THESIS

APPLICATION OF CHARACTERIZATION OF CONSTRUCTION MATERIAL FOR POWER TUNNELS

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ABSTRACT

Dubair Khwar High Head Hydropower Project is located at Pattan, Distt. Kohistan where 130 MW power will be generated by diverting Dubair Khawar Nullah through a concrete lined power tunnel.

Investigations were made by analyzing a large number of samples collected from quarry sites and along the tunnel route to characterize the construction material to be used in power tunnel. The important tests performed to characterize the construction material are sieve analysis, specific gravity and absorption, sodium sulphate soundness, Los Angeles Abrasion, Petrographic Analysis and Alikali Silica Reactivity.

All the tests were performed according to the recommended method by ASTM (1994). The results indicate that construction material of proposed quarry at weir site and along the tunnel route lies with in the recommended limits of ASTM and can be used safely for construction of Power Tunnel. The construction material from the proposed quarry at Powerhouse site has Alkali-Silica potential, hence it cannot be used in construction of power tunnel. The result of specific gravity for all the samples are higher than the maximum permissible limit by ASTM standard therefore special concrete mix should be used to avoid segregation.