

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

DATE 12/30/1999

COMPANY Yates Petroleum Corp LEASE GALLAGHER ATJ STATE WELL NO. 1

LOCATION: Unit G Section 2 Township 16S Range 35E

L 12942 H 12942 L/H 1.000 G 0.702 %CO₂ 1.943 %N₂ 1.569 %H₂S 0.000
 d 2.441 Fr 0.010495 GH 9085.3 Pcr 674.2 Tcr 382.0

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	3.114	5.085	6.606	7.733	
2 Tw(W.H.°R)	520	520	520	520	
3 Ts(B.H.°R)	639	639	639	639	
4 T = (Tw+Ts) / 2	579.2	579.2	579.2	579.2	
5 Z (Est.)	0.807	0.794	0.784	0.779	
6 TZ	467.3	459.7	454.2	451.1	
7 GH / TZ	19.442	19.762	20.003	20.142	
8 e ^s (Table XIV)	2.073	2.099	2.117	2.128	
9 1-e ^s (Table XIV)	0.518	0.523	0.528	0.530	
10 Pt	2663.2	2430.2	2196.2	1963.2	
11 Pt ² / 1000	7092.6	5905.9	4823.3	3854.2	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	4.904	4.825	4.767	4.734	
14 FcQm	15.27	24.54	31.49	36.61	
15 L / H(FcQm) ²	233.3	602.0	991.6	1340.0	
16 Fw = L / H(FcQm) ² (1-e ^s)	120.74	314.99	523.18	710.41	
17 Pw ² = Pt ² +Fw	7213.4	6220.9	5346.5	4564.6	
18 Ps ² = e ^s Pw ²	14954.0	13054.9	11320.3	9715.0	
19 Ps	3867.0	3613.2	3364.6	3116.9	
20 P = (Pt+Ps) / 2	3265.1	3021.7	2780.4	2540.0	
21 Pr = (P / Pcr)	4.84	4.48	4.12	3.77	
22 Tr = (T / Tcr)	1.52	1.52	1.52	1.52	
23 Z (Table XI)	0.807	0.794	0.784	0.779	