Hazard Identification and Risk Analysis in Mining Industry

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ABSTRACT

For any industry to be successful it is to identify the Hazards to assess the associated risks and to bring the risks to tolerable level. Mining activity because of the very nature of the operation, complexity of the systems, procedures and methods always involves some amount of hazards. Hazard identification and risk analysis is carried for identification of undesirable events that can leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects. It is widely accepted within industry in general that the various techniques of risk assessment contribute greatly toward improvements in the safety of complex operations and equipment.

The objective of hazards and risk analysis is to identify and analyze hazards, the event sequences leading to hazards and the risk of hazardous events. Many techniques ranging from simple qualitative methods to advanced quantitative methods are available to help identify and analyze hazards. The use of multiple hazard analysis techniques is recommended because each has its own purpose, strengths, and weaknesses.

As the part of the project work, hazard identification and risk analysis was carried out for an iron ore mine and a coal mine and the hazards were identified and risk analysis was carried out. The different activities were divided in to high, medium and low depending upon their consequences and likelihood. The high risks activities have been marked in red color are un-acceptance and must be reduced. The risks which are marked in yellow color are tolerable but efforts must be made to reduce risk without expenditure that is grossly disproportionate to the benefit

gained. The risks which are marked in green have the risk level so low that it is not required for taking actions to reduce its magnitude any further.

Hazard identification and risk assessment can be used to establish priorities so that the most dangerous situations are addressed first and those least likely to occur and least likely to cause major problems can be considered later. From the study carried out in the iron ore and coal mine and the risk rating which were made and analyzed shows that the number of high risks in the coal mine was more than that of iron ore mine and same goes for the events in medium risk.

Keywords: Fatal Accidents, Risk Assessments, Risk Analysis, Hazard Identification