Seismic analysis of concrete gravity dams by decoupled modal approach in time domain

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ABSTRACT

A modal approach is proposed for dynamic analysis of general concrete gravity dam-reservoir systems in time domain. The method is explained initially, and the analysis of Pine Flat Dam is considered as a verification example. The proposed approach is proved to be a very effective technique. The main advantage being that it relies on eigen-vectors of decoupled system, which can be easily obtained by standard eigen-solution routines.

KEYWORDS

Concrete gravity dam, Pine Flat Dam, decoupled modal approach, Newmark's method