

Initial Deliverability
Test

NEW MEXICO OIL CONSERVATION COMMISSION
GAS WELL TEST DATA SHEET - - SAN JUAN BASIN

(TO BE USED FOR FRUITLAND, PICTURED CLIFFS, MESAVERDE, & ALL DAKOTA
EXCEPT BARKER DOME STORAGE AREA)



Pool Undesignated Dakota Formation Dakota County San Juan
Purchasing Pipeline Sunray Mid-Continent Oil Company Date Test Filed September 8, 1960
Operator Pan American Petroleum Corp. Lease O. H. Randal Well No. 1
Unit L Sec. 9 Twp. 26N Rge. 11W Pay Zone: From 6190 To 6204
Casing: OD 7" WT. 20 & 23 Set At 6463 Tubing: OD 2 3/8 WT. 4.7 T. Perf. 6190
Produced Through: Casing _____ Tubing L Gas Gravity: Measured 0.703 Estimated _____
Date of Flow Test: From 8-23-60 To 9-1-60 * Date S.I.P. Measured 6-11-60
Meter Run Size 4" Orifice Size 1.790 Type Chart Sq. Rt. Type Taps Flange

OBSERVED DATA

Flowing casing pressure (Dwt) _____ psig + 12 = _____ psia (a)
Flowing tubing pressure (Dwt) _____ psig + 12 = _____ psia (b)
Flowing meter pressure (Dwt) _____ psig + 12 = _____ psia (c)
Flowing meter pressure (meter reading when Dwt. measurement taken):
Normal chart reading _____ psig + 12 = _____ psia (d)
Square root chart reading ()² x spring constant _____ = _____ psia (d)
Meter error (c) - (d) or (d) - (c) _____ ± _____ = _____ psi (e)
Friction loss, Flowing column to meter:
(b) - (c) Flow through tubing: (a) - (c) Flow through casing _____ = _____ psi (f)
Seven day average static meter pressure (from meter chart):
Normal chart average reading _____ psig + 12 = _____ psia (g)
Square root chart average reading (7.95)² x sp. const. 15 = 855 psia (g)
Corrected seven day avge. meter press. (p_f) (g) + (e) = 855 psia (h)
P_t = (h) + (f) = 855 psia (i)
Wellhead casing shut-in pressure (Dwt) _____ psig + 12 = _____ psia (j)
Wellhead tubing shut-in pressure (Dwt) 1509 psig + 12 = 1601 psia (k)
P_c = (j) or (k) whichever well flowed through = 1601 psia (l)
Flowing Temp. (Meter Run) 60 °F + 460 = 520 °Abs (m)
P_d = 1/2 P_c = 1/2 (l) = 801 psia (n)

Q = _____ X $\left(\frac{\text{FLOW RATE CALCULATION}}{\sqrt{(c)} = \text{_____} = \text{_____}} \right)^* = \text{_____ MCF/day}$
(Integrated) $\sqrt{(d)} = \text{_____}$

DELIVERABILITY CALCULATION

D = Q 2551 $\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} = \frac{1,932,400}{1,675,700} \right]^n \text{ } \frac{1.1075}{1.1075} = \text{2025 MCF/day.}$

SUMMARY

P_c = 1601 psia
Q = 2551 Mcf/day
P_w = 942 psia
P_d = 801 psia
D = 2025 Mcf/day

Company Pan American Petroleum Corporation
By A. H. Danner, Jr.
Title Area Engineer
Witnessed by _____
Company _____

* This is date of completion test.

* Meter error correction factor

REMARKS OR FRICTION CALCULATIONS

GL	(1-e ^{-S})	(F _c Q) ²	(F _c Q) ² (1-e ^{-S}) R ²	P _t ² (Column i)	P _t ² + R ²	P _w
<u>4357</u>	<u>0.272</u>	<u>975.200</u>	<u>156.476</u>	<u>731.025</u>	<u>867.951</u>	<u>942</u>

*Gas delivery from O. H. Randal Nos. 1 and 2 is to Sunray Mid-Continent Oil Company at their meter station. Individual gas volumes for each well computed from separate Pan American check meters using data shown on reverse side.

CALCULATION OF GAS VOLUMES

Water Run Time	6"
Crude Gas	1.750
Gas Density	0.703
Water	1.500
Average Differential Reading	4.9"
Average Static Reading	7.55"

$$63.39(P_g) \times 0.9804(P_g) \times 1.197(P_g) \times 3.673(H) \times C = 2873.1$$

$$2873.1 \times 7.55 \times 4.9 = Q = 106,305 \text{ cu. ft.}$$

$$106,305 \text{ cu. ft.} \times 21 \frac{\text{lb.}}{\text{cu. ft.}} = 2232 \text{ lb./day}$$

Volume for period 8-23-60 to 9-1-60 = 22,999 MB