



# JIGAON DAM SPILLWAY, MAHARASHTRA



## SALIENT FEATURES

Location	: Buldhana, Maharashtra
River	: Purna
Maximum Outflow Flood	: 24131 m <sup>3</sup> /s
Type of Dam	: Earthen Dam
Height of Dam	: 32.245 m
Spillway	: Gated spillway with 16 Spans, 15 m (W) x 12 m (H)
Energy Dissipator	: Stilling Basin
Irrigation Potential	: 101088 Ha.

## 3-D COMPREHENSIVE MODEL STUDIES

- Approach flow conditions upstream of spillway
- Assessment of discharging capacity, pressures and water profiles on spillway
- Performance of spillway and energy dissipator

## SIGNIFICANT ACHIEVEMENT

- ✳ The upstream crest profile was modified to eliminate the kink at the junction of upstream quadrant of spillway profile and the sloping portion
- ✳ The length of the stilling basin was increased from 10 m to 91.1 m as hydraulic jump was not forming in the stilling basin for the entire range of discharges
- ✳ The height of the endsill was reduced by 1 m from El. 216.65 m to El. 215.65 m with the sloping portion facing towards the upstream improved the formation of hydraulic jump
- ✳ Height of downstream training wall was increased upto El. 235 m considering the water profiles observed in the model
- ✳ Provision of three submersible divide walls was recommended to facilitate smooth functioning of stilling basin for the entire range of discharges
- ✳ Height of the embankment of the tail channel was increased so as to increase its carrying capacity
- ✳ The flow in the reservoir entering the approach channel was falling directly over the upstream left training wall in front of 1<sup>st</sup> span, resulting in intermixing of flow due to abrupt change in the direction of flow.
- ✳ Five alternatives were studied and the optimum design suggested involves shifting of the guide wall in-line with the training wall and provision of curved guide wall with straight length of 40 m from dam axis with top at El. 244.955 m and further providing curvature with a radius of 80.67 m which is sloping linearly with a slope of 1(V) : 4 (H).
- ✳ Studies for schedule for gate operation and measurement of velocities in the stilling basin for entire range of discharges upto 15642.59 m<sup>3</sup>/s



*Flow Condition for the Original Design of the Upstream Divide Wall and Downstream Training Wall*



*Flow Condition After the Provision of Upstream Curved Guide Wall*