

WORKSHEET FOR CALCULATION OF STAINLESS STEEL COLUMN WELLHEAD PRESSURE (P_w)

5-122D
Adopted 9-1-65

COMPANY SHELL WESTERN LITCO INC. LEASE ANNELOPE RIDGE WELL NO. 10 DATE 8-29-85

LOCATION: Unit L Section 3 Township 24-S Range 34-E

L 13189 H 1 L/H 1 G 5.83 % CO₂ 1.46 % N₂ 2.3 % H₂S 0

d 2.441 F_r 0.10763 GH 7650 P_{cr} 676 T_{cr} 349
1st rate 2nd rate 3rd rate 4th rate

LINE	1st	2nd	1st	2nd	3rd	4th
1 Q _m	5.35	5.35	5.35	5.35	5.35	5.35
2 T _w (W.H. °R)	546	546	546	546	546	546
3 T _s (B.H. °R)	640	640	640	640	640	640
4 T = (T _w + T _s) / 2	593	593	593	593	593	593
5 Z (Est.)	.795	.856	.855	.857	.855	.858
6 TZ	471.44	507.6	507.0	508.2	507.6	508.0
7 GH/TZ	16.227	15.070	15.088	15.053	15.071	15.035
8 e ^s (Table XIV)	1.83769	1.760	1.761	1.753	1.760	1.757
9 1 - e ^s (Table XIV)	.544	.568	.568	.569	.568	.569
10 P ₁	2277.2	2277.2	2277.2	2219.2	2172.2	2006.2
11 P ₁ ² /1000	5185.6	5185.6	5186.6	4924.9	4718.5	4024.8
12 F _r (Table XV)	.010763	.010763	.010763	.010763	.010763	.010763
13 F _c = F _r TZ	5.074	5.463	5.457	5.470	5.463	5.468
14 F _c Q _m	2.715	2.922	2.919	4.234	5.644	9.109
15 L/H (F _c Q _m) ²	7.369	8.543	8.523	17.923	31.850	82.974
16 F _w = L/H (F _c Q _m) ² (1 - e ^s)	4.009	4.852	4.841	10.198	18.091	47.212
17 P _w ² = P ₁ ² + F _w	5789.6	5190.4	5191.4	4935.1	4736.6	4072.0
18 P _s ² = e ^s P _w ²	9536.9	9135.1	9142.1	8651.2	8336.4	7154.5
19 P _s	3088.2	3022.4	3023.6	2941.3	2887.3	2674.8
20 P = (P ₁ + P _s) / 2	2682.7	2649.8	2650.4	2580.3	2529.8	2340.5
21 P _r = (P/P _{cr})	3.97	3.79	3.92	3.82	3.74	3.46
22 T _r = (T/T _{cr})	1.70	1.70	1.70	1.70	1.70	1.70
23 Z (Table XI)	.856	.855	.855	.855	.856	.858

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O.C.D.
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