

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Angels Peak-Dakota Formation Dakota County San Juan
Initial X Annual _____ Special _____ Date of Test 12-29-59
Company Pan American Petroleum Corp. Lease E. J. Johnson Gas Unit Well No. 1
Unit H Sec. 21 Twp. 27N Rge. 10W Purchaser _____
Casing 4-1/2 Wt. 11.6 & 9.5 I.D. 4.090 Set at 6550 Perf. 6384-6388 and 6406-6412
Tubing 2-3/8 Wt. 4.7 I.D. 1.995 Set at 6362 Perf. open ended 6362
Gas Pay: From 6384 To 6412 L 6362 xG 0.70 (est.) -GL 4453 Bar.Press. 12
Producing Thru: Casing _____ Tubing X Type Well Gas-single
Single-Bradenhead-G. G. or G.O. Dual
Date of Completion: 12-22-59 Packer None Reservoir Temp. 141° F

OBSERVED DATA

Tested Through (2-3/8) (Choke) (2-3/8) Type Taps _____

| Flow Data | | | | | | Tubing Data | | Casing Data | | Duration of Flow Hr. |
|-----------|--|---|--------|----------------|-----------|-------------|-----------|-------------|-----------|----------------------------|
| No. | (2-3/8) (Line) Size | (Choke) (2-3/8) Size | Press. | Diff. | Temp. | Press. | Temp. | Press. | Temp. | |
| | | | psig | h _w | °F. | psig | °F. | psig | °F. | |
| SI | Shut in 7 days | | | | | 1960 | | 1960 | | |
| 1. | 2" | 3/4" | 387 | | 60 (est.) | 444 | 60 (est.) | 999 | 60 (est.) | 3 hours |
| 2. | | | | | | | | | | |
| 3. | | | | | | | | | | |
| 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. | 12.365 | | 399 | 1.000 | 0.9258 | 1.050 | 4796 |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio _____ cf/bbl.
Gravity of Liquid Hydrocarbons _____ deg.
F_c _____ (1-e^{-s})
Specific Gravity Separator Gas _____
Specific Gravity Flowing Fluid _____
P_c 1972 P_c 3,888,784

| No. | P _w 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. | | | | | | 1,022,121 | 2,866,663 | | |
| 2. | | | | | | | | | |
| 3. | | | | | | | | | |
| 4. | | | | | | | | | |
| 5. | | | | | | | | | |

Absolute Potential: 6029 MCFPD; n 0.75

COMPANY Pan American Petroleum Corporation

ADDRESS Box 487, Farmington, New Mexico

AGENT and TITLE R. M. Bauer, Jr., Area Engineer

WITNESSED _____

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 .

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