

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

Form C-122D
Adopted 9-1-65

COMPANY Gulf Exp. & Prod. LEASE North Rock Lake WELL NO. 1 DATE 12-7-81

LOCATION: Unit G Section 16 Township 22 Range 35

L 12926 H 12926 L/H 1.000 G-mix .751 % CO₂ .466 % N₂ .599 % H₂S

d 1.995 F_r .018231 GH 9707 P_{cr} 667 T_{cr} 408

LINE	1st Rate		2nd Rate		3rd Rate		4th Rate		TABLE IX & X	TABLE IX & X
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND		
1 Q _m	.308	.308	.748	.748	.922	.922	1.081	1.081		
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534		
3 T _s (B.H. °R)	663	663	663	663	663	663	663	663		
4 T _r = $(\frac{T_w + T_s}{2})$	598.5	598.5	598.5	598.5	598.5	598.5	598.5	598.5		
5 Z (Est.)	.980	1.090	.894	.992	.828	.911	.791	.863		
6 TZ	586.5	652.4	535.1	593.7	495.5	545.2	473.4	516.5		
7 GH/TZ	16.55	14.88	18.14	16.35	19.59	17.80	20.50	18.79		
8 e ^s (Table XIV)	1.860	1.747	1.975	1.846	2.085	1.950	2.157	2.023		
9 1-e ^s (Table XIV)	.462	.428	.494	.458	.520	.487	.536	.506		
10 P ₁	5303.2	5303.2	4493.2	4493.2	3813.2	3813.2	3393.2	3393.2		
11 P ₁ ² /1000	28123.9	28123.9	20188.8	20188.8	14540.5	14540.5	11513.8	11513.8		
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 F _c = F _r TZ	10.693	11.893	9.755	10.824	9.035	9.940	8.631	9.416		
14 F _c Q _m	3.293	3.663	7.296	8.096	8.330	9.165	9.330	10.179		
15 L/H (F _c Q _m) ²	10.846	13.418	53.239	65.550	69.386	83.994	87.047	103.615		
16 F _w = L/H (F _c Q _m) ² (1-e ^{-s})	5.015	5.738	26.276	30.044	36.100	40.911	46.699	52.406		
17 P _w ² = P ₁ ² + F _w	28128.9	*28129.7	20215.1	*20218.9	14576.6	*14581.4	11560.5	*11566.2		
18 P _s ² = e ^s P _w ²	52322.1	49146.9	39915.0	37327.5	30385.6	28428.0	24940.8	23402.6		
19 P _s	7233.4	7010.5	6317.8	6109.6	5512.3	5331.8	4994.1	4837.6		
20 P = $(\frac{P_1 + P_s}{2})$	6268.3	6156.8	5405.5	5301.4	4662.8	4572.5	4193.6	4115.4		
21 P _r = (P/P _{cr})	9.40	9.23	8.10	7.95	6.99	6.86	6.29	6.17		
22 T _r = (T/T _{cr})	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47		
23 Z (Table XI)	1.090	1.076	.992	.980	.911	.903	.863	.856		