

ENGLISH SUMMARY

*Nurminen, Jouko, Orivuori, Seppo* USING THE FINITE ELEMENT METHOD IN ANALYSING THE UPLIFT PRESSURE UNDER A GRAVITY CONCRETE DAM

This study deals with the uplift pressure under a gravity concrete dam. Stationary conditions are handled as a seepage problem according to the Laplace differential equation. When calculating a transient seepage problem, a term including the specific storage was added to the right-hand side of the Laplace formula. There is a comparison example of two- and three-dimensional cases. Furthermore, uplift pressure measurements of a Finnish hydro power plant were compared with the results given from a three dimensional model. The calculations are performed by computer programs based on the finite element method and which have been developed in Imatran Voima Oy.