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Seismic Behaviour and Stability Analysis of Gravity Dam

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Abstract : Dams are constructed to store water in large capacity for future use. Due to large storage the loads acting over the upstream side of the dam are heavy and, during earthquakes, in addition to these load a huge loads act on it because of ground motions. It may results in the failing of structure and thereby resulting in loss of life, social, economic and environmental crisis. The seismic vibration created at the time of earthquake must be minimized by proper application of engineering principles and so it is necessary to determine the behaviour of concrete gravity dam in the same basis. The dynamic analysis with Response spectrum method and time history method are the efficient ways to analyze the dam. In this paper, time history method is used to study the seismic behaviour and the stability of gravity dam. It is done by using STAAD-PRO. According to the Indian standard code of practice, dynamic analysis shall be done for dam with different heights as 70m, 80m and 120m have been analyzed and the results obtained are compared, to determine the structural performance of concrete gravity dam. The effect of some parameters which influences the seismic performance, height of dam and loading patterns are to be investigated.
Keywords : Gravity dam, Dynamic Analysis, STAAD-PRO.

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