

Spillway Weirs and its Role in Dam Protection

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Abstract

Spillways are some important auxiliary works of dams and reservoirs, the main function of which is to dispose of surplus flood water which cannot be stored safely in the reservoir. Therefore, spillway is called very often the safety valve or surplus work of dam and reservoir. Spillway is essential in every dam-storage project. If the flood water overtops the earthen dam, eventually dam fails. Once the dam fails, catastrophic flood of extreme magnitude occurs causing damage to property, dwelling houses, roads, lines of communication, is the only device in each and every dam-reservoir project. In this poster, a review for the different types of spillways.

Description

Spillway weirs are constructed beside dams to permits over floods water to escape to the down stream side of the dam and protect it from high floods disasters. Different spillways provided in dam is based on mainly on types of dam and topography. The most commonly used spillways is overfall ogee spillway in the middle of the dam top width for concrete gravity dam with greater height and a big reservoir. Gated spillway, Chute spillway, side channel spillway are used depending on dam and dam site. The following figures show the different types of spillways.

The down stream side of the weir must be designed to dissipate the falling water energy and have enough length to protect it from local scour.

Objective

1. The objective of this research is to explain the role of spillway in protecting dams from disasters of flood, types of spillways and methods of its construction.
2. The downstream floor of spillway and its importance in protecting the structure from failure due to local scour and seepage flow below the floor.
3. How to select the different types of spillways depending upon the type of the dam, material of construction, topography at the dam and reservoir site.

Drawing



Majmaah dam Side Weir Spillway



Dissipating water energy over the spillway

Significance to the Kingdom

The kingdom is exposed to flood disaster from year to year. So , many dams are constructed through valleys to protect infrastructures and the urban centers from these floods. The spillway are constructed beside dams to protect it.



The downstream side of the weir

Movable flap gate Weir