NSW DEPARTMENT OF
PRIMARY INDUSTRIES

SAFETY BULLETIN

Mineworkers injured in machinery crush zones

INCIDENTS

Recently there have been four separate incidents where mineworkers were injured as a result of being struck by, or crushed by, mobile plant or machinery. Three of those incidents resulted in serious injuries to the mineworker.

Incident 1

A contractor at a coal preparation plant received severe bruising to the lower back when crushed between a sump handrail and another fixed steel structure.

A subcontractor's backhoe was being used to lift a steel deck plate into position when the backhoe began to slide down a 1-in-4.7 grade sump ramp, causing the dipper arm to come to rest against the sump handrail. At the time the backhoe's rear tyres were elevated off the ground by its stabilisers.

The sump handrail then crushed the contractor who had entered the working area of the backhoe.

Incident 2

Three labour hire contractors were assisting a longwall move at an underground coal mine.

After first working underground, the three contractors went to the surface to retrieve the longwall service modules (monorail sleds). Two of the contractors were assisting to connect two modules in preparation for taking underground, while the other was driving an underground loader.

One contractor stood on the deck above the front coupling of one of the modules. While the module was being pushed by the loader the contractor reached down, placing a leg on the ground down one side of the coupling, and lifted the coupling and lug to about a horizontal position.

The second module was pushed past the coupling join point and caught his leg between the two couplings, resulting in compound fractures of his lower right leg.

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Incident 3

An employee of a metalliferous open cut mine received multiple skull fractures when struck by a tree log that was being levered out of a stockpile of felled scrub timber by a backhoe bucket.

It appears that at the time the backhoe was being used to collect timber from the windrow. The employee entered the operating radius of the backhoe, just as the tree sprang out from the pile.

Incident 4

A mineworker received serious crush injuries when a remote-controlled continuous miner was being reversed from a heading. The mineworker was crushed between the cutting head of the machine and the rib of the underground coal mine heading.

The injured person and other mineworkers had finished mining the heading and were moving the remote control miner to another location.

Two men were in front of the continuous miner monitoring the machine's electrical cable. The miner driver was at the rear of the machine, reversing the continuous miner with the remote control, when it appears that he stumbled and inadvertently operated one of the controls. At the same time the mineworker entered the no-go zone of the machine, resulting in him being crushed.

INVESTIGATION

The four incidents are currently under investigation by the NSW DPI Investigation Unit. Preliminary investigation has established the circumstances of the incidents. In all incidents the positioning of persons around plant and machinery has resulted in persons being at risk.

Issues of concern are:

- failure of risk assessments to identify and control risky behaviour of persons in and around machinery
- failure of plant operators and supervisors to identify and control risky behaviour of persons in and around machinery
- failure to establish and maintain no-go zones, control zones and barricading around machinery
- failure to maintain line of sight, and communications with persons working around mobile plant and machinery.

RECOMMENDATIONS

Mines should review their OHS management systems and major hazard management plans to ensure that:

1. The working relationship between persons and machinery and primary hazards of machinery are examined. Particular emphasis should be given to areas where the person-machine interface can occur and the potential risks of human behaviour and the work environment.

2. Barriers, signs and markings are used to identify hazardous work areas, no-go zones and control zones. Persons should stay outside the mobile plant operating radius and turning circle.
3. Risk assessments and safe working procedures for operation and maintenance of mobile plant are adequate to ensure that release of all types of energy, and the potential pathways and directions associated with that energy release, are identified.
4. Adequate training and information is provided regularly to persons operating and working with mobile plant, so they are competent with the plant and familiar with safe working procedures and the interaction of people and plant.

REFERENCE

NSW DPI has previously issued Safety Alerts and information concerning man-machine interfaces. These documents should be referenced when undertaking risk assessments concerning plant and machinery.

Mine operators and operators of coal operations should review the recommendations associated with these Safety Alerts and reports when developing safe systems of work and work procedures:

- SA04-12 Unplanned movement of materials pod results in serious injuries
- SA04-16 Serious spinal injury
- SA06-21 Drill rig incident
- SA07-01 Miner fatally injured in remote-controlled loader incident
- SA07-04 Miner crushed by drill jumbo
- SA08-05 Miner's arm injured using drill rig
- SA08-07 Operator crushed between longwall roof support and AFC pan line
- SB08-01 Operator behaviour around remote control equipment
- MDG 5004 CJ Pitzer Report – A study of the risky positioning behaviour of operators of remote control mining equipment
- Investigation Report of a serious injury at Clarence Colliery on 12 July 2004

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 notice board.

Signed

Rob Regan
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NSW DEPARTMENT OF PRIMARY INDUSTRIES