

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test: ☒ Initial ☐ Annual ☐ Special		Test Date 12/11/81	
Company InterNorth, Inc.		Connection Northern Natural Gas	
Well Undesignated -		Formation Morrow	
Completion Date 12/1/81	Total Depth 13630'	Plug Back TD 13440'	Elevation 3569' GL
Well No. 1	County Tonto State Com		
Well Size 5 1/2" 17.0	Set At 4.767 13630'	Perforations From 13226' To 13530'	Well No. 1
Well Size 2 7/8" 6.5	Set At 2.441 13125'	Perforations Open Ended	Well No. J 32 19s 33e
Type Well - Single - Broadhead - G.C. or G.C. Multiple		Packer Set At 13125'	County Lea
Producing Interval 13125' - 13125'	Reservoir Temp. °F 205 @ 13125'	Mean Annual Temp. °F 60	Baro. Press. - P _o 13.2
L 13125'	H 13125'	Gc 0.6525	% CO ₂ 0.692
		% N ₂ 0.561	% H ₂ S NIL
		Prover -	Flange 2" Flange

FLOW DATA									
NO.	Flow Line Size	Orifice Size	Press. (psig)	Orifice (in)	Temp. (°F)	Flow Rate (scf/hr)	Temp. (°F)	Flow Rate (scf/hr)	Flow Rate (scf/hr)
1	2" 1/64	1.000	656	5.0	65	4277	60	PACKER	70.0 hr
2	2" 2/64	1.000	646	6.0	69	3134			1.0 hr
3	2" 3/64	1.000	650	9.0	69	2820			1.0 hr
4	2" 6/64	1.000	650	15.5	69	2410			1.0 hr

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_{LP} P_m}$	Pressure P _m	Flow Temp. Factor (°F)	Gravity Factor (°F)	Super. Compress. Factor, F _{sp}	Rate of Flow (Q, Mcf/D)
1	5.724	57.84	669.2	.9952	1.238	1.069	436
2	5.724	62.89	659.2	.9915	1.238	1.066	471
3	5.724	77.26	663.2	.9915	1.238	1.067	579
4	5.724	101.39	663.2	.9915	1.238	1.067	760

NO.	F ₁	Temp. °F	P ₁	Z ₁	Gas Liquid Hydrocarbon Ratio	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	1.00	525	1.40	.875	17.33	0.6525	0.6525	67	375
2	.98	529	1.41	.880	54.2 @ 60°	0.6525	0.6525	67	375
3	.99	529	1.41	.879		0.6525	0.6525	67	375
4	.99	529	1.41	.879		0.6525	0.6525	67	375

NO.	P ₁	P ₂	P ₁ ² - P ₂ ²	(1) $\frac{P_1^2}{P_2^2 - P_1^2} =$	(2) $\left[\frac{P_1^2}{P_2^2 - P_1^2} \right]^n =$
1	3410.2	11628.8	6777.0	1.468	1.468
2	3149.0	9916.2	8489.6		
3	2831.5	3017.4	10388.4		
4	2422.7	5369.5	12536.3		

Absolute Flow 1116	Mcf/D @ 15.025	Angle of Slope ° 45°	Slope, n 1.000
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Remarks: MADE 5.4 BBLS OF FLUID IN 4.0 hrs = 32.40 BD/Day

Applied By: Division Jerry S. [Signature]	Conducted By: JARREL WELL TESTING, INC	Calculated By: Bob McMurrian Bill Rea	Checked By: [Signature] JOE A. COLEMAN PE #2208
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