

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 1/7/85			
Company HNG Oil Company				Connection Transwestern					
Field Pitchfork Ranch				Formation Morrow				Unit	
Completion Date 7/2/84		Total Depth 15275'		Plug Back TD 15206'		Elevation 3442'GL		Farm or Lease Name Dillon 31	
Cas. Size 4 1/2"	Wt. 15.1#	d 3.826	Set At 15275'	Perforations: From 15087' To 15139'				Well No. 1	
Tub. Size 2 7/8"	Wt. 6.5#	d 2.441	Set At 12739'	Perforations: Open Ended				Unit Sec. Twp. Rge. I 31 24s 34e	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single						Packer Set At 12739'		County Lea	
Producing Thru Tbg		Reservoir Temp. °F 236 15113'		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2		State New Mexico	
L 15113	H -	G _g 0.577	% CO ₂ 0.697	% N ₂ 0.179	% H ₂ S -	Prover -	Meter Run 4.026	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.	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI							5750		PACKER		24.0 hrs
1.	4.026	**	1.750	920	6"	87	5672	62			1.0 hr
2.	4.026		1.750	920	15"	85	5615	62			1.0 hr
3.	4.026		1.750	940	28"	80	5548	62			1.0 hr
4.	4.026		1.750	940	77"	77	5427	62			1.0 hr
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 _{sp}	Rate of Flow Q, Mscf/d
1	14.93	74.83	933.2	0.9750	1.316	1.056	1513.77
2	14.93	118.31	933.2	0.9768	1.316	1.058	2402.31
3	14.93	163.37	953.2	0.9813	1.316	1.059	3335.69
4	14.93	233.09	953.2	0.9840	1.316	1.061	4781.34
5							

NO.	R	Temp. °R	T _r	Z	Gas-Liquid Hydrocarbon Ratio	Dry Gas	Mcf/bbl.
1	1.38	547	1.60	0.896	A.P.I. Gravity of Liquid Hydrocarbons		
2	1.38	545	1.59	0.893	Specific Gravity Separator Gas	0.5770	X X X X X X X X
3	1.41	540	1.58	0.891	Specific Gravity Flowing Fluid	X X X X X	
4	1.41	537	1.57	0.888	Critical Pressure	675	P.S.I.A.
5					Critical Temperature	342	R

r _c 7430.2 * P _c ² 55207.9				(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 12.892$		(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 8.116$	
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²			
1		7358.2	54143.1	1064.8			
2		7298.2	53263.7	1944.2			
3		7244.2	52478.4	2729.5			
4		7136.2	50925.4	4282.5			
5							

Absolute Open Flow 38805		Mcf/d @ 15.025		Angle of Slope θ 50° 41'		Slope, n 0.819	
--------------------------	--	----------------	--	--------------------------	--	----------------	--

Remarks: * BOTTOM HOLE PRESSURE @ (-11671)15113' USED PRESSURE CALCULATIONS
** DIAPHRAGM ACTUATED CHOKE

Approved By Division	Conducted By: Jarrel Services, Inc.	Calculated By: D. Dickerson	Checked By: D. Dickerson
----------------------	--	--------------------------------	-----------------------------