



Mines Safety Bulletin No. 156

Subject: Stench gas activation stations for underground mining operations

Date: 18 October 2018

Background

Underground mining operations are required to have an alarm system to warn personnel working underground when an emergency is declared. Normally this requirement is fulfilled by the use of stench gas, which contains mercaptans that act as an odourant and may be classified as a flammable gas. The stench gas is introduced into the underground workings from activation stations installed on the surface near mine openings (e.g. portals, shafts, rises) and also from underground locations.

This bulletin clarifies the interpretation of stench gas activation stations in relation to Regulation 4.37 of the Mines Safety Inspection Regulations 1995 (MSIR), which requires the manager of an underground mine to ensure that flammable liquids, flammable materials or explosives are not stored within 50 metres of any entrance to the mine. Desirable features and practices associated with stench gas activation stations are also outlined.

Stench gas activation stations comprised of connected cylinders are regarded as an installation rather than storage of flammable materials. Hence MSIR Regulation 4.37 and the associated 50 metre exclusion zone, is not applicable to such installations. However, cylinders of stench gas not connected to the installation must not be stored within 50 metres of a mine entrance.

Importantly, stench gas activation stations need to be carefully located, constructed and maintained to optimise their effectiveness and reliability as an alarm system and to ensure personnel are not exposed to hazards.

Summary of hazard

Improperly located and installed stench gas activation stations:

- may not perform effectively as an alarm system
- may expose persons working near them to hazards (e.g. mobile equipment, falling objects, slips and trips).

Contributory factors

There is a need to clarify the requirements of MSIR Regulation 4.37 and to reinforce good standards for stench gas activation stations.

Actions required

The following actions are recommended to enhance the effectiveness of stench gas alarm systems and minimise risk of harm to persons working near stench gas activation stations.

Location of stench gas activation stations

- Determine the number and location of stench gas activation stations considering requirements of the site emergency plan, mine layout and ventilation system, presence of hazards and manufacturer's requirements.
- Ensure stench gas activation stations are readily accessible, clearly sign posted and kept in a tidy condition.
- Confirm the installation meets the requirements of the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 (DGSH) and Australian Standard AS 4332 The storage and handling of gases in cylinders.

Installation

- Verify that stench gas bottles are installed to the manufacturer's instructions so the stench gas will fully disperse when activated.
- Confirm that stench gas bottles are within date and are labelled as advised by the manufacturer.
- Confirm that appropriate impact protection measures are in place for all stench gas bottles, activation stations and delivery pipework, from hazards such as vehicles and rockfalls, whether underground or on the surface.
- Inspect, maintain and service stench gas systems as per the manufacturer's requirements.
- Test the stench gas system regularly to ensure that it performs as required.

Instruction and information

- Provide appropriate training to personnel regarding the purpose, function and activation of stench gas systems.
- Provide adequate instructions at the stench gas activation stations to assist in an emergency.
- Check that the safety data sheet (SDS) is available and current.
- Include provision and use of the stench gas systems in the site emergency plan.

Further information

- Standards Australia, www.standards.org.au

AS 4332 The storage and handling of gases in cylinders

This Bulletin has also been issued as Dangerous Goods Safety Bulletin No. 0318 and replaces Mine Safety Bulletin No.148 and Dangerous Goods Safety Bulletin No. 0118.

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