KOYNA DOUBLE LAKE TAP, STAGE IV, MAHARASHTRA

CENTRAL WATER AND POWER RESEARCH STATION
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SALIENT FEATURES

Location : Satara District , Maharashtra

River : Koyna

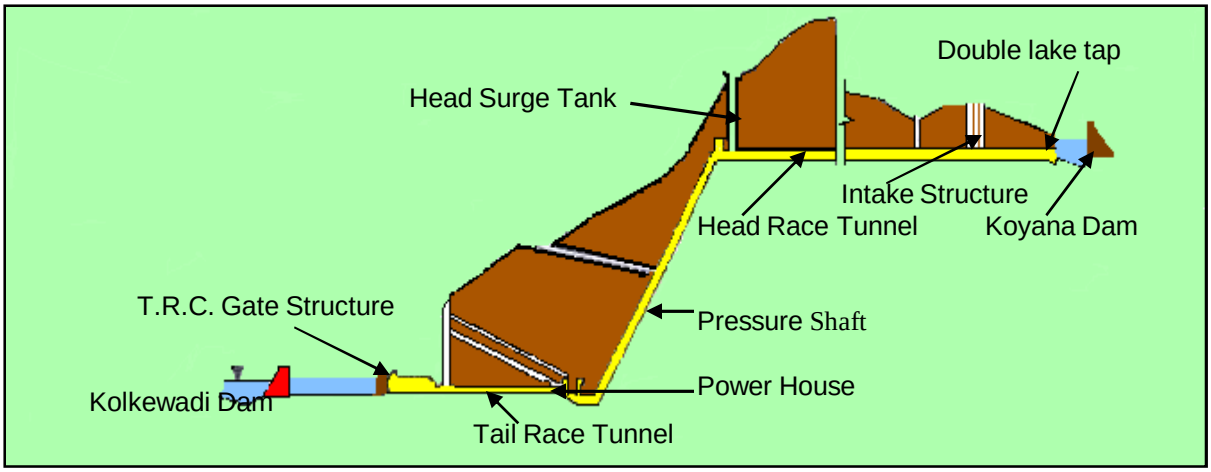
Power Generation :

Stage	Installed Capacity MW	Head m	Discharge Cumec
I	4 x 65 = 260	475	170
II	4 x 75 = 300	490	170
III	4 x 80 = 320	109	252
IV	4 x 250 = 1000	536	260

Head Race Tunnel : L = 4.315 km, Horse Shoe = 7 x 9.5 m

Tail Race Tunnel : L = 1.87 km, D-Shape = 10 x 10 m

Lake Tap Details : Water Tapped by Two Lake Taps From Existing Koyna Reservoir Using Classic Norwegian Technique – Open Tunnel Blast. First Lake Tap in Asia.



Longitudinal Section of Stage - IV

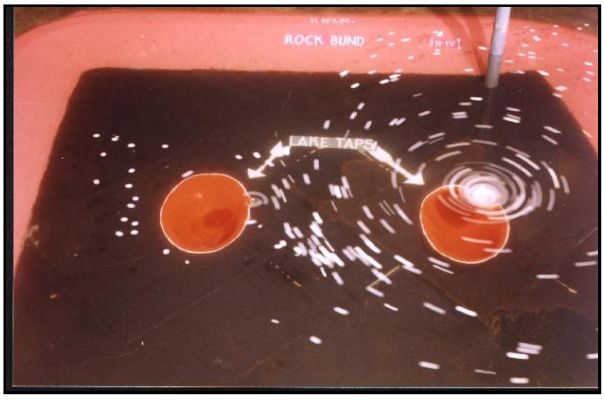
MAJOR STUDIES

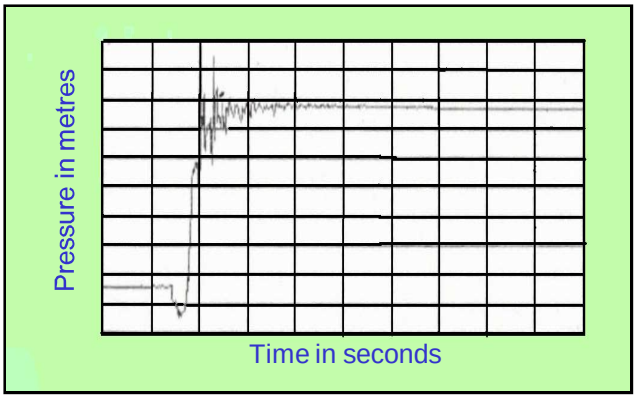
Comprehensive model scale 1: 30

- ☺ Performance and Flow Conditions in the Reservoir for Normal operation
- ☺ Efficacy of the Piers to eliminate vortex near intake
- ☺ Flow Conditions in the Reservoir, Muckpit and Water Rise in Stoplog Gate Shaft at the Time of Lake Tap
- ☺ Measurement of Hydrodynamic Pressures on the Stoplog Gate at the Time of Lake Tap

RESULTS

- MDDL El. 630 m is satisfactory to draw 260 cumec discharge
- Piers of size ï 7 m x 3 m x 6 m reduce the intensity of vortex
- Flow conditions in the muckpit and intake tunnel are satisfactory during lake blast
- Maximum hydrodynamic pressure on the stoplog gate for RWL El. 640 m and filling level in the tunnel El. 603 m was 60 m





Hydrodynamic Pressure on Stoplog Gate

MODEL PROTOTYPE CONFORMITY

- **Actual lake blast took place on 13th March 1999. The reservoir level was at El. 646 m. Maximum hydrodynamic pressure on the stoplog gate was 65 m. Thus, the model results corroborated well with the prototype measurements.**