

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 5/26/04		30-025-36581			
Company Yates Petroleum Corporation					Connection 8/20/04						
Pool Wildcat Atoka					Formation Atoka					Unit	
Completion Date 5/26/04			Total Depth 12800		Plug Back TD 12550		Elevation 4158		Farm or Lease Name Merle State Unit		
Csg. Size 5.500	Wt. 17.000	d 4.892	Set At 12800	Perforations: From 12057 To 12063				Well No. 1			
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 12800	Perforations: From 12057 To 12063				Unit O	Sec. 13	Twp. 10S	Rge. 34E
Type Well Single					Packer Set At 11764			County Lea			
Producing Thru Tubing		Resv. Temp. °F 173 @ 11700		Mean Temp. °F 62		Baro. Press. - Pa 13.2		State NM			
L 11764	H 11764	Gg 0.705	%CO ₂ 0.827	%N ₂ 1.828	%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	2400	0			0
1.	4.026	x	2.125	1600	14.0	60	2100	60			24
2.	4.026	x	2.125	1600	25.0	60	1933	60			24
3.	4.026	x	2.125	1600	37.0	60	1767	60			24
4.	4.026	x	2.125	1600	50.0	60	1600	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.	22.600	150.3	1613.2	1.0000	1.191	1.199	4849
2.	22.600	200.8	1613.2	1.0000	1.191	1.199	6480
3.	22.600	244.3	1613.2	1.0000	1.191	1.199	7883
4.	22.600	284.0	1613.2	1.0000	1.191	1.199	9164
5.							

NO.	Pr	Temp °R	Tr	Z	Gas Liquid Hydrocarbon Ratio	29	Mcf/bbl.
1.	2.41	520	1.35	0.696	A.P.I. Gravity of Liquid Hydrocarbons	50.000	Deg.
2.	2.41	520	1.35	0.696	Specific Gravity Separator Gas	0.705	XXXXXXXXXX
3.	2.41	520	1.35	0.696	Specific Gravity Flowing Fluid	XXXXXXXXXX	0.808
4.	2.41	520	1.35	0.696	Critical Pressure	669	P.S.I.A. 665
5.					Critical Temperature	384	°R 418

Po	2413.2	Po²	5823.5
NO.	Pi²	Pw	Pw²
1.	4465.6	2171.8	4716.5
2.	3787.7	2056.2	4227.8
3.	3169.1	1952.5	3812.1
4.	2602.4	1861.6	3465.7
5.			

(1) $\frac{Po^2}{Po^2 - Pw^2} = 3.650$

AOF = Q $\left[\frac{Po^2}{Po^2 - Pw^2} \right]^n = 18539$

(2) $\left[\frac{Po^2 - Pw^2}{Po^2} \right]^n = 2.861$

Absolute Open Flow	18539	Mcf/d @ 15.025	Angle of Slope	θ 39	Slope, n	0.812
Remarks:						

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
<i>Noel Gomez</i>	Noel Gomez	Misty Carter	George Freeman

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

DATE 5/26/04

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

LOCATION: Unit O Section 13 Township 10S Range 34E

L 11764 H 11764 L/H 1.000 G 0.808 %CO₂ 0.827 %N₂ 1.828 %H₂S 0.000

d 2.441 Fr 0.010495 GH 9511.2 Pcr 665.2 Tcr 418.3

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	4.849	6.480	7.883	9.164	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	633	633	633	633	
4 T = (Tw+Ts) / 2	576.2	576.2	576.2	576.2	
5 Z (Est.)	0.707	0.698	0.692	0.689	
6 TZ	407.6	402.3	398.7	396.8	
7 GH / TZ	23.333	23.641	23.858	23.972	
8 e ^Λ s(Table XIV)	2.399	2.426	2.447	2.457	
9 1-e ^Λ -s(Table XIV)	0.583	0.588	0.591	0.593	
10 Pt	2113.2	1946.2	1780.2	1613.2	
11 Pt ² / 1000	4465.6	3787.7	3169.1	2602.4	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	4.278	4.222	4.184	4.164	
14 FcQm	20.74	27.36	32.98	38.16	
15 L / H(FcQm) ²	430.3	748.5	1087.7	1455.9	
16 Fw = L / H(FcQm) ² (1-e ^Λ -s)	250.90	440.15	643.01	863.27	
17 Pw ² = Pt ² +Fw	4716.5	4227.8	3812.1	3465.7	
18 Ps ² = e ^Λ sPw ²	11314.8	10258.4	9327.6	8516.0	
19 Ps	3363.7	3202.9	3054.1	2918.2	
20 P = (Pt+Ps) / 2	2738.5	2574.5	2417.2	2265.7	
21 Pr = (P / Pcr)	4.12	3.87	3.63	3.41	
22 Tr = (T / Tcr)	1.38	1.38	1.38	1.38	
23 Z (Table XI)	0.707	0.698	0.692	0.689	



