Whole body vibration exposure experienced by bauxite mining operators: An evaluation of heavy haulage equipment during varying seasonal conditions (wet & dry seasons) and the potential exposure risk

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Operator Whole body Vibration (WBV) exposure levels were evaluated for different models of haulage trucks, in varying seasonal conditions (wet & dry seasons) at a Far North Queensland site.

Studies were made on 26 'belly dumper' haulage trucks at the remote bauxite open cut mine. These trucks ranged from 170 - 195 tonne capacities, and three different models (Cat 7760, Cat 777F, Cat 777G). The vibration exposure was evaluated at the seat/operator interface in accordance with Australian Standard (AS) 2670.1:2001, over a representative period of a complete haulage cycle (60- 90 minutes). Estimated equivalent daily exposure values in terms of the vibration dose value (VDV) were found to be in the range of 9.76 - 20.14 ms⁻1.⁷⁵. These findings indicate that operators of mine long truck haul trucks are frequently exposed to WBV levels that exceed the limits that are applicable in the European Union with the probability of an adverse effect to their health in a moderate to high range. The difference in nature of the wet/dry season, introduces other factors that need to be evaluated; operational speed of haul trucks, road condition (size and nature of road degradation), driveability and training for all operating conditions. What are the effects on vibration exposure?