

عنوان مقاله:

Determination of Ore/Waste Boundary Using Indicator Kriging, Case Study : Choghart Iron Mine of Iran

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خلاصه مقاله:

Estimation of ore reserves is one of the most critical aspects of mining geology. The accurate assessment of the tonnage and grade of run of mine may be the difference between a healthy profitable operation and an expensive early mine closure. The first step in ore reserve estimation is to determine the boundary of ore body or ore/waste contacts. This paper presents a specific mining application to estimate ore/waste boundaries, which uses usual chemical variables. In the suggested procedure, the geostatistical method of Indicator Kriging (IK) was used to determine the boundary of ore body in Choghart iron mine of Iran. Assuming a cutoff grade in terms of the iron content mode, all data values transformed to either 1 or 0. An IK estimation of transformed data was performed. These values must always lie in the interval $[0, 1]$, and can be interpreted as the probability that the grade is above the specified indicator. Then, the estimated probability plans were compared to the extracted plans. Results showed that blocks with the estimated probability of equal to or more than 0.85 are laid within the ore body boundary and blocks with the probability less than 0.15 should be considered as waste. This rule was then applied to the remaining ore deposit and its reserve was estimated to be about 75 million tons.

کلمات کلیدی:

indicator kriging, Ore reservoir, Ore boundary, Iron mine, Choghart

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