

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

COMPANY EL Paso Nat. Gas Lease Rocky Arroyo B WELL NO. #1 DATE 1-9-74

LOCATION: Unit C Section 17 Township 22 Range 22

L 8968 H 8968 L/H 1.000 G .658 %CO₂ --- %N₂ --- %H₂S ---

d 1.995 F_r .018231 GH 5901 P_{cr} 670 T_{cr} 378

1st 2nd 3rd

LINE	1 st Trial	2 nd Trial	1 st Trial	2 nd Trial	1 st Trial	2 nd Trial	1 st Trial	2 nd Trial
1 O _m	293	293	366	485	485	636	636	636
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534
3 T _s (B.H. °R)	628	628	628	628	628	628	628	628
4 T = $(\frac{T_w + T_s}{2})$	581	581	581	581	581	581	581	581
5 Z (Est.)	800	794	806	795	811	799	820	807
6 T _Z	464.8	461.3	468.3	461.9	471.2	464.2	476.4	468.9
7 GH/T _Z	12.696	12.792	12.601	12.776	12.524	12.712	12.386	12.586
8 e ^s (Table XIV)	1.610	1.616	1.604	1.615	1.599	1.611	1.591	1.603
9 1 - e ^s (Table XIV)	.379	.381	.377	.381	.375	.379	.372	.376
10 P ₁	1835.2	1825.2	1799.2	1792.2	1710.2	1710.2	1570.2	1570.2
11 P ₁ 2/1000	3368.0	3368.0	3212.0	3212.0	2924.8	2924.8	2465.5	2465.5
12 F _r (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231
13 F _c = F _r T _Z	8.474	8.410	8.537	8.421	8.590	8.463	8.686	8.548
14 F _c Q _m	2.48	2.46	3.12	3.08	4.17	4.10	5.52	5.44
15 L/H (F _c Q _m) ²	6.16	6.07	9.76	9.50	17.36	16.85	30.52	29.56
16 F _w = L/H (F _c Q _m) ² (1 - e ^s)	2.335	2.314	3.677	3.616	6.505	6.388	11.338	11.119
17 P _w ² = P ₁ ² + F _w	3370.3	3370.3	3215.7	3215.6	2931.3	2931.2	2476.9	2476.6
18 P _s ² = e ^s P _w ²	5425.40	5444.92	5158.16	5191.90	4688.33	4721.33	3941.15	3970.40
19 P _s	2329.2	2333.4	2271.2	2278.6	2165.3	2172.9	1985.2	1992.6
20 P = $(\frac{P_1 + P_s}{2})$	2082.22	2084.32	2031.68	2035.39	1937.73	1941.53	1777.72	1781.39
21 P _r = (P/P _{cr})	3.11	3.11	3.03	3.04	2.89	2.90	2.65	2.66
22 T _r = (T/T _{cr})	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
23 Z (Table XI)	794	794	795	795	799	799	807	807