

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

Adopted 9-1-65

DATE 4/5/89

COMPANY Yates Petroleum Corporation LEASE Williamson LC Fed. WELL NO. 9

LOCATION: Unit P Section 4 Township 8S Range 25E

L 3674.0 H 3674.0 L/H 1.000 G .662 %CO₂ .05 %N₂ 8.10 %H₂S 0.00

d 1.995 Fr .017777 GH 2432.2 Pcr 656.5 Tcr 353.7

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.348	.481	.561	.607	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.)	.871	.882	.884	.887	0.000
6 TZ	469.3	475.2	476.3	478.2	0.0
7 GH/TZ	5.183	5.119	5.107	5.086	0.000
8 e ^s (Table XIV)	1.214	1.211	1.211	1.210	0.000
9 1-e ^{-s} (Table XIV)	.176	.175	.174	.174	0.000
10 Pt	911.2	826.2	810.2	783.2	0.0
11 Pt ² /1000	830.3	682.6	656.4	613.4	0.0
12 Fr(Table XV)	.017777	.017777	.017777	.017777	0.000000
13 Fc=FrTZ	8.350	8.453	8.472	8.501	0.000
14 FcQm	2.905	4.070	4.749	5.158	0.000
15 L/H(FcQm) ²	8.439	16.563	22.552	26.608	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	1.489	2.891	3.928	4.620	0.000
17 Pw ² =Pt ² +Fw	831.8	685.5	660.4	618.0	0.0
18 Ps ² =e ^s Pw ²	1010.0	830.4	799.6	747.9	0.0
19 Ps	1005.0	911.3	894.2	864.8	0.0
20 P=(Pt+Ps)/2	958.1	868.7	852.2	824.0	0.0
21 Pr=(P/Pcr)	1.46	1.32	1.30	1.26	0.00
22 Tr=(T/Tcr)	1.52	1.52	1.52	1.52	0.00
23 Z(Table XI)	.871	.882	.884	.887	0.000