
Departmental Seminar

Seminar Title	: Blasting Operations near Structures: A Case Study
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Venue	: Seminar Hall, Department of Mining Engineering
Date and Time	: 31 Jan 2025 (4:00 PM)
Abstract	: has become the dominant method of extracting minerals due to technological advancements, cost effective operations, and the possibility of large-scale operations, maximum resource extraction, a safe work environment, and the availability of straightforward reclamation solutions. Blasting is a crucial operation in opencast mining as it breaks the large volumes of hard rock into manageable fragments, making it easier to load, transport, and process. The ever-growing demand for raw minerals is leading to the extraction of minerals from opencast mines at higher depths and expansion in close proximity to residential, agricultural, and forest areas. Blasting in the opencast mines, which are located in the proximity of residential, agricultural, and forest areas, is creating new issues like damage to residential buildings/structures, community impacts, and environmental concerns. A mine that is located near residential areas is selected for this study. Two villages, two colonies, one temple, one highway road, and a mango farm are located within the danger zone of the mine. This paper aims to determine a suitable controlled blasting design to control fly rock, blast induced ground vibrations, and air overpressure near structures and public road. In this study, trial blasts were conducted by limiting the maximum charge per delay in blast holes and using a sufficient number of old conveyor belt pieces overlain by sand bags for muffling the blasting area. This resulted in restricting the flyrock up to 10m and significant decrease in air overpressure and blast induced ground vibration levels within the permissible limits. Keywords: Control Blasting, Vibration, Fly Rock, Peak Particle Velocity, Maximum Charge Per Delay.