

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

Adopted 9-1-65

DATE 3/30/89

COMPANY Yates Petroleum Corporation LEASE Anthill AKA State WELL NO. 1

LOCATION: Unit 0 Section 2 Township 20S Range 29E

L 10516.0 H 10516.0 L/H 1.000 G 1.229 %CO₂ .29 %N₂ 1.45 %H₂S 0.00

d 1.995 Fr .017777 GH 12922.0 Pcr 648.8 Tcr 559.0

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.444	.523	.596	.633	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	680.0	680.0	680.0	680.0	0.0
4 T=(Tw+Ts)/2	601.0	601.0	601.0	601.0	0.0
5 Z(Est.)	.660	.625	.605	.571	0.000
6 TZ	396.4	375.9	363.4	343.4	0.0
7 GH/TZ	32.599	34.375	35.555	37.634	0.000
8 e ^s (Table XIV)	3.395	3.630	3.788	4.105	0.000
9 1-e ^{-s} (Table XIV)	.705	.724	.736	.756	0.000
10 Pt	2190.2	2008.2	1899.2	1723.2	0.0
11 Pt ² /1000	4797.0	4032.9	3607.0	2969.4	0.0
12 Fr(Table XV)	.017777	.017777	.017777	.017777	0.000000
13 Fc=FrTZ	7.047	6.682	6.468	6.100	0.000
14 FcQm	3.131	3.493	3.857	3.859	0.000
15 L/H(FcQm) ²	9.802	12.201	14.878	14.895	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	6.915	8.839	10.951	11.267	0.000
17 Pw ² =Pt ² +Fw	4803.9	4041.7	3617.9	2980.7	0.0
18 Ps ² =e ^s Pw ²	16310.6	14669.4	13704.8	12236.1	0.0
19 Ps	4038.6	3830.1	3702.0	3498.0	0.0
20 P=(Pt+Ps)/2	3114.4	2919.1	2800.6	2610.6	0.0
21 Pr=(P/Pcr)	4.80	4.50	4.32	4.02	0.00
22 Tr=(T/Tcr)	1.08	1.08	1.08	1.08	0.00
23 Z(Table XI)	.660	.625	.605	.571	0.000