NEW MEXICO OIL CONSERVATION COMMISSION
One-point Back Pressure Test for Gas Wells
(Deliverability)

Form C-122-C
4-1-54

Pool Eumont Formation Yates-Seven Rivers County Lea
Initial x Annual ____ Special ____ Date of test 7-14-58
Company Atlantic Lease Seale Federal Well No. 4
Unit N Sec. 34 Twp. 20-S Rge. 36-E Purchaser Phillips Petroleum Company
Casing 5½" Wt. 14# IFT I.D. 5.012" Set at 3883' Perf. 3814' To 3850'
Tubing 2" Wt 4.7# IFT I.D. 2" Set at 3793' Perf. ____ To ____
Gas Pay: From 3814' To 3850' L 3814' x G 0.685 = GL 2613 Bar.Press. 13.2
Producing Thru: Casing ____ Tubing x Type Well Single
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

Started Date	Started time	Taken Date	Taken time	Duration Hours	Type Taps	Line Size	Orfice Size	Static Press.	Differ-ential	Flow Temp.
7-17-58	10 AM PM	7-18-58	10 AM PM	24 hrs.	Flange	3"	1.25"	21 psig	21" H_2O	105°F

FLOW CALCULATIONS

Static Pressure P_f	Differ-ential h_w	Meter Extension $\sqrt{P_f h_w}$	24-Hour Coeff-icient	Gravity Factor F_g	Temp. Factor F_t	Compress-ability F_{pv}	Rate of Flow MCF/Da. @ 15.025 psia Q
34.2 psia	21"	26.80	9.781	0.9359	0.9592	1.005	236.49

SHUT-IN DATA

Shut-in Date	Shut-in Time	Press. Taken Date	Press. Taken Time	Duration Hours	Wellhead Pressure (P_c) psia Tubing	Wellhead Pressure (P_c) psia Casing	FLOW DATA W.H. Working Pressure (P_w) and (P_t) psia Tubing	FLOW DATA W.H. Working Pressure (P_w) and (P_t) psia Casing
7-11-58	10 AM PM	7-14-58	10 AM PM	72 hrs.	523.2 psia	-0-	235.2 psia	

FRICTION CALCULATIONS(if necessary)

$P_w = (P_t^2 + (F_cQ)^2(1-e^{-s}))^{\frac{1}{2}}$

$P_w = (54.382 + 5.518 \times 0.165)^{\frac{1}{2}} = 235$ psia
5.521

DELIVERABILITY CALCULATIONS

P_w 235 P_c 523.2 $P_w + P_c$ 0.4491

$1 - \frac{P_w}{P_c}$ 0.5509 $1 + \frac{P_w}{P_c}$ 1.4491 $\left|1 - \frac{P_w}{P_c}\right| \left|1 + \frac{P_w}{P_c}\right| = M$ 0.7983 0.7985

.36 + M 0.4508 0.4510 Log −0.34602 −0.3462 x (n) 0.771 = −0.266781 +

SUMMARY

P_c = 523.2 psia
Q = 236.49 MCF/Da.
P_w = 235.0 psia
P_d = 418.56 psia
D = 127.95 MCF/Da.

Log Q = 2.373830
Log D = 2.107049
Antilog = 127.95 = D
127.99

COMPANY The Atlantic Refining Company
ADDRESS Box 1038, Denver City, Texas
AGENT and TITLE N. A. Carr, Dist. Superintendent
WITNESSED ____
COMPANY ____

REMARKS

This form is to be used for reporting deliverability tests in the designated Dry Gas Pools of Lea County as ordered by New Mexico Oil Conservation Commission Directive dated March 15, 1954, which directive was provided for by Orders R-365-A through R-376-A. For details regarding this test please refer to the above mentioned Directive.

NOMENCLATURE

Q = Actual 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_d = Deliverability pressure; 80 % of 72 hour individual wellhead shut-in pressure (P_c). 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

D = Deliverability at Deliverability pressure (P_d) MCF/da. @ 15.025 psia and 60° F.

p_f = Static 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.

DELIVERABILITY FORMULA

$$D = Q \left[\frac{.36}{\left(1 - \frac{P_w}{P_c}\right)\left(1 + \frac{P_w}{P_c}\right)} \right]^n$$

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.