Brake problems on on-highway trucks at mines

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Within the last two years the Mines Inspectorate has issued two Safety Alerts on fatal accidents involving inadequate truck braking. In the same time other incidents have resulted in serious injuries to vehicle operators, and numerous reported high potential incidents have involved minor injuries to operators.

The lack of effective brakes on trucks has become a state-wide mining issue. This situation cannot be allowed to continue. The risk to the truck driver, and others who may be struck by uncontrolled truck movements, is not being controlled to an acceptable level.

Everyone at a mine site is obligated 'to take any other reasonable and necessary course of action to ensure anyone is not exposed to an unacceptable level of risk' (quote from Obligation of persons generally, Section 39, *Coal Mining Safety and Health Act 1999* and Section 36, *Mining and Quarrying Safety and Health Act 1999*). "It's not my job" is not a valid excuse for doing nothing.

What is the problem and what is causing it?

The problem centres on heavy, rigid on-highway trucks being used at mines in off-highway conditions. Their number has increased dramatically as mines 'contract out' parts of the operation. While mine fleets have increased in payload and tended to be off-highway vehicles, the lesser payload, on-highway vehicle has become the carrier of choice for many contractors. Investigations into past incidents at mines show many vehicle brake defects; the most common being brakes disconnected, out of adjustment, heavily contaminated or seized.

On-highway truck brakes are adequate for the duty they perform on the road, but when a truck is used continuously on a mine site, it operates in a hostile environment not normally encountered. The abrasive nature of most mining dusts causes rapid wear; bull dust contaminates the brake shoe surfaces and enters the brake chambers, clogging the foot or emergency/park brake chambers. Many types of dust are acidic, and the corrosive atmosphere creates rust, destroys brake surfaces and seizes linkages.

Trucks regularly operate on steeper grades than they would in normal, on-highway conditions. Brakes must be adequate for the grade, load and speed; the manufacturer's specifications should be consulted to ensure safe operation.

Most of the reported incidents involve contractors' trucks; including water trucks and service trucks fitted with liquid carrying tanks. Contractors are part of the mine workforce and their equipment is part of the mine equipment. They are as much a part of the mine's Safety and Health Management System as the rest of the workforce. The obligations stated earlier do not differentiate between the mine workforce and contractors, but lesser standards are apparently being accepted for some contractors' equipment compared to that of the rest of the mine fleet. This cannot continue.

So what is the solution?

Understanding the conditions in which the truck will operate, and the duty cycle expected of the vehicle, is fundamental to developing control strategies. The on-highway type vehicle used on a mine site requires a greatly increased maintenance regime to combat accelerated deterioration rates. Inspection of brake components, testing of brakes by the operator prior to use, and routine dynamic brake testing are all elements of a maintenance system that captures brake operation problems and deteriorating performance.

On-highway trucks, particularly contractors' vehicles, are one area targeted by Queensland Mines and Energy inspectors of mines in 2009.

Authorised by Gavin Taylor - Chief Inspector of Coal Mines
Contact: minesafetyandhealth@dnrm.qld.gov.au
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