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Mine Production Index (MPi): New Method to Evaluate Effectiveness of Mining Machinery

Authors : Amol Lanke, Hadi Hoseinie, Behzad Ghodrati

Abstract : OEE has been used in many industries as measure of performance. However due to limitations of original OEE, it has been modified by various researchers. OEE for mining application is special version of classic equation, carries these limitation over. In this paper it has been aimed to modify the OEE for mining application by introducing the weights to the elements of it and termed as Mine Production index (MPi). As a special application of new index MPi shovel has been developed by team of experts and researchers for evaluating the shovel effectiveness. Based on analysis, utilization followed by performance and availability were ranked in this order. To check the applicability of this index, a case study was done on four electrical and one hydraulic shovel in a Swedish mine. The results shows that MPishovelcan properly evaluate production effectiveness of shovels and determine effectiveness values in optimistic view compared to OEE. MPi with calculation not only give the effectiveness but also can predict which elements should be focused for improving the productivity.

Keywords : mining, overall equipment efficiency (OEE), mine production index, shovels
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