

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

Adopted 9-1-65

DATE 4/5/89

COMPANY Yates Petroleum Corporation LEASE Woodchuck ABW St Cm WELL NO. 1

LOCATION: Unit K Section 13 Township 17S Range 28E

L 10354.0 H 10354.0 L/H 1.000 G .655 %CO₂ .48 %N₂ .24 %H₂S 0.00

d 1.995 Fr .017777 GH 6786.0 Pcr 671.7 Tcr 372.8

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.166	.191	.206	.253	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	652.0	652.0	652.0	652.0	0.0
4 T=(Tw+Ts)/2	587.0	587.0	587.0	587.0	0.0
5 Z(Est.)	.815	.815	.823	.842	0.000
6 TZ	478.3	478.7	483.0	494.2	0.0
7 GH/TZ	14.189	14.176	14.050	13.732	0.000
8 e ^s (Table XIV)	1.702	1.702	1.694	1.673	0.000
9 1-e ^{-s} (Table XIV)	.413	.412	.410	.402	0.000
10 Pt	1762.2	1740.2	1573.2	1293.2	0.0
11 Pt ² /1000	3105.3	3028.3	2475.0	1672.4	0.0
12 Fr(Table XV)	.017777	.017777	.017777	.017777	0.000000
13 Fc=FrTZ	8.502	8.510	8.586	8.786	0.000
14 FcQm	1.411	1.627	1.765	2.222	0.000
15 L/H(FcQm) ²	1.991	2.648	3.117	4.939	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	.822	1.092	1.276	1.988	0.000
17 Pw ² =Pt ² +Fw	3106.2	3029.4	2476.2	1674.4	0.0
18 Ps ² =e ^s Pw ²	5288.1	5155.0	4193.8	2802.0	0.0
19 Ps	2299.6	2270.5	2047.9	1673.9	0.0
20 P=(Pt+Ps)/2	2030.9	2005.3	1810.5	1483.6	0.0
21 Pr=(P/Pcr)	3.02	2.99	2.70	2.21	0.00
22 Tr=(T/Tcr)	1.57	1.57	1.57	1.57	0.00
23 Z(Table XI)	.815	.815	.823	.842	0.000