

Mineo Case Study-GREAT STEP 2011

Introduction

The most economical method of coal extraction from coal seams depends on the depth and quality of the seams, and the geology and environmental factors. *Coal mining processes are differentiated by whether they operate on the surface or underground.*

Coal is valued for its energy content, and since the 1880s has been widely used to generate electricity.

Technical and economic feasibility are evaluated based on: regional geologic conditions; overburden characteristics; coal seam continuity, thickness, structure, quality, and depth; strength of materials above and below the seam for roof and floor conditions; topography (especially altitude and slope); climate; land ownership as it affects the availability of land for mining and access; surface drainage patterns; ground water conditions; availability of labor and materials; coal purchaser requirements in terms of tonnage, quality, and destination; and capital investment requirements.

Problem Statement

Company X has been granted mining lease and the company has obtained the necessary environmental clearance to start mining. The deposit has the following characteristics:

Two coal seams had been found with a parting of 7 metres of shaly sandstone. The overburden consists of loose sandstone (10 metres avg. thickness), limestone (20 metres avg.) and shale (15 metres avg.) sequentially. Seam A (upper) has an average thickness of 9 m while Seam B has an average thickness of 6 m. The seam is dipping at an angle of 10 degrees. The extent of the mineable reserve is 1km square. Seam A coal is Grade C while Seam B coal is Grade B. *(The density of coal, sandstone, limestone etc can be logically assumed but has to be clearly mentioned.)*

Suggest the answers to the following questions that company must have taken care of while preparing the Mine Plan and Environmental Management Plan (EMP).

Questions:

- Predict the method of mining: Surface or U/G
- Describe the method in detail with dimensions.
- Give a full description of the appropriate type of machines you are going to use, their specifications, numbers and their method of operations for an annual production of 4 MT.
- For the mining method you are proposing, enumerate the adverse impact of this mining on water regime of the area.