

Improving Driver Fatigue Management Using Readily Available Technology

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ABSTRACT

Ok Tedi Mining Limited (OTML) is a majority state owned company that operates an open pit copper, gold and silver mine located in the Star Mountains of the Western Province, Papua New Guinea (PNG). The total sales of concentrate in 2019 was USD1.12 billion, contributing 4% to the PNG GDP. OTML directly employs 1,747 people with PNG citizens representing 96% of the workforce.

OTML operates and maintains a fleet of buses and prime movers, which transports ~800 people daily and ~100 Ml of fuel and ~3,000 shipping containers annually. Given the remote location, unsealed roads and steep terrain, the safe transport of people and vital materials represents a significant risk to achieving OTML's vision that "Nobody gets Hurt. No Harm".

Existing controls to manage this significant risk include equipment selection and maintenance; road design and maintenance; driver competency, behaviour and fitness for work. OTML recently implemented two readily available technologies to improve driver fatigue management being: 1. Activity tracking devices to obtain quantitative sleep data; and 2. In-vehicle cameras to monitor and provide real time driver fatigue data.

The activity tracker results demonstrate that quantitative sleep data can be obtained using readily available technology. This enables drivers to better understand and manage their sleep quality and improve their health more generally.

In-vehicle camera monitoring enables drivers assessed as being at "fatigue risk" to be readily identified and then managed. Activity tracking devices also provide a valuable post "fatigue risk" event quantitative assessment and management tool, compared with qualitative fatigue self-assessment methods.

A significant reduction in the number of drivers deemed at "fatigue risk" is evident since implementation of this improvement initiative, which is now planned to include the mine mobile fleet. This combination of existing readily available technologies provides a cost effective and proactive approach to better manage driver fatigue.