NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Eumont Formation Yates County Lea

Initial ____ Annual ____ Special x Date of Test 4-12 to 19, 1963

Company Shell Oil Company Lease State "A" Well No. 1

Unit P Sec. 35 Twp. 19S Rge. 36E Purchaser El Paso Natural Gas Company

Casing 7" Wt. 24.0# I.D. 6.336 Set at 3800 Perf. 3330 To 3495

Tubing 2 1/2" Wt. 6.5# I.D. 2.441 Set at 3899 Perf. 3792 To 3926

Gas Pay: From 3330 To 3495 L 3330 xG .675 -GL 2848 Bar.Press. 13.2

Producing Thru: Casing x Tubing ____ Type Well G.O. Dual
Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: 12-21-52 Packer 3788 Reservoir Temp. ____

OBSERVED DATA

Tested Through ~~(Prover)~~ ~~(Choke)~~ (Meter) Type Taps Flgs.

| No. | Flow Data ~~(Prover)~~ (Line) Size | ~~(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 | | | | | | Packer | | 745 | | 72 |
| 1. | 4 | 1.750 | 206 | 7.84 | 88 | | | 651 | | 24 |
| 2. | 4 | 1.750 | 203 | 12.96 | 83 | | | 607 | | 24 |
| 3. | 4 | 1.750 | 191 | 19.36 | 79 | | | 566 | | 24 |
| 4. | 4 | 1.750 | 195 | 28.09 | 77 | | | 514 | | 24 |
| 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. | 19.27 | 41.45 | 219.2 | .9741 | .9427 | 1.019 | 747.3 |
| 2. | 19.27 | 52.93 | 216.2 | .9786 | .9427 | 1.020 | 959.8 |
| 3. | 19.27 | 62.87 | 204.2 | .9822 | .9427 | 1.019 | 1142 |
| 4. | 19.27 | 76.47 | 208.2 | .9660 | .9427 | 1.019 | 1392 |
| 5. | | | | | | | |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio Dry cf/bbl.
Gravity of Liquid Hydrocarbons None deg.
$F_c$ .865 $(1-e^{-s})$ .163

Specific Gravity Separator Gas .675
Specific Gravity Flowing Fluid None
$P_c$ 750.2 $P_c^2$ 574.9

| No. | $P_w$ $P_t$ (psia) | $P_t^2$ | $F_cQ$ | $(F_cQ)^2$ | $\frac{(F_cQ)^2}{(1-e^{-s})}$ | $P_w^2$ | $P_c^2-P_w^2$ | Cal. $P_w$ | $\frac{P_w}{P_c}$ |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 666.2 | 441.2 | .6464 | .4178 | .0597 | 441.2 | 133.7 | 666.2 | 87.6 |
| 2. | 620.2 | 384.6 | .8302 | .6892 | .0985 | 384.7 | 190.2 | 620.2 | 81.8 |
| 3. | 579.2 | 335.5 | .9878 | .9757 | .1395 | 335.6 | 239.3 | 579.3 | 76.4 |
| 4. | 527.2 | 277.9 | 1.204 | 1.450 | .2073 | 278.1 | 296.8 | 527.4 | 69.5 |
| 5. | | | | | | | | | |

Absolute Potential: 2,120 MCFPD; n .716

COMPANY Shell Oil Company
ADDRESS P.O. Box 1858, Roswell, New Mexico
AGENT and TITLE A. L. Ellard, Gas Tester
WITNESSED R. A. Mikal
COMPANY El Paso Natural Gas Company

REMARKS

## 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 $P_t$.