

NEW MEXICO OIL CONSERVATION COMMISSION

HOBBS OFFICE OCC Form C-122

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Revised 12-1-55
1953 JUL 13 AM 11:47

Pool Eusont Formation Queen County Lea
 Initial _____ Annual _____ Special X Date of Test 5-16 to 24, 1963
 Company Shell Oil Company Lease State "F" Well No. 1
 Unit I Sec. 29 Twp. 19E Rge. 37E Purchaser Northern Natural Gas Company
 Casing 7" Wt. 26.04 I.D. 6.276 Set at 3687 Perf. 3490 To 3552
 Tubing 2 1/2" Wt. 6.54 I.D. 2.441 Set at 3930 Perf. _____ To _____
 Gas Pay: From 3490 To 3552 L 3490 xG .675 -GL 2356 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: 1-1-53 Packer 3635 Reservoir Temp. _____

OBSERVED DATA

Tested Through (Ducron) (Globe) (Meter) Type Taps Pipe

| No. | Flow Data | | | | | Tubing Data | | Casing Data | | Duration of Flow Hr. |
|-----|-------------|----------------|-------------|----------------------|-----------|-------------|-----------|-------------|-----------|----------------------|
| | (Line) Size | (Orifice) Size | Press. psig | Diff. h _w | Temp. °F. | Press. psig | Temp. °F. | Press. psig | Temp. °F. | |
| SI | | | | | | | | 695 | | 72 |
| 1. | 3 | 1.250 | 449 | 2.1 | 54 | | | 564 | | 24 |
| 2. | 4 | 1.250 | 446 | 3.5 | 59 | | | 499 | | 24 |
| 3. | 4 | 1.250 | 449 | 4.7 | 66 | | | 467 | | 24 |
| 4. | 4 | 1.250 | 451 | 4.8 | 76 | | | 453 | | 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. | 10.24 | 31.16 | 462.2 | 1.0058 | .9427 | 1.055 | 319.1 |
| 2. | 10.24 | 40.09 | 459.2 | 1.0010 | .9427 | 1.053 | 407.8 |
| 3. | 10.24 | 46.60 | 462.2 | .9924 | .9427 | 1.049 | 468.4 |
| 4. | 10.24 | 47.20 | 464.2 | .9850 | .9427 | 1.046 | 469.3 |
| 5. | | | | | | | |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio Dry cf/bbl.
 Gravity of Liquid Hydrocarbons None deg.
 F_c .910 (1-e^{-s}) .190
 Specific Gravity Separator Gas .675
 Specific Gravity Flowing Fluid None
 P_c 700.2 P_c² 501.5

| No. | P _t (psia) | P _t ² | F _c Q | (F _c Q) ² | (F _c Q) ² (1-e ^{-s}) | P _w ² | P _c ² -P _w ² | Cal. P _w | P _w /P _c |
|-----|-----------------------|-----------------------------|------------------|---------------------------------|--|-----------------------------|--|---------------------|--------------------------------|
| 1. | 557.2 | 310.5 | .2904 | .0843 | .0126 | 310.5 | 191.0 | 557.2 | 78.7 |
| 2. | 512.2 | 262.3 | .3711 | .1377 | .0206 | 262.3 | 239.2 | 512.2 | 72.3 |
| 3. | 480.2 | 230.6 | .4262 | .1816 | .0272 | 230.6 | 270.9 | 480.2 | 67.8 |
| 4. | 466.2 | 217.3 | .4271 | .1824 | .0274 | 217.3 | 284.2 | 466.2 | 65.8 |
| 5. | | | | | | | | | |

Absolute Potential: 830 MCFPD; n 1.000

COMPANY Shell Oil Company
 ADDRESS P. O. Box 1858, Roswell, New Mexico
 AGENT and TITLE A. L. Ellard - Gas Tester
 WITNESSED Joe Horton
 COMPANY Northern Natural Gas Company

REMARKS

Slope greater than 1.000, a slope of 1.000 drawn through highest rate of flow.

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} = Supercompressibility 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 .