Safety Alert

Date: September 2024

Fire occurs on longwall face in underground coal mine

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

Issue

A fire occurred in front of the face side of the tailgate cutter drum of an operational shearer in a NSW underground coal mine on 26 August 2024.

Circumstances

Two operators were remotely operating a longwall from an operating centre on the surface of a mine. The shearer had cut out the tailgate snake and was hauling towards the maingate leading up to the incident.

The shearer failed to clear the tailgate snake area completely when haulage stopped after the anti-collision haulage function tripped. At the same time, the Armoured Face Conveyor (AFC) panline advanced on the bank push, which forced the tailgate drum into the face. The drum continued to rotate, which generated frictional heat. The cutting horizon consisted of a metre of sandstone/siltstone from the floor with a metre of coal above that.

After several minutes, flames erupted in the area immediately in front of the tailgate drum. This was captured on the system's continuous video display and the surface operator stopped the drum rotation. The flames were extinguished by the shearer drum sprays before the worker on the face, who was about 40 metres away, had time to intervene. Having been alerted to the fire by the surface operating centre, the worker on the face proceeded to the shearer and made the area safe by dousing it with water.

Investigation

The mine has determined there were deficiencies in the programming of the automation process that allowed the AFC panline to advance while the shearer was not clear of the advancing panline. This forced the face side of the tailgate drum into the coal face, which consequently generated sufficient frictional heat to ignite the coal that was immediately in front of the drum.

All frictional ignition controls were found to be compliant after the incident, with the shearer drum cutter picks and sprays in excellent condition. Air quantity across the longwall face was 40 cubic metres/second and the tailgate was liberally stone dusted.

Methane was not believed to have been a factor in this event, with no monitoring detecting above 0.2% at any time before, during, or after the incident.

Figure 1: The tailgate drum

Recommendations

Mine operators should:

- review their automated cutting processes with specific emphasis on the suitability of controls within the software to prevent automated commands that may result in creating unsafe conditions
- communicate this alert to workers who are engaged in overseeing remote mining operations to highlight the challenges that exist with regard to identifying unsatisfactory operating conditions in a timely manner before a dangerous incident occurs underground.

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.

Safety Alert SA24-03

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