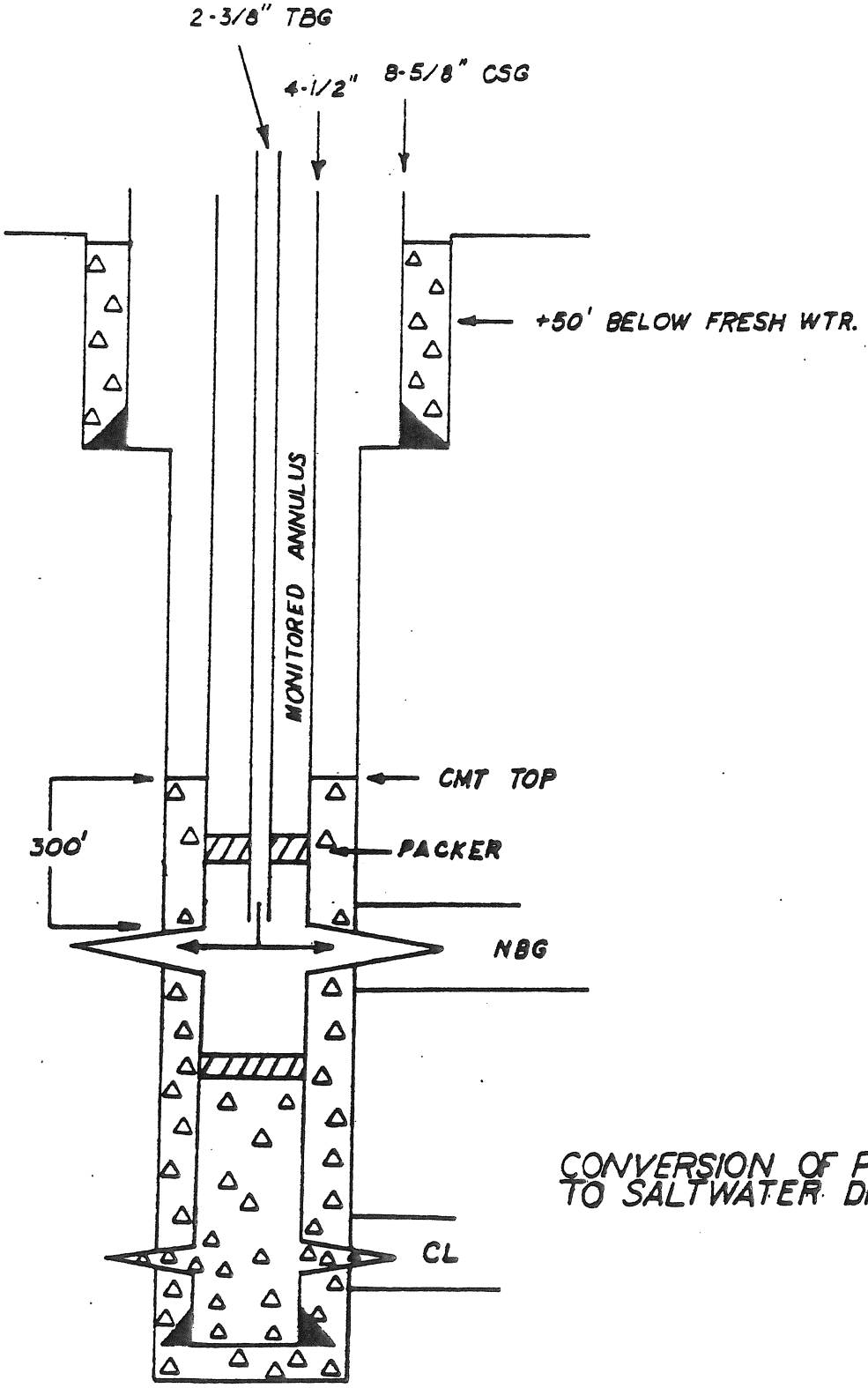
MINIMUM CONSTRUCTION FOR A SALTWATER INJECTION WELL



CONVERSION OF PRODUCING WELL TO SALTWATER DISPOSAL WELL

MAXIMUM SURFACE INJECTION PRESSURE

$$P_M = 0.75D - P_G D$$

P_M = MAXIMUM SURFACE INJECTION PRESSURE (PSI)

0.75 = MAXIMUM INJECTION PRESSURE GRADIENT ALLOWED (PSI/FT)

D = DEPTH TO HIGHEST PERFORATION OR TOP OF OPEN HOLE

P_G = PRESSURE GRADIENT OF DISPOSAL FLUIDS (PSI/FT)
(PRESSURE GRADIENT (P_G) IS CALCULATED BY MULTIPLYING 0.433 BY THE SPECIFIC GRAVITY OF THE INJECTED FLUID. (0.433 PSI/FT = PRESSURE GRADIENT FOR FRESHWATER).

EXAMPLE 1 - BEREA WATER - (SPECIFIC GRAVITY = 1.055)

P_G = (1.055)(0.433 PSI/FT)

P_G = 0.457 PSI/FT

P_M = (0.75 PSI/FT)(1200 FT) - (0.457 PSI/FT)(1200 FT)

= 351.6 PSI

MAXIMUM INJECTION PRESSURE = 352 PSI

EXAMPLE 2 - CLINTON WATER - (SPECIFIC GRAVITY = 1.2)

P_G = (1.2)(0.433 PSI/FT)

P_G = 0.520 PSI/FT

P_M = (0.75 PSI/FT)(3000 FT) - (0.520 PSI/FT)(3000 FT)

= 690 PSI

MAXIMUM INJECTION PRESSURE = 690 PSI