

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

DATE 01/26/1992

COMPANY Yates Petroleum Corp LEASE Superior KJ Federal Com WELL NO. 1

LOCATION: Unit D Section 7 Township 20S Range 29E

L 10700 H 10700 L/H 1.000 G 0.657 %CO₂ 0.269 %N₂ 1.095 %H₂S 0.000

d 2.441 Fr 0.010495 GH 7029.9 Pcr 669.3 Tcr 371.3

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.032	0.091	0.111	0.145	
2 Tw(W.H.°R)	522	522	522	522	
3 Ts(B.H.°R)	627	627	627	627	
4 T = (Tw+Ts) / 2	574.2	574.2	574.2	574.2	
5 Z (Est.)	0.931	0.948	0.965	0.982	
6 TZ	534.8	544.3	554.2	564.1	
7 GH / TZ	13.146	12.915	12.685	12.463	
8 e ^s (Table XIV)	1.637	1.623	1.609	1.596	
9 1-e ^s (Table XIV)	0.389	0.384	0.379	0.373	
10 Pt	453.2	340.2	226.2	113.2	
11 Pt ² / 1000	205.4	115.7	51.2	12.8	
12 Fr (Table XV)	0.010495	0.010495	0.010495	0.010495	
13 Fc = FrTZ	5.612	5.713	5.816	5.920	
14 FcQm	0.18	0.52	0.65	0.86	
15 L / H(FcQm) ²	0.0	0.3	0.4	0.7	
16 Fw = L / H(FcQm) ² (1-e ^s)	0.01	0.10	0.16	0.27	
17 Pw ² = Pt ² +Fw	205.4	115.8	51.3	13.1	
18 Ps ² = e ^s Pw ²	336.3	188.0	82.6	20.9	
19 Ps	579.9	433.6	287.4	144.5	
20 P = (Pt+Ps) / 2	516.5	386.9	256.8	128.9	
21 Pr = (P / Pcr)	0.77	0.58	0.38	0.19	
22 Tr = (T / Tcr)	1.55	1.55	1.55	1.55	
23 Z (Table XI)	0.931	0.948	0.965	0.982	