

## **Optimization of Flip Bucket Dents in Order to Reduce Scour Hole Depth (Plunge Pool) Using a Comprehensive Physical Model**

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**Abstract :** Scour downstream of a flip bucket in a plunge pool is caused by impingement of water jet force. In order to reduce this force and consequently reduce scour hole depth, flip buckets may equip by dents. The minimum scour hole depth might be occurred by optimization of dents (number, shape, placement) on flip buckets. In this study, a comprehensive physical model has been developed and various options for dents have been investigated. The experimental data for each dent option such as scour hole depth, angle of impingement jet, piezometric pressure in tail-water and jet trajectory have been measured for various discharges. Finally, the best option can be found by analysis of the experimental results which has been expressed in this paper.

**Keywords :** scouring process, plunge pool, scour hole depth, physical model, flip bucket

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