

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 1-13-88			
Company Enron Oil & Gas Company				Connection None					
Pool Undesignated				Formation Morrow				Unit	
Completion Date 1-7-88		Total Depth 16050'		Plug Back TD 15954'		Elevation 27.5 KB 3364' GL		Name of Lease Name Brinninstool 21 Federal	
Cas. Size 4 1/2"	Wt. 15.10#	d 3.826	Set At 16047	Perforations: From 15759' To 15766'				Well No. 1	
Tub. Size 2 7/8"	Wt. 7.9#	d 2.323	Set At 12889'	Perforations: From Open To Ended				Unit Sec. Twp. Range 0 21 25s 33e	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At 12889'				County Lea	
Producing Thru Tubing		Reservoir Temp. °F 208 @ 15762'		Mean Annual Temp. °F 60°		Baro. Press. - P _a 13.2		State New Mexico	
L -	H -	G _g 0.571	% CO ₂ 0.983	% N ₂ 0.139	% H ₂ S -	Prover -	Meter Run 3.068	Taps Flg.	

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g. DWT	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI							8785		PACKER		72 hrs
1.	3.068	X	1.375	760	9	75	8550	60			1.0 hrs
2.	3.068	X	1.375	760	16	73	8398	60			1.0 hrs
3.	3.068	X	1.375	780	37	73	8141	60			1.25 hrs
4.	3.068	X	1.375	780	71	60	7669	60			1.5 hrs
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	9.249	83.42	773.2	0.9859	1.323	1.052	1058.70
2	9.249	111.23	773.2	0.9877	1.323	1.052	1414.22
3	9.249	171.31	793.2	0.9877	1.323	1.054	2182.24
4	9.249	237.31	793.2	1.0000	1.323	1.059	3075.15
5							

NO.	P _r	Temp. °R	T _r	Z	TSTM			
1	1.15	535	1.56	0.903	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.			
2	1.15	533	1.56	0.903	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.			
3	1.18	533	1.56	0.901	Specific Gravity Separator Gas _____ X X X X X X X X X			
4	1.18	520	1.52	0.891	Specific Gravity Flowing Fluid _____ X X X X X			
5					Critical Pressure _____ P.S.I.A. _____ P.S.I.A.			
					Critical Temperature _____ R _____ R			

NO.	P _i ²	P _w	P _w ²	P _i ² - P _w ²	Equations	
1	10479.2	109813.6	5409.4		(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 5.270$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.596$
2	10350.2	107126.6	8096.4		$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 11058.239$	
3	10075.2	101509.7	13713.3			
4	9662.2	93358.1	21864.9			
5						

Absolute Open Flow 11,058		Mcf @ 15.025		Angle of Slope @ 52° 24'		Slope, n 0.770	
Remarks: * Bottom Hole Pressures @ 15762' (-12398) Used for Pressure Calculations							

Original Filed With Division	Conducted By: Jarrel Services, Inc.	Calculated By: D. Dickerson	Checked By: D. Dickerson
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