

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 11/5/03		3D-025-35899	
Company Yates Petroleum Corporation				Connection 10/3/03				
Pool Morton Morrow (Gas)				Formation Upper Morrow				
Completion Date 10/21/03		Total Depth 13630		Plug Back TD 13197		Elevation 4060		Farm or Lease Name Mamalotes BAM
Csg. Size 4.500	Wt. 11.600	d 4.000	Set At 13630	Perforations: From 13042 To 13059		Well No. 1		
Tbg. Size 2.375	Wt. 4.700	d 1.995	Set At 12950	Perforations: From 13042 To 13059		Unit P	Sec. 36	Twp. 14S
Type Well Single						Packer Set At 12950		County Lea
Producing Thru Tubing		Resv. Temp. °F 185 @ 13050		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State NM
L 12950	H 12950	Gg 0.719	%CO ₂ 5.535	%N ₂ 2.235	%H ₂ S 0.000	Prover 0.000	Meter Run 2.000	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	2400	0			0
1.	2.067	x	0.375	300	43.0	60	1200	60			24
2.	2.067	x	0.375	300	55.0	60	900	60			24
3.	2.067	x	0.375	300	64.0	60	600	60			24
4.	2.067	x	0.375	300	70.0	60	300	60			24
5.		x									

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{hwP_m}$	Pressure Pm	Flow Temp. Factor Ft	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.	0.669	116.0	313.2	1.0000	1.179	1.033	95
2.	0.669	131.2	313.2	1.0000	1.179	1.033	107
3.	0.669	141.6	313.2	1.0000	1.179	1.033	115
4.	0.669	148.1	313.2	1.0000	1.179	1.033	121
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
					17	
					A.P.I. Gravity of Liquid Hydrocarbons	58.500 Deg.
1.	0.46	520	1.37	0.937	Specific Gravity Separator Gas	0.719
2.	0.46	520	1.37	0.937	Specific Gravity Flowing Fluid	0.879
3.	0.46	520	1.37	0.937	Critical Pressure	688 P.S.I.A.
4.	0.46	520	1.37	0.937	Critical Temperature	380 °R
5.						

NO.	P _r	P _w	P _w ²	P _c ² - P _w ²
1.	1471.9	1213.3	1472.2	4351.4
2.	833.9	913.4	834.4	4989.2
3.	376.0	613.7	376.6	5446.9
4.	98.1	314.3	98.8	5724.7
5.				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.069$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.061$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 122$

JAN 2004

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Hobbs

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Absolute Open Flow	122	Mcf/d @ 15.025	Angle of Slope	0
Remarks:				

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
<i>Paul J. Hobbs</i>	Jeremy Fitzer	Misty Carter	George Freeman

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

DATE 11/5/03

COMPANY Yates Petroleum Corporation LEASE Mamalotes BAM WELL NO. 1

LOCATION: Unit P Section 36 Township 14S Range 34E

L 12950 H 12950 L/H 1.000 G 0.879 %CO₂ 5.535 %N₂ 2.235 %H₂S 0.000

d 1.995 Fr 0.017777 GH 11383.0 Pcr 682.5 Tcr 432.6

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.095	0.107	0.115	0.121	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	645	645	645	645	
4 T = (Tw+Ts) / 2	582.2	582.2	582.2	582.2	
5 Z (Est.)	0.691	0.753	0.833	0.916	
6 TZ	402.1	438.1	484.8	533.3	
7 GH / TZ	28.309	25.982	23.479	21.346	
8 e ^{As} (Table XIV)	2.891	2.646	2.411	2.226	
9 1-e ^{As} (Table XIV)	0.654	0.622	0.585	0.551	
10 Pt	1213.2	913.2	613.2	313.2	
11 Pt ² / 1000	1471.9	833.9	376.0	98.1	
12 Fr (Table XV)	0.017777	0.017777	0.017777	0.017777	
13 Fc = FrTZ	7.148	7.788	8.619	9.480	
14 FcQm	0.68	0.83	0.99	1.14	
15 L / H(FcQm) ²	0.5	0.7	1.0	1.3	
16 Fw = L / H(FcQm) ² (1-e ^{As})	0.30	0.43	0.58	0.72	
17 Pw ² = Pt ² +Fw	1472.2	834.4	376.6	98.8	
18 Ps ² = e ^{As} Pw ²	4255.3	2208.0	908.1	219.9	
19 Ps	2062.8	1485.9	953.0	469.0	
20 P = (Pt+Ps) / 2	1638.0	1199.6	783.1	391.1	
21 Pr = (P / Pcr)	2.40	1.76	1.15	0.57	
22 Tr = (T / Tcr)	1.35	1.35	1.35	1.35	
23 Z (Table XI)	0.691	0.753	0.833	0.916	

