



NEW MEXICO OIL CONSERVATION COMMISSION  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Case No. 1360  
Exhibit 4-B  
Form C-122-C  
4-1-54

Pool Jalmat Formation Yates Seven-Rivers County Lea  
Initial \_\_\_\_\_ Annual \_\_\_\_\_ Special x Date of test 12-2, 12-9-57  
Company Gulf Oil Corporation Lease J. R. Holt "A" Well No. 2  
Unit N Sec. 16 Twp. 24S Rge. 37E Purchaser Permian Basin Pipeline Co.  
Casing 6 Wt. 16 I.D. 5.50 Set at 3390 Perf. 2650 To 2945  
Tubing 2.375 Wt. 4.7 I.D. 1.995 Set at 3523 Perf. \_\_\_\_\_ To \_\_\_\_\_  
Gas Pay: From 2650 To 2945 L 2650 x G .650 = GL 1723 Bar.Press. 13.2  
Producing Thru: Casing X Tubing \_\_\_\_\_ Type Well G. O. Dual  
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

| Started |      | Taken   |      | Duration<br>Hours | Type<br>Taps | Line<br>Size | Orifice<br>Size    | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|---------|------|---------|------|-------------------|--------------|--------------|--------------------|------------------|-------------------|---------------|
| Date    | time | Date    | time |                   |              |              |                    |                  |                   |               |
| 12-2-57 | AM   | 12-6-57 | AM   | 96.0              |              |              | 4"x2.50"<br>O.W.T. |                  |                   |               |
|         | PM   |         | PM   |                   |              |              |                    |                  |                   |               |
|         |      |         |      |                   |              |              |                    | 7.5#             |                   | 60            |

FLOW CALCULATIONS

| Static<br>Pressure<br>$P_f$ | Differ-<br>ential<br>$h_w$ | Meter<br>Extension<br>$\sqrt{P_f h_w}$ | 24-Hour<br>Coeff-<br>icient | Gravity<br>Factor<br>$F_g$ | Temp.<br>Factor<br>$F_t$ | Compress-<br>ability<br>$F_{pv}$ | Rate of Flow<br>MCF/Da. @ 15.025 psia<br>$Q$ |
|-----------------------------|----------------------------|----------------------------------------|-----------------------------|----------------------------|--------------------------|----------------------------------|----------------------------------------------|
|                             |                            |                                        |                             | .9608                      | 1.000                    |                                  | 2,409                                        |

SHUT-IN DATA

| Shut-in |      | Press. Taken |      | Duration<br>Hours | Wellhead Pressure<br>( $P_c$ ) psia |        | W.H. Working Pressure<br>( $P_w$ ) and ( $P_t$ ) psia |        |
|---------|------|--------------|------|-------------------|-------------------------------------|--------|-------------------------------------------------------|--------|
| Date    | Time | Date         | Time |                   | Tubing                              | Casing | Tubing                                                | Casing |
| 12-6-57 | AM   | 12-9-57      | AM   | 72.0              |                                     | 723.6  |                                                       | 141.9  |
|         | PM   |              | PM   |                   |                                     |        |                                                       |        |

FRICTION CALCULATIONS(if necessary)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SUMMARY

$P_c$  = \_\_\_\_\_ psia  
 $Q$  = \_\_\_\_\_ MCF/Da.  
 $P_w$  = \_\_\_\_\_ psia  
 $P_d$  = \_\_\_\_\_ psia  
 $D$  = \_\_\_\_\_ MCF/Da.

DELIVERABILITY CALCULATIONS

$$P_w \quad P_c \quad P_w + P_c$$

$$1 - \frac{P_w}{P_c} \quad 1 + \frac{P_w}{P_c} \quad \left( 1 - \frac{P_w}{P_c} \right) \left( 1 + \frac{P_w}{P_c} \right) = M$$

$$.36 + M \quad \text{Log} \quad \quad \times (n) \quad = \quad +$$

COMPANY Gulf Oil Corporation  
ADDRESS Box 2167, Hobbs, N.M.  
AGENT and TITLE D. C. Sears, Gas Tester  
WITNESSED Joe Horton  
COMPANY Permian Basin Pipeline Co.

Log  $Q$  = \_\_\_\_\_  
Log  $D$  = \_\_\_\_\_  
Antilog = \_\_\_\_\_ =  $D$

REMARKS

Well made  $9\frac{1}{2}$  bbls oil first 24 hours and 2 bbls oil last 24 hrs of flow period.

## INSTRUCTIONS

This form is to be used for reporting deliverability tests in the designated Dry Gas Pools of Lea County as ordered by New Mexico Oil Conservation Commission Directive dated March 15, 1954, which directive was provided for by Orders R-365-A through R-376-A. For details regarding this test please refer to the above mentioned Directive.

## NOMENCLATURE

- $Q$  = Actual 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
- $P_d$  = Deliverability pressure; 80 % of 72 hour individual wellhead shut-in pressure ( $P_c$ ). 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
- $D$  = Deliverability at Deliverability pressure ( $P_d$ ) MCF/da. @ 15.025 psia and 60° F.
- $P_f$  = Static 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.

## DELIVERABILITY FORMULA

$$D = Q \left[ \frac{.36}{\left( 1 - \frac{P_w}{P_c} \right) \left( 1 + \frac{P_w}{P_c} \right)} \right]^n$$

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  $P_t$ .

PRODUCTION BY MONTHS - J. R. HOLT "A" WELL NO. 2  
JALMAT POOL, LEA COUNTY, NEW MEXICO

Case No. 1360  
Exhibit 4-C

| <u>MONTH-YEAR</u> | <u>UNDERPRODUCTION<br/>MCF</u> | <u>DAYS<br/>OPERATED</u> | <u>PRODUCTION<br/>MCF</u> | <u>CURRENT<br/>ALLOWABLE-MCF</u> |
|-------------------|--------------------------------|--------------------------|---------------------------|----------------------------------|
| Dec. 55           | 19,112                         | 0                        | 0                         | 19,112                           |
| Jan. 56           | 38,107                         | 6                        | 14,169                    | 33,164                           |
| Feb. 56           | 70,935                         | 0                        | 0                         | 32,828                           |
| Mar. 56           | 63,980                         | 25                       | 45,754                    | 38,799                           |
| Apr. 56           | 96,716                         | 15                       | 26,515                    | 59,251                           |
| May 56            | 69,619                         | 27                       | 51,641                    | 24,544                           |
| June 56           | 55,239                         | 23                       | 36,833                    | 22,453                           |
| July 56           | 63,025                         | 15                       | 25,096                    | 32,882                           |
| Aug. 56           | 45,856                         | 25                       | 42,957                    | 25,778                           |
| Sept. 56          | 84,553                         | 5                        | 6,506                     | 45,203                           |
| Oct. 56           | 77,844                         | 31                       | 45,063                    | 38,354                           |
| Nov. 56           | 71,104                         | 28                       | 38,001                    | 31,261                           |
| Dec. 56           | 72,861                         | 31                       | 43,575                    | 45,332                           |
| Jan. 57           | 58,379                         | 31                       | 40,387                    | 25,905                           |
| Feb. 57           | 75,538                         | 25                       | 33,507                    | 50,666                           |
| Mar. 57           | 56,047                         | 31                       | 43,049                    | 23,558                           |
| Apr. 57           | 37,612                         | 29                       | 39,524                    | 21,089                           |
| May 57            | 17,435                         | 31                       | 43,794                    | 23,617                           |
| June 57           | 21,057                         | 30                       | 16,808                    | 14,502                           |
| July 57           | 36,003                         | 0                        | 0                         | 14,946                           |
| Aug. 57           | 33,299                         | 31                       | 41,609                    | 38,905                           |
| Sept. 57          | 33,197                         | 30                       | 35,766                    | 35,664                           |
| Oct. 57           | 32,030                         | 31                       | 31,458                    | 30,291                           |
| Nov. 57           | 42,934                         | 30                       | 25,523                    | 36,427                           |