

عنوان مقاله:

A New Developed Model to Determine Waste Dump Site Selection in Open Pit Mines: An Approach to Minimize Haul Road Construction Cost

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خلاصه مقاله:

Today, during the life of an open pit mine, million tons of materials, including waste and ore, are displaced by truck fleets. In the case of a shallow ore deposit, which is located up to 300 meters to the ground surface, depending on preliminary equipment size and capacity, it will take three to five years to remove overburden and waste rocks to expose the ore body. In that period, the main waste dump site will be used as a disposal of waste dump. Apart from considering the characteristics of the waste dump location such as geological and geotechnical properties, the major factors influencing the hauling process are topography, hauling length and construction cost of the haul road. Truck transportation cost depending on the circumstances comprises 45 to 60% of the cost of mining of one tonne ore. Thus, well site selection of waste dump in coordination with the main haul road path confidently leads to a significant saving of economic resources. In this research, while identifying the effective factors in selecting the waste dump sites, a linear mathematical model is developed to find a suitable site for waste dump disposal considering minimizing haul road construction cost.

کلمات کلیدی:

Mine haul road, waste dump, Earthwork optimization, Linear Programming

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