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## ABSTRACT

**Title of Abstract** : "Whole-Body Vibration Exposure Among Heavy Equipment Operators at PT X, West Kutai, East Kalimantan"  
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Coal mining activities represent one of the industrial sectors with intensive use of heavy equipment, operating at large scales and for prolonged durations. The operation of these machines generates mechanical vibrations, which are significant physical risk factors in the working environment. Vibrations transmitted to the body of operators can not only cause discomfort but also have detrimental effects on health, such as circulatory disturbances, reduced visual focus, nerve problems, and musculoskeletal disorders. The incidence of occupational accidents and work-related diseases in mining sector continues to increase, highlighting the importance of managing ergonomic risk factors, especially whole body vibration, in the implementation of occupational safety and health programs. To protect workers, the government through the Ministry of Manpower Regulation No. 5 of 2018

To assess the whole-body vibration exposure among heavy equipment operators at PT X, West Kutai, East Kalimantan, and evaluate its compliance with the occupational exposure limits as regulated by the Minister of Manpower Regulation No. 5 of 2018

Measurements were conducted on 18 units of heavy equipment at PT X Kutai Barat using a Human Vibration Meter Svantek SV 106, following SNI 7186:2021.

The results showed that 11 units exceeded the exposure limit of  $0.8661 \text{ m/s}^2$  for an 8-hour work period, with the dominant vibration direction occurring along the vertical axis. The highest vibration levels were recorded in the Service Truck ( $1.7765 \text{ m/s}^2$ ) and Dump Truck ( $1.8203 \text{ m/s}^2$ ).

It is recommended that control measures be implemented through adjustments to exposure duration, and vibration damping modifications to prevent musculoskeletal health risks among operators.

**Keyword** : Vibration, Evaluation, Control