

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

Adopted 9-1-65

DATE 10/29/91

COMPANY Yates Petroleum Corporation LEASE Pathfinder AFT St. WELL NO. 9

LOCATION: Unit N Section 21 Township 10S Range 27E

L 6254.0 H 6254.0 L/H 1.000 G .704 %CO2 1.28 %N2 5.14 %H2S 0.00

d 2.441 Fr .010495 GH 4401.5 Pcr 665.3 Tcr 373.7

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	1.200	1.594	2.014	2.204	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	586.0	586.0	586.0	586.0	0.0
4 T=(Tw+Ts)/2	554.0	554.0	554.0	554.0	0.0
5 Z(Est.)	.768	.773	.779	.782	0.000
6 TZ	425.4	428.3	431.3	433.2	0.0
7 GH/TZ	10.348	10.276	10.205	10.160	0.000
8 e ^s (Table XIV)	1.474	1.470	1.466	1.464	0.000
9 1-e ^{-s} (Table XIV)	.322	.320	.318	.317	0.000
10 Pt	1748.2	1644.2	1560.2	1513.2	0.0
11 Pt ² /1000	3056.2	2703.4	2434.2	2289.8	0.0
12 Fr(Table XV)	.010495	.010495	.010495	.010495	0.000000
13 Fc=FrTZ	4.464	4.495	4.527	4.547	0.000
14 FcQm	5.356	7.165	9.117	10.023	0.000
15 L/H(FcQm) ²	28.691	51.333	83.114	100.464	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	9.227	16.415	26.427	31.827	0.000
17 Pw ² =Pt ² +Fw	3065.4	2719.8	2460.7	2321.6	0.0
18 Ps ² =e ^s Pw ²	4518.7	3998.4	3607.8	3398.2	0.0
19 Ps	2125.7	1999.6	1899.4	1843.4	0.0
20 P=(Pt+Ps)/2	1937.0	1821.9	1729.8	1678.3	0.0
21 Pr=(P/Pcr)	2.91	2.74	2.60	2.52	0.00
22 Tr=(T/Tcr)	1.48	1.48	1.48	1.48	0.00
23 Z(Table XI)	.768	.773	.779	.782	0.000