

## Stability Evaluation on Accumulation Body of Reservoir Slope in Rumei Hydropower Station, China

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**Abstract :** In recent years, geological explorations have been carried out on the Rumei hydropower station, China. After preliminary analysis of results, the mainly problem of slope in reservoir area is about the stability of accumulation body. It is found that there are 23 accumulations in various sizes in the reservoir area, and most of them are unfavorable geological bodies. Three typical (No. 1, 7, 17) accumulation body slopes were selected as subjects to investigate the stability of the slopes. Take No. 1 accumulation body slope as an example and basic geological condition investigation and formation mechanism analysis were carried out to study the stability and geological analysis of engineering influence of the slope. The accumulation body in the research area distributes along the river with natural slope of  $32^{\circ} \sim 37^{\circ}$  which is the natural angle of repose of gravel. The formation mechanism is analyzed based on the composition and structure of the accumulation body. The middle and lower part of the body is dense full of gravel soil mixed with a small amount of sand gravel which is stable. In the upper part, gravel soil is interbedded with bad cemented gravel which as a weak surface is not conducive to slope stability. Under the natural condition before storing water, the underground water level is deep buried, mainly distributed in the bedrock, and the surface and groundwater discharge conditions of the accumulation body are good, which is beneficial to the stability of slope. The safety coefficient calculated by the limit equilibrium method is 1.14, which indicates the slope is basically stable. However, the safety coefficient drops to 1.02 when the normal storage level is 2895m, which is in a dangerous state. The accumulation body will be destabilized by a small-area instability to large-scale or overall instability.

**Keywords :** accumulation body slope, stability evaluation, geological engineering investigation, effect of storing water

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