

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

DATE 02/01/2000

COMPANY Yates Petroleum Corp LEASE Box Canyon 34 ATN Federal WELL NO. 1

LOCATION: Unit I Section 34 Township 20S Range 21E

L 8360 H 8360 L / H 1.000 G 0.636 %CO₂ 0.107 %N₂ 1.025 %H₂S 0.000

d 2.441 Fr 0.010495 GH 5317.0 P_{cr} 669.5 T_{cr} 364.8

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	1.690	3.102	4.199	5.096	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	599	599	599	599	
4 T = (Tw+Ts) / 2	559.2	559.2	559.2	559.2	
5 Z (Est.)	0.831	0.843	0.854	0.866	
6 TZ	464.8	471.1	477.6	484.1	
7 GH / TZ	11.439	11.286	11.132	10.982	
8 e ^s (Table XIV)	1.536	1.527	1.518	1.510	
9 1-e ^s (Table XIV)	0.349	0.345	0.341	0.338	
10 Pt	1233.2	1110.2	986.2	863.2	
11 Pt ² / 1000	1520.8	1232.5	972.6	745.1	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	4.878	4.944	5.013	5.081	
14 FcQm	8.24	15.33	21.05	25.89	
15 L / H(FcQm) ²	67.9	235.2	443.2	670.3	
16 Fw = L / H(FcQm) ² (1-e ^s)	23.69	81.16	151.22	226.25	
17 Pw ² = Pt ² +Fw	1544.5	1313.7	1123.8	971.4	
18 Ps ² = e ^s Pw ²	2371.8	2005.8	1706.1	1466.4	
19 Ps	1540.1	1416.2	1306.2	1211.0	
20 P = (Pt+Ps) / 2	1386.6	1263.2	1146.2	1037.1	
21 Pr = (P / Pcr)	2.07	1.89	1.71	1.55	
22 Tr = (T / Tcr)	1.53	1.53	1.53	1.53	
23 Z (Table XI)	0.831	0.843	0.854	0.866	