

Practices in Planning, Design and Construction of Head Race Tunnel of a Hydroelectric Project

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Abstract : A channel/tunnel, which carries the water to the penstock/pressure shaft is called headrace tunnel (HRT). It is necessary to know the general topography, geology of the area, state of stress and other mechanical properties of the strata. For this certain topographical and geological investigations, in-situ and laboratory tests, and observations are required to be done. These investigations play an important role in a tunnel design as these help in deciding the optimum layout, shape and size and support requirements of the tunnel. The paper includes inputs from Nathpa Jhakri Hydroelectric project which is India's highest capacity (1500 MW) operating hydroelectric project. The paper would help the design engineers with various new concepts and preparedness against geological surprises.

Keywords : tunnelling, geology, HRT, rockmass

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