NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool **South Hope Strawn Gas** Formation **Cisco** County **Eddy**

Initial **X** Annual _____ Special _____ Date of Test **March 23, 24, 1964**

Company **Sunray DX Oil Company** Lease **Hope Unit N.M. State "AQ"** Well No. **1**

Unit **J** Sec. **19** Twp. **18S** Rge. **23E** Purchaser **Not Connected**

Casing **5½" OD** Wt. **14, 15.5, 17.0** I.D. **5.012, 4.950, 4.892** Set at **7481** Perf. **5870** To **6040**

Tubing **2 3/8" OD** Wt. **4.70** I.D. **1.995** Set at **7122** Perf. **7103** To **7104**

Gas Pay: From **5870** To **6040** L _____ xG _____ -GL _____ Bar.Press. **13.2**

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

Date of Completion: **3-24-64** Packer **Baker Model D @ 7122' w/Tubing Plug @ 7110'.** Reservoir Temp. **120 Deg. F**

OBSERVED DATA **Baker Model "R" Pkr @ 5834'**

Tested Through ~~(Prover) (Choke) (Orifice)~~ Type Taps **Flange**

| 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 | | | | | | 1360 | | P | | 72 hr S.I. |
| 1. | 3" | 1.750 | 100 | 21 | 65 | 1250 | 62 | A | | 4 hr. |
| 2. | 3" | 1.750 | 275 | 29 | 65 | 1070 | 63 | C | | 4 hr. |
| 3. | 3" | 1.750 | 390 | 39 | 65 | 890 | 62 | K | | 6 hr. |
| 4. | 3" | 1.750 | 450 | 52 | 65 | 640 | 64 | E | | 6 hr. |
| 5. | | | | | | | | R | | |

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. | 20.15 | 48.7 | 113.2 | 0.9952 | 0.9758 | 1.010 | 962 |
| 2. | 20.15 | 91.2 | 288.2 | 0.9952 | 0.9758 | 1.025 | 1829 |
| 3. | 20.15 | 125.1 | 403.2 | 0.9952 | 0.9758 | 1.036 | 2536 |
| 4. | 20.15 | 154.9 | 463.2 | 0.9952 | 0.9758 | 1.042 | 3158 |
| 5. | | | | | | | |

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio **Dry Gas** cf/bbl. Specific Gravity Separator Gas **0.631**

Gravity of Liquid Hydrocarbons _____ deg. Specific Gravity Flowing Fluid _____

$P_c$ **MW Measured** $(1-e^{-s})$ _____ $P_c$ **1373.2** $P_c^2$ **1885.7**

| 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. | 1263.2 | | | | | 1595.7 | 290.0 | | |
| 2. | 1083.2 | | | | | 1173.3 | 712.4 | | |
| 3. | 903.2 | | | | | 815.8 | 1069.9 | | |
| 4. | 653.2 | | | | | 426.7 | 1459.0 | | |
| 5. | | | | | | | | | |

Absolute Potential: **3800** MCFPD; n **0.74**

COMPANY **Sunray DX Oil Company**

ADDRESS **P.O. Box 128, Hobbs, New Mexico**

AGENT and TITLE **V.R. Mayabb** V.R. Mayabb

WITNESSED **Carl Robinson**

COMPANY **Sunray DX Oil Company**

REMARKS

RECEIVED
APR 1964
O. C. C.
ARTESIA, OFFICE

## 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 $P_t$.