

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

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 3-20-82		MAY 12 1982	
Company Yates Petroleum Corporation		Connection Transwestern Pipeline Company		O. C. D.	
Pool Pecos Slope Abo		Formation Abo		ARTESIA, OFFICE NM 28162	
Completion Date 1-21-82		Total Depth 4304'		Plug back To 4151'	
Csg. Size 4-1/2"		Wt. 9.5#		ID 4.090"	
Trg. Size 2-3/8"		Wt. 4.7#		ID 1.995	
Set At 4304		Perforations From 3700 To 3786		Well No. 4	
Set At 3913		Perforations From - To -		Unit Sec. Twp. Rge. D 10 7S 25E	
Type Well - Single - Brokenhead - G.G. or G.O. Multiple Single		Factor Set At None		County Chaves	
Producing Thru Tubing		Reservoir Temp. °F 96 @ 4302		Mean Annual Temp. °F 60	
L 3913		H 3913		Baro. Press. - P_b 13.2	
Gg 0.664		% CO ₂ 1.69		% N ₂ 4.31	
% H ₂ S 0		Prover ---		Meter Run 4"	
Flange		State New Mexico		Taps Flange	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Grillage Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							954				Days
1.	4.026 x 1.750			220	15	62	870	64			24 hrs
2.	4.026 x 1.750			220	25	64	844	67			24 hrs
3.	4.026 x 1.750			220	44	70	800	72			24 hrs
4.	4.026 x 1.750			220	70	72	750	72			24 hrs
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{sp}	Rate of Flow Q, Mgd
1	14.93	59.14	233.2	0.9981	1.227	1.022	1105
2	14.93	76.35	233.2	0.9962	1.227	1.022	1423
3	14.93	101.30	233.2	0.9905	1.227	1.021	1878
4	14.93	127.77	233.2	0.9887	1.227	1.021	2364
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/boi.	A.P.L. Gravity of Liquid Hydrocarbons _____ Deg.
1	0.348	522	1.434	0.958	Specific Gravity Separator Gas 0.664	XXXXXXX
2	0.348	524	1.440	0.958	Specific Gravity Flowing Fluid XXXXX	
3	0.348	530	1.456	0.960	Critical Pressure 671 P.S.I.A.	P.S.I.A.
4	0.348	532	1.462	0.960	Critical Temperature 364 °R	°R
5						

NO.	P _r	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$
1	780.0		796.6	138.9	2.712	2.963
2	734.8		762.3	173.2		
3	661.3		710.2	225.3		
4	582.5		660.5	275.0		
5						

Absolute Open Flow 8,800 Mgd @ 15,025 Angle of Slope 1.09

Remarks: Static pressures by Bennett wireline, flowing pressures by DWT calculations.
Worksheet C122D attached.

Approved By Commission:	Conducted By: David Weaver	Calculated By: Albert R. Stall	Checked By:
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WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_{sc})

COMPANY Yates Petroleum Corp LEASE Thorp MI Federal WELL NO. 4 DATE 5-10-82

LOCATION: Unit D Section 10 Township 7 S Range 25 E

L 3913 H 3913 L/H 1 G 0.664 % CO₂ 1.69 % N₂ 4.31 % H₂S 0

d 1.995 " F_i 0.018231 GH 2598.2 P_{cr} 671 T_{cr} 364

TABLE IX & X

LINE	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL
1 Q _m	1.105	1.105	1.423	1.423	1.878	1.878	2.364	2.364	2.864	2.864
2 P _w (W.H. °R)	524	524	527	527	532	532	532	532	532	532
3 P _t (W.H. °R)	553	553	553	553	553	553	553	553	553	553
4 T = (10 + 1.5)	538.5	538.5	540	540	542.5	542.5	542.5	542.5	542.5	542.5
5 T _{sc}	0.874	0.861	0.864	0.864	0.866	0.866	0.868	0.868	0.878	0.878
6 T _z	470.6	463.6	466.5	466.5	470.9	473.6	482.3	482.3	476.3	476.3
7 GH/TZ	5530	5.604	5.569	5.569	5.518	5.486	5.387	5.455	5.455	5.455
8 e ^s (Table XIV)	1.230	1.234	1.232	1.232	1.230	1.228	1.224	1.227	1.227	1.227
9 1-e ^s (Table XIV)	0.187	0.190	0.188	0.188	0.197	0.186	0.193	0.185	0.185	0.185
10 P _i	883.2	883.2	857.2	857.2	813.2	813.2	763.2	763.2	763.2	763.2
11 P _i 2/1000	780.0	780.0	734.8	734.8	661.3	661.3	582.5	582.5	582.5	582.5
12 F _i (Table XV)	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231	0.018231
13 F _c = F _i T _z	8.580	8.452	8.505	8.505	8.585	8.634	8.793	8.683	8.683	8.683
14 F _c Q _m	1.480	1.439	1.416	1.416	1.412	1.412	1.412	1.412	1.412	1.412
15 L/H (F _c Q _m) ²	81.582	87.22	146.47	146.47	259.94	262.73	432.67	432.67	432.67	432.67
16 F _w = L/H (F _c Q _m) ² (1-e ^{-s})	16.81	16.57	27.54	27.54	48.61	48.10	77.07	77.96	77.96	77.96
17 P _w ² = P _t ² + F _w	796.8	796.6	762.3	762.3	769.1	710.2	662.6	660.5	660.5	660.5
18 P _s ² = e ^s P _w ²	980.1	982.97	931.20	931.20	873.19	872.13	809.76	810.38	810.38	810.38
19 P _s	987.99	991.45	967.12	967.12	934.44	933.88	899.87	900.21	900.21	900.21
20 P = (P _t + P _s)	936.6	937.3	913.2	913.2	873.8	873.5	831.5	831.7	831.7	831.7
21 P _r = P/P _{cr}	1.3958	1.3469	1.3601	1.3601	1.3022	1.3018	1.2312	1.2315	1.2315	1.2315
22 T _r = (T/T _{cr})	1.4714	1.4734	1.4835	1.4835	1.4764	1.4764	1.4904	1.4904	1.4904	1.4904
23 Z (Table XI)	0.801	0.801	0.801	0.801	0.801	0.801	0.801	0.801	0.801	0.801

ILLEGIBLE

VATES PETROLEUM CORPORATION

Thorpe MI Federal No. 4

Unit D Sec. 10, T. 75, R. 25E

$$Q_1 = 9,700$$

$$Q_2 = 790$$

$$\log Q_1 = 3.9868$$

$$\log Q_2 = 2.8976$$

$$n = 1.09$$

(PSI $\times 1000$)

$P_e^2 - P_w^2$

AOF = 8800 ACF/D

Q_2

Q (ACF/D)