NEW MEXICO OIL CONSERVATION COMMISSION

HOBBS OFFICE OCC

1957 OCT 3 AM 7:55

HOBBS OFFICE OCC

1957 OCT 3 PM 2:49

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmat Formation Yates County Lea

Initial X Annual Special Date of Test 9-23-57

Company Sinclair Oil & Gas Company Lease Federal 714 Well No. 3

Unit L Sec. 17 Twp. 23S Rge. 36E Purchaser None

Casing 5 1/2 Wt. 14# I.D. 5.012 Set at 3700 Perf. 3548 To 3606

Tubing 2" Wt. 4.7 I.D. 1.995 Set at 3643 Perf. To

Gas Pay: From 3548 To 3606 L 3577 xG .680 -GL 2431 Bar.Press. 13.2

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

Date of Completion: 9-14-57 Packer None Reservoir Temp. 106

OBSERVED DATA

Tested Through (Prover) (Choke) (Meter) Type Taps 2" Critical flow prover

| 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 | 2" | | | | | 1159 | 70 | 1159 | 70 | 72 |
| 1. | " | 1/8 | | | 70 | 1058 | 70 | 1080 | 70 | 3 |
| 2. | " | 5/16 | | | 71 | 987 | 71 | 1026 | 70 | 3 |
| 3. | " | 3/8 | | | 71 | 864 | 71 | 961 | 70 | 3 |
| 4. | " | 7/16 | | | 69 | 736 | 69 | 884 | 70 | 3 |
| 5. | " | 1/2 | | | 68 | 618 | 68 | 836 | 70 | 24 |

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. | 1.4030 | | 1071.2 | .9905 | .9393 | 1.126 | 1574 |
| 2. | 2.1577 | | 1000.2 | .9896 | .9393 | 1.118 | 2243 |
| 3. | 3.0691 | | 877.2 | .9896 | .9393 | 1.102 | 2758 |
| 4. | 4.3997 | | 749.2 | .9915 | .9393 | 1.087 | 3337 |
| 5. | 5.5233 | | 631.2 | .9924 | .9393 | 1.072 | 3484 |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio Dry gas cf/bbl. Specific Gravity Separator Gas .680
Gravity of Liquid Hydrocarbons - deg. Specific Gravity Flowing Fluid -
$P_c$ Pd Measured $(1-e^{-s})$ - $P_c$ 1172.2 $P_c^2$ 1374

| 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. $P_w$ | $\frac{P_w}{P_c}$ |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 1093.2 | | | | | 1195 | 179 | | |
| 2. | 1039.2 | | | | | 1080 | 294 | | |
| 3. | 974.2 | | | | | 949 | 425 | | |
| 4. | 897.2 | | | | | 805 | 569 | | |
| 5. | 849.2 | | | | | 721 | 653 | | |

Absolute Potential: 5,285 MCFPD; n .56

COMPANY Sinclair Oil & Gas Company
ADDRESS 520 East Broadway - Hobbs, New Mexico
AGENT and TITLE R. L. Harned - Gas Analyst R L Harned
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.

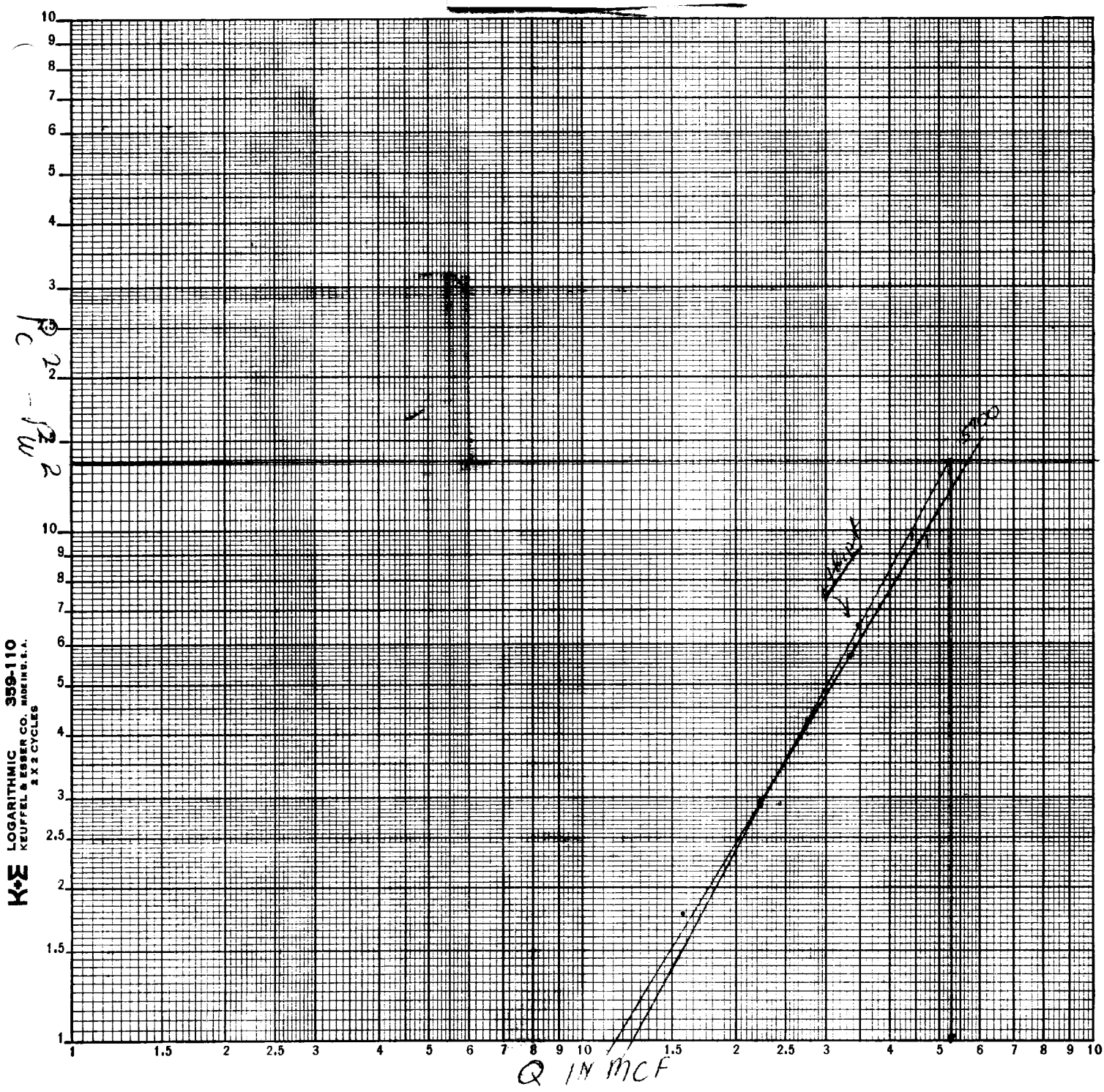
$F_t$ = Flowing temperature correction factor.

$F_{pv}$ = 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 $P_t$.

# ILLEGIBLE




AP - 5,285 MCF PD

$P_1$ - 4710 - 3.673 021
$P_1$ - 1150 - 3.060 698
.612323

$P_2$ - 4420 3.645422
$P_2$ - 1250 - 3.096 910
.548 512

KEUFFEL & ESSER CO. MADE IN U.S.A.
LOGARITHMIC
3 X 5 CYCLES
10 1-3523