

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

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SEP 02 1983

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 8/29/83	
Company HNG Oil Company ✓				Connection Transwestern Pipeline	
Pool Black River <i>Morrow</i>				Formation Morrow	
Completion Date 8/11/83		Total Depth 12840'		Plug Back TD 12541'	
Elevation 3128'GL		Farm or Lease Name Loving 1 State			
Csq. Size 4 1/2"	Wt. 13.5	d	Set At 12840'	Perforations: From 12231 To 12529'	
Trq. Size 2 3/8"	Wt. 4.7	d	Set At 10229'	Perforations: From Open To Ended	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single Gas				Packer Set At 10229'	
Producing Thru Tubing		Reservoir Temp. °F 199 @ 12465'		Mean Annual Temp. °F 60	
Baro. Press. - P _g 13.2		State New Mexico			
L 12465'	H 12465'	G _g .5701	% CO ₂ .440	% N ₂ .325	% H ₂ S
Prover		Meter Run		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.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	3	X	1.000	260	13.0	110	3808	63			24.0 hrs.
2.	3	X	1.000	290	20.0	100	3755	63			1.0 hr
3.	3	X	1.000	310	42.0	95	3667	63			1.0 hr
4.	3	X	1.000	340	90.0	90	3500	63			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, Mcfd
1	4.789	59.60	273.2	.9551	1.325	1.015	367
2	4.789	77.87	303.2	.9636	1.325	1.017	484
3	4.789	116.51	323.2	.9680	1.325	1.020	730
4	4.789	178.29	353.2	.9723	1.325	1.022	1124
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
1	.41	570	1.65	.971	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2	.45	560	1.62	.966	Specific Gravity Separator Gas _____ .5701
3	.48	555	1.60	.962	Specific Gravity Flowing Fluid _____ X X X X X
4	.53	550	1.59	.957	Critical Pressure _____ 672 P.S.I.A.
5					Critical Temperature _____ 346 °R

NO.	* BHP	P _w	P _w ²	P _c ² - P _w ²
1	4924.2	3886.6	15105.7	477.6
2	4862.2	3834.8	14705.5	877.8
3	4764.2	3749.8	14061.3	1522.0
4	4569.2	3586.1	12860.1	2723.2
5	4995.2	S.I.P.		

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 5.722$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4065$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.617$

Absolute Open Flow	4065 Mcfd @ 15.025	Angle of Slope @	53.5°	Slope, n	.737
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Remarks: CALCULATED FROM BOTTOM HOLE PRESSURE BOMBS SET @ 12465'

Approved By Division	Conducted By: JARREL WELL TESTING INC.	Calculated By: Rick Pagan	Checked By: Rick Pagan
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