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

C-122D
Adopted 9-1-65

OMPANY Yates Petroleum Corp LEASE Siegenthaler 15 Com WELL NO. 2 DATE 5-18-78

OCATION: Unit K Section 21 Township 17-S Range 26-E

7685 H 7685 L/H 1.000 G 0.692 % CO_2 6.15 % N_2 0.35 % H_2S N.T

3/8 - 7637(3.98) 30395
1/2 - 48(16.00) - 768
7685(4.055) 31163

d 2.0137 F_r .017329 GH 5318 P_{cr} 693 (TABLE IX & X) T_{cr} 381.5 (TABLE IX & X)

INE	S1	1	2	3	4	S1	1	2	3	4
1 Q_m	—	0.119	0.182							
2 T_w (W.H. °R)	516	517	518							
3 B.H. °R)	594	591	588							
4 $T = (\frac{T_w + T_s}{2})$	555	554	553					553		
5 Z (Est.)	.744	.760	.836					.838		
6 TZ	412.92	421.04	462.308					463.41		
7 GH/TZ	12.879	12.631	11.503					11.476		
8 e^s (Table XIV)	1.6209	1.6658	1.5394					1.5378		
9 $1-e^{-s}$ (Table XIV)		0.3773	0.3504					0.3497		
0 P_t	2273.2	1605.2	953.2					953.2		
1 $P_t^2/1000$	5167.4	2576.67	908.59					908.59		
2 F_r (Table XV)	.48296	.47365	.43137					.43034		
3 $F_c = F_r TZ$		7.2962	8.0112					8.0304		
4 $F_c Q_m$		0.868	1.458					1.4615		
5 $L/H (F_c Q_m)^2$		0.754	2.126					2.136		
6 $F_w = L/H (F_c Q_m)^2 (1-e^{-s})$		0.284	0.745					0.747		
7 $P_w^2 = P_t^2 + F_w$		2576.95	909.335					909.337		
8 $P_s^2 = e^s P_w^2$	8375.8	4138.06	1399.83					1398.4		
9 P_s	2894.1	2034.2	1183.1					1182.5		
0 $P = (\frac{P_t + P_s}{2})$	2583.7	1819.7	1068.2					1067.9		
1 $P_r = (P/P_{cr})$	3.728	2.626	1.541					1.541		
2 $T_r = (T/T_{cr})$	1.455	1.452	1.450					1.450		
3 Z (Table XI)	.744	.760	.838					.838		

One copy to be filed in District Office (Work copy acceptable)