

Possible indicators of internal erosion prone dams comprising broadly graded materials

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SYNOPSIS. Embankment dams comprising broadly graded materials of glacial origin in the impervious core (base soil) and protective filter have in the past been identified as being prone to develop sinkholes more frequent than dams composed of materials of other origin. Sinkholes on the crest of a dam are many times an indicator of internal erosion. An internal erosion process can initiate and continue to develop for many reasons, but mainly due to root causes coming from core/filter properties and interaction, possibly affected by the dam design and/or construction related reasons. More than 70 existing embankment dams are reviewed in this paper, predominately Swedish glacial moraine core dams, with objective to see if there are indicators in dams with performance history of internal erosion. The investigation shows that a coarsely graded filter, grading instability of the core and filter, and high susceptibility for filter segregation makes an over-represented combination for dams with performance history of internal erosion. Internal erosion of dams is an important concern from a dam safety and dam engineering perspective.