

Safety Alert

Date: March 2023

Unintended movement of haul truck

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

Issue

An operator of an MT4400 haul truck left the cabin and descended the main stairs to isolate the truck in response to alarms, and walked in front of the truck to the main isolator on the off driver's side front bumper.

The truck was not parked on level ground and started to roll forward when the battery isolator was turned off. The operator ran back in front of the rolling truck and up the main stairs to the cabin to apply the service (foot) brake. The incident occurred on 19 February 2023.

Figure 1: Drawing shows where the truck operator was located when the truck started to roll forward



Circumstances

The truck was next in the queue at a dig site to pick up its first load of the day after having a brake drag alarm fixed at the workshop. The operator had applied the dump brake while waiting.

An alarm identified the ladder had lowered on the main access stairs. This was confirmed by radio from the operator of the truck which was positioned at the excavator.

The maintenance team advised the operator to turn off the truck and isolate it. The truck was on a grade and the wheels were not turned towards the windrow.

Safety Alert SA23-01

When the operator exited the cabin there was no alarm to advise the park brake was not applied. When the battery isolator was turned off, it removed power from the dump brake, and the truck rolled forward as the park brake was not applied.

The haul truck was stabilised and the scene was isolated.

Investigation

An investigation revealed the following:

1. The park brake alarm actuated by the cab door opening was inoperative, so there was no warning to the operator that the park brake was not applied.
2. The warning light to indicate the ladder was lowered was dull and difficult to see. During the inspection the warning light indicated the stairs were lowered while the stairs were observed to be in the raised position. On the day of the incident, the stairs were observed to be lowered without having applied the park brake. Both scenarios indicate this safety feature was not maintained in a fit-for-purpose condition.
3. When the truck was started, the access stairs raised and lowered without being controlled by the truck operator indicating this feature was not being maintained in a fit-for-purpose condition.
4. Labelling was illegible for some controls on the cabin dashboard meaning that the nature, function and direction for operation of the controls was not clear.
5. When the isolator was turned off, the truck rolled forward as no fail-to-safe braking was automatically applied - exposing a worker to the risk of unintended movement of mobile plant.
6. Training documentation lacked detail around the operation of the MT4400 haul truck park brake.
7. The onboard pre-operation defect identification management system lacked detail in reference to what to assess for each inspection item. For example, 'main machine access' did not indicate if it included both visual and functional inspection of stairs, ladders and walkways.

Recommendations

Mines should ensure:

1. safe and effective braking on haul trucks applies when the battery isolator is turned off
2. all alarms associated with safety-critical functions, such as brakes and steering, are maintained in an operable condition
3. pre-use, inspection, and/or maintenance trigger action response plans (TARPs) identify machines are to be safely placed out of service if safety critical functions, or alarms associated with safety critical functions, are not operational
4. operators of mobile plant understand the functionality of safety-critical functions, including the operation, inspection, and testing of these functions
5. operators of mobile plant understand how to assess line-of-fire hazards
6. signs that relate to functions, especially safety-critical functions, are maintained in a clearly legible condition
7. only suitably qualified and authorised personnel maintain and repair haul trucks to the original equipment manufacturer (OEM) requirements, especially safety-critical functions.

It is recommended that site maintenance supervisors and statutory engineers are familiar with:

AS 3450:2021 - Earth-moving machinery - Wheeled or high-speed rubber-tracked machines - Performance requirements and test procedures for brake systems (ISO 3450:2011, MOD)

Safety Alert SA23-01

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 common area, such as your notice board where appropriate.

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| Document control | |
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| CM9 reference | RDOC23/61327 |
| Mine safety reference | SA23-01 |
| Date published | 3 March 2023 |
| Authorised by | Chief Inspector Office of the Chief Inspector |