

Safety Bulletin

Date: December 2023

Methane gas incidents occurred in NSW coal mines

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

Issue

Frictional ignition is a hazard within underground coal mines that can result in a coal dust explosion. There have been several frictional ignitions in both longwall and development panels over the past year in the NSW underground coal sector. Each incident had different contributing factors, but all were an unplanned ignition of methane gas in a production district. None of the incidents resulted in injury to workers, but all of the incidents had the potential to cause injuries.

Recent incidents include:

- A steel roof bolt was caught in the return raceway of a longwall armoured face conveyor that had a build-up of methane in the race way because of an uneven grade and floor break.
- A continuous miner was in production in a place change operation. The sequence of mining was based on brushing floor to the face, raising the head and sumping in at the roof during the break away process. Once sumped in, sparks were observed, with ignition of gas in a cavity above the continuous miner. The ventilation was considered poor at time of incident.
- A continuous miner was in a bolting cycle. Bolting activities involved drilling and installation of 2.1m bolts. During drilling activities, the drill steel stalled and water flow ceased from the hole, when the drill steel was lowered a flame ignited from the drill hole on retraction of the steel from the hole. Drilling was occurring in a 200 to 300 mm cavity. Ventilation tubes reported as being to the face and a venturi was in operation.
- Continuous miner had recently intercepted boreholes during the shift. Continuous miner was cutting coal when a flame was observed from the face over the continuous miner and towards the shuttle car. Flame remained on the roof until they were extinguished with a hose. The ignition resulted in the miner driver and cable hand being knocked to the ground without injury.
- A 12CM30 continuous miner was in the process of cutting when there was a gas ignition. In the lead up to the incident it was reported that the CM brushed the floor to the face and sumped half a cutter head into the face. The operator then commenced shearing up. The operator reported that the cutter head was not more than 1 m off the floor when the frictional ignition event occurred. Witness statements reported multiple bangs like thunder being heard, before a

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roaring sound. A flame was observed immediately following the reported sounds. Flame self-extinguished after 2 to 3 seconds. Auxiliary ventilation was in use with venturis at time of incident.

Figure 1 - Frictional ignition on an operation longwall



Recommendations

Mine operators should review the adequacy of their controls against frictional ignition and remedial controls if an ignition occurs, within their safety and health management system. This review should include but not be limited to:

- frictional ignition management plans
- management of in situ gas content
- gas drainage requirements
- cutting sequences
- face ventilation requirements
- pre-use checks regarding picks and sprays
- stone dusting requirements
- gas drainage hole intersection procedures
- frictional ignition trigger action response plans (TARPs).

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 common area, such as your notice board where appropriate.

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Document control

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