

Strength Analysis of RCC Dams Subject to the Layer-by-Layer Construction Method

Authors : Archil Motsonelidze, Vitaly Dvalishvili

Abstract : Existing roller compacted concrete (RCC) dams indicate that the layer-by-layer construction method gives considerable economies as compared with the conventional methods. RCC dams have also gained acceptance in the regions of high seismic activity. Earthquake resistance analysis of RCC gravity dams based on nonlinear finite element technique is presented. An elastic-plastic approach is used to describe the material of a dam while it is under static conditions (period of construction). Seismic force, as an acceleration equivalent to that produced by a real earthquake, is supposed to act when the dam is completed. The materials of the dam and foundation may be nonhomogeneous and anisotropic. The “dam-foundation” system is idealized as a plain strain problem.

Keywords : finite element method, layer-by-layer construction, RCC dams, strength analysis

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