Safety Bulletin

Date: July 2025

Supporting video: youtu.be/bGl0TvKiZTg

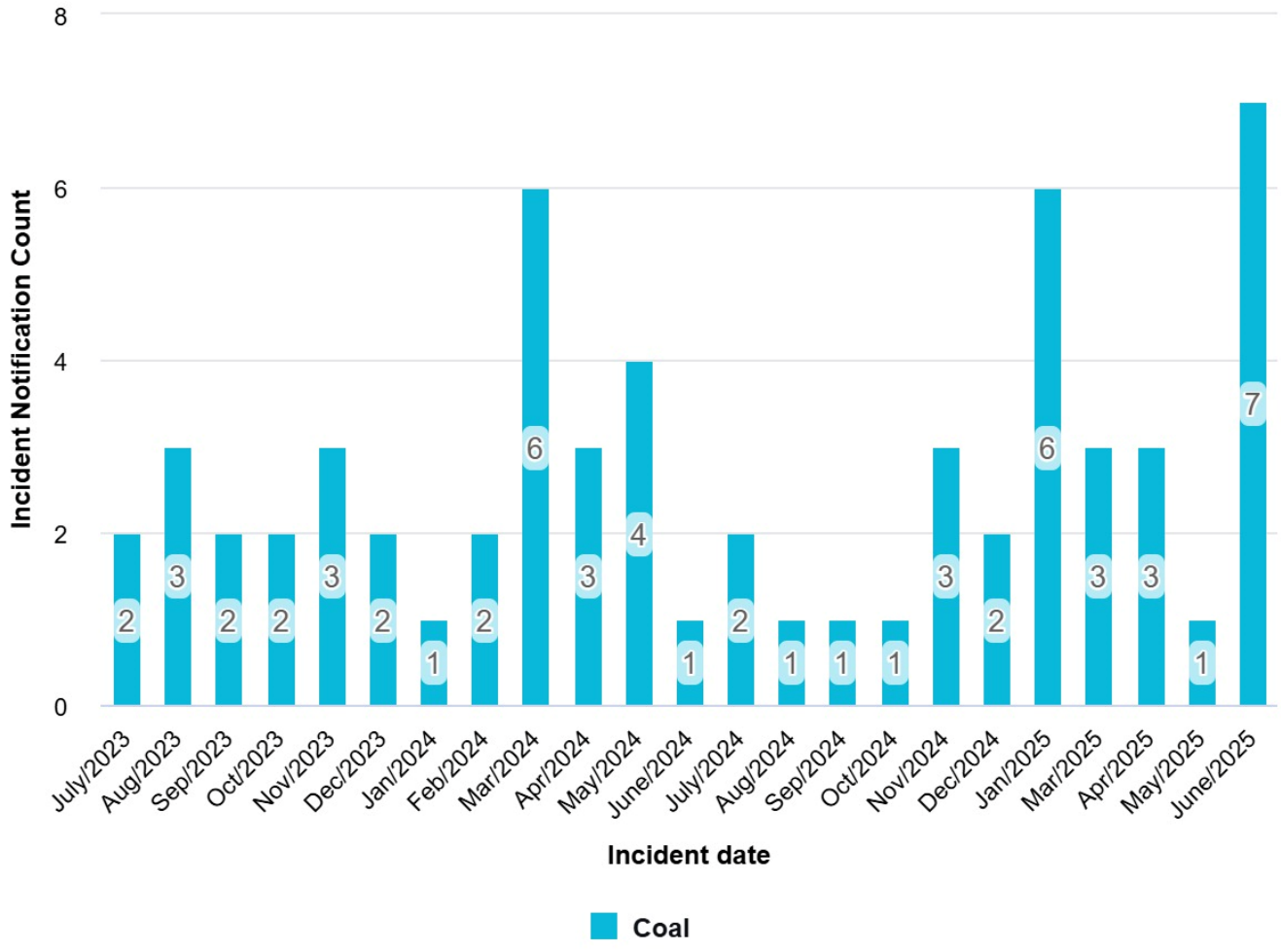
Vehicle collisions in underground coal mines

This safety bulletin provides safety advice for the NSW mining industry.

Issue

The Resource Regulator is concerned about the frequent occurrence of collisions involving mobile plant in underground coal mines in New South Wales.

Figure 1: Reports of vehicle collisions in underground coal mines



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Circumstances

Vehicle collisions involving load haul dump (LHD) units and personnel transports have been occurring frequently with 30 occurrences in the past 12 months. Collisions have been noted in each of the following distinct mine areas:

- Surface movement areas of underground mines - particularly near mine entrances.
- Outbye travelling areas of main headings.
- Production panels.
- Face zones.

Frequently, these collisions involve an LHD unit transporting a large load such as a concrete kibble or other large quick detach system (QDS) attachment that obscures the vision of the operator.

Investigation

Example 1 – Surface collisions

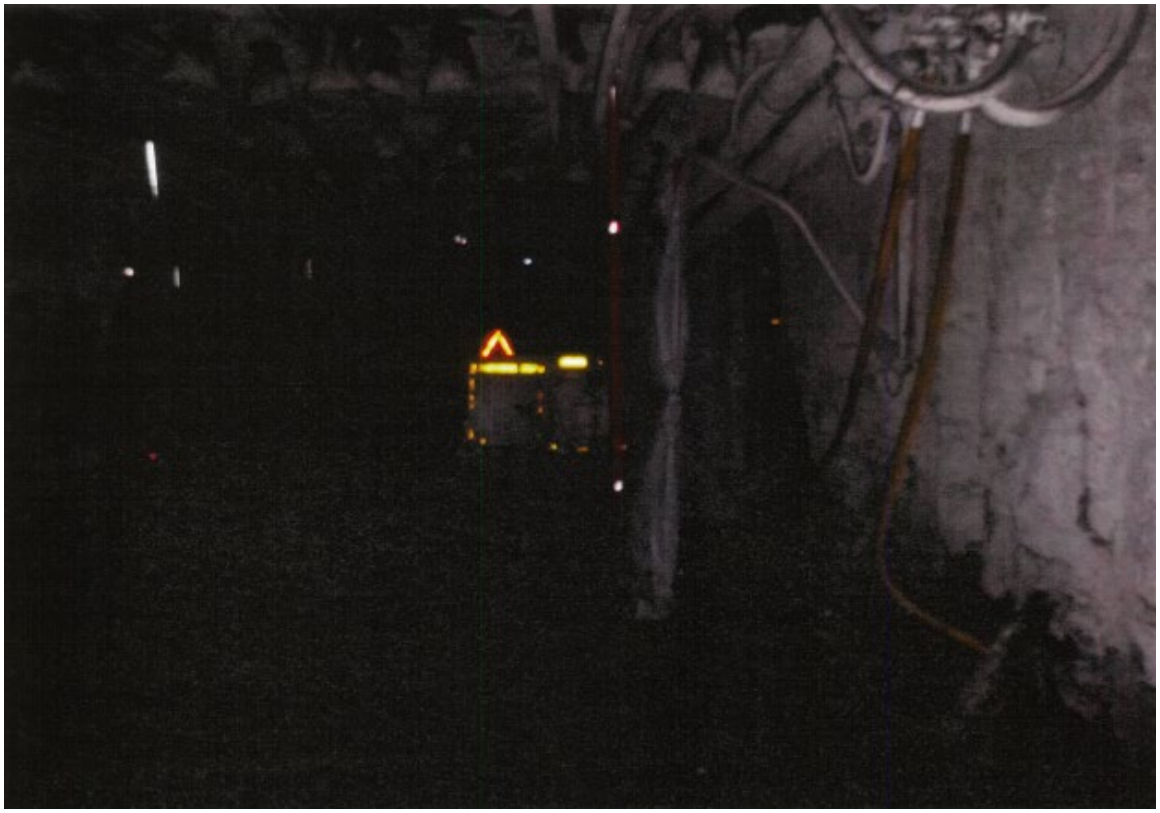
A personnel transporter (SMV) was exiting a mine portal when it collided with a roof support that was stored near the portal. When exiting the portal, the SMV operator saw a second SMV stopped on the roadway near a washdown pad. The operator believed there was adequate room to pass the stationary SMV but collided with the roof support in the process. The SMV operator failed to see the stored roof support.

Figure 2: Personnel transport collides with longwall roof support

Example 2 – Outbye collision on main travel road

An incident occurred when an LHD that was being used for stopping construction was parked in a cut-through with the rear of the machine extending 2 metres into the main travel road. Another LHD that was transporting a structure pod has collided with the rear of the first LHD.

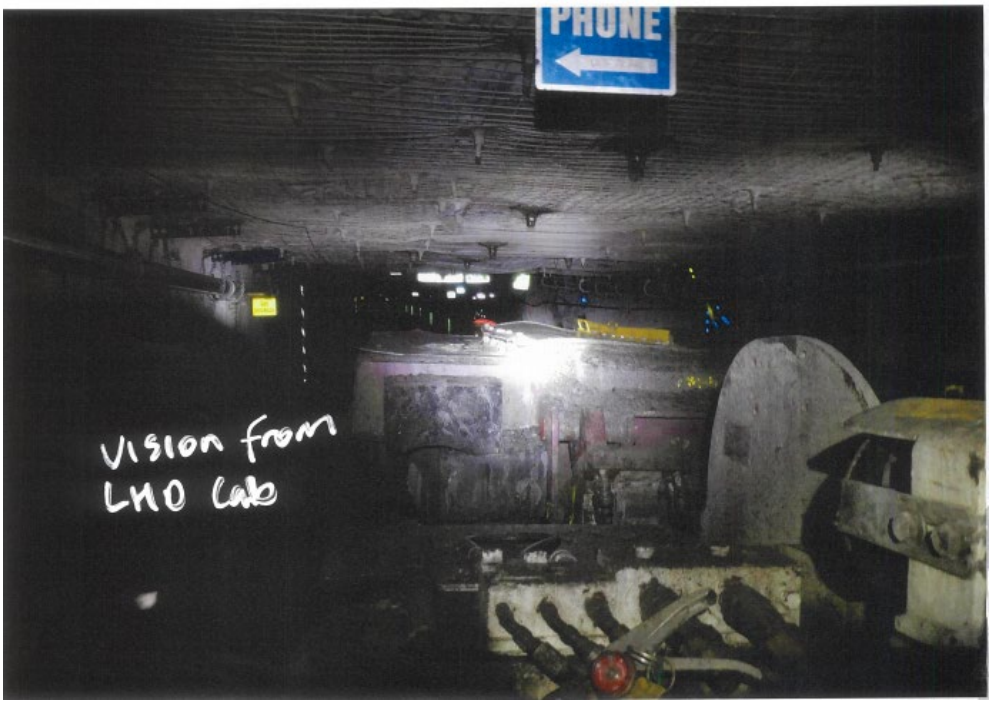
Figure 3: The rear of LHD extending 2 metres into the main travel road



Example 3 – Collision involving vehicles in production panels

An operator was driving an LHD that was carrying an empty concrete kibble driving from a longwall goaf seal pour back towards the surface. As the LHD was travelling towards the longwall crib room cut-through, the operator failed to see an unmanned personnel transport parked on the main travel road and collided with the parked vehicle at low speed.

Figure 4: Limited visibility for LHD operator transporting concrete kibble



Example 4 – Collision within the face zone

A collision occurred in an underground development panel between a shuttle car and an SMV. The SMV was leaving the panel after dropping off some equipment and travelled out along the shuttle car wheeling road. The shuttle car operator was returning unloaded from the boot, saw the SMV, then stopped and reversed out of the road. The SMV operator became bogged in the intersection and stopped the vehicle to engage its four-wheel drive. The shuttle car operator then returned along the wheeling road, hitting the SMV and driving it into the rib.

Figure 5: Damage to personnel transport caused by collision with shuttle car

Recommendations

Mine operators for underground coal mines should assess their roads and other vehicle operating areas principal hazard management plan to confirm the existing safeguards against vehicle collisions are suitable for the variety of tasks undertaken at the mine.

For surface vehicle operation areas at underground coal mines, mine operators should adopt the approach outlined in the NSW Resources Regulators Surface ROVOA Technical Reference Guide.

For underground operations, mine operators should consider adopting a layered defence structure, such as the methodology developed by EMESRT that addresses:

- Design requirements (including vehicle segregation and roadway delineation)
- Operating procedures
- Operator competency
- Operator compliance/audit tools
- Fixtures and devices to assist operator awareness
- Technology to assist operators in avoiding collisions

Additional specific underground coal guidance is detailed in the following section.

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Underground Design considerations

1. Surface areas

- Provide surface park-up areas clear of the main travel route and in particular make provision for vehicles to safely pass at the mine entrances.
- Develop specific transport rules for construction projects and provide delineation between work zones and travel zones.
- Ensure storage locations are clearly demarcated and positioned clear of vehicle travelling areas.
- Assess lighting of high traffic surface areas and transition lighting where vehicles enter the mine.

2. Underground travel areas

- Wherever possible, provide segregation, using separate roadways, of traffic travelling into the mine from traffic travelling out of the mine.
- Where only a single road is available for traffic to travel in both directions, make provision for passing bays or shunts.
- Assess suitability of block lights to control traffic movements where operator line-of-sight is reduced by changes in grade or changes in direction of travel.
- Install shunt bays to allow vehicles to pass and maintain access to shunts by restricting the use of these shunts for storage of stowage or other materials.
- Position vehicle stop points such as tag boards and watering stations well clear of intersections so that turning vehicles have adequate sight distance.
- Consider the use of area lighting in underground roadways, particularly in areas of installed infrastructure or high pedestrian traffic.

3. Face areas

- Position infrastructure such as pumps and distribution control boards (DCBs) to minimise the chance of collision and protect with suitable bollards and other visual indicators.
- Clearly define the wheeling road area and limit access of mobile plant into the face zone without notifying the shuttle car operator on entry and exit.

Transport rules

- Implement transport rules that require large loads that obscure operator vision to travel behind the operator. This means that LHDs will need to travel in the reverse direction.
- Include a vehicle hierarchy in the transport rules that provide clear direction on right of way.
- Implement a horn signalling system including requirements when approaching intersections or passing other vehicles to assist with communicating presence and intent of vehicle movements.
- Implement worker-on-road rules that include use of signs, flashing lights and barricading to prevent vehicles entering or passing through roadways where machinery and personnel obstruct roads.

- Prepare vehicle parking rules that require vehicles to be parked and left unattended clear of main travel roads. Include provisions for clear delineation of vehicles in the event of a breakdown on main travel roads so that they are observable well before an impact could occur.
- Determine minimum separation distance for vehicles travelling in convoy and include in your transport rules.

Other matters

- When selecting LHD attachments for transporting loads, consider that the size of the attachment is suitable for the intended purpose. Develop transport procedures under risk assessment that identify controls to mitigate the foreseeable risk of vision impairment.
- Operators are responsible for operating plant in a safe manner, following the site transport rules and using hazard assessment tools to identify the hazards associated with assigned tasks.

Note: Please ensure all relevant people in your organisation receive a copy of this safety bulletin and are informed of its content and recommendations. This safety bulletin should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's common area, such as your notice board where appropriate.

Visit our website to find more safety alerts and bulletins, with a selection of relevant publications provided below:

- Safety bulletin SB24-08 – Recent increase in vehicle interactions
- Safety alert SA25-01 – Near miss between light vehicle and front-end loader

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