

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY MESA PETROLEUM LEASE WHITE STATE WELL NO. #1 DATE 06-11-80

LOCATION: Unit 0 Section 35 Township 15 Range 27

8857 H 8857 L/H 1.000 G .6655 % CO₂ 2.078 % N₂ 9.237 % H₂S

d 1.995 F_r .018231 GH 5894 P_{cr} 717 T_{cr} 359

TABLE IX & X

LINE	1 st			2 nd			3rd			4 th		
	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd
1 Q _m	.195	.195	.217	.217	.237	.237	.237	.237	.256	.256		
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534	534	534		
3 T _s (B.H. °R)	623	623	623	623	623	623	623	623	623	623		
4 T = ($\frac{T_w + T_s}{2}$)	578.5	578.5	578.5	578.5	578.5	578.5	578.5	578.5	578.5	578.5		
5 Z (Est.)	.833	.823	.856	.845	.888	.876	.888	.876	.929	.922		
6 T _Z	481.9	476.1	495.2	488.8	513.7	506.8	513.7	506.8	537.4	533.4		
7 GH/TZ	12.231	12.380	11.902	12.057	11.473	11.631	11.473	11.631	10.967	11.050		
8 e ^S (Table XIV)	1.582	1.591	1.563	1.572	1.538	1.547	1.538	1.547	1.509	1.513		
9 1 - e ^S (Table XIV)	.368	.371	.360	.364	.350	.353	.350	.353	.337	.339		
10 P _t	1933.2	1933.2	1513.2	1513.2	1093.2	1093.2	1093.2	1093.2	658.2	658.2		
11 P _t ² /1000	3737.3	3737.3	2289.8	2289.8	1195.1	1195.1	1195.1	1195.1	433.2	433.2		
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 F _c = F _r T _Z	8.7850	8.680	9.028	8.912	9.365	9.239	9.365	9.239	9.798	9.724		
14 F _c Q _m	1.71	1.69	1.96	1.93	2.22	2.19	2.22	2.19	2.51	2.49		
15 L/H (F _c Q _m) ²	2.9	2.9	3.8	3.7	4.9	4.8	4.9	4.8	6.3	6.2		
16 F _w = L/H (F _c Q _m) ² (1 - e ^{-S})	1.08	1.06	1.38	1.36	1.72	1.69	1.72	1.69	2.12	2.10		
17 P _w ² = P _t ² + F _w	3738.3	3738.3	2291.2	2291.1	1196.8	1196.8	1196.8	1196.8	435.3	435.3		
18 P _s ² = e ^S P _w ²	5913.9	5946.9	3580.1	3600.9	1840.3	1851.1	1840.3	1851.1	656.8	658.8		
19 P _s	2431.8	2438.6	1892.1	1897.6	1356.6	1360.6	1356.6	1360.6	810.4	811.7		
20 P = ($\frac{P_t + P_s}{2}$)	2182.5	2185.9	1702.7	1705.4	1224.9	1226.9	1224.9	1226.9	734.3	734.9		
21 P _r = (P/P _{cr})	3.04	3.05	2.37	2.38	1.71	1.71	1.71	1.71	1.02	1.03		
22 T _r = (T/T _{cr})	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61		
23 Z (Table XI)	.823	.823	.845	.844	.876	.876	.876	.876	.922	.921		