NSW Resources
Resources Regulator

Investigation report

Serious injury to a jumbo offsider during drilling work

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Introduction

A worker suffered the amputation of his left arm on 19 June 2023 at Cadia East Underground Mine when his arm became entangled on the rotating drill steel of a jumbo drill rig.

The mine

Cadia East Underground Mine is a large gold and copper mine in the Cadia Valley, about 20 kilometres south of Orange, in the central west of NSW. At the time of the incident, the mine was operated by Newcrest Mining Limited. The injured worker was employed by Face Mining Services Pty Ltd, who provided labour hire services to the mine.

The incident

A nipper offsider and a jumbo operator were developing an underground drive in the mine at 4670 decline, 301 east heading at 8:55 pm on 19 June, 2023. A jumbo drill rig was being used to conduct drilling, bolting and meshing to install ground support in the heading. One of the offsider's tasks was changing various components on the booms of the jumbo as the ground support work progressed.

The offsider normally worked as an Agitator Operator. He had limited experience in the role of a nipper offsider and on the date of the incident, he was working only his third shift as a nipper offsider for the mine operator.

Shortly before the incident, the operator exited the jumbo while a lever in the operator's cabin of the jumbo remained engaged, which caused the right-hand boom to continuously rotate. Immobiliser switches (used to stop movement of the booms) were positioned on the front left and right sides of the jumbo.

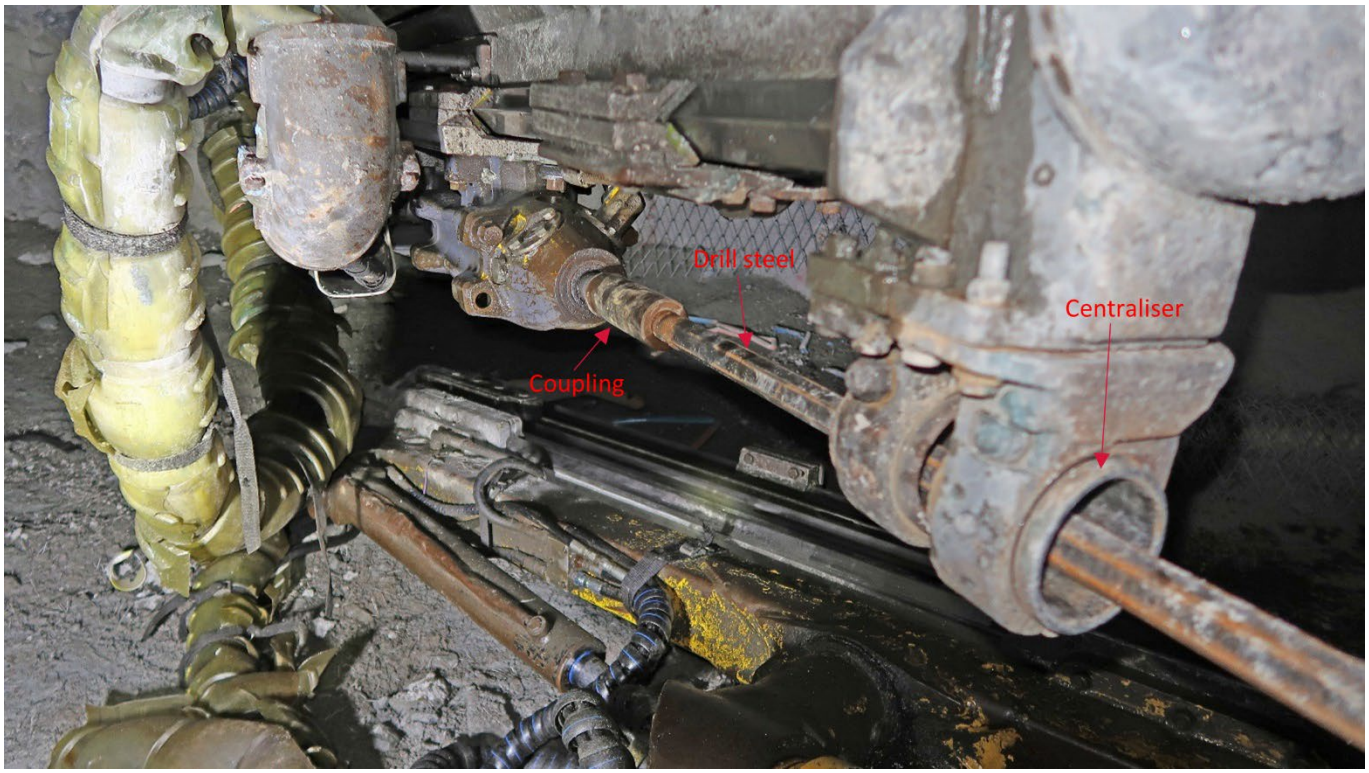
Without engaging the switch, the offsider approached the front of the jumbo to change a component on the right-hand boom, which was angled back towards the left side of the jumbo. The offsider inserted a 3.7 metre drill steel into the coupling of the right-hand boom as the coupling rotated.

His left arm became entangled on the rotating drill steel resulting in traumatic amputation to his left arm below the elbow. An emergency response was activated resulting in the offsider being transported to the surface and airlifted to hospital. The offsider remained in hospital for over 5 weeks.

Figure 1: Jumbo drill rig DD022 at the incident scene, with the location of one of the 2 immobiliser switches indicated in red

Figure 2: Incident scene viewed from the jumbo cabin with approximate location of offsider at the time of the incident, and a piece of his work shirt (predominantly orange in colour) entangled in the drill steel

Figure 3: Drill steel inserted in coupling on the right-hand boom



Investigation

The Resource Regulator's Major Safety Investigation Unit investigated the incident to determine its cause and circumstances.

The investigation found a number of factors contributed to the worker being exposed to the risk of serious injury or death, including the following:

- It was common work practice at the mine:
  - for workers not to use immobiliser switches, contrary to the mine's safe work procedure, and instead work near jumbo booms without the booms being immobilised
  - for operators to engage a lever in the cabin to rotate the jumbo boom to assist in threading drill steels being held by offsiders.
- There was no automatic detection system, such as a laser barrier, to immobilise the jumbo booms when a person entered the operating area where there was a risk of entanglement.
- The mine operator did not effectively monitor use of the immobiliser switches.
- The injured worker usually worked as a truck driver, was not trained as an offsider and was inexperienced in the role.
- Supervisors were responsible for a large number of workers over an extensive area of the mine, resulting in limited supervision of each work team.

Recommendations

Mine operators must:

- manage entanglements risks posed by jumbo booms in line with the hierarchy of controls. Consideration should be given to engineering controls such as automatic immobilisation systems (e.g. laser barriers)
- consider monitoring use of immobilisation systems by workers through means such as:
  - spot checking dash camera footage
  - installing data loggers
  - providing adequate supervisory oversight.
- adequately train and instruct all jumbo operators and offsiders in safe work procedures relating to boom immobilisation
- ensure safe work procedures for jumbo operators and offsiders detail requirements surrounding the use of the jumbo's boom immobilisation system.

Workers must:

- ensure that jumbo booms are immobilised before any worker approaches the operating area
- only attach components to jumbo booms after the booms have been immobilised
- never leave the operator cabin with any function of the jumbo still engaged.

For further recommendations, refer to information previously published by the Regulator regarding this incident:

- Investigation information release IIR23-06 on 4 July 2023
- Safety alert SA23-02 on 21 August 2023