NSW GOVERNMENT

NSW Resources Regulator

SAFETY ALERT

DATE: April 2020

Worker sucked into auxiliary fan ventilation tube

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

Issue

A mine worker, who was installing an auxiliary fan ventilation tube, was sucked into the end of the tube. Due to the pressure around his neck, the worker briefly lost consciousness.

Circumstances

The incident occurred at 3pm on 9 April 2020 at a coal mine in the NSW southern coalfields.

The worker was unable to free himself from the tube, and workers who came to his aid were also unable to free him, until the auxiliary fan was shut down.

First aid was administered and the worker was transported to the mine surface, and then to hospital where he was monitored and treated for abrasions and bruising.

The auxiliary fans specifications were 200KW and 26 m^3/s open circuit capacity. The variable inlet vanes (VIVs) were set at 13 m^3/s and 618 millimetre diameter tubes were being used.

The ventilation duct run was about 90 metres to the face. The run included a 90 degree elbow and an inline T-piece with an end cap fitted.

The photographs in figures 1 and 2 show the auxiliary fan and the ventilation ducting involved with the incident.

Figure 1 The auxiliary fan

Figure 2 The incident scene at the mine face

Investigation

The NSW Resources Regulator conducted a site assessment to gather information about the incident.

The auxiliary fan was new to the site and had only been underground for about a week. There was a design and an operational risk assessment completed before it was placed into service.

The mine had a procedure for auxiliary fan operations.

The assessment focused on the section of the procedure concerned with installing fan ducting and the following observations were made:

- There was no determination regarding the safe operating range of the auxiliary fan (in terms of air quantity, air velocity or pressure) to allow for safely adding of ventilation ducting.
- There was no procedural detail about where the air velocity reading should be taken (i.e. 10 metres behind the miner or at the duct itself) and at what frequency.
- The procedure lacked detail about safe standing zones.
- The process steps for workers to install ventilation tubes safely required further development.
- There were no details about guarding requirements of the most inbye tube to protect loose items and debris being sucked into the duct or workers being sucked into or against the duct while working in close proximity (such as working on continuous miner platforms).

Recommendations

The following recommendations are made:

- Mine operators should review their auxiliary fan operational risk assessments (for each type of auxiliary fan in use at each site) and ensure the risks to health and safety for people working in close proximity to ventilation ducts during installation, operation, maintenance and repair are identified and controlled. The specific hazard identified with this incident (workers being drawn into or against the ventilation ducting) should be considered.
- With the review of risk assessments above, mine operators should implement controls in accordance with the hierarchy of control measures as required in clauses 35 and 36 of the Work Health and Safety Regulation 2017.
- The operating range of auxiliary fans (i.e. VIV settings) should be determined through modelling and testing, to ensure the ventilation tubes can be added into the circuit without

risk to workers being sucked into or onto the end of a tube while clearing gas, dust, and diesel exhaust pollutants, as well as preventing recirculation.

- The location used for monitoring ventilation performance and hence determining any change in fan operational parameters must be formalised in the mine's safety management system (for example – the procedure for auxiliary fan operations).
- Safe standing zones and the detailed process steps to safely install ventilation ducting should be formalised and documented in the mine's safety management system.
- The relevant sections of the workforce should be trained and refreshed (at a frequency determined by the mine) in the safe operation of auxiliary fans on site – including the installation/extending of ducting.

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