

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY Beard Oil Company LEASE McCaw WELL NO. # 1 DATE 8/3/78

LOCATION: Unit G Section 18 Township 17 Range 24

L 6969 H 6969 L/H 1.000 G mix .640 % CO₂ % N₂ % H₂S

d 1.995 F_r .018231 GH 4460 P_{cr} 670 T_{cr} 372
1st 2nd 3rd 4th

LINE	1st	2nd	1st	2nd	1st	2nd	1st	2nd
1 Q _m	.991	.991	1.326	1.326	1.900	1.900	2.127	2.127
2 T _w (W.H. °R)	534	534	534	534	534	534	534	
3 T _s (B.H. °R)	604	604	604	604	604	604	604	
4 T = ($\frac{T_w + T_s}{2}$)	569	569	569	569	569	569	569	
5 Z (Est.)	.791	.780	.795	.783	.807	.795	.815	.801
6 TZ	450.1	443.8	452.4	445.5	459.2	452.4	463.7	455.8
7 GH/TZ	9.909	10.049	9.860	10.011	9.713	9.860	9.618	9.786
8 e ^s (Table XIV)	1.450	1.458	1.447	1.456	1.439	1.447	1.434	1.443
9 1-e ^s (Table XIV)	.310	.314	.309	.313	.305	.309	.303	.307
10 P _t	1748.2	1748.2	1688.2	1688.2	1513.2	1513.2	1438.2	1438.2
11 P _t 2/1000	3056.2	3056.2	2850.0	2850.0	2289.8	2289.8	2068.4	2068.4
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231
13 F _c = F _r TZ	8.205	8.091	8.247	8.122	8.371	8.247	8.454	8.309
14 F _c Q _m	8.13	8.02	10.94	10.77	15.91	15.67	17.98	17.67
15 L/H (F _c Q _m) ²	66.1	64.3	119.6	116.0	253.0	245.5	323.4	312.4
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	20.52	20.10	36.96	36.31	77.23	75.89	97.91	95.94
17 P _w ² = P _t ² + F _w	3076.7	3076.4	2887.0	2886.3	2367.0	2365.7	2166.3	2164.4
18 P _s ² = e ^s P _w ²	4461.4	4484.4	4178.5	4201.3	3407.1	3423.9	3107.1	3123.9
19 P _s	2112.2	2117.6	2044.1	2049.7	1845.8	1850.4	1762.7	1767.5
20 P = ($\frac{P_t + P_s}{2}$)	1930.2	1932.9	1866.2	1868.9	1679.5	1681.8	1600.4	1602.8
21 P _r = (P/P _{cr})	2.88	2.88	2.79	2.79	2.51	2.51	2.39	2.39
22 T _r = (T/T _{cr})	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
23 Z (Table XI)	.780	.780	.783	.783	.795	.795	.801	.801