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

Form C-122-C
4-1-54

Pool __Jaloo__ Formation __Yates__ County __Lea__
Initial _____ Annual _____ Special __X__ Date of test __9-1-55__
Company __Shell Oil Company__ Lease __State__ Well No. __1-A__
Unit __D__ Sec. __36__ Twp. __24__ Rge. __36__ Purchaser __El Paso Natural Gas Company__
Casing __5½"__ Wt. __15.5__ I.D. __4.976__ Set at __2636'__ Perf. _____ To _____
Tubing __2"EUE__ Wt. __4.7__ I.D. __1.995__ Set at __2941'__ Perf. __2934__ To __2940__
Gas Pay: From __2636__ To __2942__ L __2934__ x G __.710__ = GL __2083__ Bar.Press. __13.2__
Producing Thru: Casing _____ Tubing __X__ Type Well __Single__
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

Started		Taken		Duration Hours	Type Taps	Line Size	Orfice Size	Static Press.	Differential	Flow Temp.
Date	time	Date	time							
8-29-55	9:30 AM	8-31-55	9:30 AM	48	Flg.	4	1.750	570	25	65
	PM		PM							

FLOW CALCULATIONS

Static Pressure p_f	Differential h_w	Meter Extension $\sqrt{p_f h_w}$	24-Hour Coefficient	Gravity Factor F_g	Temp. Factor F_t	Compressability F_{pv}	Rate of Flow MCF/Da. @ 15.025 psia Q
582.2	25	121.78	19.27	.9193	.9952	1.077	2,313

SHUT-IN DATA / FLOW DATA

Shut-in		Press. Taken		Duration Hours	Wellhead Pressure (P_c) psia		W.H. Working Pressure (P_w)and(P_t)psia	
Date	Time	Date	Time		Tubing	Casing	Tubing	Casing
	AM		9:30 AM	90	947.2	952.2	622.2	618.2
8-25-55	3:30 PM	8-29-55	PM					

FRICTION CALCULATIONS (if necessary)

$$P_w = \{387.13 + (9.936 \times 2.313)^2 (.135)\}^{1/2} = 677.5$$

DELIVERABILITY CALCULATIONS

P_w __677.5__ P_c __952.2__ $P_w \div P_c$ __.7115__

$1- \dfrac{P_w}{P_c}$ __.2885__ $1+ \dfrac{P_w}{P_c}$ __1.7115__ $\left(1-\dfrac{P_w}{P_c}\right)\left(1+\dfrac{P_w}{P_c}\right) = M$ __.4938__

$.36 + M$ __0.72904__ Log __9.86275-10__ x (n) __.620__

    = __9.88715-10__ +

$\text{Log } Q =$ __3.36418__

$\text{Log } D =$ __13.25163-10__

$\text{Antilog} =$ __1785__ = D

SUMMARY

$P_c =$ __952.2__ psia
$Q =$ __2313__ MCF/Da.
$P_w =$ __677.5__ psia
$P_d =$ __761.76__ psia
$D =$ __1785__ MCF/Da.

COMPANY __Shell Oil Company__
ADDRESS __Box 1957, Hobbs, New Mexico__
AGENT and TITLE __H.M. Turkople__
WITNESSED _____
COMPANY _____

REMARKS
Due to evidence of fluid seal or bridge above tubing perforations, the flowing tubing pressure was used in calculation. Well produced approx. 8 bbl. of water per day into El Paso's line drip during test.

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.