

Uncontrolled release of methane from drainage range

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Mine type

Coal mine - underground

Incident

During a period of increased inflow of water into an underground coal mine, a methane drainage range was used as a pump delivery range to manage an emergency water problem at the mine. After the water situation was brought under control the pump was removed, but the pipe line was not reconnected to the main range at the pump site. Later, when it was decided to recommence gas drainage from this range, the uncapped methane drainage line was charged with gas and resulted in an uncontrolled release of methane into the mine atmosphere.

Equipment

Methane drainage range.

Hazard

Explosive atmosphere.

Cause

The pipe range was not complete prior to it being charged with methane. This appears due, at least in part, to various systemic issues, i.e.

- The Mine system of having a permit to change a gas drainage range into a pump out range was not utilised.
When the increased methane percentage in the atmosphere tripped power, ERZ controllers failed to consider that the methane drainage range could be one of the sources of the methane, and did not consider this during their investigation. Thus, the open end of the pipe range where the pump was earlier connected for water delivery was not
- inspected.
During the recommissioning of the pump range back to a methane drainage range, it was reconnected with both waste
- water and silt left in line. No test was done as to whether the range was delivering methane at the surface or not.
A simple **risk assessment** approach, if utilised for any of the tasks undertaken throughout the process, may have
- identified some or all of the problems encountered.

Comments and recommendations

It is believed that the methane range was open to the mine atmosphere for about 10 days, and that no methane gas escaped during this time because the open end of the range was blocked by sludge. The sludge is assumed to have been deposited during the period in which the range was used as a pump out range. The methane gas pressure in the range only became sufficient to breach the sludge blockage when an additional methane discharge point was added to this range. The methane gas collected in the range was vented in the main dips where the water pump had earlier been connected.

All mines should review their systems to prevent this situation occurring. It is recommended that following steps be included as a minimum;

- Alteration of pipe ranges, especially methane drainage ranges should be a 'permit controlled' process.
- Recommissioning of a range should involve flushing or testing of the range to assess leakage, etc.
- Methane pipe ranges should be identified with signs and colour coding at joints and valves, especially isolating valves.
- A **risk assessment** approach should be followed in planning and executing such work in the mine.

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Issued by the Queensland Department of Natural Resources and Mines