

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_w)

Form C-122F
Adopted 9-1-65

FROM KNOWN BOTTOM HOLE PRESSURE (P₁ or P₂)

COMPANY Liberty Oil & Gas Corp. LEASE Doris Federal WELL NO. 1 DATE 10/5/83

LOCATION: Unit 26 Section 20 Township 5 Range 28E

L 11246 H 11246 L/H 1000 G 16094 % CO₂ 1883 % N₂ 1358 % H₂S

GH 6853 P_{cr} 671 T_{cr} 362

LINE	1	2	3	4	5	6	7	8
T _w (W.H. °R)	534	534	534	534	534	534	534	534
T _s (B.H. °R)	646	646	646	646	646	646	646	646
T = $\frac{T_w + T_s}{2}$	590	590	590	590	590	590	590	590
Z (Est.)	.850	.830	.857	.835	.867	.849	.880	.868
TZ	501.5	489.7	505.6	492.7	511.5	500.9	519.2	512.12
GH/TZ	13.665	13.994	13.553	13.910	13.397	13.681	13.199	13.382
e ^s (Table XIV)	1.669	1.690	1.662	1.685	1.653	1.670	1.640	1.652
P _f or P _s	3423.2	3423.2	3547.2	3547.2	3827.2	3827.2	4143.2	4143.2
P _f ² or P _s ²	11718.3	11718.3	12582.6	12582.6	14647.5	14647.5	17166.1	17166.1
P _c ² = P _f ² /e ^s or P _w ² = P _s ² /e ^s	7019.7	6933.5	7569.0	7468.3	8862.9	8769.0	10464.3	10392.9
P _c or P _w	2649.5	2633.2	2751.2	2732.8	2977.1	2961.3	3234.9	3223.8
P = $\frac{P_w + P_s}{2}$ or $\frac{P_c + P_f}{2}$	3036.3	3028.2	3149.2	3140.0	3402.1	3394.2	3689.0	3683.5
P _r = (P/P _{cr})	4.53	4.51	4.69	4.68	5.07	5.06	5.50	5.49
T _r = (T/T _{cr})	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Z (Table XI)	.830	.829	.835	.834	.849	.848	.868	.867