

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 3/23/82		MAR 29 1982	
Company HNG Oil Company				Connection Llano, Inc.		O. C. D. ARTESIA, OFFICE	
Post <i>N. Loving Atoka</i> <i>Undesignated</i>				Formation Atoka			
Completion Date 2/16/82		Total Depth 12620'		Plug Back TD 12581'		Elevation 3021.3' GR	
Casing Size 4 1/2"		WT. 15.8		Set At 12620		Perforations: From 11122' To 11358'	
Tubing Size 2 3/8		WT. 4.7		Set At 10683'		Perforations: Open Ended From To	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At 10683'		County Eddy	
Producing Thru Tubing		Reservoir Temp. °F 178 @ 10590'		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
L 11240		H -		G _g 0.586		% CO ₂ 0.408	
				% N ₂ 0.635		% 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. @ WT	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI								60	PACKER		72.0 hrs
1.	3.068	X	2.250	550	4	67	5150	60			1.0 hr
2.	3.068	X	2.250	560	7	63	5035	60			1.0 hr
3	3.068	X	2.250	575	13	59	4960	60			1.0 hr
4	3.068	X	2.250	580	21	50	4690	60			1.0 hr
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, Mscf/d
1	28.78	47.46	563.2	0.9933	1.306	1.041	1844.56
2	28.78	63.34	573.2	0.9971	1.306	1.044	2478.29
3	28.78	87.44	588.2	1.001	1.306	1.046	3441.21
4	28.78	111.61	593.2	1.010	1.306	1.051	4453.09
5							

NO.	R _g	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/ubl.
1	0.83	527	1.52	0.922	105.39	
2	0.85	523	1.51	0.918	53	
3	0.87	519	1.50	0.914		
4	0.88	510	1.47	0.906		
5						

NO.	P _i	P _w *	P _w ²	P _e ² - P _w ²
1	6796.2	6577.2	43259.6	2928.7
2		6509.2	42369.7	3818.6
3		6314.2	39869.1	6319.2
4		6046.2	36556.5	9631.8
5				

(1) $\frac{P_e^2}{P_e^2 - P_w^2} = 12.096$ (2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 4.992$

AOF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 12372$

Absolute Open Flow	12372	Mcf/d @ 15.025	Angle of Slope @	57° 10'	Slope, n	0.645
--------------------	-------	----------------	------------------	---------	----------	-------

Remarks: * BOTTOM HOLE PRESSURE @ (-8219)11240' USED FOR PRESSURE CALCULATIONS
WELL PRODUCED 4.83BD in 4.0 hrs = 28.98 BD/D

Approved By Division	Conducted By:	Calculated By:
	JARREL WELL TESTING, INC	D. Dickerson

Joe A. Coleman
Joe A. Coleman
PE #2208