

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 2/14/91			
Company Santa Fe Energy Resource				Connection			
Pool South Empire <i>Morrow</i>				Formation Morrow		Unit	
Completion Date 10/17/90		Total Depth 0 10,957		Plug Back TD 10,915		Farm or Lease Name Muskegon 20 State Comm	
Ceq. Size 5.5000		Wt. 17.00		Set At 10956		Well No. 1	
Thq. Size 2.3750		Wt. 4.70		Set At 10415		Unit Sec. Twp. Rye. H 20 17S 29E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At 10,425'		County <i>Eddy</i>	
Producing Thru 1/1/91		Reservoir Temp. °F 158 @ 10915		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.20	
L 10673		H 10915		C _g .659		% CO ₂ 5.03	
				% N ₂ .65		% H ₂ S .00	
				Prover .0		Meter Run 3.1	
						Taps Flange	

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	of Flow
SI							2810	60			1008.0
1.	3.07	x	1.500	620	2.0	65	2523	60	0	0	5.0
2.	3.07	x	1.500	620	4.0	65	2510	60	0	0	2.3
3.	3.07	x	1.500	620	20.0	65	2299	60	0	0	2.5
4.	3.07	x	1.500	625	30.0	63	2189	60	0	0	1.5
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. Compres. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	11.13	35.59	633.2	9957	1.2318	1.0586	514
2	11.13	50.33	633.2	9957	1.2318	1.0586	727
3	11.13	112.53	633.2	9957	1.2318	1.0586	1626
4	11.13	138.37	638.2	9971	1.2318	1.0598	2004
5.							

NO.	R	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	.92	525	1.43	.892	24.097	55.3	.659	X X X X X X X X	691	367
2	.92	525	1.43	.892				X X X X X		
3	.92	525	1.43	.892						
4	.92	523	1.43	.390						
5.										

NO.	P _c	P _w	P _w ²	P _c ² - P _w ²
1	4274.8	4056.8	16458	1816
2		3962.3	15700	2574
3		3640.6	13254	5020
4		3443.2	11856	6418
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 6.08524$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 5480$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 6.08524$

Absolute Open Flow	5480	15.025 Mcfd @ 15.025	Angle of Slope @	45.0	Slope, n	1.000
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Remarks: AOF Calculated from BHP from electronic gauge instrument number 20219

Approved By Division	Conducted By Schlumberger	Calculated By <i>D. G. Harrison</i>	Checked By
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