

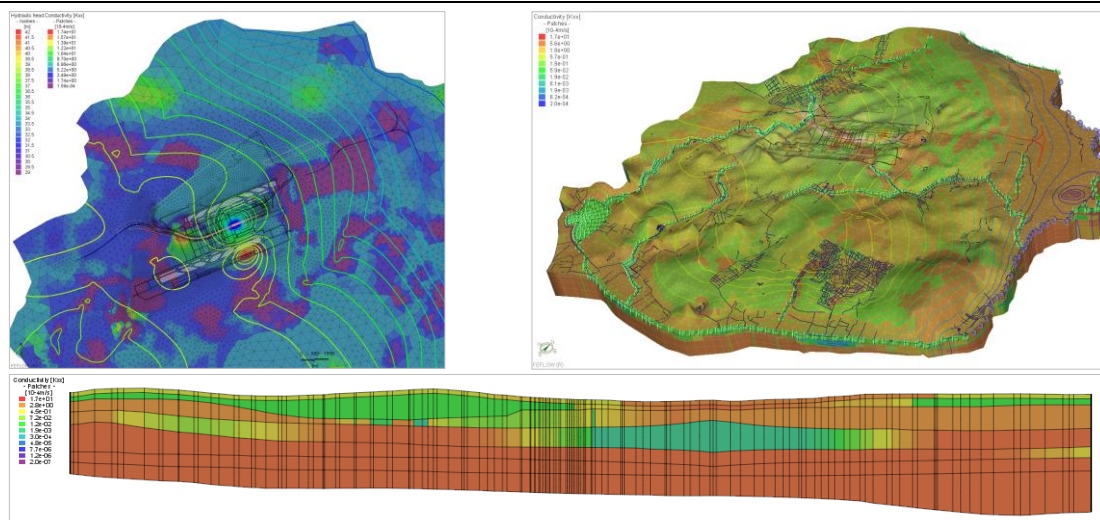
Groundwater Protection at a Very Large Construction Site

(1996-2006)

Location Berlin-Schönefeld, Germany

Type of project 3D flow-and-mass-transport model for groundwater protection

Client FBS Flughafen Berlin-Schönefeld GmbH, Voigt Ingenieure GmbH, Germany



Objective The new Berlin-Brandenburg International (BBI) Airport is currently under construction near Berlin-Schönefeld, Germany. Possible impacts of the massive project on the ground- and surface-water system needed to be investigated. In particular, the construction of large underground structures required a lowering of the groundwater level which may lead to a mobilization of contaminants located in the depression area. An optimum groundwater withdrawal and recovery strategy was sought that reduces or even prevents contaminant movement caused by the groundwater decline.

Approach A three-dimensional FEFLOW[®] groundwater model was built and coupled with a surface-water model. The calibrated groundwater-flow model was extended to include mass transport. Using this extended model, various hydraulic protection measures were simulated to identify the best withdrawal and recovery solution, taking into consideration known groundwater contaminants in the depression area.

Benefit Using the FEFLOW[®] model, an effective and economical hydraulic regime was found to protect the groundwater system in the project area. Specifically, infiltration wells fed by locally withdrawn groundwater were identified as a cost-effective and adequate protection measure to prevent contaminant movement due to groundwater decline.