

METHOD FOR DEFORMATION MONITORING OF WATER-BEARING DAMS

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Monitoring of the condition of water-supporting hydraulic structures (dams) is carried out in accordance with GOST R 22.1.11–2002, which determines the list of main load indicators including hydrostatic pressure exerted on the dam. The article gives the list of the main indicators of the condition of water-supporting hydraulic structures and the development of hazardous processes in soil massifs, which provides for the assessment of vertical (precipitation) and horizontal movements of structures and their bases. Thus, monitoring is carried out in two areas of research: the first is geotechnical; the second is geodetic. As a rule, surveyors develop an observation system, and geotechnicians, taking into account these data, determine the state of the dam. The article provides a methodology for geotechnical dam condition that combines these two areas. Accounting for hydrostatic pressure is possible due to geodetic control of the water surface level and calculation of water reserves and, accordingly, the pressure on the dam. These data, together with the results of field measurements, make it possible to identify critical and permissible water levels, which allow us to regulate the observation order depending on the water level. The article also considers an important issue about the scheme of deformation marks location on the dam. Regular distance location is not always appropriate. A more effective way is to locate them in accordance with the stress-strain state. On the basis of pre-calculation there was carried out irregular location of the deformation marks on the dam as well as the design and accuracy assessment of deformation network. The afore-mentioned approach is implemented on a specific example of the Dukan Dam in Iraq.

Keywords: monitoring, hydraulic water-bearing constructions, geodetic observations, deformations, reservoir, water pressure, deformation network

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