

NL MEXICO OIL CONSERVATION COMMS. N  
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

1-B7  
1-File  
1-C 122 Form C-122  
Revised 9-1-65

**RECEIVED**

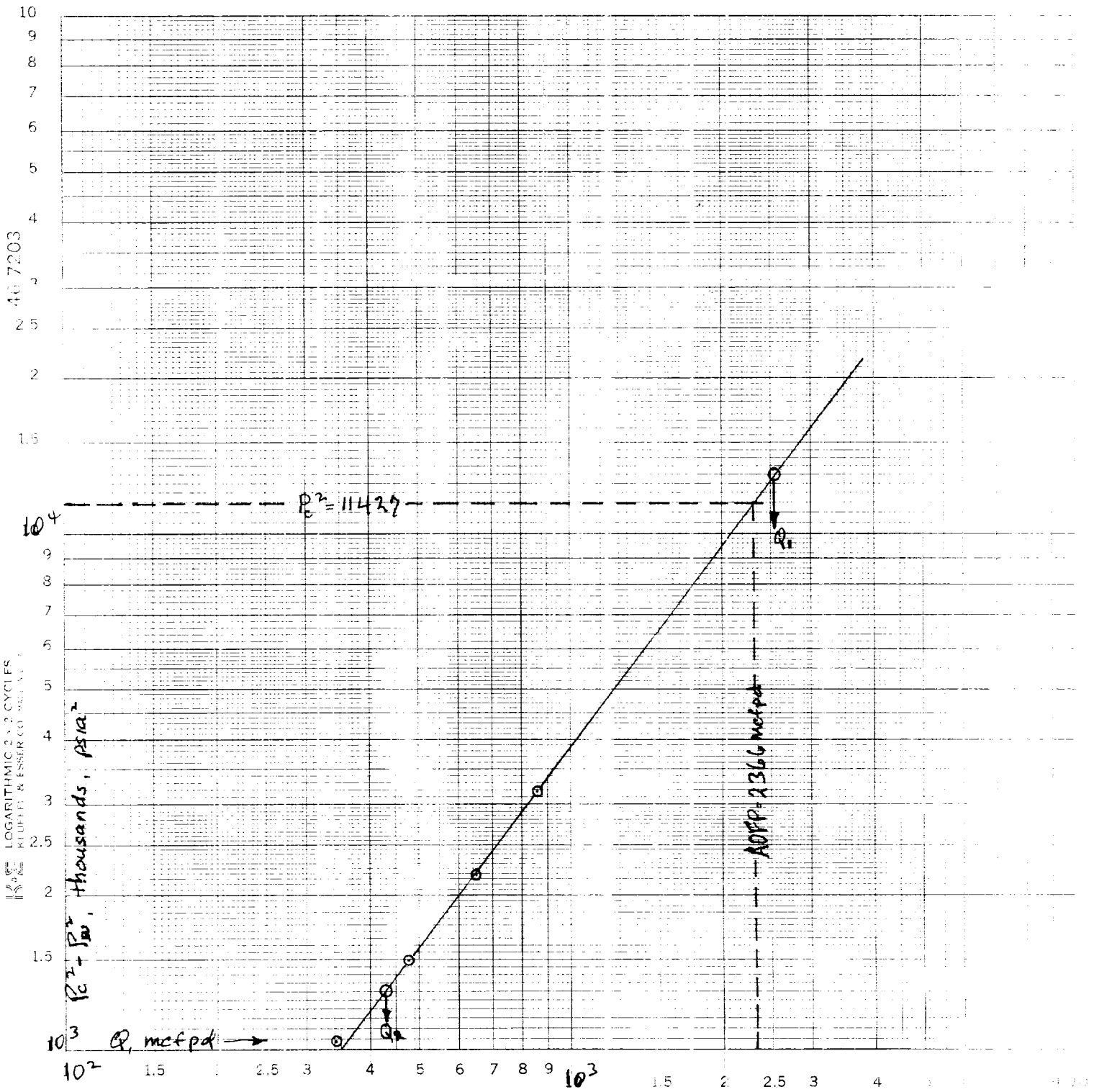
MAR 23 1979

Unit **O.C.C.**  
**ARTESIAL OFFICE**

Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special				Test Date 1-24-79							
Company Yates Petroleum Corp. ✓				Connection Transwestern Pipeline Co.							
Pool E. Eagle Creek Atoka Morrow				Formation Morrow				Unit <b>O.C.C.</b> <b>ARTESIAL OFFICE</b>			
Completion Date 11-7-78		Total Depth 8810' KB		Plug Back TD 8683' KB		Elevation 3432' KB		Farm or Lease Name Lanning "JC" Com			
Csg. Size 4-1/2"	Wt. 11.6#	d 4.000	Set At 8732' KB	Perforations: From 8544 To 8597				Well No. 1			
Tbg. Size 2-3/8"	Wt. 4.7#	d 1.995	Set At 8487' KB	Perforations: From To				Unit B	Sec. 7	Twp. 18S	Rge. 26E
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Dual with annulus completion loaded						Packer Set At 8487' KB		County Eddy			
Producing Thru Tubing		Reservoir Temp. °F 140 @ 8572' KB		Mean Annual Temp. °F 62		Baro. Press. - P <sub>a</sub> 13.2		State New Mexico			
L 8565	H 8565	Gg 0.679	% CO <sub>2</sub> 4.41	% N <sub>2</sub> 0.61	% H <sub>2</sub> S Nil	Prover		Meter Run 2"	Taps Flange		
FLOW DATA						TUBING DATA			CASING DATA		
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	Duration of Flow
SI							2555	34			days
1.	2.067 x 1.000		180	15	38	2440	43				1 hour
2.			180	29	38	2392	51				1 hour
3.			180	54	39	2311	58				1 hour
4.			180	95	39	2199	64				1 hour
5.											
RATE OF FLOW CALCULATIONS											
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P <sub>m</sub>	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd				
1	4.946	53.83	193.2	1.022	1.229	1.022	342				
2	4.946	74.85	193.2	1.022	1.229	1.022	475				
3	4.946	102.14	193.2	1.021	1.229	1.022	648				
4	4.946	135.48	193.2	1.021	1.229	1.022	860				
5											
NO.	P <sub>r</sub>	Temp. °R	T <sub>r</sub>	Z	Gas Liquid Hydrocarbon Ratio		102.38 Mcf/bbl.				
					A.P.I. Gravity of Liquid Hydrocarbons		54.9 Deg.				
1	0.28	498	1.332	.9577	Specific Gravity Separator Gas		0.662 XXXXXXXXXX				
2	0.28	498	1.332	.9577	Specific Gravity Flowing Fluid		.679 XXXXXX				
3	0.28	499	1.334	.9577	Critical Pressure		691 P.S.I.A. 690 P.S.I.A.				
4	0.28	499	1.334	.9577	Critical Temperature		374 R 380 R				
5											
P <sub>c</sub> 3380.2		P <sub>c</sub> <sup>2</sup> 11427									
NO.	P <sub>1</sub> <sup>2</sup>	P <sub>w</sub>	P <sub>w</sub> <sup>2</sup>	P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup>	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.704$		(2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.7516$				
1			10392	1035							
2			9932	1495							
3			9241	2186							
4			8342	3085	AOF = Q $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2366$						
5											
Absolute Open Flow				2366 Mcfd @ 15.025		Angle of Slope @		52.3 deg		Slope, n 0.7730	
Remarks: Static pressures by Bennett Wireline, flowing pressures by DW tester. Calculations worksheet C-122D attached.											
Approved By Commission:			Conducted By: Don Weaver			Calculated By: Eddie M. Mahfood			Checked By:		

YPC - Lanning JC Com #1

B-7-18s-26E, E. Eagle Creek Morrow, Atoka Pool, Eddy Co, N.Mex.



$Q_1 = 2550$  mcfpd

$\log Q_1 = 3.4065$

$Q_2 = 430$  mcfpd

$\log Q_2 = 2.6335$

$n = 0.7730$

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P<sub>w</sub>)

C-122D  
Adopted 9-1-65

COMPANY W. J. ... LEASE Land of ... WELL NO. 1 DATE 1-21-77

LOCATION: Unit T3 Section 7 Township 18 Range 2

L 8565 H 8565 L/H 1.000 G 0.615 % CO<sub>2</sub> 0.11 % N<sub>2</sub> 0.01 % H<sub>2</sub>S 0.11  
 2 1/2" 848 (2.07) 33782  
 4" 777 (6.1) 1232  
 8" 65 (1.05) 38014  
 D 2.00287 F<sub>1</sub> 0.016108 GH 5.236 P<sub>CF</sub> 670 T<sub>CF</sub> 381  
TABLE 12 B X

LINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1 Q <sub>m</sub>	—	0.502	0.0195	0.648	0.1000	0.547	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	
2 T <sub>w</sub> (W.H. °R)	1194	503	511	518	524	531	538	545	552	559	566	573	580	587	594	601	608	615	622	629	636	643	650	657	
3 T <sub>g</sub> (B.H. °R)	6.00	5.99	5.98	5.97	5.96	5.95	5.94	5.93	5.92	5.91	5.90	5.89	5.88	5.87	5.86	5.85	5.84	5.83	5.82	5.81	5.80	5.79	5.78	5.77	
4 T = (T <sub>w</sub> + T <sub>g</sub> )	547.0	231	522	528	531	534	537	540	543	546	549	552	555	558	561	564	567	570	573	576	579	582	585	588	591
5 Z (Est.)	0.7402	0.741	0.743	0.745	0.748	0.751	0.754	0.757	0.760	0.763	0.766	0.769	0.772	0.775	0.778	0.781	0.784	0.787	0.790	0.793	0.796	0.799	0.802	0.805	0.808
6 T <sub>Z</sub>	405.05	405.21	412.365	425.71	419.65	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94	407.94
7 GH/T <sub>Z</sub>	12.022	11.022	14.395	14.279	14.416	14.582	14.748	14.914	15.080	15.246	15.412	15.578	15.744	15.910	16.076	16.242	16.408	16.574	16.740	16.906	17.072	17.238	17.404	17.570	17.736
8 e <sup>s</sup> (Table XIV)	1.79225	1.09250	1.7157	1.90825	1.6377	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222	1.07222
9 1-e <sup>s</sup> (Table XIV)	—	0.48803	0.4171	0.4116	0.4119	0.4122	0.4125	0.4128	0.4131	0.4134	0.4137	0.4140	0.4143	0.4146	0.4149	0.4152	0.4155	0.4158	0.4161	0.4164	0.4167	0.4170	0.4173	0.4176	0.4179
10 P <sub>1</sub>	21.602	21.520	24.052	22.212	22.122	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032	21.032
11 P <sub>1</sub> 2/1000	6.571	6.018.1	5.981.1	5.441.1	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2	4.892.2
12 F <sub>1</sub> (Table XV)	0.54956	0.541521	0.53921	0.53549	0.53047	0.52545	0.52043	0.51541	0.51039	0.50537	0.50035	0.49533	0.49031	0.48529	0.48027	0.47525	0.47023	0.46521	0.46019	0.45517	0.45015	0.44513	0.44011	0.43509	0.43007
F <sub>0</sub> = F <sub>1</sub> T <sub>Z</sub>	—	6.5767	6.043	6.6763	6.7574	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675	6.5675
14 F <sub>c</sub> Q <sub>m</sub>	—	2.249	3.155	4.337	5.7813	7.225	8.669	10.113	11.557	13.001	14.445	15.889	17.333	18.777	20.221	21.665	23.109	24.553	26.000	27.444	28.888	30.332	31.776	33.220	34.664
15 L/H (F <sub>c</sub> Q <sub>m</sub> ) <sup>2</sup>	—	5.059	9.954	18.728	33.774	51.941	73.212	98.583	128.954	164.325	204.696	250.067	301.438	358.809	422.180	491.551	566.922	648.293	735.664	829.035	928.406	1033.777	1145.148	1262.519	1385.890
16 F <sub>w</sub> = L/H (F <sub>c</sub> Q <sub>m</sub> ) <sup>2</sup> (1-e <sup>s</sup> )	—	2.113	4.115	7.81	13.941	21.12	29.247	38.372	48.497	59.622	71.747	84.872	99.000	114.125	130.250	147.375	165.500	184.625	204.750	225.875	248.000	271.125	295.250	320.375	346.500
17 P <sub>w</sub> <sup>2</sup> = P <sub>1</sub> <sup>2</sup> + F <sub>w</sub>	—	6020.32	5781.14	5409.72	4907.74	4280.51	3537.28	2684.05	1730.82	777.59	224.36	101.13	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 P <sub>S</sub> <sup>2</sup> = e <sup>s</sup> P <sub>w</sub> <sup>2</sup>	11427	103850	9932.4	9241.1	8341.7	7232.2	5922.7	4513.2	3103.7	1694.2	383.7	103.2	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19 P <sub>S</sub>	3380.2	322.6	3151.6	3039.7	2887.2	2734.7	2582.2	2429.7	2277.2	2124.7	1972.2	1819.7	1667.2	1514.7	1362.2	1209.7	1057.2	904.7	752.2	599.7	447.2	294.7	142.2	0.0	0.0
20 P = (P <sub>1</sub> + P <sub>S</sub> )	2174.2	2837.9	2798.4	2688.1	2550.2	2412.3	2274.4	2136.5	2000.0	1863.5	1727.0	1590.5	1454.0	1317.5	1181.0	1044.5	908.0	771.5	635.0	498.5	362.0	225.5	89.0	0.0	0.0
21 P <sub>c</sub> = (P/P <sub>cf</sub> )	4.310	4.113	4.027	3.887	3.696	3.505	3.314	3.123	2.932	2.741	2.550	2.359	2.168	1.977	1.786	1.595	1.404	1.213	1.022	0.831	0.640	0.449	0.258	0.067	0.000
22 T <sub>c</sub> = (T/T <sub>cf</sub> )	1.4245	1.435	1.445	1.455	1.461	1.467	1.473	1.479	1.485	1.491	1.497	1.503	1.509	1.515	1.521	1.527	1.533	1.539	1.545	1.551	1.557	1.563	1.569	1.575	1.581
23 Z (Table XI)	0.7905	0.790	0.793	0.7945	0.795	0.796	0.797	0.798	0.799	0.800	0.801	0.802	0.803	0.804	0.805	0.806	0.807	0.808	0.809	0.810	0.811	0.812	0.813	0.814	0.815

One copy to be filed in District Office (Work copy acceptable)