A Study of 3-D Seepage below Hydraulic Structures with Cut offs*

by

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Discussion

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Writer appreciates the work of the authors to study 3-D seepage flow below hydraulic structures provided with cutoffs. Following points are put up for elucidation.

(*i*) Authors have conducted the experiment in an electrolytic tank to get the potential distribution below the floor of the structure. The electrical analog ymethod is based on the fact that the same Laplacian equation is also applicable to distribution of electrical potential through a homogeneous conducting medium. Dr. Khosla's theory is based on the method known as Method of independent variables. It is to state in this connection that the later one is claimed to be used generally, for designing hydraulic works, as it is simple to use, quick and accurate. The situation necessitating the use of electrical analogy method may be explained.

(*ii*) In Figure 6 of the paper under discussion, the legend for various S/L ratios is not written for the drawn set of curve.

(*iii*) It is given that Figure. 9 shows variation of 2-D and 3-D exit gradients with depth of D/S pile for *Ramganga Tail Fall*, where as, the writing on curve mentions that it is for *Pili Model*. This may be clarified.

(*iv*) It has been deduced in the results that for the watertable condition considered, *3-D pressures* are *lower than the 2-D* over the entire length of the floor except in a case when there is no sheet pile on the D/S, these pressures are lower only for the U/S 75 per cent length of the floor. The percentage pressures as observed through the Khosla's curve are to be considered for the assembled profile as a whole subject to certain corrections such as :— correction for thickness of floor, correction for slope, correction for mutual interference of sheet piles etc. It is found that the resultant pressure may come to be less than the figures observed from the Khosla's curve, when the corrections are applied. It may be informed whether the corrected figures are considered for drawing the Khosla's curve in the paper.

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