7-2-2

WORKSHEET FOR CALCULATION OF S1. IC COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Adopted 9-1-65

COMPANY YPC LEASE Cities Service JH State WELL NO. 1 DATE 6-6-79

LOCATION: Unit E Section 36 Township 21S Range 21E

L 6007 H 6007 L/H 1.000 G 0.668 % CO_2 1.29 % N_2 0.16 % H_2S Nil

$2^3/_5$ - 5804(3.98) - 23100
$5^1/_5$ - 202(25.12) 5092
6007(4.694) 28199

d 2.1666 F_r 1.013459 GH 4013 P_{cr} 668.5 (TABLE IX & X) T_{cr} 377 (TABLE IX & X)

LINE	S1	1	2	3	4					
1 Q_m	-	.065	.088	.122	.174					
2 T_w (W.H. °R)	543	544	545	546	547					
3 T_s (B.H. °R)	579	578	577	577	576					
4 $T = (\frac{T_w + T_s}{2})$	562	561	561	561.5	561.5					
5 Z (Est.)	.7835	.785	.787	0.791	0.800					
6 TZ	440.33	440.39	441.51	444.15	449.20					
7 GH TZ	9.1137	9.1125	9.0893	9.0352	8.9357					
8 e^S (Table XIV)	1.4074	1.4074	1.4061	1.4033	1.397952					
9 $1-e^{-S}$ (Table XIV)		0.2815	0.2858	0.2874	0.2847					
10 P_t	1623.2	1578.2	1550.2	1503.2	1403.2					
11 $P_t^{2}/1000$	2634.8	2491.72	2403.12	2259.61	1969.0					
12 F_t (Table XV) $S=.0375\frac{GH}{T_z}$	0.34176	0.34172	0.340855	0.338582	0.333501					
13 $F_c = F_t$ TZ		5.9272	5.9423	5.9778	6.0323					
14 $F_c Q_m$		0.385	0.5229	0.7293	1.0496					
15 $L/H (F_c Q_m)^2$		0.148	0.273	0.532	1.102					
16 $F_w = L/H(F_c Q_m)^2(1-e^{-S})$		0.04	0.08	0.15	0.3					
17 $P_w^2 = P_t^2 + F_w$		2490.76	2403.2	2259.76	1961.3					
18 $P_s^2 = e^S P_w^2$	3709.2	3505.5	3379.1	3171.1	2753.2					
19 P_s	1926.0	1872.3	1838.2	1780.8	1659.2					
20 $P = (\frac{P_t + P_s}{2})$	1774.6	1725.2	1694.2	1642.0	1531.2					
21 $P_r = (P/P_{cr})$	2.655	2.581	2.534	2.457	2.290					
22 $T_r = (T/T_{cr})$	1.491	1.488	1.488	1.489	1.487					
23 Z (Table XI)	0.7835	0.785	0.787	0.791	0.800					