

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)COMPANY MESA PETROLEUM COMPANY LEASE WILLIAMSON FEDERAL COM. WELL NO. # 1 DATE 6-29-79LOCATION: Unit 8863 Section 12 Township 16 Range 27L 8863 H 8863 L/H 1.000 G .646 % CO₂ .383 % N₂ .489 % H₂S d 1.995 F_i .018231 GH 5726 P_{cr} 670 T_{cr} 375

TABLE IX & X

LINE	1st			2nd			3rd			4th		
	1st TRIAL	2nd TRIAL	1st TRIAL	2nd TRIAL	1st TRIAL	2nd TRIAL	1st TRIAL	2nd TRIAL	1st TRIAL	2nd TRIAL	1st TRIAL	2nd TRIAL
1 Q_m	.176	.176	.273	.273	.374	.374	.374	.374	.532	.532	.532	.532
2 T_w (W.H. °R)	534	534	534	534	534	534	534	534	534	534	534	534
3 T_s (B.H. °R)	621	621	621	621	621	621	621	621	621	621	621	621
4 $T = (\frac{T_w + T_s}{2})$	577.5	577.5	577.5	577.5	577.5	577.5	577.5	577.5	577.5	577.5	577.5	577.5
5 Z (Est.)	.790	.790	.792	.792	.792	.792	.792	.792	.792	.792	.792	.792
6 TZ	456.2	456.2	457.4	455.6	460.3	456.8	460.3	456.8	467.2	460.8	460.8	460.8
7 GH/TZ	12.551	12.551	12.519	12.567	12.441	12.535	12.441	12.535	12.256	12.425	12.256	12.425
8 e^s (Table XIV)	1.601	1.601	1.599	1.602	1.594	1.600	1.594	1.600	1.583	1.594	1.583	1.594
9 $1 - e^s$ (Table XIV)	.375	.375	.375	.376	.373	.375	.373	.375	.368	.372	.368	.372
10 P_t	2288.2	2288.2	2128.2	2128.2	1993.2	1993.2	1993.2	1993.2	1753.2	1753.2	1753.2	1753.2
11 $P_t^2/1000$	5235.9	5235.9	4529.2	4529.2	3972.8	3972.8	3972.8	3972.8	3073.7	3073.7	3073.7	3073.7
12 F_r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231
13 $F_c = F_r T_z$	8.317	8.317	8.338	8.307	8.391	8.328	8.391	8.328	8.517	8.402	8.517	8.402
14 $F_c Q_m$	1.464	1.464	2.276	2.268	3.138	3.115	3.138	3.115	4.531	4.470	4.531	4.470
15 $L/H (F_c Q_m)^2$	2.143	2.143	5.182	5.143	9.849	9.701	9.849	9.701	20.533	19.978	20.533	19.978
16 $F_w = L/H (F_c Q_m)^2 (1 - e^s)$	.804	.804	1.942	1.933	3.672	3.638	3.672	3.638	7.566	7.441	7.566	7.441
17 $P_w^2 = P_t^2 + F_w$	5236.7	5235.7	4531.2	4531.2	3976.5	3976.5	3976.5	3976.5	3081.3	3081.2	3081.3	3081.2
18 $P_s^2 = e^s P_w^2$	8384.1	8384.1	7246.0	7258.9	6340.3	6362.7	6340.3	6362.7	4879.0	4909.8	4879.0	4909.8
19 P_s	2895.5	2895.5	2591.8	2694.2	2518.0	2522.4	2518.0	2522.4	2208.9	2215.8	2208.9	2215.8
20 $P = (\frac{P_t + P_s}{2})$	2591.9	2591.9	2410.0	2411.2	2255.6	2257.8	2255.6	2257.8	1981.0	1984.5	1981.0	1984.5
21 $P_r = (P/P_{cr})$	3.87	3.87	3.60	3.60	3.37	3.37	3.37	3.37	2.96	2.96	2.96	2.96
22 $T_r = (T/T_{cr})$	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
23 Z (Table XI)	.790	.790	.789	.789	.791	.791	.791	.791	.798	.798	.798	.798