

WORKSHEET FOR CALCULATION OF I.C COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Adopted 9-1-85

COMPANY MARSHALL PIPE & SUPPLY LEASE MORRISON WELL NO. 1 DATE 1-10-90

LOCATION: Unit A Section 22 Township Z-S Range 29-E

L 6986 H 6986 L/H 1.000 G 674 % CO₂ 12.5 % N₂ 6.43 % H₂S —

d 1.995 F_r 0.018231 GH 4708.56 P_{cr} 658 T_{cr} 365

TABLE IX B-2

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LINE	1ST	2nd	1ST	2nd	1ST	2nd	1ST	2nd	1ST	2nd
1 Q _m	.998	.948	.672	.672	.843	.843	.790	.790		
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534		
3 T _s (B.H. °R)	583	583	583	583	583	583	583	583		
4 T = ($\frac{T_w + T_s}{2}$)	558.5	558.5	558.5	558.5	558.5	558.5	558.5	558.5		
5 Z (Est.)	.836	.824	.842	.829	.858	.845	.918	.909		
6 TZ	466.9	460.2	470.2	462.9	479.18	471.9	572.7	570.6		
7 GH/TZ	10.084	10.231	10.012	10.169	9.826	9.977	9.183	9.274		
8 e ^s (Table XIV)	1.459	1.467	1.455	1.464	1.445	1.453	1.411	1.415		
9 1-e ^s (Table XIV)	.314	.318	.313	.317	.308	.312	.291	.293		
10 P ₁	1195.2	1195.2	1138.2	1138.2	995.2	995.2	550.2	550.2		
11 P ₁ ² /1000	1428.5	1428.5	1295.5	1295.5	990.4	990.4	302.7	302.7		
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 F _c = F _r TZ	8.572	8.389	8.573	8.440	8.736	8.603	9.347	9.255		
14 F _c Q _m	3.813	3.758	5.761	5.672	7.364	7.253	7.384	7.311		
15 L/H (F _c Q _m) ²	14.542	14.127	33.191	32.174	57.237	52.604	54.526	53.462		
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	4.579	4.501	10.390	10.201	16.716	16.419	15.886	15.705		
17 P _w ² = P ₁ ² + F _w	1433.0	1433.0	1305.8	1305.7	1007.1	1006.8	318.6	318.4		
18 P _s ² = e ^s P _w ²	2091.7	2103.1	1900.9	1911.9	1455.8	1463.6	449.5	450.8		
19 P _s	1446.2	1450.2	1378.7	1382.7	1206.5	1209.8	670.5	671.4		
20 P = ($\frac{P_1 + P_s}{2}$)	1320.7	1322.7	1258.4	1260.4	1100.8	1102.5	610.3	610.8		
21 P _r = (P/P _{cr})	2.00	2.00	1.91	1.91	1.67	1.67	1.92	1.92		
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)	.824	.824	.829	.829	.845	.845	.909	.909		

Use values to be filled in District Office (Work copy acceptable)

* = P_w 2