

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 05/21/91			
Company Santa Fe Energy Resources				Connection To Transwestern 5-23-91					
Pool Bilbrey Morrow				Formation Morrow				Unit	
Completion Date		Total Depth 14715		Plug Back TD 14624		Elevation 3698		Farm or Lease Name Bilbrey 27A Federal	
Ceq. Size 4 1/2	Wt. 13.5#	d 3.92	Set At 14715	Perforations From 14292 To 14300		Well No. 1			
Thq. Size 2.375	Wt. 4.7	d 1.995	Set At 14068	Perforations From To		Unit 27		Sec. 21S	Twp. 32E
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At 13997		County Lea	
Producing Thru Tubing		Reservoir Temp. °F 168 @ 14296		Mean Annual Temp. °F 60		Baro. Press. - P _g 13.20		State New Mexico	
L 14296	H 14296	G _g 0.615	% CO ₂ 1.14	% N ₂ 0.22	% H ₂ S .00	Prover .0	Meter Run 4.0	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	
SI							4890	75			24.0
1.	4.03	x	1.5	178	31.8	80	4848	80	0	0	1.0
2.	4.03	x	2.0	187	27.6	86	4788	86	0	0	1.0
3.	4.03	x	2.0	266	38.0	73	4701	73	0	0	1.0
4.	4.03	x	2.0	620	64.0	66	4470	66	0	0	1.0
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	10.84	77.98	191.2	0.9813	1.2752	1.0147	1073
2.	19.81	74.33	200.2	0.9759	1.2752	1.0148	1860
3.	19.81	103.00	279.2	0.9877	1.2752	1.0227	2629
4.	19.81	201.31	633.2	0.9943	1.2752	1.0554	5337
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 427.412 Mcf/bbl.
1	0.28	540	1.50	0.971	A.P.I. Gravity of Liquid Hydrocarbons 51.2 Deg.
2.	0.30	546	1.51	0.971	Specific Gravity Separator Gas 0.615 XXXXXXXX
3.	0.41	533	1.48	0.956	Specific Gravity Flowing Fluid XXXXX 0.622
4.	0.94	526	1.46	0.898	Critical Pressure 676 P.S.I.A. 676 P.S.I.A.
5					Critical Temperature 361 R 363 R

P _f 6503	P _f ² 42289		
NO.	P _f ²	P _s	P _s ²
1		6446	41551
2		6413	41127
3		6385	40768
4		6285	39501
5			

(1) $\frac{P_f^2}{P_f^2 - P_s^2} = 15.1682$ (2) $\left[\frac{P_f^2}{P_f^2 - P_s^2} \right]^n = 15.1682$

AOF = Q $\left[\frac{P_f^2}{P_f^2 - P_s^2} \right]^n = 80953$

Absolute Open Flow 80953 Mcfd @ 15.025	Angle of Slope 45.0	Slope, n 1.0
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Remarks: AOF calculated from BHP received from electronic gauge--instrument #53217
and using maximum slope of N=1.0 AJW

Approved By Division	Conducted By: Schlumberger	Calculated By: <i>[Signature]</i>	Checked By:
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