

Safety Bulletin

December 2022

Dangerous lifting equipment incidents increase

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

Issue

A significant rise in the number of dangerous incidents involving lifting equipment has prompted the NSW Resources Regulator to review recent events in the NSW mining industry.

Within a one-month period between mid-October and mid-November, 2022, there were 7 lifting-related dangerous incidents, with 4 of these occurring over 5 days. The incidents involved cranes, chain/lever hoists and self-propelled jigs, with a range of causes and contributing factors.

Circumstances

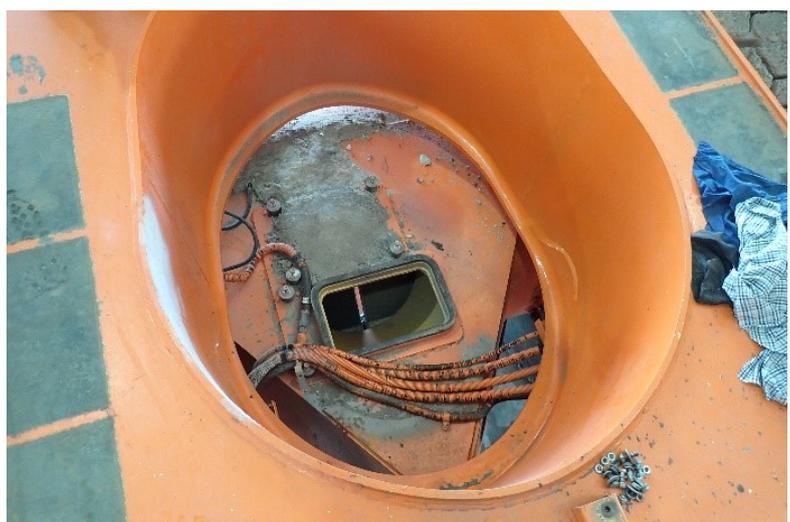
1. Dangerous incident – 13 November (Figure 1)

A work group at an open cut coal mine was installing a 2.7 tonne motor and gearbox assembly at the top of a reclaimer. The assembly was being lifted in with a slew crane when the job coordinator, not part of the work group, approached the task. The coordinator observed the load swinging around and instinctively reached out and grabbed the load. The coordinator's left hand index finger was caught between the load and the structure of the reclaimer, partially amputating the finger.

Figure 1: Reclaimer motor and gearbox



Figure 2: Haul truck rear axle box hole



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2. Dangerous incident – 13 November (Figure 2)

At an open cut coal mine, a plate was being removed from the rear axle box hole of a haul truck using an overhead crane. The plate sprang out and hit a nearby worker, causing a compound fracture to the lower leg. The worker was transported to hospital by ambulance. The plate, chain and crane hook landed on the deck of the truck.

3. Dangerous incident – 9 November (Figure 3)

A work crew at an open cut coal mine was installing the final drive to a haul truck. The workers were using a powered hoist and trolley to position the final drive. On the sixth attempt at aligning the drive to the axle, the trolley was stopped and the jerking motion caused the final drive to rock forward, snapping the single retention chain. The final drive then fell from the trolley requiring a worker to take evasive action to avoid being hit. An investigation identified the unit was intended to have 2 retention chains fitted and the workers had not been supplied with the manual for the trolley hoist.

Figure 3: Truck final drive and jig trolley



Figure 4: Dozer counterweight



4. Dangerous incident – 8 November (Figure 4)

While removing a counterweight from a dozer at an open cut coal mine, a worker suffered a laceration to the ear. The worker was using a crowbar to assist in removing a pin when the counterweight moved unexpectedly and the crowbar flung up, hitting his ear. The work crew was not supplied with the mass of the counterweight and had not adequately supported the counterweight.

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5. Dangerous incident – 19 October (Figure 5)

A continuous miner at an underground coal mine was being prepared to be trammed out of the panel for repairs to the shovel lift cylinder and clevis. Due to the damage, the shovel had to be supported from the cutter boom. The cutter boom was lowered and a 10 mm chain connected to RUD lugs on either side of the shovel. The miner driver powered up the miner, started the hydraulic pumps, and moved to what he thought was a safe place clear of the chain on that side of the miner. As the cutter boom was raised, the chain failed on the opposite side of the cutter boom and flung in an arc. The chain hit the worker on the face and shoulder. The worker required stitches to their cheek and neck.

Figure 6: Continuous miner apron



Figure 7: Conveyor drive



6. Dangerous Incident – 18 October (Figure 6)

Several workers at an open cut coal mine were preparing to remove a conveyor drive assembly (motor, gearbox and torque arm). An electrician was disconnecting the motor and another worker was removing the coupling covers. The worker proceeded to unbolt the coupling before the assembly was slung or supported. The unit rotated forward narrowly missing the workers.

7. Dangerous Incident – 17 October (Figure 7)

A mechanical tradesman at an underground coal mine was directed to separate the tailgate drive from four powered roof supports. A lever hoist chain was wrapped around the relay bar shear pin to remove it. Load was applied to the lever hoist and then the tailgate drive moved with a heavy lift machine. The worker then applied additional load to the lever hoist. The chain released from the pin and hit the worker in the face.

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Figure 7: Chain hoist to remove relay bar pin on longwall tailgate roof support



Investigation

Five of the incidents resulted in injuries including broken bones, amputation and head injuries, with the other two being near misses requiring evasive action by people to avoid injury.

Three of these incidents are the subject of major investigations.

Although there were a range of causes and contributing factors there were also several common themes. Issues identified during the incident investigations included the following:

- The lack of experience of workers and supervisors affected the identification of hazards. Workers can't identify what they don't know.
- The lack of implementing appropriate controls to protect workers.
- Operational and maintenance documentation did not match equipment.
- A lack of risk assessment, job safety analysis, or procedure being developed.
- The lack of training in operating equipment.
- A lack of effective supervision.
- Poor attention by, or distraction of, people in control of lifting plant.
- Poor selection of equipment, including lifting gear that had:
 - inadequate rating
 - was not fit for the intended purpose.
- A lack of safe standing and exclusion zones.

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Recommendations

Mines and coal handling facilities should:

- review lifting, slinging, and craneage systems regarding the applicable aspects of recent incidents, as well as exclusion, drop, and swing zones
- retrain supervisors and workers in lifting, load transfer, and towing
- retrain supervisors on both contract management and risk management.
- Where multiple work groups are working in the same area, risk assessments must include the interaction between the work groups.
- When planning tasks, workers must be supplied with relevant information, such as component weights and task procedures, to safely conduct the task.
- Supervisors must confirm workers understand the tasks and steps required to safely complete tasks.
- When equipment is introduced to site, it should be inspected to confirm that any required risk control measures are fitted and available to workers. Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 Section 107 Duty to provide information, training and instruction requires mines to provide workers with appropriate information and training relevant to the task being conducted.
- Pre-use inspections of lifting equipment such as cranes, monorails, chain blocks, lever hoists, forklifts, and telehandlers should include function testing and confirmation of current inspection tagging.
- Before removing components, procedures must include hold points when lifting or chocking must be in place to secure loads.
- Workers and supervisors entering work areas during lifting must remain clear of suspended loads.
- Tag lines should be used to control loads during lifting activities where workers are required in proximity to the load to guide it into place.

References

- [Work Health and Safety \(Mines and Petroleum Sites\) Regulation 2022 Section 107 Duty to provide information, training and instruction](#)
- [SA22-04 Dangers of lifting and pulling activities revealed](#)

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