

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 4/21/04		30-025-36479	
Company Yates Petroleum Corporation				Connection 6/3/04					
Pool Sand Springs Atoka-Morrow (Gas)				Formation Morrow				Unit	
Completion Date 4/20/04		Total Depth 12929		Plug Back TD 12380		Elevation 4234		Farm or Lease Name Cash State Unit	
Csg. Size 4.500	Wt. 11.600	d 4.000	Set At 12924	Perforations: From 12118 To 12265			Well No. 1		
Tbg. Size 2.375	Wt. 4.700	d 1.995	Set At 12060	Perforations: From 12118 To 12265			Unit J	Sec. 31	
Type Well Single				Packer Set At 12060		County Lea			
Producing Thru Tubing		Resv. Temp. °F 182 @ 3100		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State NM	
L 12060	H 12060	Gg 0.720	%CO ₂ 3.506	%N ₂ 1.071	%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	3600	0			0
1.	2.067	X	1.375	800	5.0	60	2600	60			24
2.	2.067	X	1.375	800	8.0	60	2000	60			24
3.	2.067	X	1.375	800	11.0	60	1400	60			24
4.	2.067	X	1.375	800	14.0	60	800	60			24
5.		X									

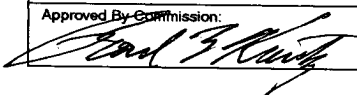
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{hwP_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	10.200	63.8	813.2	1.0000	1.179	1.101	844
2.	10.200	80.7	813.2	1.0000	1.179	1.101	1067
3.	10.200	94.6	813.2	1.0000	1.179	1.101	1252
4.	10.200	106.7	813.2	1.0000	1.179	1.101	1412
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	40	Mcf/bbl.
1.	1.19	520	1.34	0.825	A.P.I. Gravity of Liquid Hydrocarbons	50.000	Deg.
2.	1.19	520	1.34	0.825	Specific Gravity Separator Gas	0.720	
3.	1.19	520	1.34	0.825	Specific Gravity Flowing Fluid	XXXXXXXXXX	0.795
4.	1.19	520	1.34	0.825	Critical Pressure	681	P.S.I.A.
5.					Critical Temperature	387	°R

P _c	3613.2	P _c	13055.2
NO.	P _i	P _w	P _w
1.	6828.8	2617.9	6853.2
2.	4053.0	2022.1	4089.1
3.	1997.1	1431.0	2047.9
4.	661.3	858.4	736.8
5.			

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.186$	
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1453$	

Absolute Open Flow	1453	Mcf @ 15.025	Angle of Slope θ	41	Slope, n	0.875
Remarks:						

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	Mike Barrett	Misty Carter	George Freeman

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

DATE 4/21/04

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

LOCATION: Unit J Section 31 Township 10S Range 34E

L 12060 H 12060 L/H 1.000 G 0.795 %CO₂ 3.506 %N₂ 1.071 %H₂S 0.000

d 1.995 Fr 0.017777 GH 9591.3 Pcr 678.6 Tcr 411.6

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.844	1.067	1.252	1.412	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	642	642	642	642	
4 T = (Tw+Ts) / 2	580.7	580.7	580.7	580.7	
5 Z (Est.)	0.760	0.717	0.728	0.818	
6 TZ	441.0	416.4	423.0	475.0	
7 GH / TZ	21.748	23.034	22.676	20.191	
8 e ^{As} (Table XIV)	2.259	2.372	2.340	2.132	
9 1-e ^{As} (Table XIV)	0.557	0.578	0.573	0.531	
10 Pt	2613.2	2013.2	1413.2	813.2	
11 Pt ² / 1000	6828.8	4053.0	1997.1	661.3	
12 Fr (Table XV)	0.017777	0.017777	0.017777	0.017777	
13 Fc = FrTZ	7.840	7.402	7.519	8.444	
14 FcQm	6.62	7.90	9.41	11.92	
15 L / H(FcQm) ²	43.8	62.4	88.6	142.2	
16 Fw = L / H(FcQm) ² (1-e ^{As})	24.42	36.11	50.72	75.51	
17 Pw ² = Pt ² +Fw	6853.2	4089.1	2047.9	736.8	
18 Ps ² = e ^{As} Pw ²	15483.5	9699.1	4792.9	1570.7	
19 Ps	3934.9	3114.3	2189.3	1253.3	
20 P = (Pt+Ps) / 2	3274.1	2563.8	1801.2	1033.2	
21 Pr = (P / Pcr)	4.83	3.78	2.65	1.52	
22 Tr = (T / Tcr)	1.41	1.41	1.41	1.41	
23 Z (Table XI)	0.760	0.717	0.728	0.818	

Q, Mofd

