - To -

Gas Pay: From 11960 To 11979 L 11911 xG - -GL - Bar.Press. 13.2

Producing Thru: Casing          Tubing X Type Well SINGLE

Date of Completion: 4-11-66 Packer 11900 Single-Bradenhead-G. G. or G.O. Dual  
Reservoir Temp. 176°F

## OBSERVED DATA

Tested Through (XXXXX) (Choke) (Meter) Type Taps FLANGE

| No. | Flow Data                 |                              |                |                         |              | Tubing Data           |              | Casing Data    |              | Duration of Flow Hr. |
|-----|---------------------------|------------------------------|----------------|-------------------------|--------------|-----------------------|--------------|----------------|--------------|----------------------|
|     | (XXXXX)<br>(Line)<br>Size | (Choke)<br>(Orifice)<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F. | Press.<br>DWT<br>psig | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. |                      |
| SI  |                           |                              |                |                         |              | 1770                  | 700          | PKR            |              | 82.0                 |
| 1.  | 3"                        | 1.5 12/64                    | 600            | 28                      | 880          | 2778                  | 80           | -              | -            | 4.0                  |
| 2.  | 3"                        | 1.5 14/64                    | 600            | 37                      | 75           | 2174                  | 80           | -              | -            | 2.25                 |
| 3.  | 3"                        | 1.5 16/64                    | 620            | 44                      | 82           | 1866                  | 76           | -              | -            | 1.75                 |
| 4.  | 3"                        | 1.5 20/64                    | 600            | 59                      | 84           | 1397                  | 76           | -              | -            | 2.0                  |
| 5.  |                           |                              |                |                         |              |                       |              |                |              |                      |

## FIRST STAGE 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.  | 14.36                    | 131.05           | 613.2            | .9924                                  | .9468                               | 1.062                                  | 1877.85                                    |
| 2.  | 14.36                    | 150.63           | 613.2            | .9859                                  | .9468                               | 1.059                                  | 2138.23                                    |
| 3.  | 14.36                    | 166.91           | 633.2            | .9795                                  | .9468                               | 1.059                                  | 2353.94                                    |
| 4.  | 14.36                    | 190.20           | 613.2            | .9777                                  | .9468                               | 1.056                                  | 2669.88                                    |
| 5.  |                          |                  |                  |                                        |                                     |                                        |                                            |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 8365 cf/bbl.

Gravity of Liquid Hydrocarbons 48.6 deg.

F<sub>c</sub> - (1-e<sup>-S</sup>) -

Specific Gravity Separator Gas .6692

Specific Gravity Flowing Fluid .7852

P<sub>c</sub> 6734.2 P<sub>c</sub><sup>2</sup> 45349.4

BHP @ (-7908) \*\* 11970' USED FOR PRESSURE CALCULATIONS

| 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.  | 4242.2                                  | -                           | -                | -                               | -                                                       | 17996.3                     | 27353.1                                                  | -                      | -                                |
| 2.  | 3640.2                                  | -                           | -                | -                               | -                                                       | 13251.1                     | 32098.3                                                  | -                      | -                                |
| 3.  | 3171.2                                  | -                           | -                | -                               | -                                                       | 10056.5                     | 35292.9                                                  | -                      | -                                |
| 4.  | 2480.2                                  | -                           | -                | -                               | -                                                       | 6151.4                      | 39198.0                                                  | -                      | -                                |
| 5.  |                                         |                             |                  |                                 |                                                         |                             |                                                          |                        |                                  |

Absolute Potential: 3100 MCFPD; n .97

COMPANY PENNZOIL COMPANY \* TOTAL GAS

ADDRESS 1007 MIDLAND SAVINGS BANK BLDG, MIDLAND, TEX. 1,944.69

AGENT and TITLE COLEMAN PETROLEUM ENGINEERING CO. 2,205.06

WITNESSED - 2,421.05

COMPANY - 2,736.96

\*\* MID POINT OF CASING PERFORATIONS REMARKS

SECOND STAGE FLOW CALCULATIONS 2" x 1/2 OWT

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_{wpf}}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 71.93                    | -                | -                | .9813                         | .9468                      | -                               | 66.83                                    |
| 2.  | 71.93                    | -                | -                | .9813                         | .9468                      | -                               | 66.83                                    |
| 3.  | 71.93                    | -                | -                | .9850                         | .9468                      | -                               | 67.08                                    |
| 4.  | 71.93                    | -                | -                | .9850                         | .9468                      | -                               | 67.08                                    |
| 5.  |                          |                  |                  |                               |                            |                                 |                                          |