

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date MAY 26 1982	
Company Yates Petroleum Corporation				Connection Transwestern Pipeline			
Pool Pecos Slope Abo Gas				Formation Abo			
Completion Date 2-12-82		Total Depth 4225		Plug Back TD 4191		Elevation 3765.8 GL	
Farm or Lease Name George "QJ" Fed.		Well No. #3		Unit L		Sec. Twp. Rge. 25 6S 25E	
Coq. Size 4 1/2"	Wt. 9.5#	d 4.090	Set At 4216	Perforations: From 3714 To 4078		Well No.	
Thq. Size 2 3/8"	Wt. 4.7#	d 1.995	Set At 3886	Perforations: From To		Unit Sec. Twp. Rge. L 25 6S 25E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At -----		County Chaves	
Producing Thru tubing		Reservoir Temp. °F 94° 3884		Mean Annual Temp. °F 62		Baro. Press. - P ₀ 13.2	
State New Mexico		L 3886		H 3886		G _g .661	
% CO ₂ 0.04		% N ₂ 6.00		% H ₂ S -----		Prover -----	
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							1004				
1.	4.026 X 1.250			220	11.0	70	935	65			24 hrs.
2.	4.026 X 1.250			210	16.5	68	926	65			24 hrs.
3.	4.026 X 1.250			160	38.5	65	883	65			24 hrs.
4.	4.026 X 1.250			170	56.0	65	850	65			24 hrs.
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	7.469	50.7	233.2	.9905	1.230	1.020	471
2	7.469	60.6	223.2	.9924	1.230	1.020	564
3	7.469	81.7	173.2	.9952	1.230	1.015	758
4	7.469	101.3	183.2	.9952	1.230	1.016	941
5							

NO.	F ₁	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Dry	Mcf/bbl.
1	.35	530	1.47	.961	A.P.I. Gravity of Liquid Hydrocarbons	-----	Deg.
2	.34	528	1.46	.961	Specific Gravity Separator Gas	.661	X X X X X X X X
3	.26	525	1.45	.971	Specific Gravity Flowing Fluid	X X X X X	.661
4	.28	525	1.45	.968	Critical Pressure	659	P.S.I.A. 659 P.S.I.A.
5					Critical Temperature	361	R 361 R

NO.	P _c	P _w	P _c ²	P _w ²	P _c ² - P _w ²
1	1017.2	902.0	1034.7		
1	899.1			902.0	132.7
2	882.1			886.3	148.4
3	803.2			810.9	223.8
4	745.1			757.0	277.7
5					

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.7260$

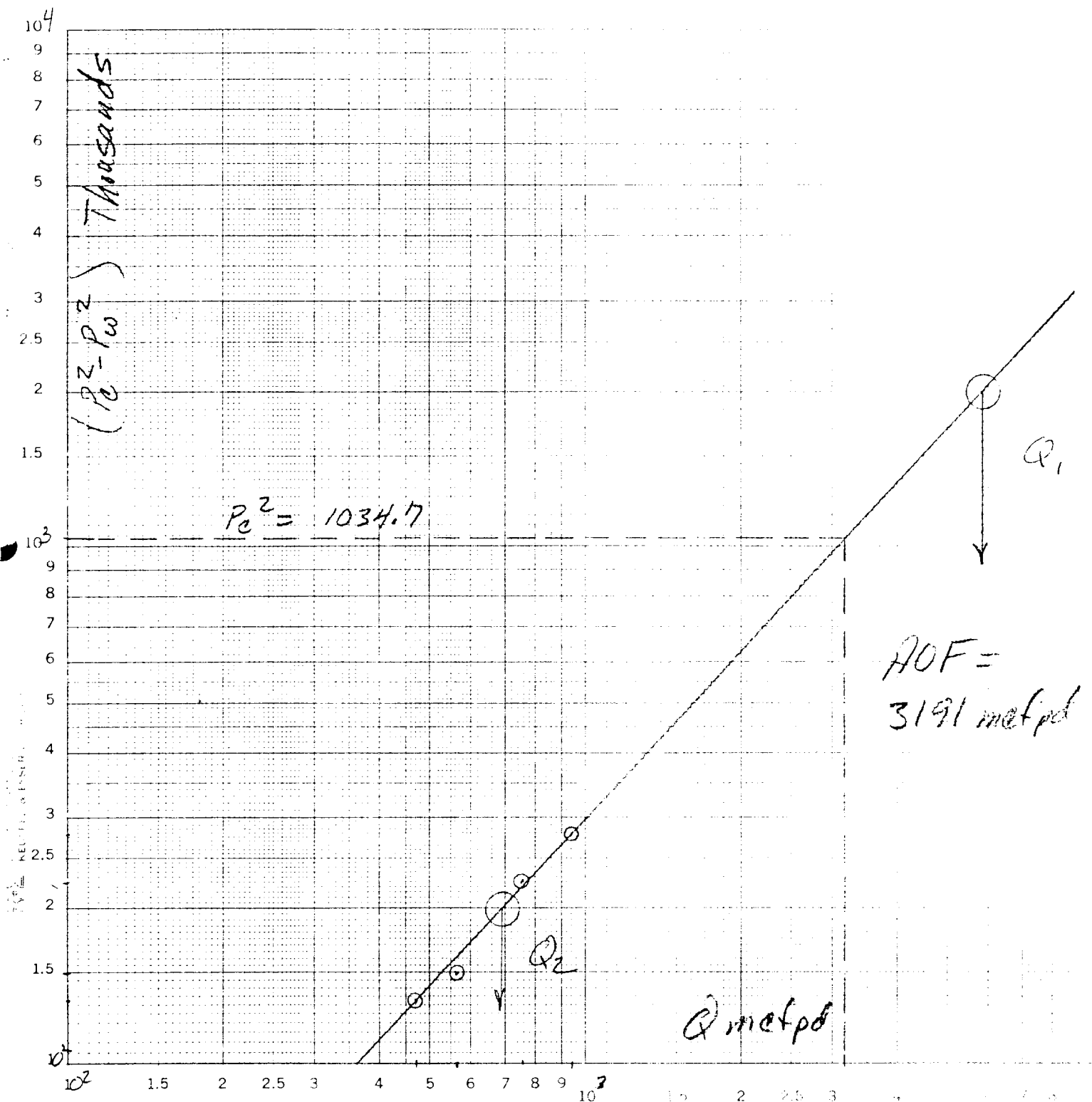
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3191 \text{ mcfpd}$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.3907$

Absolute Open Flow	3191	Mcf/d @ 15.025	Angle of Slope @	Slope, n	.928
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Remarks:			
Approved By Division	Conducted By: David Weaver	Calculated By: Al Springer	Checked by:

Yates Petroleum Corp.
 George GJ red. #3
 (L) sec 26-65-25E
 Chaves, New Mexico



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

$$(P_c^2 - P_w^2)_2 = 100$$

$$Q_1 = 5,850$$

$$Q_2 = 1,400$$

$$\log Q_1 = 3.76716$$

$$\log Q_2 = 2.83255$$

$$n = .92831$$

COMPANY Vates Petroleum Corp. LEASE George QT 1st WELL NO. #3 DATE 5/24/82

LOCATION: Unit L Section 25 Township 6S Range 25E

L 3886 H 3886 LH 1.000 G .661 % CO₂ 0.04 % N₂ 6.00 % H₂S —

d 1.995 F₁ .01823 GH 2569 P_{cr} 659 T_{cr} 361

LINE	1st rate	2nd rate	3rd rate	4th rate
1 Q _m	.471	.564	.758	.941
2 T _w (W.H. °R)	525	525	525	525
3 T _s (B.H. °R)	554	554	554	554
4 T = $(\frac{T_w + T_s}{2})$	539.5	539.5	539.5	539.5
5 Z (Est.)	.853	.854	.861	.865
6 T _Z	460.19	460.73	464.51	466.67
7 GH/TZ	5.582	5.596	5.531	5.505
8 e ^s (Table XIV)	1.233	1.233	1.230	1.229
9 1-e ^s (Table XIV)	.189	.129	.187	.186
10 P _L	948.2	939.2	896.2	863.2
11 P _L ² /1000	899.1	882.1	803.2	745.1
12 F _L (Table XV)	.01823	.01823	.01823	.01823
13 F _L = F _L T _Z	8.381	8.339	8.462	8.509
14 F _L Q _m	3.957	4.737	6.419	8.003
15 L/H (F _L Q _m) ²	15.613	22.440	41.200	64.181
16 F _w = L/H (F _L Q _m) ² (1-e ^s)	2.951	4.241	7.904	11.930
17 P _w ² = P _L ² + F _w	902.0	986.3	1010.9	1059.0
18 P _s ² = e ^s P _w ²	1112.2	1092.9	999.4	930.4
19 F _s	1054.6	1045.4	998.1	961.6
20 P = $(\frac{P_L + P_s}{2})$	1001.4	992.3	947.1	913.9
21 P _L (P/P _s)	1.52	1.51	1.44	1.39
22 T _P = (T/T _{cr})	1.49	1.49	1.47	1.45
23 Z (Table XI)	.853	.854	.861	.865