MISCIBILITY IN UNCONVENTIALS
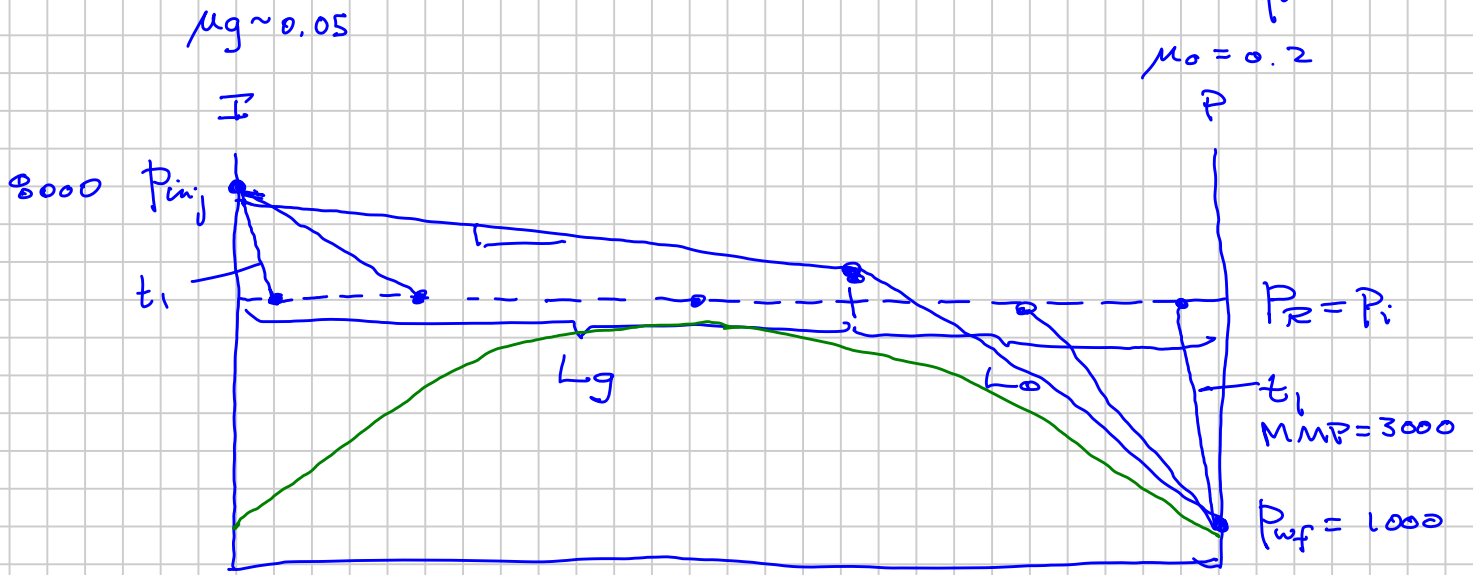
* No Shattering No Natural Fractures
  "Planar Fracture" Model

  → "Conventional" Developed Miscibility Displacement
  - Linear flow (vs cylindrical)
    - $\{ p_{inj} \gtrsim p_f \gtrsim MMP \gtrsim p_{wf} \}$ ⟹ Ensure 100% RF pore level

$\mu g \sim 0.05$ $\mu_o = 0.2$

$\Delta p = q \dfrac{\mu}{k} \cdot L$

$\dfrac{\Delta p}{L} = q \dfrac{\mu}{k}$

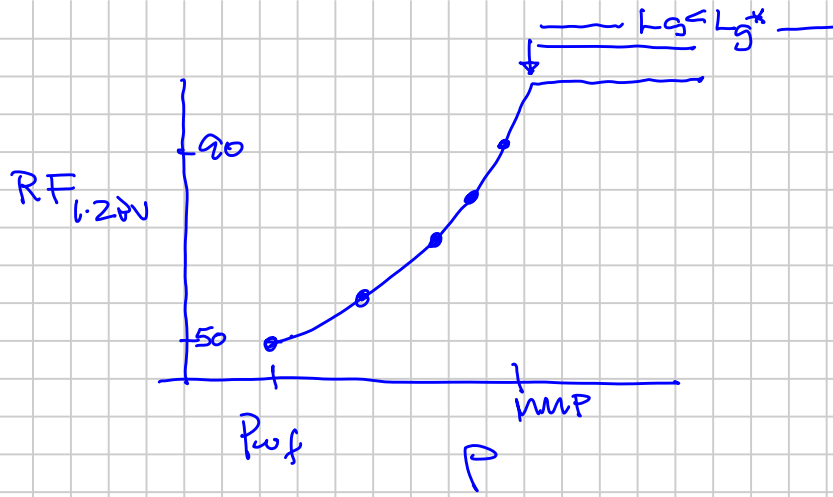$\boxed{\dfrac{\mu_o}{\mu_g} = 4}_{HC}$ $\left(\dfrac{\mu_o}{\mu_g}\right)_{HC} \sim 5$ 4000

$q_{gR} = q_{oR}$ $\left(\dfrac{\mu_o}{\mu_g}\right)_{CO2} \sim 2$ 3000

given

$p(l)$ @ $L_g' = x_f$

$p(L_g)$

At what L_g^* does $p(L_g) = MMP$

$\dfrac{L_g}{L}$ % of reservoir w/ misc disp.

The graph shows $RF_{1.2\delta V}$ on the vertical axis (with values 50 and 90 marked) versus P on the horizontal axis (with P_{wf} and MMP marked). A dashed line at the top is labeled $L_g \leq L_g^*$.

$*$ Shattered / NF : Fracture-Flow Dominated