**Investigation and Estimation of Seepage Discharge Through Homogenous Earth Dam with Core by Using SEEP/W Model and Artificial Neural Network**

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**Abstract**

This paper concerns to investigate the amount of seepage through the homogenous earth dam with core by finite elements software SEEP/W.

By SEEP/W investigates groups were executed with three different upstream and down.stream slopes of earth dam, four different upstream and downstream slopes of core, for homogenous cases. For each run the amount of seepage discharge was  specified. Dimensional analysis was used for the product and with aiding of the SPSS statically program to advancement an empirical equation in order to estimate the amount of seepage discharge through the homogenous earth dam with core resting on impervious base. In addition using ANN the SEEP/W results and the recommended equation in this paper have been verified, which show great agreement with SEEP/W results with using one hidden layer for ANN.