

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 11/16/83	
Company HNG Oil Co.		Connection HNG Oil Company	
Field East Grama Ridge		Formation Morrow	
Completion Date 10/28/83		Total Depth 13250'	
Casing Size 4 1/2"		Set At 13250	
Perforations: From 12790 To 12795		Well No. 1	
Tubing Size 2 3/8		Set At 11528'	
Perforations: From Open To Ended		Unit E	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single		Packer Set At 11528'	
Producing Thru Tbg.		Reservoir Temp. °F 202 @ 12793	
Mean Annual Temp. °F 60°		Base Press. - P _a 13.2	
State New Mexico		County Lea	
L 12793		H 12793	
G _g .5998		% CO ₂ .345	
% N ₂ .630		% H ₂ S	
Prover 3.068		Meter Run 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.	Temp. °F	
1	3 x 1.500			110	1.0	64	2742	62	24 hrs.
2	3 x 1.500			110	2.5	71	2614	62	1 hr.
3	3 x 1.500			110	5.0	73	2511	62	1 hr.
4	3 x 1.500			130	10.0	78	2060	62	1 hr.

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 _{sp}	Rate of Flow Q, Mscf/d
1	11.13	11.10	123.2	.9962	1.291	nil	159
2	11.13	17.55	123.2	.9896	1.291	nil	250
3	11.13	24.82	123.2	.9877	1.291	nil	352
4	11.13	37.84	143.2	.9831	1.291	1.011	540

NO	P _h	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry	Mcf/bbl.
1	.18	524	1.46	nil	A.P.L. Gravity of Liquid Hydrocarbons		Deg.
2	.18	531	1.48	nil	Specific Gravity Separator Gas	.5998	X X X X X X X X
3	.18	533	1.49	nil	Specific Gravity Flowing Fluid	X X X X X	
4	.21	538	1.50	.978	Critical Pressure	671	P.S.I.A.
					Critical Temperature	358	°R

$r_c^2 = 3017.0$ $r_w^2 = 9102.1$				$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 2.100$		$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.788$	
NO	BHP	P _w	P _c	P _c ² - P _w ²	$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 965$		
1	3765.2	2861.9	8190.3	911.8			
2	3602.2	2731.1	7458.8	1643.3			
3	3492.2	2645.1	6996.7	2105.4			
4	2893.2	2183.6	4768.2	4333.9			
5	3958.2	SIP					

Absolute Open Flow		965	Mcf @ 15.025	Angle of Slope θ	52°	Slope, n	.783
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*Calculated from Bottom Hole Pressure recorded @ 12793'.

Approved By Division	Conducted By: Jarrel Well Testing, Inc.	Calculated By: Rick Pagan	Checked By: Rick Pagan
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