

THESIS

CONSTRUCTION PLANNING OF HEADRACE TUNNEL OF NEELUM JEHLUM HYDROELECTRIC PROJECT USING PRIMAVERA PROJECT PLANNER "P3"



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Submitted by

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2004-PG-HPE-30

For the Degree of

MASTER OF SCIENCE

IN

HYDROPOWER ENGINEERING

CENTRE OF EXCELLENCE IN WATER RESOURCES ENGINEERING
UNIVERSITY OF ENGINEERING & TECHNOLOGY LAHORE, PAKISTAN

2006

ABSTRACT

The purpose of this study is to prepare a base line schedule for construction of the Headrace tunnel of the Neelum Jhelum Hydroelectric Project. This project plan will help to evaluate the construction plan submitted by the contractor after award of the contract. This document outlines the scope of work, methods, assumptions etc that were used in development of a detailed project plan for construction of the headrace tunnel of Neelum Jehlum hydroelectric project (NJHP). The key reference documents that were utilized in developing this construction plan include Final Feasibility Study Report, Detailed Engineering Design Report and Draft contract documents for Neelum Jhelum hydroelectric project. In addition to this, various aspects of the headrace tunnel were discussed with different consultants and executives working on Neelum Jhelum Hydroelectric project and projects of similar nature to prepare a comprehensive construction plan for the headrace tunnel.

As per the draft contract document for construction of Neelum Jehlum Hydroelectric project, three separate contracts are to be concluded for execution of the civil works related with the project. Headrace tunnel is the major & critical part of the project in time and cost. That is why the headrace tunnel has been divided and included in the three contract packages C-1, C-2 & C-3 meant for execution of the civil works at Nauseri area, Thotha area and Agar nullah area respectively. While developing construction schedule for headrace tunnel of NJHP, the above mentioned division of work packages has been kept same in order to facilitate comparison. The duration of each work package was estimated by dividing it into WBS, decomposing WBS into simple activities up to certain level ,determining duration for

each individual activity, defining relationships of activities within a work package as well as activities in different work packages, and finally processing this data using P3 model.

The results show that the headrace tunnel of NJHP can be constructed in a duration of six years and one month. As already mentioned, the headrace tunnel is critical for completion of the NJHP, so it is simple to infer that the entire NJHP can be completed in the fore mentioned duration.

The results of the study are encouraging and intended to attract both contractor and consultants to utilize P-3 not only in this project but also for other construction projects and hydropower projects in particular. This study will be helpful for engineers and managers in management of water resource projects.