Section-4

2) Calculations of Discharge in confined Aquifer using Theim's formula for Steady Radial flow :-

→ Discharge through confined aquifer can be calculated

$$K = \frac{2.303\, Q \log \frac{R}{r_w}}{2\pi m (h - h_2)}$$

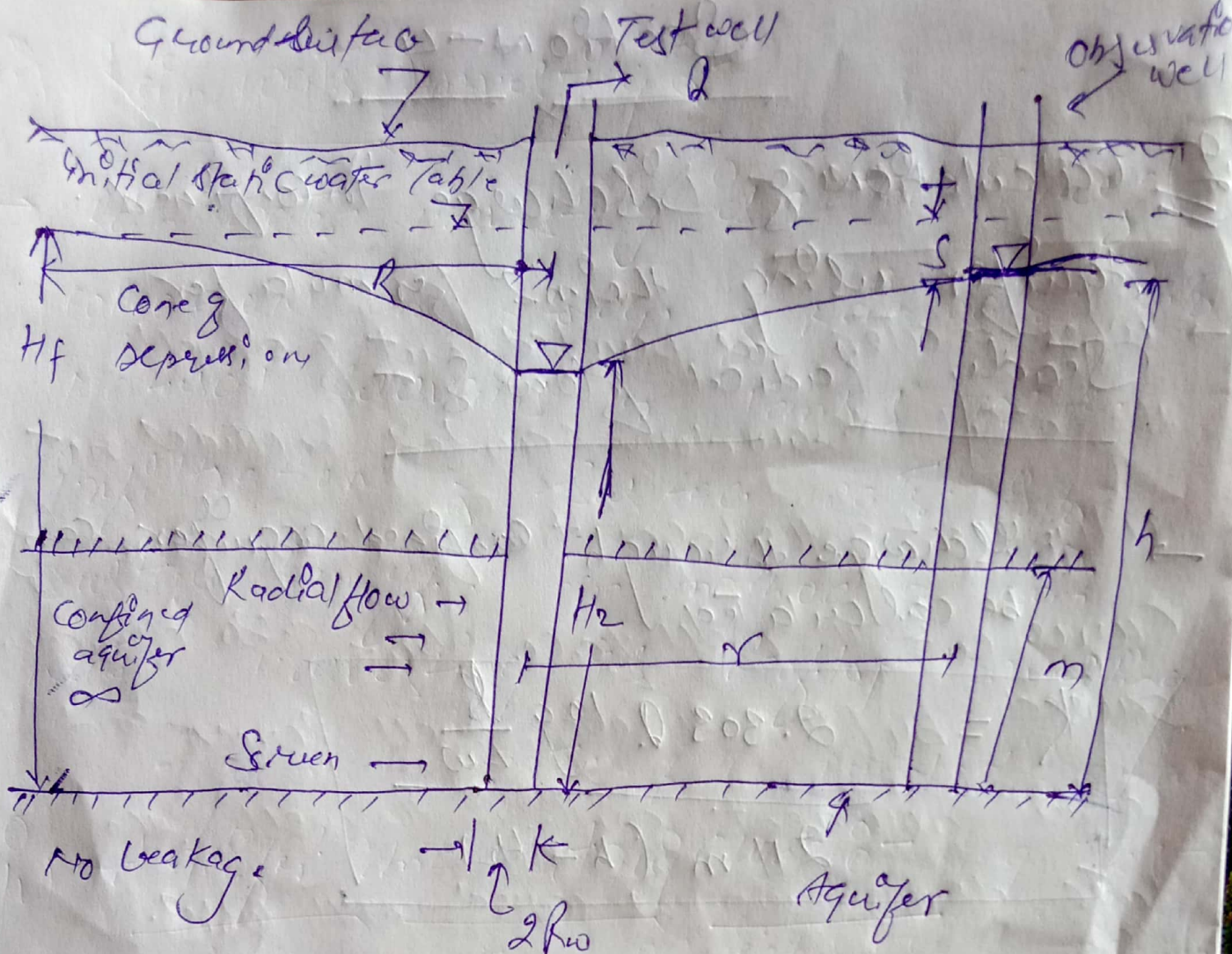
→ Consider that the Recharge to aquifer within the influence zone of the pumped well equals the rate of discharge of the well.

→ where, K = coefficient of permeability.

m = thickness of aquifer

r_w = Radius of the well

T = Transmissibility of aquifer = K.m



Radial flow to a well in confined aquifer.

→ The above equation is called Theim's or equilibrium equation and is used to determine piezometric head at any point at a radial distance 'r' from the centre of the well.

→ If the piezometric heads in two observation well say h_1 and h_2 at two points r_1 and r_2 distance radially away respectively

- From the centre of the pumped well are measured during the pumping Test,
→ coefficient of permeability 'K' can be easily calculated.
→ The formula can be written as follows.

$(h_2 > h_1)$ The above equation is method is popularly called Thiem's method.

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