



SAFETY ALERT

Self-contained self rescuers

INCIDENT

On 2 January 2006, 12 men were trapped when an explosion occurred at the Sago mine in the USA state of West Virginia.

CIRCUMSTANCES

At approximately 6.25am the crew from 1 Left Panel were arriving at their work place when a sealed goaf area containing an explosive mixture of methane ignited, trapping the men in the panel with a wall of toxic gas. Subsequent exploration found 11 of the miners deceased and another alive but in a critical condition. All had suffered from the effects of carbon monoxide poisoning.

INVESTIGATION

On interviewing the only survivor, State and Federal investigators discovered that while all the men in question carried oxygen self rescuers, at least four of the units were considered unusable and subsequently discarded.

As part of further investigation by USA National Institute for Occupational Safety and Health (NIOSH) laboratories, all the units were found to be sound. The discarded units may have been needlessly removed. Thorough training or more frequent retraining may have negated these circumstances.

A number of other incidents involving self-contained self rescuers have been documented in recent years:

- Users have noted difficulty in breaking the initial seal
- Difficulty removing the plug from the mouthpiece
- Difficulty unravelling the breathing tube and nose clip
- Activation of the initial bag-filling oxygen charge has failed on occasion, requiring manual inflation.

None of these difficulties constitutes failure of the unit, however, the possibility of their occurrence should be mentioned and allowed for in any training program

Other points that should be addressed in training programs include:

- The training units do not perform in the same fashion as a real unit
- There is no heat produced by a training unit
- Breathing resistance is not as high in a training unit
- Units should be changed over in designated areas, rather than waiting until the user is on the verge of respiratory distress due to CO₂ build-up

- Training should include opening and donning under various difficult circumstances, such as in the dark or at least low light, dusty or smoky environments
- Practical use should be timed in an effort to simulate the pressure of an emergency situation
- Changeover from one unit to another should be practised under all possible circumstances
- Training should include the escape system as a whole, including the location of all relevant caches, changeover stations and refill stations.

RECOMMENDATIONS

1. Mines should audit their training programs and confirm that all foreseeable issues have been addressed.
2. Mines should consider a common program for their escape instructors to encourage standardisation and thoroughness throughout the industry.
3. All education programs should include any updates or alerts from manufacturers.

DOCUMENTS FOR FURTHER REFERENCE

MDG 1020 Guideline for underground emergency escape systems and the provision of self rescuers

MDG 3006 MRT4 Code for chemical oxygen self-contained self rescuer

MDG 3006 MRT7 Code for maintaining and testing the performance of escape breathing apparatus in underground mines

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 notice board.

Signed



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