

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

Form C-122
Revised 9-1-65

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 4-2-81		MAY 23 1981	
Company Yates Petroleum Corporation /				Connection Transwestern Pipeline Co.			
Pool Ind. Abo Pecos Slope - Abo Gas				Formation Abo		Unit AP-1000	
Completion Date 1-30-81		Total Depth 4400		Plug Back TD 4029 KB		Elevation 3819 KB	
Casing Size 5 1/2"		WT. 14#		Set At 5.012" 4045 KB		Perforations: From 3815 To 3940	
Tubing Size 2 3/8"		WT. 4.7#		Set At 1.995" 3918		Perforations: From To	
Type Well - Single - Brdenhead - G.G. or G.O. Multiple Single				Packer Set At None		Form or Lease Name McClellan MB	
Producing Thru Tubing		Reservoir Temp. °F 97 @ 3877		Mean Annual Temp. °F 62		Baro. Press. - P _a 13.2	
L 3911		H 3911		C _g 0.6475		% CO ₂ 0.35	
				% N ₂ 5.64		% H ₂ S Nil	
				Prover ----		Meter Run 2"	
						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
1.	2.067 X 0.875			460	16	69	997	60			Weeks
2.	2.067 X 0.875			465	30	65	925	71			22 Hrs.
3.	2.067 X 0.875			470	56	65	880	73			24 Hrs.
4.	2.067 X 0.875			472	88	65	788	74			24 Hrs.
5.							664	75			24 Hrs.

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	3.729	87.01	473.2	.9915	1.244	1.040	416
2	3.729	119.77	478.5	.9952	1.244	1.041	576
3	3.729	164.50	483.5	.9952	1.244	1.042	791
4	3.729	206.63	485.5	.9952	1.244	1.041	993
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 1737.5 Mcf/bbl.			
1	0.715	529	1.481	.9250	A.P.I. Gravity of Liquid Hydrocarbons 63.8			
2	0.723	525	1.470	.9221	Specific Gravity Separator Gas 0.646			
3	0.730	525	1.470	.9216	Specific Gravity Flowing Fluid XXXXX .6475			
4	0.733	525	1.470	.9219	Critical Pressure 661.5 P.S.I.A. 695			
5					Critical Temperature 357.5 °R 370			

NO.	P _i ²	P _w ²	R _i ²	P _i ² - R _w ²	$(1) \frac{P_c^2}{P_i^2 - R_w^2} = 1.8246$ $(2) \left[\frac{P_c^2}{P_i^2 - R_w^2} \right]^n = 1.4337$ $AQF = Q \left[\frac{P_i^2}{P_c^2 - R_w^2} \right]^n = 1424$
1			1088	171	
2			981	278	
3			791	468	
4			569	690	

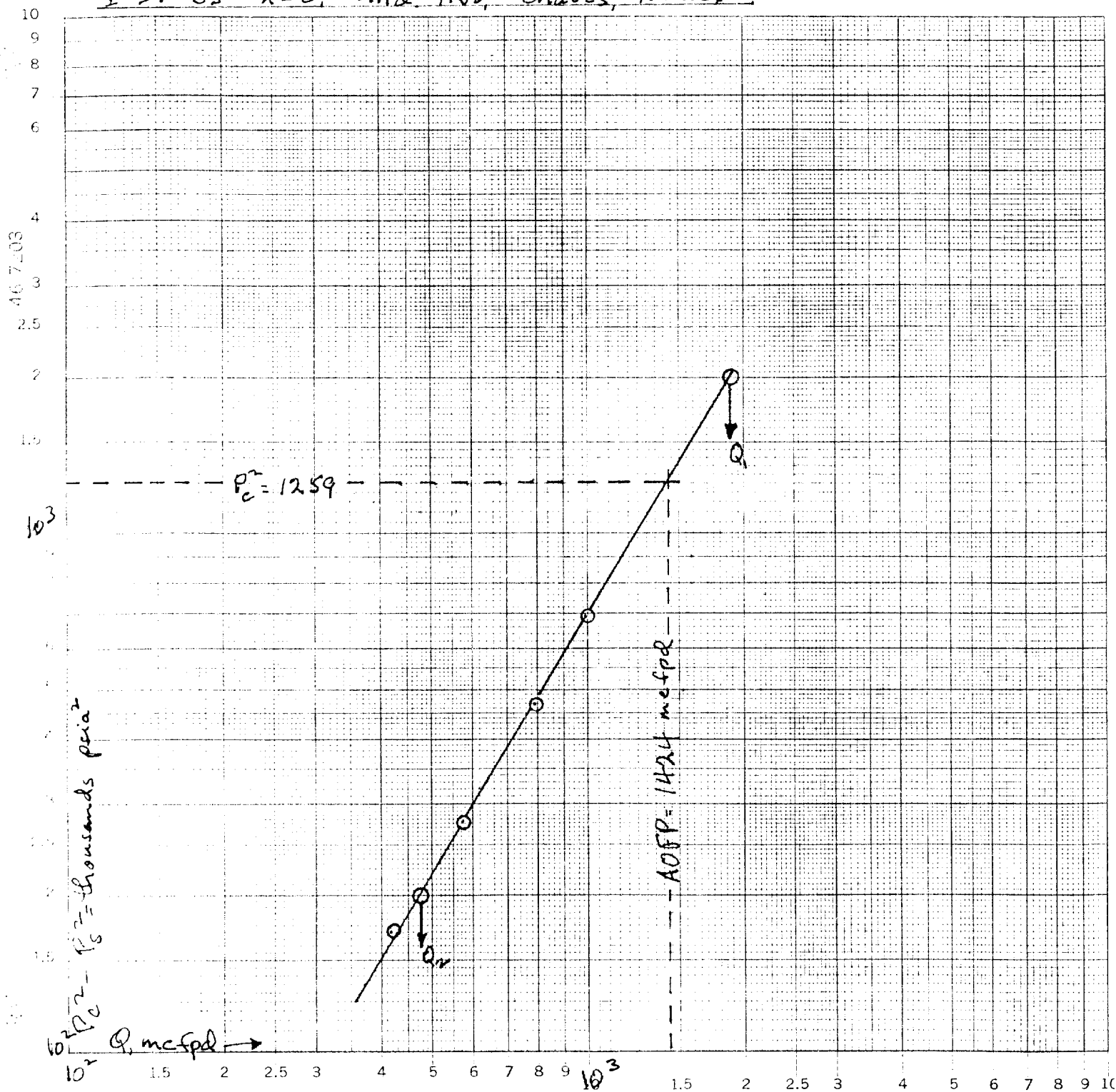
Absolute Open Flow 1424 Mcfd @ 13.025		Angle of Slope 59 deg.		Slope, n 0.5991	
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Remarks: BHP extrapolated from early BHP survey by Bennett Wireline. Surface pressures by dead weight tester. Calculations worksheet C122D attached.

Approved By Commission:	Conducted By: David Weaver	Calculated By: Eddie Mahfood	Checked By:
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YPC - McClellan MB Federal No. 2

I-31-Ss-25E, Und. Abo, Chaves, N. Mex.



$$Q_1 = 1875 \text{ mcfpd}$$

$$\log Q_1 = 3.2730$$

$$Q_2 = 472 \text{ mcfpd}$$

$$\log Q_2 = 2.6739$$

$$n = 0.5991$$

WORKSHEET FOR CALCULATION OF SI IC COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Revised 9-1-65

COMPANY N/C LEASE Midfield 11/3 12.0.00 WELL NO. 2 DATE 4-2-81

LOCATION: Unit 1 Section 31 Township 5-S Range 4-S-E

L 3916 H 3941 L/H 1.000 G 0.6475 %CO₂ 0.35 %N₂ 8.64 %H₂S 1.1

d 2.0615 F_i 0.015316 GH 2.5324 1104% H₂O P_{cr} 695 T_{cr} 370

LINE	1	2	3	4						
1 Q _m	—	0.416	0.576	0.791	0.993					
2 T _w (W.H. °R)	52.8	53.1	53.3	53.4	53.5					
3 T _s (B.H. °R)	53.7	53.6	53.5	53.4	53.4					
4 T = ($\frac{T_w + T_s}{2}$)	53.85	54.35	54.4	54.45	54.45					
5 Z (Est.)	0.841	0.8325	0.862	0.8735	0.892					
6 T _Z	452.82	452.464	465.93	475.62	485.694					
7 GH T _Z	5.5918	5.5964	5.4604	5.3244	5.2146					
8 e ^s (Table XIV)	1.2333	1.2335	1.2245	1.2210	1.2159					
9 1-e ^s (Table XIV)		0.1243	0.1833	0.1810	0.1776					
10 P _i	1010.2	938.2	843.2	761.2	679.2					
11 P _i Z/1000	1020.5	886.2	797.8	641.2	458.66					
12 F _i (Table XV)	0.20969	0.20928	0.20252	0.19967	0.19552					
3 F _c = F _i T _Z		6.9249	7.1821	7.285	7.4384					
14 F _c Q _m		2.883	4.137	5.762	7.327					
15 L/H (F _c Q _m) ²		8.311	17.1	33.20	54.57					
16 F _w = L/H (F _c Q _m) ² (1-e ^s)		1.57	3.14	6.01	9.69					
17 P _w ² = P _i ² + F _w		831.79	800.95	647.93	468.29					
18 P _s ² = e ^s P _w ²		1258.6	1622.7	791.1	569.4					
19 P _s	1121.9	1042.9	996.3	889.5	754.6					
20 P = ($\frac{P_i + P_s}{2}$)	1066.0	996.6	941.8	845.3	715.4					
21 P _i = (P/P _{cr})	1.534	1.425	1.355	1.216	1.036					
22 T _i = (T/T _{cr})	1.455	1.469	1.470	1.471	1.4715					
23 Z (Table XI)	0.841	0.8325	0.862	0.8735	0.892					