

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

Adopted 9-1-65

DATE 5/13/91

COMPANY Yates Petroleum Corporation LEASE Gazelle AHG Fed Com WELL NO. 1

LOCATION: Unit E Section 15 Township 20S Range 29E

L 10942.0 H 10942.0 L/H 1.000 G 1.229 %CO₂ .45 %N₂ 1.76 %H₂S 0.00

d 2.441 Fr .010495 GH 13452.4 Pcr 649.0 Tcr 558.0

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.784	.970	1.074	1.199	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	668.0	668.0	668.0	668.0	0.0
4 T=(Tw+Ts)/2	595.0	595.0	595.0	595.0	0.0
5 Z(Est.)	.539	.520	.517	.490	0.000
6 TZ	320.5	309.7	307.7	291.8	0.0
7 GH/TZ	41.970	43.439	43.718	46.095	0.000
8 e ^s (Table XIV)	4.819	5.103	5.157	5.635	0.000
9 1-e ^{-s} (Table XIV)	.792	.804	.806	.823	0.000
10 Pt	1523.2	1430.2	1413.2	1281.2	0.0
11 Pt ² /1000	2320.1	2045.5	1997.1	1641.5	0.0
12 Fr(Table XV)	.010495	.010495	.010495	.010495	0.000000
13 Fc=FrTZ	3.367	3.248	3.227	3.062	0.000
14 FcQm	2.639	3.151	3.468	3.673	0.000
15 L/H(FcQm) ²	6.962	9.930	12.024	13.489	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	5.517	7.984	9.693	11.096	0.000
17 Pw ² =Pt ² +Fw	2325.7	2053.5	2006.8	1652.6	0.0
18 Ps ² =e ^s Pw ²	11206.8	10478.9	10349.4	9312.0	0.0
19 Ps	3347.7	3237.1	3217.1	3051.6	0.0
20 P=(Pt+Ps)/2	2435.4	2333.7	2315.1	2166.4	0.0
21 Pr=(P/Pcr)	3.75	3.60	3.57	3.34	0.00
22 Tr=(T/Tcr)	1.07	1.07	1.07	1.07	0.00