

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 5/29/81	
Company HNG Oil Company		Connection None	
Pool Vaca Draw		Formation Morrow	
Completion Date 5/21/81		Total Depth 15810'	Plug Back TD 15612'
		Elevation 3465' GL	Form or Lease Name Bell Lake 2 State
Cas. Size 4 1/2"	Wt. 15.1	d 3.826	Set At 15809'
Perf. Size 2 7/8"	Wt. 7.9	d 2.323	Set At 13054'
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single		Packer Set At 13054'	
Producing Thru Tubing		Reservoir Temp. °F 213	Mean Annual Temp. °F 60
		Baro. Press. - P _u 13.2	County Lea
L 15304	H -	G _g 0.6036	% CO ₂ 0.884
		% N ₂ 0.255	% H ₂ S -
Prover -		Meter Run 6.065	Taps F

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											
1.	6.065	2/64	1.250	530	5	90	6431	60	PACKER		95.25 hrs.
2.	6.065	4/64	1.250	480	13	84	6228	60			1.0 hr
3.	6.065	5.5/64	1.250	520	33	88	5997	60			1.0 hr
4.	6.065	7/64	1.250	490	64	84	5548	60			1.0 hr
5.							4955	60			1.0 hr

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 _{sp}	Rate of Flow Q, Mcfd
1	7.405	52.12	543.2	0.9723	1.287	1.038	501.31
2	7.405	80.07	493.2	0.9777	1.287	1.035	772.18
3	7.405	132.65	533.2	0.9741	1.287	1.037	1277.01
4	7.405	179.46	503.2	0.9777	1.287	1.036	1732.35
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry Gas	Mcf/bbl.
1	0.81	550	1.55	0.928	A.P.I. Gravity of Liquid Hydrocarbons	-	Deq.
2	0.73	544	1.54	0.933	Specific Gravity Separator Gas	0.6036	X X X X X X X X
3	0.79	548	1.55	0.930	Specific Gravity Flowing Fluid	X X X X X	
4	0.75	544	1.54	0.932	Critical Pressure	674	P.S.I.A.
5					Critical Temperature	354	R

P _i 8309.2	P _e 69042.8			
NO.	P _i	P _w *	P _w ²	P _e ² - P _w ²
1		8075.2	65208.9	3833.9
2		7820.2	61155.5	7887.3
3		7328.2	53702.5	15340.3
4		6667.2	44451.6	24591.2
5				

(1) $\frac{P_e^2}{P_e^2 - P_w^2} = 18.01$

AOF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 3458$

(2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 6.897$

Absolute Open Flow: 3458	Mcf @ 15.025	Angle of Slope @ 54° 47'	Slope, n 0.668
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Remarks: * BOTTOM HOLE PRESSURE @ (-11839) 15304' USED FOR PRESSURE CALCULATIONS

Approved By Division Larry S. ...	Conducted By: JARREL SERVICES, INC.	Calculated By: Joe A. Coleman	Checked By: PE #2208 Joe A. Coleman
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