

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 10-18-90	
Company Santa Fe Energy Resources, Inc.				Connection	
Pool <i>W. Sand Dunes Atoka</i>				Formation Atoka	
Completion Date 09-28-90		Total Depth 14,850		Plug Back TD 13,665	
Elevation		Form or Lease Name Pure Gold 'C' Federal			
Csq. Size 7 5/8	Wt. 39#	Set At 14,850	Perforations: From 13,322 To 13,355		Well No. 1
Thq. Size 2 3/8	Wt. 4.7	Set At 13,048	Perforations: From To		Unit Sec. Twp. Rge. 17 23S 31E
Type Well - Single - Draddenhead - G.C. or G.O. Multiple Single				Packer Set At 13,005	
Producing Thru TBG		Reservoir Temp. °F 207 @ 13,338		Mean Annual Temp. °F 60	
Baro. Press. - P _a 13.2		State New Mexico			
L 13,338	H 13,338	G _g .591	% CO ₂ .63	% N ₂ .85	% H ₂ S ---
Prover		Meter Run 3.068		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							5920		PKR		72 hrs.
1.	3	X	2.250	475	6.00	75	5695		PKR		1 hr.
2.	3	X	2.250	500	15.00	82	5372		PKR		1 hr.
3.	3	X	2.250	540	34.00	62	5250		PKR		1 hr.
4.											
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.	28.78	54.12	488.2	.9859	1.301	1.038	2074
2.	28.78	87.74	513.2	.9795	1.301	1.040	3347
3.	28.78	139.10	553.2	.9981	1.301	1.049	5453
4.							
5.							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio <u>DRY GAS</u> Mcf/bbl.			
					A.P.I. Gravity of Liquid Hydrocarbons <u>DRY</u> Deg.			
					Specific Gravity Separator Gas <u>.591</u> X X X X X X X X			
					Specific Gravity Flowing Fluid <u>X X X X X</u>			
					Critical Pressure <u>672</u> P.S.I.A. P.S.I.A.			
4.					Critical Temperature <u>354</u> R R			
5.								

P _c <u>5957.6</u>	P _c ² <u>35493.0</u>	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 4.680$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.877$
NO.	P _i ²	P _w	P _w ²
1		5747.6	33035.0
2		5470.1	29922.0
3		5282.9	27909.0
4			
5			

Absolute Open Flow <u>21,141</u> Mcfd @ 15.025		Angle of Slope θ <u>48.7</u>	Slope, n <u>.878</u>
--	--	-------------------------------------	----------------------

Remarks: No fluid made during test
unable to obtain only (3) rates due to high pressure valve blew out on flow line

Approved By Division	Conducted By: Pro Well Testers	Calculated By: BM	Checked By: BM
----------------------	-----------------------------------	----------------------	-------------------