

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

Adopted 9-1-65

DATE 4/4/89

COMPANY Yates Petroleum Corporation LEASE Leeman OC Federal WELL NO. 4

LOCATION: Unit D Section 20 Township 7S Range 26E

L 3772.0 H 3772.0 L/H 1.000 G .641 %CO₂ .03 %N₂ 6.08 %H₂S 0.00

d 2.441 Fr .010495 GH 2417.9 Pcr 660.5 Tcr 352.5

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.497	.738	.850	.911	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	556.0	556.0	556.0	556.0	0.0
4 T=(Tw+Ts)/2	539.0	539.0	539.0	539.0	0.0
5 Z(Est.)	.897	.917	.920	.940	0.000
6 TZ	483.3	494.4	496.1	506.8	0.0
7 GH/TZ	5.002	4.890	4.873	4.771	0.000
8 e ^s (Table XIV)	1.206	1.201	1.201	1.196	0.000
9 1-e ^{-s} (Table XIV)	.171	.168	.167	.164	0.000
10 Pt	728.2	576.2	553.2	413.2	0.0
11 Pt ² /1000	530.3	332.0	306.0	170.7	0.0
12 Fr(Table XV)	.010495	.010495	.010495	.010495	0.000000
13 Fc=FrTZ	5.075	5.189	5.207	5.320	0.000
14 FcQm	2.520	3.829	4.426	4.848	0.000
15 L/H(FcQm) ²	6.350	14.663	19.592	23.507	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	1.086	2.457	3.272	3.850	0.000
17 Pw ² =Pt ² +Fw	531.4	334.5	309.3	174.6	0.0
18 Ps ² =e ^s Pw ²	640.9	401.8	371.3	208.8	0.0
19 Ps	800.6	633.9	609.4	456.9	0.0
20 P=(Pt+Ps)/2	764.4	605.0	581.3	435.1	0.0
21 Pr=(P/Pcr)	1.16	.92	.88	.66	0.00
22 Tr=(T/Tcr)	1.53	1.53	1.53	1.53	0.00
23 Z(Table XI)	.897	.917	.920	.940	0.000