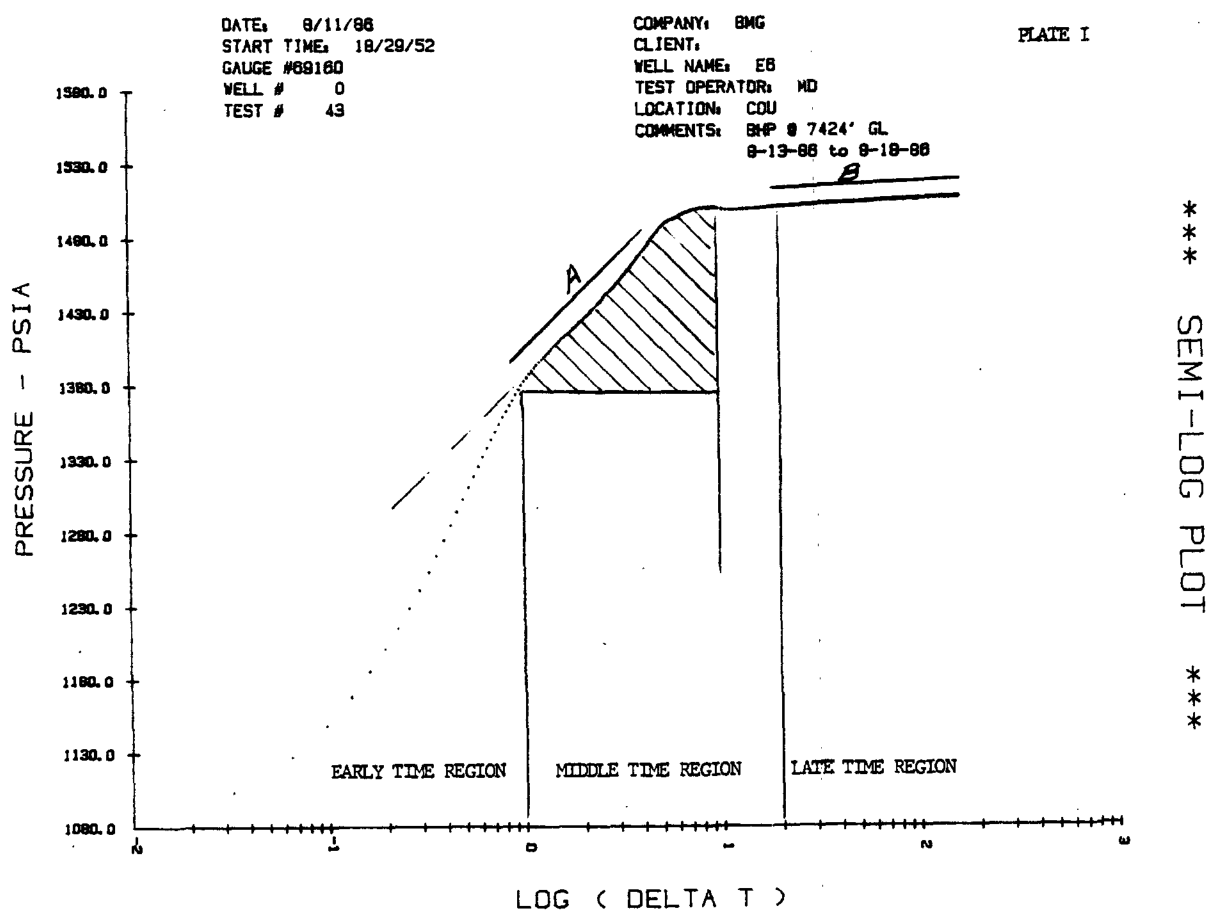
For the example well in the previous Section, Slope A, as modified by constant pressure boundary relation, is representative only of the characteristics of only the small tight block in which the well is completed.

Slope B is a combination of the high capacity reservoir transmissibility plus boundary effects. In this particular instance, the boundary effects were negligible and Koh for this slope was in the range of 10 to 20 darcy feet.

That this is the proper slope to use for the main reservoir's high capacity fracture system becomes more apparent as pressure surveys are conducted over time (see Plates II and III for surveys taken 12 and 15 months following the survey of Plate I.)

(Time scales in hours)



RADIUS OF INVESTIGATION
DETERMINED FROM Kh/μ AND ϕh

The radius of investigation is typically determined from formulas which include permeability and porosity. Since neither of these physical properties is known for the fractured Mancos formation, it is convenient to determine the relation of the radius of investigation from the values of Kh/μ and porosity feet, properties which can be determined within reasonable limits.

The following shows this relation:

DIFFUSIVITY CONSTANT, η =

$$\eta = \frac{6.328\, K_T}{\phi\, C_T\, \mu_T} \qquad K \text{ in darcys}$$

MULTIPLY NUM. & DENOM. by h

$$\eta = \frac{6.328}{(\phi h) C_T} \left(\frac{K_T h}{\mu_T}\right)$$

where $\left(\frac{K_T h}{\mu_T}\right)$ = Total mobility $\times h = \frac{Kh}{\mu}$

ϕh = porosity feet

C_T = System compressibility

radius of investigation, r_i (feet)

$$r = \sqrt{4 \eta t} \qquad t \text{ is in days}$$