Groundwater

Fresh water is one of the most precious and finite resources in the world. Groundwater comprises a significant portion of that resource and it is often subject to mismanagement or pollution. Managing groundwater resources means balancing demands that are often in tension; for example, balancing the need for fresh drinking water with the needs of agriculture, industry, power production, and the environment. Developing a good understanding of surface and groundwater interactions in natural and human-influenced systems is therefore critical.

GeoStudio offers a suite of products designed to address groundwater issues. The hydrogeological behaviour of a system can be analyzed under steady-state or transient conditions. Groundwater velocities can be used to model solute transport with first-order kinematic reactions such as decay or adsorption. Gas transfer analyses can be included to study gas transport in the free and dissolved phases. Land-climate interaction modelling can be conducted to develop closure plans for mine sites.

Analyze groundwater problems with GeoStudio, an integrated software suite for modeling slope stability, ground deformation, and heat and mass transfer in soil and rock.
GeoStudio’s integrated products provide effective analysis of groundwater
RELIEF WELL SPACING

Relief wells are commonly installed on the downstream side of an earth dam to control pore-water pressures within the dam and seepage along the downstream dam face. A key design consideration is the required well spacing. A plan view SEEP/W analysis can be used to explore the relative effect of well spacing on seepage and pore water pressures in an earth dam system.

SEEPAGE THROUGH DAMS

Flow through an embankment dam is common problem considered in groundwater seepage textbooks, and may be modeled in SEEP/W. Multiple scenarios may be considered in a single analysis, including the presence of a toe drain or the addition of a core material with lower hydraulic conductivity.

SATURATED AND UNSATURATED FLOW

The SEEP/W saturated/unsaturated material formulation allows for the evaluation of complex groundwater conditions. The computed pore water pressures can be used in SLOPE/W analyses to evaluate the stability of systems with complex pore water pressure conditions.
GEOSLOPE develops GeoStudio, the leading suite of geo-engineering software used in over 100 countries for the last 40 years. Join thousands of practising engineers, scientists, regulators, professors and students, and start using GeoStudio today.

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