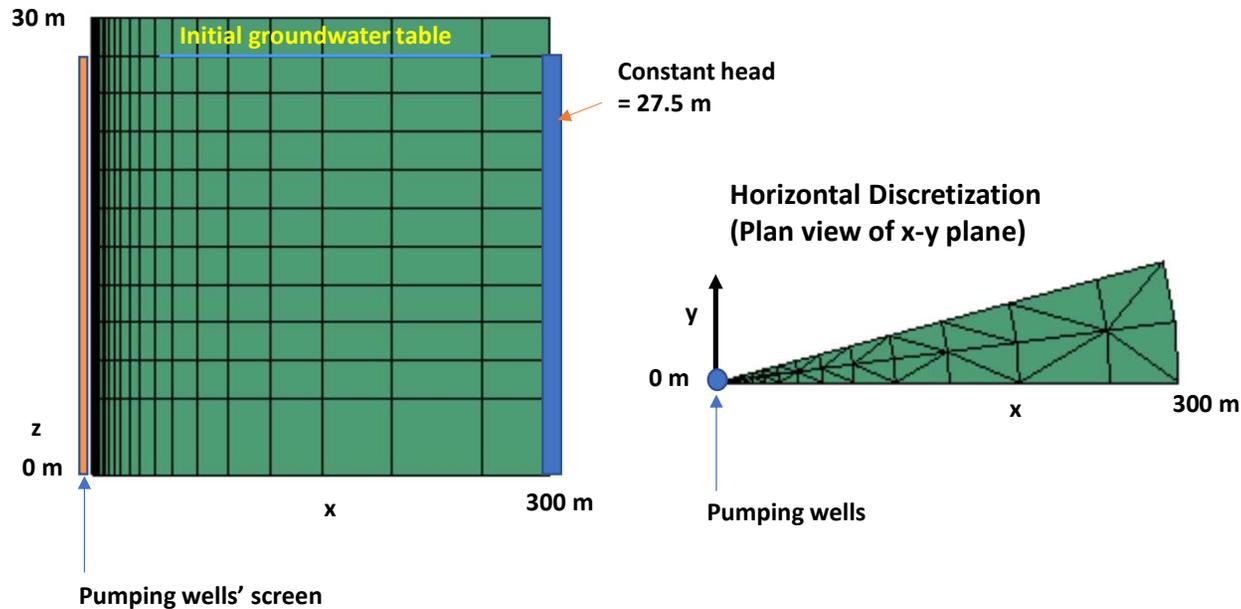
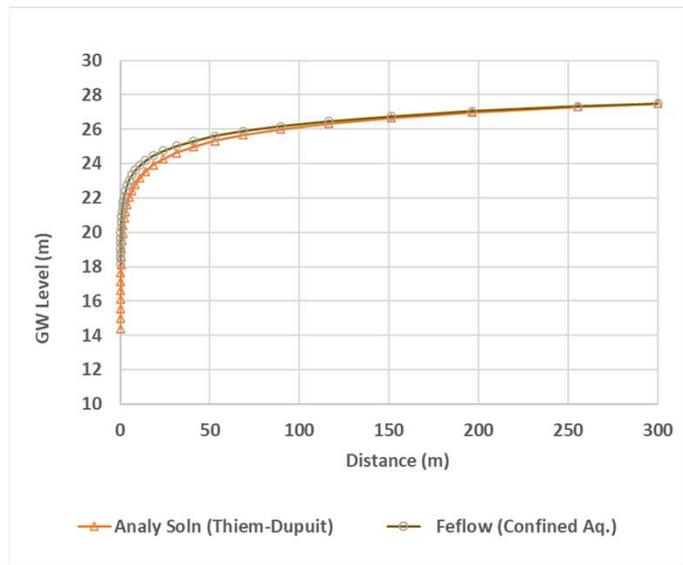


Model Domain and Settings



- **Pumping well**
 - Total $Q = 26 \text{ m}^3/\text{day}$ (constant)
 - Well screen's elevation = 0 – 27.5 m in z-axis
- **Hydrogeologic unit**
 - $K=3.0 \text{ m/d}$ (isotropic medium)
 - $S_s= 1.0\text{E-}6 [1/\text{m}]$ and $S_y=0.01$
- **Boundary conditions**
 - Constant head boundary condition at the perimeter of the domain (300 m away for the pumping location) = 27.5 m of water head.
 - No flow boundary conditions for the other sides.
- **Simulation time**
 - Total time = 30 years
 - Length of time step = 0.1-31 day

Results & Discussion



- **Analytical Solution**

- Thiem-Dupuit formula for a steady state flow in the unconfined aquifer

$$Q = \frac{\pi K (h_2^2 - h_1^2)}{\ln(r_2 / r_1)}$$

- Numerical results at t=30 years (The aquifer is assumed to reach a near steady state condition at that time).

- **Case 1: Confined aquifer case: The simulation was completed.**
- **Case 2: Unconfined aquifer case: The dt was too small, 1E-5 day; Its run was terminated: Not successful.**

