



Mines Safety Bulletin No. 81

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Subject: Unattended vehicles rolling away

Incidents

In recent months there have been a number of incidents involving unattended vehicles rolling away down slopes at mine sites in Western Australia. These include:

- A supervisor parked in a designated light vehicle parking area and alighted from the vehicle without engaging the hand brake or placing the vehicle in gear. Before alighting from the vehicle, the supervisor had been distracted by calls on the mobile and two-way radio. A short time later the unattended vehicle rolled about 25 metres, from one side of the car park to the other, mounted a half metre high earth bund and crashed into the wall of a transportable office, causing significant damage to one end of the office. There were no injuries.
- An operator was loading the rear trailer of a road train and, while returning with the third bucket, noticed the truck and trailer rolling downhill. The operator placed the bucket of material between the front and rear trailer but this failed to stop the truck. The truck came to rest with the prime mover and front trailer in a creek about 120 metres from the loading area. On inspection after the incident, the truck park brake was disengaged. The slope on which the truck was parked was very slight and barely noticeable.



- While working on an overland conveyor, an operator's vehicle rolled down a steep access road. The operator chased and attempted to halt the vehicle by getting in through the driver's door. The vehicle left the road, climbed an embankment and tilted over, partially trapping the operator in the door area. The vehicle was extensively damaged and the operator suffered bruising and lacerations.

- An operator had just finished tipping the lead and dog trailers into a hopper and had pulled the truck and trailer forward to clean the wheels and rear of the dog trailer. The operator thought the maxi-brakes were on and neglected to engage the handbrake. As he walked alongside the truck it started rolling forward off the ramp. The truck went down the ramp and crashed through an Armco barrier at the base of the hill, continued through a garden bed and across a road. The operator had run after the truck and, after it had crossed the road, decided to enter the truck and apply the foot brake. He successfully stopped the truck centimetres from an upright metal beam on the side of a large shed.



Also, at a mine in Queensland, an unattended partly loaded explosives truck was parked with its engine running. The operator had applied the park brake before disembarking and was walking away from the truck when he noticed it moving. While the truck was rolling away he climbed back into the cab and stopped the truck by applying the foot brake. The truck had travelled about 20 metres and ended up with the front wheels suspended over a 2.5 metre drop off.

This issue has previously been highlighted in the December 1999 edition of *MineSafe*, which outlined eleven cases of plant and vehicles rolling away when unattended. In one instance, an operator was injured when struck by the door of the vehicle in an attempt to jump into the vehicle while it was rolling backwards down a ramp.

Of primary concern is the attempt by some operators to pursue and enter the cabs of their runaway vehicles to try and stop the vehicles. This practice may result in serious injury or death.

Causes

- Failure to apply or correctly apply the park brake, which may be caused by distractions such as phones or by complacency, fatigue, tiredness, inattention, forgetting, hurrying and a lack of knowledge of the potential hazard.
- Poor parking area design with no engineering controls to prevent the vehicles rolling away.
- A faulty park brake, which may cause inadequate braking.
- Incorrectly adjusted park brake due to poor maintenance.
- Failure to use wheel chocks.
- The steepness of the slope on which the vehicle is parked and the weight of the vehicle plus factors such as attachments, tools and equipment.
- Failure to recognise and assess the hazards associated with parking on slopes.
- Failure to comply with parking procedures and rules.
- Failure to identify more effective controls than reliance on procedures and behavioral measures.
- Failure to detect and correct unsafe parking behaviour.

Recommendations

Section 9 of the *Mines Safety and Inspection Act 1994* prescribes that the employer at a mine must provide and maintain workplaces, plant and systems of work such that employees are not exposed to hazards. The following points indicate what a safe system of work may include to prevent injury from unattended vehicles rolling away:

- Develop suitable and designated parking areas for trucks, vehicles and mobile plant. Ensure these are on flat level ground. Install suitable parking ditches or parking berms. Operators should then shift the machine to neutral, release all brakes to test if the machine is stable and not moving (suitably located in the ditch or against the berm), lower any implements and then apply the parking brake.
- Fit-for-purpose barriers should be installed to prevent uncontrolled vehicles and plant going over embankments or into buildings, workshops and other areas where people may be located. Small windrows and bunds may not be appropriate for certain types of vehicles as, depending on the angle of approach, they are easily traversed, even on gentle slopes.
- If parking in a non-designated area, select ground as level as possible, park across the slope with the steering wheels positioned to use gravity to prevent the vehicle from rolling away, lower any implements, fully apply the park brake and use appropriate wheel chocks.
- Develop parking procedures and protocols after conducting risk assessments, determining the steepness of the ground, consulting the vehicle manufacturer's instructions and current practice in industry. Monitor compliance with procedures.
- Ensure employees are educated on the parking procedures and the importance of fully applying the hand brake when parking.
- Investigate and implement systems such as warning alarms to alert the operator that the park brake has not been engaged when the vehicle door has been opened, or systems that automatically engage the park brake when sensors in the seat detect no pressure and doors have been opened or the engine is turned off.
- All braking systems should comply with the relevant Vehicle Standards (Australian Design Rules), Australian Standards (AS), and Society of Automotive Engineering (SAE) and International Standards Organization (ISO) standards.
- For earthmoving machinery, the park brake should be capable of holding the machine stationary on a 15% grade, as prescribed in Australian Standard AS 2958.1:1995 *Earth-moving machinery – Safety – Wheeled machines – Brakes*, with the machine at maximum gross machine mass including all accessories and capacities according to the manufacturer's specifications. When applied, the parking brake should maintain parking performance despite any contractions of the brake parts, exhaustion of energy or leakage of any kind.
- There should be systematic testing of brakes for all trucks, vehicles and mobile plant that takes into account the type and duty of the plant, the loads carried and the slopes likely to be traversed and parked on.
- The maintenance regime at the workplace should allow for inspection, testing and repair of brakes as per the manufacturer's specifications. A brake test should be performed and recorded immediately after any repairs or adjustments to the braking system of all trucks, vehicles and mobile plant.



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