

Safety Alert

Date: August 2023

Serious injury of a Jumbo offsider during drilling work

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

Issue

A Jumbo drill rig was being used to conduct drilling, bolting, and meshing for the installation of ground support in a heading of an underground metalliferous mine on 19 June 2023.

One of the drilling offsider's (nipper's) tasks was changing various drilling consumables on the booms of the Jumbo as the ground support work progressed. Immobiliser switches that were used to isolate the booms' movements were on the left and right sides of the Jumbo (Figure 1).

The drilling offsider approached the front of the Jumbo to load a drill rod on the right hand boom when his left arm became entangled. This resulted in the traumatic amputation of his left arm below the elbow. An emergency response was initiated with the drilling offsider being transported to the surface and airlifted to hospital for treatment.

Figure 1: Jumbo drill rig at the incident scene



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Figure 2: Drill steel inserted into coupling on the right hand drill



Circumstances

The worker inserted a 3.7 metre drill steel into the drifter coupling of the righthand boom while it was rotating.

Investigation

The initial investigation revealed the following:

1. there was no automatic detection system, such as a laser beam, to immobilise the Jumbo booms when a person entered the operating area where there was a risk of entanglement.
2. existing immobiliser switches on the Jumbo were not used.
3. there were no work instructions for installing drilling consumables on Jumbo booms.
4. there was an accepted work practice amongst operators and nippers of not using immobilisers, and loading the drill steels while the coupling was rotating
5. the exclusion zone created by trailing cable barricading required the supervisor to request permission to enter the work area, impacting on ability to observe real behaviours and standards.

Direction to Industry

The NSW Resources Regulator is giving clear direction to the NSW mining industry that effective immobilisation controls must be in-place for personnel entering the implement operating zone of a Jumbo.

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Recommendations

Mine operators should ensure:

1. there is adequate training of drilling offsiders and operators for activities associated with working on or around drilling consumables
2. supervisors should complete regular inspections of all activities associated with installing ground support
3. controls are fully implemented, remain effective and are verified at a frequency determined by a risk-based approach
4. there is consideration for combining engineering controls to manage entanglement risks associated with drilling consumables. They may include:
 - a. immobilisation switches with inbuilt indication lights visible to the rear of the drill rig, for drilling offsiders
 - b. laser curtains/barriers
 - c. proximity detection devices
 - d. cameras.

Equipment designers, manufacturers and suppliers should:

1. carry out a review of hazards associated with entanglement for drilling activities and implement controls based on the hierarchy of controls.
2. the review should:
 - a. consider previous incidents associated with entanglement in drilling equipment
 - b. identify all potential drilling activities in which workers can become entangled in a drilling equipment
 - c. include any reasonably foreseeable hazards considering human factors.
3. consider fitting an automatic immobilisation system to all drilling equipment when workers are required to enter an area in which they could potentially become entangled. When considering the design of an automatic immobilisation system, a combination of the following engineering controls should be considered:
 - a. Immobilisation switches with inbuilt indication lights, for drilling offsiders.
 - b. Laser curtains/barriers.
 - c. Proximity detection devices.
 - d. Cameras.

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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