NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Bluitt Yates 33 Formation [illegible] County Lea

Initial [ ] Annual [ ] Special X Date of Test 5-6/5-10 1957

Company Shell Oil Company Lease State "H" Well No. 4

Unit I Sec. 13 Twp. 21 Rge. 35 Purchaser El Paso Natural Gas Co.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Casing | 5 1/2 | Wt. 15.5 | I.D. 4.976 | Set at 3767 | Perf. 3380 | To 3542 |
| Tubing | 2" | Wt. 4.7 | I.D. 1.995 | Set at 3347 | Perf. 3354 | To 3360 |
| Gas Pay: From | 3380 | To 3542 | L 3354 | xG 0.675 | xh 2196 | Bar. Press. 13.2 |

Producing Thru: Casing [ ] Tubing X Type Well Single

Date of Completion: 4-1-57 Packer 3354

PRESSURE DATA

Tested Through (Prover) (Choke) (Meter) Type Taps

| No. | Flow Data (Prover) (Line) Size | Flow Data (Choke) (Orifice) Size | Press. psig | Diff. $h_w$ | Temp. °F. | Tubing Data Press. psig | Tubing Data Temp. °F. | Casing Data Press. psig | Casing Data Temp. °F. | Duration of Flow Hr. |
|---|---|---|---|---|---|---|---|---|---|---|
| SI | 4 | 1.000 | 846 | 14.06 | 90 | 838 | | | | 72 |
| 1. | 4 | 1.000 | 818 | 85.92 | 63 | 805 | | | | 24 |
| 2. | 4 | 1.000 | 760 | 68.43 | 86 | 738 | | | | 24 |
| 3. | 4 | 1.000 | 747 | 62.81 | 63 | 761 | | | | 24 |
| 4. | | | | | | | | | | |
| 5. | | | | | | | | | | |

FLOW CALCULATIONS

| No. | Coefficient (24-Hour) | $\sqrt{h_w p_f}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|---|---|---|---|---|---|---|---|
| 1. | 6.135 | 110.89 | | .9783 | .9487 | 1.051 | 669 |
| 2. | 6.135 | 171.82 | | .9759 | .9487 | 1.044 | 1,023 |
| 3. | 6.135 | 195.18 | | .9771 | .9487 | 1.052 | 1,163 |
| 4. | | | | | | | |
| 5. | | | | | | | |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio [ ] cf/bbl. Specific Gravity Separator Gas 0.675

Gravity of Liquid Hydrocarbons 0.180 deg. Specific Gravity Flowing Fluid [ ]

$F_c$ [ ] $(1-e^{-s})$ [ ] $P_c$ 843.2 $P_c^2$ 710.9

| No. | $P_w$ $P_t$ (psia) | $P_t^2$ | $F_cQ$ | $(F_cQ)^2$ | $(F_cQ)^2$ $(1-e^{-s})$ | $P_w^2$ | $P_c^2-P_w^2$ | Cal. | $P_w$ $P_c$ |
|---|---|---|---|---|---|---|---|---|---|
| SI | 838.2 | 687.6 | 4.67 | 21.81 | 3.05 | 690.7 | 20.2 | | |
| 1. | 818.2 | 669.5 | 6.65 | 44.22 | 6.19 | 675.7 | 35.2 | | |
| 2. | 795.2 | 632.3 | 10.07 | 101.40 | 14.20 | 646.5 | 64.4 | | |
| 3. | 778.2 | 590.4 | 11.75 | 138.06 | 19.33 | 618.7 | 92.2 | | |
| 4. | | | | | | | | | |
| 5. | | | 4,900 | | | .661 | | | |

Absolute Potential: [ ] MCFPD; n [ ]

COMPANY Shell Oil Company

ADDRESS Box 1957, Hobbs, New Mexico

AGENT and TITLE B. Nevill, Division Exploitation Engineer

WITNESSED Original signed by B. Nevill

COMPANY [ ]

REMARKS

[illegible] A. UTZ
[illegible] ENGINEER

## 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.

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