

Methane hazards at open-cut excavations

Mines safety alert no. 348 | 25 September 2017 | Version 1

What happened?

A maintainer working at an open-cut coal mine had completed gouging a weld from an excavator travel motor guard when a bystander noticed small blue flames between the excavator track pads, directly below the hot work area. Hot work stopped immediately and the flames burnt out.

The entire work area was checked with a gas monitor and intermittent pockets of methane gas were detected under the excavator track pads. The machine was then relocated to a work area 400 m further up the ramp. Before work recommenced, this area was checked with a gas monitor and was found to be gas free.

How did it happen?

Intermittent pockets of methane gas issuing from the ground beneath the excavator track pads were ignited by sparks from hot work being performed above.

Comments

Previous Mine Safety Bulletin 61 Flammable and toxic gases in open cut coal mines, from 28 March 2007, outlines the risks from flammable and toxic gas hazards in open cut mines. The hazard areas it identifies are:-

- Blast holes
- Post blast areas and strata, including spoil dumps
- Product coal recovery tunnels, including in the cavity surrounding the coal chutes.
- Cabin of drill rigs working in ground with high methane content
- Underneath machinery parked over cracks in ground.

The bulletin states:

- Mine workers undertaking duties in and around the areas nominated should be made aware of the potential risks, their measurement and controls.
- Care should be taken to eliminate ignition sources from environments where there is a potential for methane to be present
- Methane can be monitored using a wide range of portable gas detectors.

Safety alerts 46, 59, 158 and 272 cover the risk of ignition of methane around bore holes.

Recommendations

This incident highlights the need for open cut mines to:

- review procedures, training and verification inspections checks for managing methane hazards

- identify where methane may be found on an open cut mine.

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Issued by the Queensland Department of Natural Resources and Mines

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