

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOI AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10-9-81		NOV 20 1981	
Company Yates Petroleum Corporation ✓				Connection Transwestern Pipeline Company				O. C. D.	
Pool <i>Pecos Slope - Abo Gas</i> Undesignated Abo				Formation Abo				Unit ARTESIA, OFFICE NM 14755	
Completion Date 6-21-81		Total Depth 4348'		Plug Back TD 4346'		Elevation 3832.3' GR		Farm or Lease Name Powers OL Federal	
Cas. Size 4-1/2"	Wt. 9.5#	d 4.090"	Set At 4346' KB	Perforations: From 3740' To 3985'		Well No. 4			
Thq. Size 2-3/8"	Wt. 4.7#	d 1.995"	Set At 3950'	Perforations: From To		Unit A	Sec. 14	Twp. 6S	Rge. 25E
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single						Packer Set At None		County Chaves	
Producing Thru Tubing		Reservoir Temp. °F 99° 4335'		Mean Annual Temp. °F 60		Baro. Press. - P _g 13.2		State New Mexico	
L 3950'	H 3950'	G _g 0.640	% CO ₂ 0.22	% N ₂ 5.06	% H ₂ S 0	Prover ---	Meter Run 2"	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							981				days
1.	2.067 x 1.000			300	51	69	860	71			24 hrs
2.	2.067 x 1.000			330	69	66	835	68			24 hrs
3.	2.067 x 1.000			340	86	68	805	70			24 hrs
4.	2.067 x 1.000			600	89	60	675	74			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, Mcfd
1	5.724	126.39	313.2	0.9915	1.250	1.026	920
2	5.724	153.89	343.2	0.9943	1.250	1.030	1128
3	5.724	174.28	353.2	0.9924	1.250	1.030	1275
4	5.724	233.61	613.2	1.0000	1.250	1.056	1765
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
1	0.474	529	1.478'	0.950	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2.	0.519	526	1.469	0.943	Specific Gravity Separator Gas 0.640 XXXXXXXXXX
3.	0.534	528	1.475	0.943	Specific Gravity Flowing Fluid XXXXX
4.	0.928	520	1.453	0.896	Critical Pressure 661 P.S.I.A. _____ P.S.I.A.
5					Critical Temperature 358 R _____ R

F_c 994.2 F_c² 988.4

NO	P _i ²	P _w	P _w ²	P _c ² - P _w ²
1	762.5		774.0	214.4
2	719.4		736.7	251.7
3	669.5		691.8	296.6
4	474.0		517.9	470.5
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.332$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.382$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3000$

Absolute Open Flow 3000 Mcfd @ 15.025		Angle of Slope 0.721	
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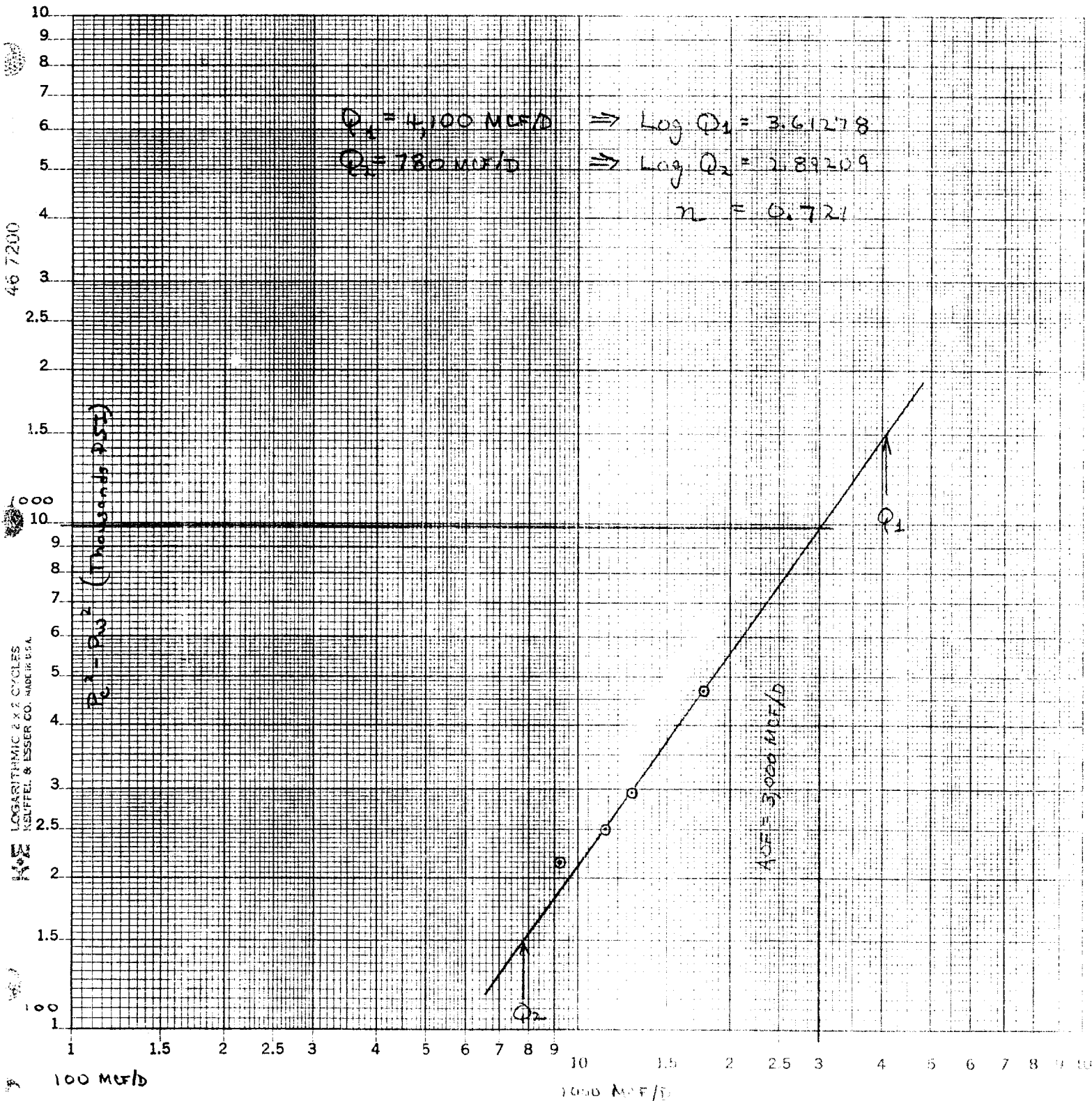
Remarks: Static pressures by Bennett Wireline, flowing pressures by DWT calculations
Worksheet C122D attached.

Approved By Commission:	Conducted By: David Weaver	Calculated By: Albert R. Stall	Checked By:
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YATES PETROLEUM CORP.

Powers OL Federal No. 4

Unit A Sec. 14, T. 65, R. 25E.



$Q \text{ (MCF/D)}$

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY Yates Pet. Corp. LEASE Powers OL Fed WELL NO. 4 DATE 11-19-81

LOCATION: Unit A Section 14 Township 6 S Range 25 E

L 3950' H 3950' L/H 1 G 0.640 % CO₂ 0.22 % N₂ 5.06 % H₂S 0

d 1.995" F_i 0.018231 GH 2528 P_{ci} 661 T_{ci} 358

TABLE IV & X

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LINE	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL
1 Q _m	0.920	0.920	1.128	1.128	1.275	1.275	1.765	1.765		
2 T _w (W.H. °R)	531	531	528	528	530	530	534	534		
3 T _s (B.H. °R)	559	559	559	559	559	559	559	559		
4 T _f = (T _w + T _s) / 2	545	545	543.5	543.5	544.5	544.5	546.5	546.5		
5 T _g (°R)	0.850	0.873	0.876	0.876	0.898	0.880	0.884	0.898		
6 T _g	463.3	475.8	476.1		489.0	479.2	483.1	490.8		
7 Q _{H/TZ}	5.457	5.313	5.310		5.170	5.276	5.233	5.151		
8 e ⁵ (Table XIV)	1.227	1.220	1.220		1.214	1.219	1.217	1.213		
9 e ⁵ = e ⁵ (Table XIV)	0.185	0.180	0.180		0.176	0.180	0.178	0.176		
10 P ₁	873.2	873.2	848.2		818.2	818.2	666.5	688.5		
11 P ₁ = P ₁ (Table XIV)	762.5	762.5	719.4		669.5	669.5	474.0	474.0		
12 P ₁ = P ₁ (Table XIV)	0.018231	0.018231	0.018231		0.018231	0.018231	0.018231	0.018231		
13 P ₂ = P ₁ + P ₂	8.446	8.674	8.680		8.915	8.736	8.907	8.948		
14 P ₂ = P ₂	7.771	7.980	7.791		11.367	11.139	15.544	15.793		
15 L/H (F ₀ Q _m) ²	60.384	63.686	95.860		129.199	124.072	241.627	243.413		
16 F _w = L/H (F ₀ Q _m) ² (1-e ⁻⁵)	11.171	11.463	17.255		22.739	22.337	43.010	43.897		
17 P _w ² = P ₁ ² + F _w	773.67	773.96	736.65		692.24	691.82	517.01	517.90		
18 P _s ² = e ⁵ P _w ²	949.29	944.24	898.72		840.38	843.34	629.120	629.21		
19 P _s	974.32	971.22	948.61		916.72	918.34	793.22	792.60		
20 P = (P ₁ + P _s) / 2	923.76	922.46	898.11		876.46	868.27	740.86	740.55		
21 P _f = P / P _{ci}	1.3975	1.3956	1.3587		1.3123	1.3136	1.1208	1.1203		
22 T _f = (T / T _{ci})	1.5223	1.5223	1.5181		1.5209	1.5209	1.5265	1.5265		
23 Z (Table XI)	0.873	0.873	0.876		0.880	0.880	0.898	0.898		