

EL PASO NATURAL GAS COMPANY

P. O. Box 997
Farmington, N.M.

May 22, 1957

Mr. E. C. Arnold
Oil Conservation Commission
120 East Chaco
Aztec, New Mexico

Re: Packer Leakage Test on the El Paso Natural Gas
Company Well, McCulley # 3, SW 24-28-9, San
Juan County, New Mexico.

Dear Mr. Arnold:

This well was dually completed in the Pictured Cliffs and Mesa Verde formations. A production packer was set at 2444 feet. The Mesa Verde zone was tested May 6, 1957 and the following information was obtained:

SIPC (Pictured Cliffs) - 703 psig
SIPT (Mesa Verde) - 989 psig; shut-in 9 days.

The three hour open flow test through a 3/4" choke started at 12:00 Noon.

<u>Time</u>	<u>Tubing Choke Pressure Psig</u>	<u>Casing Pressure P.C., Psig</u>	<u>Temp °F</u>
12:00	989	703	
12:15	323	704	
12:30	282	704	
12:45	248	704	
1:00	231	704	
3:00	172	704	65

The calculated choke volume was 2198 MCF/D. The A.O.F. was 2416 MCF/Day. On May 21, 1957, the Pictured Cliffs zone was tested and the following information was obtained:

SIPC (Pictured Cliffs) - 766 psig
SIPT (Pictured Cliffs) - 766 psig
SIPT (Mesa Verde) - 1028 psig

The three hour open flow test through a 3/4" choke started at 11:15 A.M.

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<u>Time</u>	<u>Casing Choke Pressure Psig</u>	<u>Tubing Pressure M.V., Psig</u>	<u>Temp °F</u>
11:15	766	1028	
11:30	256	1028	
11:45	227	1028	
12:00	214	1028	
12:15	207	1028	
2:15	179 (183 WPT)	1028	68

The calculated choke volume was 2281 MCF/D and the A.O.F. was 2410 MCF/D.
The results indicate that there is no packer leakage.

Very truly yours,

T. B. Grant
T. B. Grant
Gas Engineer

TBG/jla

cc: W. T. Hollis
W. M. Rodgers
E. J. Coel, Jr. (6)
File



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE May 6, 1957

Company El Paso Natural Gas Company		Well Name McCulley # 3	
Location 1951'S, 1020'W, Sec. 24-28-9		County San Juan	State New Mexico
Formation Mesa Verde		Pool Blanco Mesa Verde	
Casing Diameter 5 1/2	Set At Feet 4765	Tubing Diameter 2"	Set At Feet 4662
Flow Zone From 4538	4724	Total Depth 4770 - c/o - 4735	
Stimulation Method Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Casing Size, inches 0.750	Choke Constant C 12.365	Shut-in Pressure, Tubing M.V. 989	PSIG 1001
Working Pressure, Casing P.C. 703	PSIG 715	Days Shut-in 9	PSIA 1001
Flow Rate, P 172	PSIA 184	Working Pressure, PW Calculated	PSIG 345
Temperature, F 65	0.750	App. Fract. Tables 1.018	Grav. S. 660

SIPC (P.C.) - 704 psig

CHOKED VOLUME $Q = C \times B \times E \times F_1 \times F_2$

$$C = 12.365 \times 184 \times .9952 \times .9535 \times 1.018 \quad 2198 \quad \text{MCF D}$$

$$\text{REL. FLOW} = \frac{Q}{Q_1} = \left(\frac{p_1^2 - p_x^2}{p_1^2 - p_x^2} \right)^n$$

$$\frac{Q}{Q_1} = \left(\frac{1,002,001}{882,976} \right)^n \quad 1.1347^{.75} \times 2198 = 1.0994 \times 2198$$

$$Q = 2416 \quad \text{MCF D}$$

Tom Grant

E. C. Arnold, New Mexico Oil Conservation Commission

cc: E. J. Coel, Jr. (6)

L. D. Galloway
L. D. Galloway



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EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE May 21, 1957

Operator El Paso Natural Gas Company		Lease McCulley # 3	
Location 1951'S, 1020'W, Sec. 24-28-9		County San Juan	State New Mexico
Formation Pictured Cliff		Pool Wildcat	
Casing Diameter 7"	Set At Feet 2442	Tubing Diameter 1 1/4"	Set At Feet 2326
Flow Zone From 2296	To 2344	Total Depth Packer @ 2444	
Production Method Sand Water Frac		Flow Through Casing X	
		Flow Through Tubing	

Flow Constant: C		Flow Constant: C	
0.750	12.365		
Shut-in Pressure, Casing 766 P.C.	PSIG	PSIA	Days Shut-in 15
778			
Working Pressure, P 179	PSIG	PSIA	Shut-in Pressure, Tubing 766 P.C.
			778
Temperature, T 68			Working Pressure, Pw 183
			195
			Flow Through Casing 1.017
			Gravity 655

SIPT (M.V.) - 1028 psig

CHOKE VOLUME $Q = C \times P_1 \times F_1 \times F_g \times F_v$

$$C = 12.365 \times 191 \times .9924 \times .9571 \times 1.017$$

2281

MCF/D

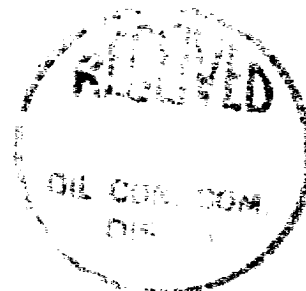
$$Q = \left(\frac{P_1^2 - P_w^2}{P_1} \right)^n$$

$$Q = \left(\frac{605,284 - 567,259}{605,284} \right)^n \times 1.0670^{.85} \times 2281 = 1.0566 \times 2281$$

Q = 2410 MCF/D

Tom Grant

cc: E. J. Coel (6)



L. D. Galloway
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