

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

Adopted 9-1-65

DATE 2/16/83

COMPANY Yates Petroleum Corporation LEASE Smernhoff "NL" State WELL NO. 4

LOCATION: Unit N Section 2 Township 5S Range 24E

L 3481.0 H 3481.0 L/H 1.000 G .644 %O₂ .01 %N₂ 5.92 %H₂S 0.00

d 1.995 Fr .017777 GH 2241.8 Pcr 660.6 Tcr 353.9

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.602	.646	.825	.930	0.000
2 Tw(W.H.*R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.*R)	554.0	554.0	554.0	554.0	0.0
4 T=(Tw+Ts)/2	538.0	538.0	538.0	538.0	0.0
5 Z(Est.)	.873	.877	.881	.886	0.000
6 TZ	469.4	471.8	473.8	476.5	0.0
7 GH/TZ	4.775	4.752	4.731	4.705	0.000
8 e ^s (Table XIV)	1.196	1.195	1.194	1.193	0.000
9 1-e ^{-s} (Table XIV)	.164	.163	.162	.162	0.000
10 Pt	895.2	861.2	831.2	793.2	0.0
11 Pt ² /1000	801.4	741.7	690.9	629.2	0.0
12 Fr(Table XV)	.017777	.017777	.017777	.017777	0.000000
13 Fc=FrTZ	8.351	8.387	8.428	8.475	0.000
14 FcQm	5.029	5.419	6.951	7.881	0.000
15 L/H(FcQm) ²	25.288	29.364	48.322	62.115	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	4.143	4.793	7.851	10.042	0.000
17 Pw ² =Pt ² +Fw	805.5	746.5	698.7	639.2	0.0
18 Ps ² =e ^s Pw ²	963.4	892.1	834.3	762.5	0.0
19 Ps	981.5	944.5	913.4	873.2	0.0
20 P=(Pt+Ps)/2	938.4	902.8	872.3	833.2	0.0
21 Pr=(P/Pcr)	1.42	1.37	1.32	1.26	0.00
22 Tr=(T/Tcr)	1.52	1.52	1.52	1.52	0.00
23 Z(Table XI)	.873	.877	.881	.886	0.000