

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY GULF OIL CORP. LEASE/LAKE McMILLIAN FEDERAL WELL NO. # 1 DATE 11/21/80

LOCATION: Unit I Section 30 Township 19s Range 27e

L 7858 H 7858 L/H 1.000 G .715 % CO₂ 1.53 % N₂ 1.79 % H₂S ---

d 1.995 F_r .018231 GH 5618 P_{cr} 668 T_{cr} 398

TABLE IX & X

1st Rate 2nd Rate 3rd Rate 4th Rate

LINE	1 st	2 nd	1st	2nd	1st	2nd	1st	2nd		
1 Q _m	.364	.364	.728	.728	1.180	1.180	1.526	1.526		
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534		
3 T _s (B.H. °R)	612	612	612	612	612	612	612	612		
4 T = ($\frac{T_w + T_s}{2}$)	573	573	573	573	573	573	573	573		
5 Z (Est.)	.774	.783	.775	.786	.777	.789	.779	.793		
6 T _Z	443.5	448.7	444.1	450.4	445.2	452.1	446.4	454.4		
7 GH/T _Z	12.667	12.532	12.651	12.474	12.618	12.427	12.586	12.364		
8 e ^s (Table XIV)	1.608	1.599	1.607	1.596	1.605	1.594	1.603	1.590		
9 1-e ^s (Table XIV)	.378	.375	.378	.374	.377	.372	.376	.371		
10 P _t	1648.2	1648.2	1603.2	1603.2	1553.2	1553.2	1498.2	1498.2		
11 P _t ² /1000	2716.6	2716.6	2570.3	2570.3	2412.4	2412.4	2244.6	2244.6		
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 F _c = F _r T _Z	8.086	8.180	8.096	8.211	8.117	8.242	8.138	8.284		
14 F _c Q _m	2.94	2.98	5.977	9.578	9.726	9.726	12.418	12.641		
15 L/H (F _c Q _m) ²	8.66	8.86	34.74	35.73	91.74	94.59	154.21	159.80		
16 F _w = L/H (F _c Q _m) ² (1-e ^{-s})	3.28	3.32	13.12	13.35	34.58	35.23	58.02	59.29		
17 P _w ² = P _t ² + F _w	2719.8	2719.9	2583.4	2583.6	2447.0	2447.7	2302.6	2303.9		
18 P _s ² = e ^s P _w ²	4373.7	4349.9	4151.7	4124.6	3927.7	3900.6	3691.5	3662.9		
19 P _s	2091.3	2085.6	2037.6	2030.9	1981.8	1975.0	1921.3	1913.9		
20 P = ($\frac{P_t + P_s}{2}$)	1869.8	1866.9	1820.4	1817.0	1767.5	1764.1	1709.8	1706.0		
21 P _r = (P/P _{cr})	2.80	2.79	2.73	2.72	2.65	2.64	2.56	2.55		
22 T _r = (T/T _{cr})	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54		
23 Z (Table XI)	.783	.783	.786	.786	.789	.789	.793	.793		