

**Adventure Activities Licensing Authority**  
**Safety Alert Number 1 – Mine Exploration, Gas Hazards**  
**Issued: 24 July 2008**

Background

On 17 July 2008, an adult caver became unconscious, apparently due to a lack of oxygen, soon after entering a disused coal mine shaft. Despite prompt efforts by his companion on the surface and the rescue services, he died in hospital three days later.

This alert has been issued to remind adventure activity providers who offer mine exploration of the gas hazards that may be present in old workings. Others who participate in mine exploration may find this information useful.

Gas Hazards

Old mine workings are poorly ventilated and may well contain atmospheres that are very low in oxygen. This is most likely in unventilated blind ends, shafts and other dipping workings. Variations in atmospheric pressure can affect any natural ventilation and the distribution of gasses in the workings. Oxygen deficient air can kill very quickly after entry and, if not immediately fatal, can impair the victim's judgement and physical ability to escape this hazard.

The risk of encountering oxygen deficient air is particularly high in old coal mine workings since oxygen reacts with coal to reduce the oxygen and increase the carbon dioxide content of the air. A similar effect can occur in some other mines, notably those that worked ironstone.

In coal mines, there is also the risk of methane; producing flammable and potentially explosive atmospheres.

Other Hazards

There are also the more obvious hazards of unstable ground, hidden voids and shafts as well as flooding. Coal measures strata is unlikely to remain stable without support for long after the mine's abandonment.

Action by Activity Providers

In accordance with advice from the Coal Authority and HSE's Mines Inspectorate activity providers should not be taking groups into old coal mine workings as they are inherently too dangerous.

Where other abandoned mines are used, providers should review their risk assessments to ensure that gas hazards are considered. Where appropriate, providers may need to make use of portable gas monitoring equipment. The users need to be trained in its correct use and the monitors need to be calibrated and maintained in accordance with the manufacturer's instructions.

## Useful References

Coal Authority – deals with surface hazards arising from past coal mining activities such as open mine entries or ground collapse. 24 hour emergency number – 01623 646 333. Web - [www.coal.gov.uk](http://www.coal.gov.uk) .

Mines Rescue Service Limited – can provide training on testing for gas in mines.

Providers should direct enquiries about this alert to their AALS inspector.