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The Analysis Fleet Operational Performance as an Indicator of Load and Haul Productivity

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Abstract : The shovel-truck system is the most prevalent material handling system used in surface mining operations. Material handling entails the loading and hauling of material from production areas to dumping areas. The material handling process has operational delays that have a negative impact on the productivity of the load and haul fleet. Factors that may contribute to operational delays include shovel-truck mismatch, haul routes, machine breakdowns, extreme weather conditions, etc. The aim of this paper is to investigate factors that contribute to operational delays affecting the productivity of the load and haul fleet at the mine. Productivity is the measure of the effectiveness of producing products from a given quantity of units, the ratio of output to inputs. Productivity can be improved by producing more outputs with the same or fewer units and/or introducing better working methods etc. Several key performance indicators (KPI) for the evaluation of productivity will be discussed in this study. These KPIs include but are not limited to hauling conditions, bucket fill factor, cycle time, and utilization. The research methodology of this study is a combination of on-site time studies and observations. Productivity can be optimized by managing the factors that affect the operational performance of the haulage fleet.

Keywords : cycle time, fleet performance, load and haul, surface mining
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