



SAFETY ALERT

Driver injured in dump truck rollover

INCIDENT

The driver of a dump truck lost control while travelling down a hill, failed to negotiate a bend in the road, rolled down an embankment and came to rest on the edge of a dam. He suffered severe injuries as a result of the incident.

CIRCUMSTANCES

The dump truck was loaded to a gross weight of up to 110 tonnes and had travelled down a 4 degree grade for 210 metres. At the top of the grade, the truck had been in seventh gear and the Jacob's engine exhaust system was in operation.

It appears the driver tried to change gears while travelling down the grade and while the exhaust brake was engaged. The engine stalled when the transmission was not engaged, so the drive wheels were no longer causing the engine to rotate. As a result, engine braking was lost. Once stalled, he could not put the transmission back into gear to slow the truck.

As a result of the engine stalling, the hydraulic power supply for the steering was lost. The driver was unable to steer the truck around the bend at the bottom of the grade. It appears the driver tried to use the service brake, but it failed to stop the vehicle before the bend.

The driver did not operate the park/emergency brake as he was using both hands trying to steer the truck. He also expected the park/emergency brake to be less effective than the service brake.

INVESTIGATION

The truck was not provided with any form of emergency steering.

A device to prevent the exhaust brake system from reducing the engine speed down to stall speed had not been installed.

A deactivation switch was fitted to the clutch – it is designed to disconnect the exhaust brake if the clutch is depressed. A deactivation switch was fitted to the accelerator - it is designed to disconnect the exhaust brake.

It was stated that under some circumstances the gears can be changed without operating the clutch.

The haul road did not have any safety windrows or barriers.



The dump truck lying on its side after rolling over an embankment.

RECOMMENDATIONS

1. Provide emergency steering to enable equipment to be brought safely to rest in the event of engine or power failure. Give preference to a system which will cut in automatically and warn the driver when the main system fails. Refer to *MDG 15 Guideline for mobile and transportable equipment for use in mines* for further guidance.
2. Review the effectiveness and limitations of the various braking systems during both normal and abnormal circumstances, utilising the following principles:
 - The service brakes should be capable of stopping the maximum load on the maximum grade at the maximum speed
 - The emergency brakes should be capable of stopping the maximum load on the maximum grade at the maximum speed

- Retardation systems should not be able to cause the engine to stall. For engine compression braking systems, this may be achieved by a device which senses engine speed and automatically takes corrective actions if the speed drops to a recommended minimum. This device should be in addition to any device which disconnects the retardation system when the clutch is depressed
 - Dry brake surfaces should be effectively prevented from being contaminated by oil or grease.
3. Periodically test each brake system using appropriate test/recording equipment.
 4. Ensure drivers regularly check and, where practical, test each brake system and the emergency steering system.
 5. Supervisors to periodically sit next to the driver to check equipment tests and simulated emergency response.
 6. Review the operation of the Defect Management System.
 7. Provide safety windrows or other barriers along haul roads wherever a significant risk of a vehicle rolling over, falling down a significant drop or coming to rest with significant impact is present.

Note: *MDG 15 Guideline for mobile and transportable equipment for use in mines* is available for free download at:

www.dpi.nsw.gov.au/minerals/safety/publications/mdg

NOTE: Please ensure all relevant people in your organisation receive a copy of this Safety Alert, and are informed of its content and recommendations. This Safety Alert should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

Signed



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MINE SAFETY OPERATIONS BRANCH
NSW DEPARTMENT OF PRIMARY INDUSTRIES

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