

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 7/2/04		30-024-36580			
Company Yates Petroleum Corporation				Connection 7/18/04					
Pool Wildcat Morrow				Formation Morrow				Unit	
Completion Date 7/1/04		Total Depth 12390		Plug Back TD 12339		Elevation 4183		Farm or Lease Name Waylon State Unit	
Csg. Size 5.500	Wt. 17.000	d 4.892	Set At 12390	Perforations: From 12142 To 12200			Well No. 3		
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 11956	Perforations: From 12142 To 12200			Unit N	Sec. Twp. Rge. 21 11S 34E	
Type Well Single				Packer Set At 11956		County Lea			
Producing Thru Tubing		Resv. Temp. °F 175 @ 11925		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State NM	
L 11956	H 11956	Gg 0.654	%CO ₂ 0.934	%N ₂ 1.152	%H ₂ S 0.000	Prover 0.000	Meter Run 2.000	Taps Flange	

FLOW DATA						TUBING DATA		CASING DATA		Duration	
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	of Flow
Sl.	0.000	x	0.000	0	0.0	0	2100	0			0
1.	2.067	x	1.375	700	120.0	60	1000	60			24
2.	2.067	x	1.375	700	130.0	60	900	60			24
3.	2.067	x	1.375	700	139.0	60	800	60			24
4.	2.067	x	1.375	700	148.0	60	700	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.	10.200	292.5	713.2	1.0000	1.237	1.073	3959
2.	10.200	304.5	713.2	1.0000	1.237	1.073	4120
3.	10.200	314.9	713.2	1.0000	1.237	1.073	4260
4.	10.200	324.9	713.2	1.0000	1.237	1.073	4396
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	44	Mcf/bbl.
1.	1.06	520	1.41	0.869	A.P.I. Gravity of Liquid Hydrocarbons	50.000	Deg.
2.	1.06	520	1.41	0.869	Specific Gravity Separator Gas	0.654	XXXXXXXXXX
3.	1.06	520	1.41	0.869	Specific Gravity Flowing Fluid	XXXXXXXXXX	0.724
4.	1.06	520	1.41	0.869	Critical Pressure	672	P.S.I.A. 670 P.S.I.A.
5.					Critical Temperature	369	°R 392 °R

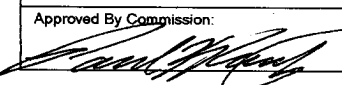
Pc	2113.2	Pc²	4465.6
NO.	Pt²	Pw	Pw²
1.	1026.6	1102.9	1216.3
2.	833.9	1021.6	1043.8
3.	661.3	943.7	890.6
4.	508.7	870.5	757.8
5.			

(1) $\frac{Pc^2}{Pc^2 - Pw^2} = 1.305$

AOF = Q $\left[\frac{Pc^2}{Pc^2 - Pw^2} \right]^n = 5056$

(2) $\left[\frac{Pc^2}{Pc^2 - Pw^2} \right]^n = 1.227$

Absolute Open Flow	5056	Mcf @ 15.025	Angle of Slope θ	38	Slope, n	0.769
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 7/2/04

COMPANY Yates Petroleum Corporation LEASE Waylon State Unit WELL NO. 3

LOCATION: Unit N Section 21 Township 11S Range 34E

L 11956 H 11956 L/H 1.000 G 0.724 %CO₂ 0.934 %N₂ 1.152 %H₂S 0.000

d 2.441 Fr 0.010495 GH 8651.4 Pcr 669.8 Tcr 392.0

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	3.959	4.120	4.260	4.396	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	635	635	635	635	
4 T = (Tw+Ts) / 2	577.2	577.2	577.2	577.2	
5 Z (Est.)	0.813	0.826	0.840	0.853	
6 TZ	469.3	476.8	484.6	492.5	
7 GH / TZ	18.434	18.145	17.852	17.565	
8 e ^s (Table XIV)	1.996	1.975	1.952	1.932	
9 1-e ^s (Table XIV)	0.499	0.494	0.488	0.482	
10 Pt	1013.2	913.2	813.2	713.2	
11 Pt ² / 1000	1026.6	833.9	661.3	508.7	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	4.925	5.004	5.086	5.169	
14 FcQm	19.50	20.62	21.67	22.72	
15 L / H(FcQm) ²	380.2	425.1	469.5	516.4	
16 Fw = L / H(FcQm) ² (1-e ^s)	189.73	209.82	229.28	249.13	
17 Pw ² = Pt ² +Fw	1216.3	1043.8	890.6	757.8	
18 Ps ² = e ^s Pw ²	2428.0	2061.1	1738.8	1464.3	
19 Ps	1558.2	1435.6	1318.6	1210.1	
20 P = (Pt+Ps) / 2	1285.7	1174.4	1065.9	961.6	
21 Pr = (P / Pcr)	1.92	1.75	1.59	1.44	
22 Tr = (T / Tcr)	1.47	1.47	1.47	1.47	
23 Z (Table XI)	0.813	0.826	0.840	0.853	

