

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

Form C-122

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 4/4/04		30-025-36525			
Company Yates Petroleum Corporation						Connection 5/14/04					
Pool Wildcat Morrow						Formation Basal Morrow				Unit	
Completion Date 4/3/04			Total Depth 12726		Plug Back TD 12682		Elevation 4143		Farm or Lease Name Willie State Unit		
Csg. Size 5.500	Wt. 17.000	d 4.892	Set At 12726	Perforations: From 12315 To 12375				Well No. 1			
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 12250	Perforations: From 12315 To 12375				Unit K	Sec. 31	Twp. 11S	Rge. 35E
Type Well Single						Packer Set At 12250		County Lea			
Producing Thru Tubing		Resv. Temp. °F 178 @ 12200		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State NM			
L 12250	H 12250	Gg 0.665	%CO ₂ 1.738	%N ₂ 0.891	%H ₂ S 0.000	Prover 0.000	Meter Run 4.000	Taps Flange			

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
Sl.	0.000	X	0.000	0	0.0	0	3350	0			0
1.	4.026	X	1.875	1000	18.0	60	2200	60			24
2.	4.026	X	1.875	1000	25.0	60	1800	60			24
3.	4.026	X	1.875	1000	31.0	60	1400	60			24
4.	4.026	X	1.875	1000	36.0	60	1000	60			24
5.		X									

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{hwPm}$	Pressure Pm	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.	17.260	135.0	1013.2	1.0000	1.226	1.109	3169
2.	17.260	159.2	1013.2	1.0000	1.226	1.109	3735
3.	17.260	177.2	1013.2	1.0000	1.226	1.109	4159
4.	17.260	191.0	1013.2	1.0000	1.226	1.109	4482
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature	Mcf/bbl.	Deg.
1.	1.50	520	1.40	0.814	45	55.500	0.665	XXXXXXX	676	372	673	393
2.	1.50	520	1.40	0.814								
3.	1.50	520	1.40	0.814								
4.	1.50	520	1.40	0.814								
5.												

Pc	3363.2	Pc²	11311.1
NO.	Pt²	Pw	Pw²
1.	4898.3	2238.8	5012.3
2.	3287.7	1855.8	3444.0
3.	1997.1	1482.1	2196.7
4.	1026.6	1129.1	1275.0
5.			

$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 1.438$		$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.306$	
$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4879$			

Absolute Open Flow	4879	Mcf/d @ 15.025	Angle of Slope θ	36	Slope, n	0.736	
Remarks:							
Approved By Commission:		Conducted By:		Calculated By:		Checked By:	
		Noel Gomez		Misty Carter		George Freeman	

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

DATE 4/4/04

COMPANY Yates Petroleum Corporation LEASE Willie State Unit WELL NO. 1

LOCATION: Unit K Section 31 Township 11S Range 35E

L 12250 H 12250 L/H 1.000 G 0.730 %CO₂ 1.738 %N₂ 0.891 %H₂S 0.000

d 2.441 Fr 0.010495 GH 8940.0 Pcr 673.5 Tcr 393.4

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	3.169	3.735	4.159	4.482	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	638	638	638	638	
4 T = (Tw+Ts) / 2	578.7	578.7	578.7	578.7	
5 Z (Est.)	0.759	0.752	0.769	0.810	
6 TZ	439.4	435.1	444.8	468.7	
7 GH / TZ	20.345	20.548	20.098	19.072	
8 e ^{As} (Table XIV)	2.144	2.160	2.125	2.044	
9 1-e ^{As} (Table XIV)	0.534	0.537	0.529	0.511	
10 Pt	2213.2	1813.2	1413.2	1013.2	
11 Pt ² / 1000	4898.3	3287.7	1997.1	1026.6	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	4.612	4.566	4.668	4.919	
14 FcQm	14.61	17.05	19.42	22.05	
15 L / H(FcQm) ²	213.6	290.8	377.0	486.1	
16 Fw = L / H(FcQm) ² (1-e ^{As})	114.00	156.34	199.56	248.39	
17 Pw ² = Pt ² +Fw	5012.3	3444.0	2196.7	1275.0	
18 Ps ² = e ^{As} Pw ²	10748.6	7439.7	4667.3	2606.6	
19 Ps	3278.5	2727.6	2160.4	1614.5	
20 P = (Pt+Ps) / 2	2745.9	2270.4	1786.8	1313.8	
21 Pr = (P / Pcr)	4.08	3.37	2.65	1.95	
22 Tr = (T / Tcr)	1.47	1.47	1.47	1.47	
23 Z (Table XI)	0.759	0.752	0.769	0.810	

0^5