عنوان مقاله:

Evaluation of Vibration Modes in Embankment Dams

محل انتشار:

اولین کنفرانس بین المللی و سومین کنفرانس ملی سد و نیروگاههای برق آبی (سال: 1390)

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خلاصه مقاله:

Evaluation of seismic behavior for different vibration modes in dams is important. Many embankment dams have different behavior in different modes of vibration. But, we have not general point of view about seismic behavior of them. To achieve this goal, Masjed Soleiman dam for a case study has been selected. Masjed Soleiman zoned rock fill dam with 177 m height was constructed and impounded in South-West of Iran in 2001. Finite Element model of Masjed Soleiman dam has been constructed and the Mohr-coulomb elastic-perfectly plastic constitutive model is taken intoaccount to reflect the soil stress-strain relation. First, layer analyses have been carried out considering 12 layers in end of construction stage. Then, this analysis has been continued considering water table and weight of dam reservoir. 2 earthquake records have been applied horizontally to the bedrock for dynamic analysis. For study of mode of vibration and distribution of acceleration, 10 models have been used with different height. Then seismic response of earth dam due to some known earthquake has been investigated. These data were used to identify the modes of vibration of the dam. Result shows that First and second mode of vibration in Masjed Soleiman dam case to peak horizontal displacement and acceleration decreased in height of dam. Also changing of peak horizontal acceleration and peak horizontal displacement in height of dam depends on dominant mode of vibration, height of .dam, properties of materials and frequency specification

کلمات کلیدی:

Embankment Dams, Masjed Soleiman Dam, Dynamic Analyses, Vibration Modes, Seismic Response