

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

DATE 01/05/1992

COMPANY Yates Petroleum Corp LEASE Benson Deep Federal FS Com WELL NO. 1

LOCATION: Unit H Section 4 Township 19S Range 30E

L 10776 H 10776 L/H 1.000 G 0.825 %CO₂ 2.015 %N₂ 2.160 %H₂S 0.000

d 2.441 Fr 0.010495 GH 8890.2 Pcr 669.2 Tcr 420.8

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.043	0.078	0.094	0.115	
2 Tw(W.H.°R)	522	522	522	522	
3 Ts(B.H.°R)	680	680	680	680	
4 T = (Tw+Ts) / 2	600.7	600.7	600.7	600.7	
5 Z (Est.)	0.842	0.862	0.881	0.901	
6 TZ	506.0	517.5	529.2	541.2	
7 GH / TZ	17.569	17.179	16.800	16.428	
8 e ^{As} (Table XIV)	1.932	1.905	1.878	1.852	
9 1-e ^{As} (Table XIV)	0.483	0.475	0.467	0.460	
10 Pt	763.2	666.2	570.2	473.2	
11 Pt ² / 1000	582.5	443.8	325.1	223.9	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	5.311	5.431	5.554	5.679	
14 FcQm	0.23	0.42	0.52	0.65	
15 L / H(FcQm) ²	0.1	0.2	0.3	0.4	
16 Fw = L / H(FcQm) ² (1-e ^{As})	0.03	0.09	0.13	0.20	
17 Pw ² = Pt ² +Fw	582.5	443.9	325.3	224.1	
18 Ps ² = e ^{As} Pw ²	1125.7	845.4	610.7	415.0	
19 Ps	1061.0	919.5	781.5	644.2	
20 P = (Pt+Ps) / 2	912.1	792.8	675.8	558.7	
21 Pr = (P / Pcr)	1.36	1.18	1.01	0.83	
22 Tr = (T / Tcr)	1.43	1.43	1.43	1.43	
23 Z (Table XI)	0.842	0.862	0.881	0.901	