C-122D
Adopted 9-1-65

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY Yates Petroleum Corp LEASE Patterson EL WELL NO. 1 DATE 3-15-77

LOCATION: Unit M Section 31 Township 17S Range 26E

8016 H 8016 L/H [illegible] G [illegible] % CO_2 0.76 % N_2 2.41 % H_2S Nil

(2⅜) 7905' $(1.995)^2$
(4½) 96' $(4.000)^2$
8001' (2.03082)

d 2.03082 Avg F_r [illegible] GH [illegible] P_{cr} 672 (TABLE IX & X) T_{cr} 368 (TABLE IX & X)

LINE		1	2	3	4		1	2	3	4
1 Q_m	SI	0.351	0.509	0.628	0.727	SI				
2 T_w (W.H. °R)	506	511	512	513	514					
3 T_s (B.H. °R)	594	593	592	591	590					
4 $T = (\frac{T_w + T_s}{2})$	550	552	552	552	552					
5 Z (Est.)		.771	.774	.780	.772					
6 TZ	425.5[illegible]	425.592	427.248	430.560	426.14[illegible]					
7 GH/TZ	12.1165	12.1149	12.0679	11.9751	12.0992					
8 e^s (Table XIV)	1.5751	1.5750	1.5722	1.5665	1.5741					
9 $1-e^{-s}$ (Table XIV)		0.3651	0.3640	0.3617	0.3649					
10 P_t	2422.2	2059.2	1877.2	1715.2	1963.2					
11 $P_t^2/1000$	5867.053	4240.305	3523.880	2941.911	3854.[illegible]					
12 F_r (Table XV)										
13 $F = F_r$ TZ		7.2138	7.2419	7.2950	7.2[illegible]					
14 $F_c Q_m$		2.532	3.686	4.583	5.2512					
15 $L/H (F_c Q_m)^2$		6.411	13.587	21.005	27.575					
16 $F_w = L/H(F_c Q_m)^2(1-e^{-s})$		2.341	4.946	7.598	10.057					
17 $P_w^2 = P_t^2 + F_w$		4242.646	3528.826	2949.509	3864.211					
18 $P_s^2 = e^s P_w^2$		6682.167	5548.0	4621.3	6082.654					
19 P_s	3039.2	2585.0	2355.4	2149.7	2466.3					
20 $P = (\frac{P_t + P_s}{2})$	2730.7	2322.1	2116.3	1932.5	2214.8					
21 $P_r = (P/P_{cr})$	4.0635	3.455	3.149	2.876	3.296					
22 $T_r = (T/T_{cr})$	1.4945	1.5000	1.5000	1.5000	1.5000					
23 Z (Table XI)	.7737	0.771	0.774	0.780	0.772					

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

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