

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

Form C-122-C
 4-1-54

Pool Summit Formation Yates-Seven Rivers County Lee
 Initial X Annual _____ Special _____ Date of test 7-11-58
 Company _____ Lease _____ Well No. _____
 Unit _____ Sec. 8 Twp. 20S Rge. 10E Purchaser Phillips Petroleum Company
 Casing 5 1/2" Wt. 11 1/2 IPT. I.D. 5.012" Set at 3883' Perf. 3811' To 3850'
 Tubing 2 3/8" Wt. 7 1/2 IPT. I.D. 2 1/8" Set at 3793' Perf. _____ To _____
 Gas Pay: From 3811' To 3850' L 3711' x G 0.635 = GL 163 Bar.Press. 13.2
 Producing Thru: Casing _____ Tubing X Type Well Single
 Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

| Started | | Taken | | Duration Hours | Type Taps | Line Size | Orifice Size | Static Press. | Differ- ential | Flow Temp. |
|---------|-------|---------|-------|-------------------|--------------|--------------|-----------------|------------------|----------------------|---------------|
| Date | time | Date | time | | | | | | | |
| 7-17-58 | 10 AM | 7-18-58 | 10 AM | 21 hrs. | Flange | 3" | 1.25" | 21 psia | 21" H ₂ O | 105°F |
| | PM | | PM | | | | | | | |

FLOW CALCULATIONS

| Static Pressure P _f | Differ- ential h _w | Meter Extension $\sqrt{P_f h_w}$ | 24-Hour Coeff- icient | Gravity Factor F _g | Temp. Factor F _t | Compress- ability F _{pv} | Rate of Flow MCF/Da. @ 15.025 psia Q |
|-----------------------------------|-------------------------------------|--|-----------------------------|-------------------------------------|-----------------------------------|---|--|
| 21 psia | 21" | 26.80 | 9.781 | 0.9359 | 0.9592 | 1.005 | 236.49 |

SHUT-IN DATA

| Shut-in | | Press. Taken | | Duration Hours | Wellhead Pressure (P _c) psia | | W.H. Working Pressure (P _w) and (P _t) psia | |
|---------|-------|--------------|-------|-------------------|---|--------|---|--------|
| Date | Time | Date | Time | | Tubing | Casing | Tubing | Casing |
| 7-11-58 | 10 AM | 7-11-58 | 10 AM | 72 hrs. | 523.2 psia | - | 235.2 psia | |
| | PM | | PM | | | | | |

FLOW DATA

FRICITION CALCULATIONS (if necessary)

$$P_w = (523.2 - 5.518 \times 0.165)^2 = 215 \text{ psia}$$

DELIVERABILITY CALCULATIONS

P_w 235 P_c 523.2 P_w + P_c 0.1101

$$1 - \frac{P_w}{P_c} = 0.5509 \quad 1 + \frac{P_w}{P_c} = 1.1101 \quad \left(1 - \frac{P_w}{P_c}\right) \left(1 + \frac{P_w}{P_c}\right) = 0.7985$$

$$0.36 + M \quad \text{Log} \quad 0.31608 \quad \times (n) \quad 0.772$$

SUMMARY

P_c = 523.2 psia
 Q = 236.49 MCF/Da.
 P_w = 235.0 psia
 P_d = 118.56 psia
 D = 127.95 MCF/Da.
 = -0.266782 +

COMPANY The Atlantic Refining Company
 ADDRESS Box 1038, Denver City, Texas
 AGENT and TITLE M. Carr N. A. Carr, Dist. Superintendent
 WITNESSED _____
 COMPANY _____

Log Q = 2.373830
 Log D = 2.107019
 Antilog = 127.95 = D

REMARKS

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 .