Maintenance of fire protection equipment

Mines safety bulletin no. 155 | 08 September 2016 | Version 1

Background

Mine sites have a multitude of fire hazards – in and around process plants, mobile equipment, conveyor belts, electrical installations, fuel and explosive storage installation areas to mention a few.

Because of the considerable harm potential, fire is often classified as a 'principal' hazard, and fire protection is an important and necessary risk management activity on any mine site.

Fire protection equipment includes both non-gaseous (water, foam) as well as gaseous systems.

Gaseous systems use extinguishing agents – inert gases such as Nitrogen or Argon to displace oxygen, or synthetic gases to interrupt the chemical reactions in a fire event. These gases are stored in specialised, pressurised cylinders connected to a network of discharge pipe work and nozzles that deliver the extinguishing agent to the equipment to be protected. These may also include dedicated fire detection and control systems that automatically discharge should a fire start.

Competencies and licensing

Maintenance on any fire suppression system (liquid or gas) must only be conducted by appropriately qualified and, where required, licensed technicians. Some systems, for example, contain ozone depleting substances, which are governed by additional federal legislation.

For systems that include gases such as FM200, an additional 'Extinguishing Agent Handling license (EAHL)' is required by workers installing, decommissioning, servicing or handling scheduled extinguishing agents.

The requirement for specialist training and licensing of competent workers was highlighted by a recent serious accident. A tradesman at a mine processing plant was helping to dismantle a redundant fire suppression system located in a gantry crane substation. He had assisted with disconnecting, removing and relocating a still pressurized 200 lb. FM-200 fire suppression cylinder to a temporary storage area. As the tradesman was manoeuvring the cylinder by hand it suddenly discharged its contents, becoming a violent projectile and striking the tradesman, who sustained serious chest, leg and hand injuries.

The hazard in this incident was the uncontrolled release of pressure. FM-200 fire suppression cylinders store FM-200 a liquid. The FM-200 is super-pressurised with nitrogen to a working pressure of 25 Bar for instant discharge when activated.

For more information refer to the department's Safety alert 323.

Instructions and gauges/warning devices

Manufacturers of fire suppression systems supply a number of safety labels or information for the safe use and maintenance of the systems. It is important that such labels or information is clearly visible to any worker or person who may need to work on or around the systems.

If a label or relevant information is attached to the devices/equipment in such a way that it is not easily visible, it is advised that an additional label or information be displayed in such a way to ensure that workers are aware of the information.

Pressure gauges and/or level indicators are often installed on high pressure cylinders. If, due to the nature of a system installation the gauge or other indicator cannot be easily read or seen, then it is advised that measures are put in place to ensure that workers can easily access or sight the devices. Examples may include installing a mirror on a wall, adding an extension to a gauge to relocate it to a visible position, or modifying the location for easy access.

What to do next

It is recommend that the department's Safety alert 323 covering the accidental discharge of a fire suppression cylinder is communicated to workers during safety communications on site.

OEM manuals must also be checked to ensure all relevant information is captured, communicated and implemented in operations.

The Queensland Building and Construction Commission has information on qualifications, competencies and licenses required to perform work on the various types of fire systems. Site senior executives should consult these requirements and use them as a guide when determining the necessary training and competency requirements for installation, maintenance and decommissioning of fire suppression systems on their mine.

In addition to general fire system requirements, detailed information on Scheduled Extinguishing Agents in the Mining Industry and licensing requirements can be obtained through the Fire Protection Industry (ODS & SSG) Board.

Download the application forms for EAHL licences and permits.

Please visit the Fire Protection Industry (ODS & SSG) Board and familiarise yourself with the requirements, other available information and reference materials.

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Issued by the Queensland Department of Natural Resources and Mines

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