

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

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O. C. D.
ARTESIA, OFFICE

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 1/9/86	
Company SPECTRUM 7 Exploration Co.		Connection	
Pool Undesignated <i>W. Henshaw Grbg</i>		Formation Premier	
Completion Date 12/23/85	Total Depth 3000	Plug Back TD 2938	Elevation 3807.3' GR
Farm or Lease Name State 16		Well No. 1	
Csq. Size 4.5	Wt. 10.5	d 4.052	Set At 2990
Perforations: From 2861 To 2876		Well No. 1	
Thq. Size 2.375	Wt. 4.7	d 1.995	Set At 2801
Perforations: From To		Unit Sec. Twp. Rge. J 16 16S 30E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single		Packer Set At 2801 GR	
Producing Thru Tubing		Baro. Press. - P _a 13.2	
Reservoir Temp. °F 82 @ 2858		Mean Annual Temp. °F 60	
State New Mexico		County Eddy	
L 2801	H 2801	G _g 0.715	% CO ₂ 0.01
% N ₂ 10.72	% H ₂ S 0	Oriface Well tester - 2"	Meter Run Taps

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI							685	43	Pkr		46.5 hours
1.	2"	X 0.75		5.2		40	354	54			1 hour
2.	2"	X 0.75		5.7		47	211	59			1 hour
3.	2"	X 0.75		5.9		50	181	63			1 hour
4.	2"	X 0.75		7.6		50	152	63			1 hour
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcld
1	173.55		18.4	1.0198	1.1826	1.006	210.6
2	182.81		18.9	1.0127	1.1826	1.006	220.3
3	187.20		19.1	1.0098	1.1826	1.006	224.9
4	215.48		20.8	1.0098	1.1826	1.006	258.9
5							

NO.	R	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	0.028	500	1.36	.989	A.P.I. Gravity of Liquid Hydrocarbons	None produced
2	0.029	507	1.38	.989	Specific Gravity Separator Gas	0.715
3	0.029	510	1.39	.989	Specific Gravity Flowing Fluid	X X X X X
4	0.032	510	1.39	.989	Critical Pressure	649 P.S.I.A.
5					Critical Temperature	368 R

NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²
1	134.8	499.4	249.4	239.9
2	50.3	402.3	161.8	327.5
3	37.7	414.3	171.7	317.6
4	27.3	368.3	135.7	353.6
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 0.4893$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 0.605$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 314.6$

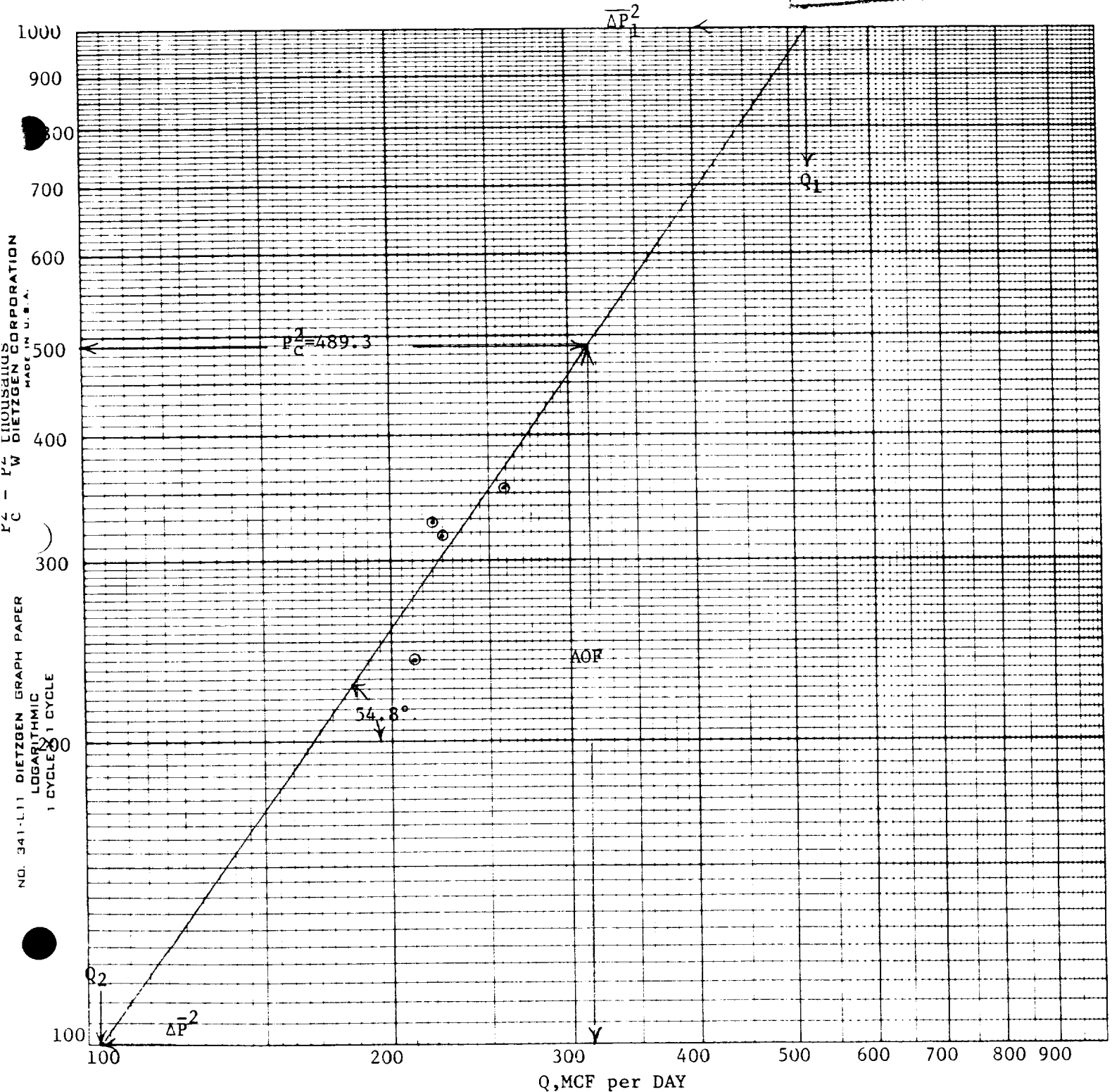
Absolute Open Flow 314.6 Mcld @ 15.025 Angle of Slope 54.8 Slope, n 0.703

Remarks: The static pressure gradient ran just before the test did not indicate any liquid in the well. However, bottomhole pressures obtained from Amerada Pressure Bomb #41929 (0-2000psi) indicated fluid entry as the test progressed. P_r and P_w were calculated using these

Approved By Division pressures. Conducted By: Arc Pressure Data, Inc. Calculated By: *Rod Rodman* Checked By:

SPECTRUM 7
 State "16" #1
 Lea County, N.M.
 1/9/86

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$$\frac{\Delta P^2}{\Delta P^2} \frac{P_C^2 - P_w^2}{P_C^2 - P_w^2} = 1000$$

$$\frac{\Delta P^2}{\Delta P^2} \frac{P_C^2 - P_w^2}{P_C^2 - P_w^2} = 100$$

$Q_1 = 526$ MCF per Day
 $Q_2 = 103$ MCF per Day

AOF = 314.6

Log $Q_1 = 2.71600$
 Log $Q_2 = 2.01284$
 $n = 0.70316 = 0.703$