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NOISE ANALYSIS DUE TO DRILLING ACTIVITY

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Abstract

Rock drilling operations generate significant noise pollution, posing risks to worker health and the surrounding environment. While noise assessments are common in mining, studies specifically addressing drilling noise are limited. This study investigated the relationship between noise levels and distance from drilling activities at a rock mining operation. Noise measurements were collected over nine days, encompassing 131 drill holes, using a noise meter positioned at various distances from the drilling point. Data collection followed ISO 3744 and Indonesian National Standards (SNI) 7231 protocols, while analysis adhered to ISO 1999 and NIOSH guidelines for worker noise exposure. Results revealed a maximum noise level of 94.5 dB at 9.8 meters from a borehole, with an exposure time of 53.45 minutes. Statistical analysis (product moment correlation) confirmed a significant negative correlation ($P < 0.05$) between distance and noise level, indicating that noise levels decrease as distance from the source increases. These findings highlight the substantial noise pollution generated by drilling operations, particularly in conjunction with other mining activities, emphasizing the importance of administrative controls, such as mandatory personal protective equipment, to mitigate worker noise exposure and prevent hearing loss.

Key words: drilling, exposure, mining, noise, rock mining

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