

Form C-122
Revised 10-1-78
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MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 11-5-81		JAN 4 1982	
Company Yates Petroleum Corporation			Connection Transwestern Pipeline Company		O. C. D. ARTESIA, OFFICE
Pool Undesignated Abo Pecos Slope - Abo Gas			Formation Abo		
Completion Date 8-1-81		Total Depth 4400' KB		Plug Back TD 4391' KB	
				Elevation 3822' GL	
Farm or Lease Name McClellan "MB" Fed.					
Coq. Size 4-1/2"		WI. 9.5#		d 4.090"	
Set At 4387'		Perforations: From 3679'		To 3850'	
Well No. 3					
Trq. Size 2-3/8"		WI. 4.7#		d 1.995"	
Set At 3800'		Perforations: From -		To -	
Unit C		Sec. 31		Twp. 5S	
Hgt. 25E					
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At -	
County Chaves					
Producing Thru Tubing		Reservoir Temp. °F 99 @ 3800'		Mean Annual Temp. °F 62	
				Baro. Press. - P _a 13.2	
State New Mexico					
L 3800		H 3800		G _a .648	
% CO ₂ 0.32		% N ₂ 5.04%		% H ₂ S 0	
Prove. -		Meter Run 4"		Taps Flanged	

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							1005				
1.	4.026	x	1.375	385	44.0	63	830	66			24 hrs
2.	4.026	x	1.375	370	28.3	72	881	66			24 hrs
3.	4.026	x	1.375	370	15.3	73	920	66			24 hrs
4.	4.026	x	1.375	360	8.0	70	947	66			24 hrs
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, Mcd
1	9.071	132.4	398.2	.9971	1.242	1.035	1539
2	9.071	104.1	383.2	.9887	1.242	1.032	1197
3	9.071	76.5	383.2	.9877	1.242	1.032	879
4	9.071	54.7	373.2	.9905	1.242	1.031	629
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry	Mcf/bbl.
1	.60	523	1.46	.933	A.P.I. Gravity of Liquid Hydrocarbons	-	Deq.
2	.58	532	1.49	.939	Specific Gravity Separator Gas	.648	X X X X X X X X
3	.58	533	1.49	.939	Specific Gravity Flowing Fluid	X X X X X	.648
4	.56	530	1.48	.940	Critical Pressure	661	P.S.I.A. 661
5					Critical Temperature	358	R 358

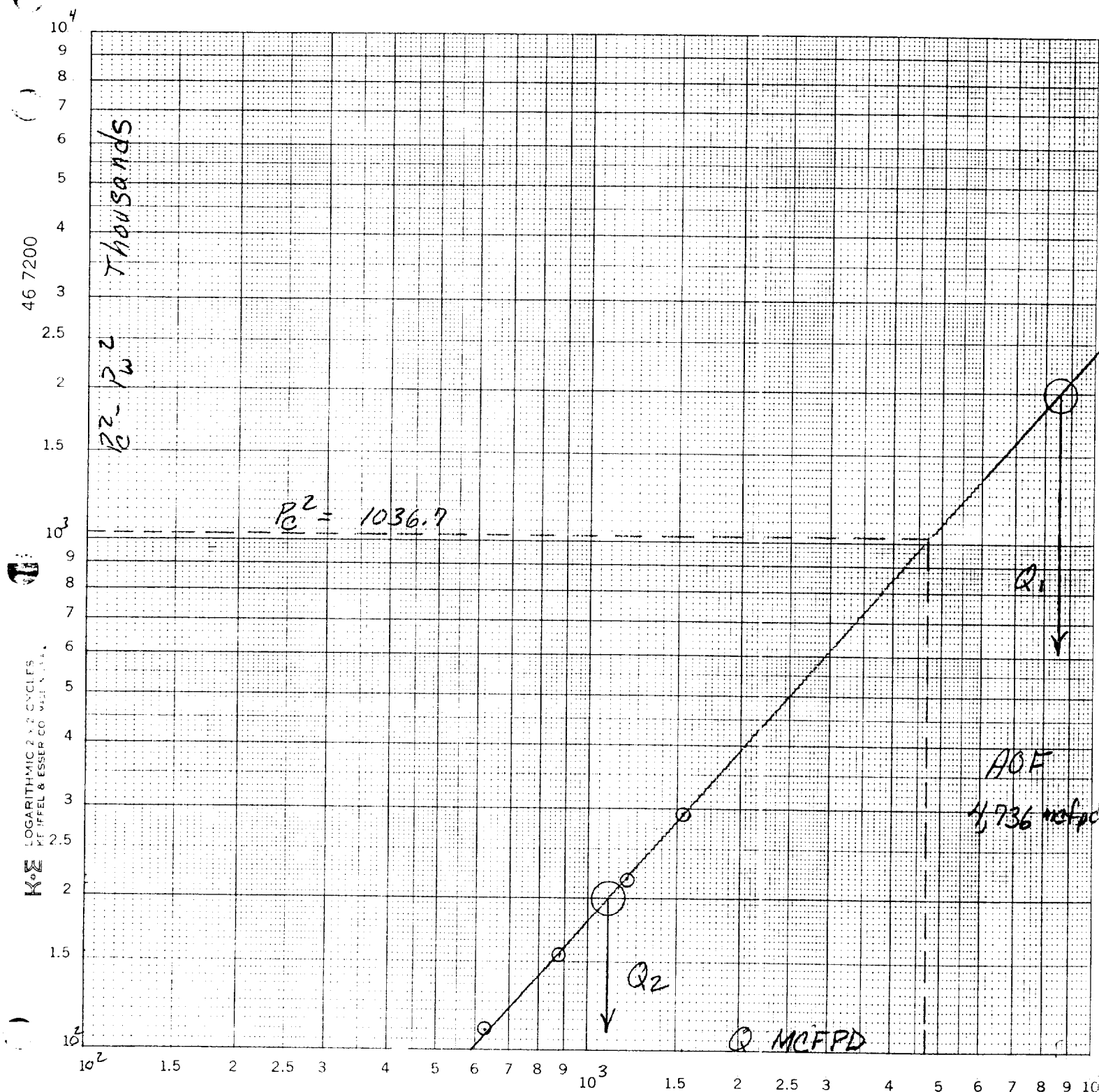
P _c 1018.2 P _w 1036.7			
NO.	P _t	P _w	P _t ² - P _w ²
1	711.0		742.3
2			818.5
3			881.0
4			927.1
5			

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.5214$		(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.0776$	
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4736$			

Absolute Open Flow 4736		Mcd @ 15.025		Angle of Slope θ		Slope, n .893	
Remarks:							

Approved By Division	Conducted By: David Weaver	Calculated By: Al Springer	Checked By:
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Yates Petroleum Corp.
 McClellan "M. Fed" #3
 Unit C, Sec 31, T-55, R-25E
 Chaves County, New Mexico



$$(P_e^2 - P_w^2)_1 = 2,000$$

$$(P_e^2 - P_w^2)_2 = 200$$

$$Q_1 = 8,600$$

$$Q_2 = 1,100$$

$$\log Q_1 = 3.93450$$

$$\log Q_2 = 3.04139$$

$$n = .89311 = .893$$

COMPANY Vates Petroleum Corp. LEASE McClellan "MS" Fed WELL NO. #3 DATE 12/31/81

LOCATION: Unit C Section 31 Township 55 Range 25E

L 3000 H 3000 L/H 1.000 G 648 % CO₂ 0.32 % N₂ 5.04 % H₂S 0

d 1.995 F_r 0.01823 GH 2462 P_{CI} 661 T_{CI} 358

TABLE IX & X

LINE	Rate #1	Rate #2	Rate #3	Rate #4
1 Q _m	1.539	1.197	.879	.629
2 T _w (W.H. °R)	526	526	526	526
3 T _s (B.H. °R)	559	559	559	559
4 T = $(\frac{LW}{2} + Ts)$	542.5	542.5	542.5	542.5
5 Z (Est.)	.876	.871	.866	.863
6 TD	475.23	472.52	469.81	468.18
7 GRIZ	5.181	5.210	5.240	5.259
8 e ^s (Table XIV)	1.214	1.216	1.217	1.218
9 1-e ^s (Table XIV)	.176	.178	.178	.179
10 F _r	843.2	844.2	833.2	960.2
11 P _r 2 1000	711.0	799.6	870.9	922.0
12 F _r (Table XV)	.01823	.01823	.01823	.01823
13 F _r = F _r T _r	8.663	8.614	8.565	8.535
14 F _r 2 Q _m	13.333	10.311	7.528	5.368
15 L/H (F _c Q _m) ²	177.770	106.316	56.674	28.820
16 F _w = L/H (F _c Q _m) ² (1-e ^{-s})	31.288	18.924	10.088	5.130
17 P _w ² = P _r ² + F _w	742.3	818.5	881.0	927.1
18 P _s ² = e ^s P _w ²	901.1	995.3	1072.1	1128.3
19 P _s	949.3	997.7	1035.4	1062.2
20 P = $(\frac{P_s + P_r}{2})$	896.2	945.9	984.3	1011.2
21 F _r = (P/P _r)	1.36	1.43	1.49	1.53
22 T _r = (T/T _r)	1.52	1.52	1.52	1.52
23 Z (Table XI)	.876	.871	.866	.863