Department of **Employment, Economic Development and Innovation**

Safety alert

Mines

Mines Inspectorate

Safety alert no. 247 (Version 1)
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Trucks tipping over the edge

Mine Type: All Mine Types

Incident: There have been a large number of serious incidents lately involving haul trucks passing through berms when tipping over the edge. In one week recently three events were reported on three consecutive days. Further investigations have also uncovered some mines at which trucks have damaged berms, but the incidents have not been notified to an inspector.

Site senior executives are advised that the Chief Inspector of Coal Mines regards any incident of a truck damaging a safety berm as an unplanned movement that endangers the safety or health of a person.

Equipment: Haul trucks

Hazard:

Berms - Section 139 of the *Coal Mining Safety and Health Regulation 2001* states:
'If rear dump trucks are required to dump up to, or over, an edge at a surface mine, the mine's safety and health management system must provide for constructing and maintaining a safety berm to reduce the risk from the trucks toppling over the edge.'

Berms must be seen as a safety extra, and should not be used as a brake or even an indicator that the edge has been reached. They need to be designed to suit the nature of the material and the size of the machinery. While traditional rules of thumb such as half the height of the wheel may be useful, they need to be supported by geotechnical calculations.

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Cause:

Angle of approach - In many of the incidents, the truck has not approached square to the berm, but at an angle of 20 degrees or more. This greatly increases the force exerted on the berm if contact is made.

Strength of material - In another incident, the material was a sandy topsoil, which would run through your fingers. A berm made of this material provides no resistance.

Any risk assessment of the effectiveness of berms or the height of dumps would need to consider the nature of the material, among many other things.

Lighting - Most of the incidents have occurred at night. This raises issues about location of lighting plants, the effect of shadows and possibly fatigue.

Proximity detection - These incidents suggest investigating available engineering solutions, to warn that the truck has reached the berm or to guide the truck into a position square to the berm.

Comments:

Rescue - Any risk assessment should also consider the recovery of the driver if the control measures fail and the truck falls over the edge. In one incident a fire broke out outside the driver's cabin on an overturned truck. Fortunately, emergency response teams were at the site within minutes.

Recommendations:

The number of incidents occurring at different mines in a short period of time show that the hazard exists. Assessment and management of the risk will require attention to many factors, including:

- Berm design,
- Direction of travel
- Reversing speed
- Night time visibility and fatigue problems
- Dump material

While rules of thumb may provide guidance, technical expertise is also necessary to develop a suitable plan. OCEs, supervisors and operators need workable guidelines to decide when it is not appropriate to tip over the edge and other methods such as paddock dumping or short tipping must be adopted.

Gavin Taylor

Chief Inspector of Coal Mines

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Please ensure all relevant people in your organisation receive a copy of this Safety alert. Any such advice supplied to site should reach those who require it, and it should also be placed on the mine notice boards.

See more Safety alerts and Safety bulletins at
www.dme.qld.gov.au/mines/safety_information___bulletins.cfm