CALCULATIONS OF
STATIC BOTTOM-HOLE PRESSURES

Equations to Be Used:

$P_{sfs} = P_{whs} * e^{c/\bar{z}} + P_{ls}$ where: $c = \frac{(\gamma_g)(TVD)}{53.34\ \bar{T}}$

(Applied Petroleum Reservoir Engineering, Craft and Hawkings, Pg. 26)

P_{sfs} = Static sandface pressure, psia

P_{whs} = Static wellhead pressure, psia

P_{ls} = Static Head of fluid column, psia

e = 2.7183

γ_g = Gas gravity

TVD = True vertical depth, feet

$\bar{T}$ = Average Temperature, ^{o}R

$\bar{z}$ = Average compressibility factor

Assumptions:

Patm = 14.7 psia

Temp. Grad. = 0.011 F/ft

Liquid Grad. = 0.3 psi/ft

Blinebry Zone:

γ_g = 0.7023 calculated from gas analysis

P_{whs} = 412 psia

TVD = 5033' (Top of fluid)

TVD = 5600' (mid Perfs)

$\bar{T}$ = (82 + 134) (0.5) = 108 ^{o}F = 568 ^{o}R

$c = \frac{(0.7023)(5033)}{(53.34)(568)} = 0.117$