

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY Atlantic Richfield LEASE McDonald State WN WELL NO. 22 DATE 04/05/74

LOCATION: Unit A Section 26 Township 22S Range 36E

L 3120 H 3120 L/H 1.0 C 0.695 % CO₂ -0- % N₂ -0- % H₂S -0-

d 1.995 F_r .018231 GH 2168 P_{cr} 669.0 T_{cr} 388.0
TABLE IX & X TABLE IX & X

LINE	1st Trial	2nd Trial	1st Trial	2nd Trial	3rd Trial	4th Trial	1st Trial	2nd Trial
1 Q _m	.218	.218	.401	.401	.531	.531	.713	.713
2 T _w (W.H. °R)	526	526	529	529	529	529	531	531
3 T _s (B.H. °R)	550	550	550	550	550	550	550	550
4 T = ($\frac{T_w + T_s}{2}$)	538.0	538.0	539.5	539.5	539.5	539.5	540.5	540.5
5 Z (Est.)	.945	.943	.956	.954	.964	.962	.980	.976
6 T _Z	508.6	507.3	515.7	514.5	520.0	518.7	529.5	527.5
7 GH/T _Z	4.263	4.274	4.205	4.214	4.170	4.180	4.095	4.111
8 e ^s (Table XIV)	1.173	1.174	1.171	1.171	1.169	1.170	1.166	1.167
9 1-e ^s (Table XIV)	.148	.148	.146	.146	.145	.145	.142	.143
10 P _t	276.2	276.2	225.2	225.2	182.2	182.2	99.2	99.2
11 P _t ² /1000	76.3	76.3	50.7	50.7	33.2	33.2	9.8	9.8
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231
13 F _c = F _r T _Z	9.273	9.249	9.402	9.380	9.480	9.457	9.654	9.616
14 F _c Q _m	2.02	2.02	3.77	3.76	5.03	5.02	6.89	6.86
15 L/H (F _c Q _m) ²	4.1	4.1	14.2	14.1	25.3	25.2	47.4	47.0
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	.60	.60	2.07	2.07	3.67	3.66	6.75	6.72
17 P _w ² = P _t ² + F _w	76.9	76.9	52.8	52.8	36.9	36.9	16.6	16.6
18 P _s ² = e ^s P _w ²	90.2	90.3	61.8	61.8	43.1	43.1	19.3	19.3
19 P _s	300.4	300.4	248.6	248.6	207.6	207.6	139.1	139.0
20 P = ($\frac{P_t + P_s}{2}$)	288.3	288.3	236.9	236.9	194.9	194.9	119.1	119.1
21 P _r = (P/P _{cr})	.43	.43	.35	.35	.29	.29	.18	.18
22 T _r = (T/T _{cr})	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
23 Z (Table XI)	.943	.943	.954	.954	.962	.962	.976	.976