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Distance Drawdown Analysis Formulas

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List of 10 Distance Drawdown Analysis Formulas

Distance Drawdown Analysis

1) Drawdown across One Log Cycle from Distance Drawdown Graphs given Transmissivity

Open Calculator

fx $$\Delta s_D = 2.3 \cdot \frac{q}{T \cdot 2 \cdot \pi}$$

ex $$0.232945 = 2.3 \cdot \frac{7 m^3/s}{11 m^2/s \cdot 2 \cdot \pi}$$

2) Drawdown across One Log Cycle given Transmissivity for Inconsistent Units

Open Calculator

fx $$\Delta s = 70 \cdot \frac{q}{T}$$

ex $$44.54545 = 70 \cdot \frac{7 m^3/s}{11 m^2/s}$$

3) Pumping Rate from Distance Drawdown Graphs

Open Calculator

fx $$q = T \cdot 2 \cdot \pi \cdot \frac{\Delta s_D}{2.3}$$

ex $$7.001654 m^3/s = 11 m^2/s \cdot 2 \cdot \pi \cdot \frac{0.233}{2.3}$$

4) Pumping Rate given Transmissivity for Inconsistent Units from Distance-Drawdown Graphs

Open Calculator

fx $$q = T \cdot \frac{\Delta s}{70}$$

ex $$7.000714\text{m}^3/\text{s} = 11\text{m}^2/\text{s} \cdot \frac{44.55}{70}$$

5) Storage Coefficient for Inconsistent Units from Distance Drawdown Graphs

Open Calculator

fx $$S = T \cdot \frac{s_t}{640} \cdot r_o^2$$

ex $$0.009625 = 11\text{m}^2/\text{s} \cdot \frac{0.035\text{m}}{640} \cdot (4.0\text{m})^2$$

6) Storage Coefficient from Distance-Drawdown Graphs

Open Calculator

fx $$S = 2.25 \cdot T \cdot \frac{s_t}{r_o^2}$$

ex $$0.054141 = 2.25 \cdot 11\text{m}^2/\text{s} \cdot \frac{0.035\text{m}}{(4.0\text{m})^2}$$

7) Time at which Drawdowns are measured for Storage Coefficient

Open Calculator

fx $$s_t = S \cdot \frac{r_o^2}{2.25 \cdot T}$$

ex $$0.035232\text{m} = 0.0545 \cdot \frac{(4.0\text{m})^2}{2.25 \cdot 11\text{m}^2/\text{s}}$$

8) Transmissivity for Inconsistent Units from Distance Drawdown Graphs

Open Calculator

fx $$T = 70 \cdot \frac{q}{\Delta s}$$

ex $$10.99888\text{m}^2/\text{s} = 70 \cdot \frac{7\text{m}^3/\text{s}}{44.55}$$

9) Transmissivity from Distance Drawdown Graphs

Open Calculator

fx $$T = 2.3 \cdot \frac{q}{2 \cdot \pi \cdot \Delta s_D}$$

ex $$10.9974\text{m}^2/\text{s} = 2.3 \cdot \frac{7\text{m}^3/\text{s}}{2 \cdot \pi \cdot 0.233}$$

10) Transmissivity given Storage Coefficient from Distance Drawdown

Open Calculator

fx $$T = \frac{S \cdot r_o^2}{2.25 \cdot s_t}$$

ex $$11.07302\text{m}^2/\text{s} = \frac{0.0545 \cdot (4.0\text{m})^2}{2.25 \cdot 0.035\text{m}}$$

Variables Used

- **q** Pumping Rate *(Cubic Meter per Second)*
- r_o Distance from Pumping Well to Point Intersection *(Meter)*
- **S** Storage Coefficient
- s_t Total Drawdown *(Meter)*
- **T** Transmissivity *(Square Meter per Second)*
- Δs Drawdown Across One Log Cycle
- Δs_D Drawdown Across Log Cycle

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Volumetric Flow Rate** in Cubic Meter per Second (m^3/s)
  Volumetric Flow Rate Unit Conversion
- Measurement: **Kinematic Viscosity** in Square Meter per Second (m^2/s)
  Kinematic Viscosity Unit Conversion

Check other formula lists

- Aquifer Analysis and Properties Formulas
- Coefficient of Permeability Formulas
- Distance Drawdown Analysis Formulas
- Open Wells Formulas
- Steady Flow into a Well Formulas
- Unconfined Flow Formulas
- Unsteady Flow in a Confined Aquifer Formulas
- Well Parameters Formulas

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