

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator PENWELL ENERGY INC.						Lease or Unit Name INDIAN DRAW "13" ARTESIA					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 2/14/98		Well No. 1			
Completion Date 12-3-97		Total Depth 12292		Plug Back TD 12062		Elevation		Unit Ltr - Sec - TWP - Rge. 32 22S 27E			
Csg. Size 5-1/2	Wt. 17#	d 4.892	Set At 12292	Perforations: From: 11832 To: 11842				County EDDY			
Tbg. Size 2-3/8	Wt. 4.7	d 1.995	Set At 11763	Perforations: From: To:				Pool SCARLETT MARROW			
Type Well - Single - Bradenhead - G.G. or G.A. Multiple Single						Packer Set At 11763		Formation MOORE			
Producing Thru TBG		Reservoir Temp. °F 197.2		Mean Annual Temp. °F 60°		Baro. Press - P 13.2		Connection SALES			
L 11763	II 11763	Gg .585	% CO ₂ 1.055	% N ₂ .24	% H ₂ S -0-	Prover -0-	Meter Run 3.068		Taps FLG		

FLOW DATA					TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	Orifice Size	Press. P.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	
SI									
1.	3.068 X 1.750		324.9	3.2	127°	2470	68°	pkz	60 min
2.	3.068 X 1.750		348.1	7.8	108°	2300	66°	"	60 min
3.	3.068 X 1.750		348.1	13.0	74°	2036	64°	"	60 min
4.	3.068 X 1.750		360.0	26.4	60°	1636	64°	"	60 min
5.									

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg.	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	15.61	32.9	338.1	.9412	1.307	1.029	650
2.	15.61	53.0	361.3	.9568	1.307	1.033	1068
3.	15.61	68.5	361.3	.9868	1.307	1.040	1434
4.	15.61	99.2	373.2	1.000	1.307	1.043	2110
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio n/a	Mcf/bbl.
1.	.86	587	1.67	.944	A.P. I. Gravity of Liquid Hydrocarbons n/a	Deg.
2.	.84	568	1.62	.938	Specific Gravity Separator Gas .585	XXXXXXXXXX
3.	.79	534	1.52	.925	Specific Gravity Flowing Fluid n/a	XXXXXX
4.	.77	520	1.48	.919	Critical Pressure 675	P.S.I.A. P.S.I.A.
5.					Critical Temperature 350	R R

P_c 2542.8 P_c² 6465.8

NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²
1.		2472.2	6111.7	354.1
2.		2446.8	5986.8	479.0
3.		2404.7	5782.6	683.2
4.		2363.8	5587.5	878.3
5.				

$$1) \frac{P_c^2}{P_c^2 - P_w^2} = 7.36$$

$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 7.36$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 15529.6$$

Absolute Open Flow 15529.6 Mcfd @ 15.025	Angle of Slope θ 45°	Slope, n 1.000
---	------------------------------------	-----------------------

Remarks: ***CALCULATED FROM KNOWN BOTTOM HOLE PRESSURES**

Approved By Division	Conducted By: PRO WELL TESTING	Calculated By: MB	Checked By: BM
----------------------	--	-----------------------------	--------------------------