

## **An update on perfect filters**

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**SYNOPSIS.** Recent work shows that the probability of failure of dams resulting from internal erosion is higher than that resulting from other threats. Filters to protect dams against erosion are therefore important. Most of our existing dams are not protected from internal erosion by filters. The 'perfect' filter equation links permeability of filters to the floc size of the soil they will retain. This permeability approach is useful in establishing the vulnerability or otherwise of existing dams to internal erosion because the permeability of fills can be determined by in-situ permeability measurements in boreholes. Floc sizes can also be simply determined using the principles of Stokes' Law in the laboratory. Some samples display murkiness which obscures the results. Examples of the use of perfect filters are given, including examples of retro-fitting of filters in dams in which they were not originally installed.