

geopressure magnitude may also be calculated by variable overburden method from the pressure parameter data using the following equations:

$$P/D = S/D - (S/D - (P/D)n) \times (R_o/R_n)^{1.2}$$

$$P/D = S/D - (S/D - (P/D)n) \times (dt_n/dt_o)^{3.0}$$

$$P/D = S/D - (S/D - (P/D)n) \times (dc_o/dc_n)^{1.2}$$

where P/D = Formation pressure gradient either normal or geopressured, psi/ft

(P/D)n = Normal water gradient, psi/ft

S/D = Overburden stress gradient, psi/ft

R_n = Shale resistivity from normal line, ohm-metres

R_o = Shale resistivity from well log, ohm-metres

dt_n = Normal shale travel time, microsecs/ft

dt_o = Shale travel time from log, microsec/ft

dc_n = Actual dc from trend time

dc_o = Actual dc calculated

C. OVERBURDEN PRESSURE DETERMINATION

The overburden pressure at any point in the formation is that pore pressure exerted by the total density of the overlying formations, gravity, and the depth at the point of interest.

$$\int_0^z \rho dz = \int_0^z \rho(z) dz$$

where z = depth interval

ρ = bulk density

The bulk density of a rock is a function of the density of the rock matrix itself, the density of the bore fluids, and the porosity.

The formation densities are derived from cuttings or, preferably, from the FDC, or Acoustic logs. The average density for each