

Analytical solution for the recovery tests after constant-discharge tests in confined aquifers

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Abstract

In this paper we provide a new analytical solution for residual drawdown during the recovery period after constant rate pumping test. We first compare the proposed solution with the existing solution, secondary we compare the solution with experimental data from field observation. The analytical solution is in perfect agreement with the experimental data for $\alpha = 0.01$ than Cooper Jacob solution. We derive a new analytical solution for determination of the skin factor without any restriction on the variables t and t' . We present an analytical solution for the drawdown response in a confined aquifer that is pumped step-wise or intermittently at different discharge rate on basis of this solution we derive an analytical solution to analyse the residual drawdown data after pumping test with step-wise or intermittently changing discharge rates.

Keywords: Recovery equations, residual drawdown, skin factor, Variable discharges

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