

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY MESA PETROLEUM LEASE MARAI0 FEDERAL COM. WELL NO. # 1

DATE 12-12-79

LOCATION: Unit L Section 22 Township 17 Range 27

L 8981 H 8981 L/H 1.000 G .742 % CO₂ .618 % N₂ 4.249 % H₂S 0
d 1.995 F_r .018231 GH 5550

1st 2nd 3rd P_{cr} 671 T_{cr} 365
TABLE IX & X TABLE IX & X

LINE	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd		
1 Q _m	.187	.187	.247	.247	.329	.329	.455	.455		
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534		
3 T _s (B.H. °R)	624	624	624	624	624	624	624	624		
4 T = ($\frac{T_w + T_s}{2}$)	579	579	579	579	579	579	579	579		
5 Z (Est.)	.817	.818	.823	.818	.840	.829	.880	.870		
6 TZ	473.0	473.6	476.5	473.6	486.4	480.0	509.5	503.7		
7 GH/TZ	11.733	11.718	11.647	11.718	11.411	11.563	10.893	11.018		
8 e ^s (Table XIV)	1.553	1.552	1.548	1.552	1.534	1.543	1.505	1.512		
9 1-e ^s (Table XIV)	.356	.356	.354	.356	.348	.352	.335	.338		
10 P _t	2393.2	2393.2	2053.2	2053.2	1693.2	1693.2	1103.2	1103.2		
11 P _t 2/1000	5727.4	5727.4	4215.6	4215.6	2866.9	2866.9	1217.1	1217.1		
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 F _c = F _r TZ	8.624	8.635	8.687	8.635	8.867	8.751	9.289	9.184		
14 F _c Q _m	1.613	1.615	2.146	2.133	2.917	2.879	4.227	4.178		
15 L/H (F _c Q _m) ²	2.601	2.607	4.604	4.549	8.510	8.289	17.863	17.460		
16 F _w = L/H (F _c Q _m) ² (1-e ^{-s})	.926	.927	1.629	1.617	2.963	2.916	5.990	5.909		
17 P _w ² = P _t ² + F _w	5728.3	5728.3	4217.3	4217.2	2869.9	2869.8	1223.0	1223.0		
18 P _s ² = e ^s P _w ²	8894.2	8889.4	6527.0	6544.4	4402.6	4427.6	1840.1	1848.6		
19 P _s	2982.3	2981.5	2554.8	2558.2	2098.2	2104.2	1356.5	1359.6		
20 P = ($\frac{P_t + P_s}{2}$)	2687.8	2687.4	2304.0	2304.0	2305.7	1895.7	1229.8	1231.4		
21 P _r = (P/P _{cr})	4.01	4.00	3.43	3.44	2.83	2.83	1.83	1.84		
22 T _r = (T/T _{cr})	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59		
23 Z (Table XI)	.818	.818	.818	.818	.829	.829	.870	.869		