FACT SHEET | OCTOBER 2017

Fire and explosion risks

Managing fire or explosion risks in underground metalliferous mines

In any workplace, fires or explosions can have catastrophic consequences, which may result in serious injuries or death to workers, as well as creating substantial damage to property and significant business disruption. Managing the risk of fires and explosions is critical as an employer. Fires and explosions are identified in legislation as a principal hazard that must be addressed.

Your obligations

Under the *Work Health and Safety Act 2011*, a person conducting a business or undertaking has the primary duty to ensure, so far as is reasonably practicable, workers and other people are not exposed to health and safety risks arising from the business or undertaking.

The Work Health and Safety Regulation 2017 further prescribes the requirement to manage the hazards associated with flammable gas, vapour, mist or fumes and combustible dust (clause 51).

The Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 requires operations to identify principal hazards and conduct a risk assessment that involves a comprehensive and systematic investigation and analysis of all aspects of risk to health and safety associated with the principal hazard (clause 23).

This Regulation further defines one of the principal hazards as fire or explosion, which has a reasonable potential to result in multiple deaths in a single incident or a series of recurring incidents (clause 5).

The operator of a mine or petroleum site must prepare a principal hazard management plan for each principal hazard (clause 24).

In developing the control measures to manage the risks of fire or explosion these matters must be considered:

- potential sources of flammable, combustible and explosive substances and materials
- potential sources of ignition
- potential for the fast spread of fire or explosion to other parts of the mine or petroleum site
- potential sources of flammable material with a flash point of less than 61° Celsius
- arrangements for the management and control of the transport and storage of combustible liquids
- arrangements for the prevention of fires including early detection and suppression
- equipment for fighting fire
- the arrangements for the management and control of volatile or hazardous materials in underground mines
- procedures to be used for carrying out hot work.

Types of hazards
Fuel sources Fuel sources include gas (naturally occurring and introduced), diesel or petrol, engine coolant, lubricants, hydraulic fluid, sulphide dust, chemicals, explosives, plastics, timber, paper and other carboniferous material such as rubbish and waste.
Ignition sources Ignition sources include frictional ignition, electrical equipment, spontaneous combustion, lightning, maintenance activities (cutting and welding), hot surfaces, chemical reaction, static electricity and contraband.
Hazardous or potentially hazardous areas Hazardous or potentially hazardous areas include workshops, refuelling bays, warehouses, underground workings, confined spaces, explosives magazines, engine bays, bush land, laboratories, electrical switch rooms, spray painting booths, crushing and loading facilities.

Targeted assessment program

The Resources Regulator will conduct a targeted assessment program (TAP) over the next 12 months examining the implementation of critical controls to manage the principal hazard of fire or explosion in underground metalliferous mines. This will include an assessment of the implementation of controls prescribed in legislation.

The Resources Regulator's strategy is to ensure that workplaces are fulfilling their statutory obligations with respect to the identification of fire or explosion hazards and the identification and implementation of risk control measures to prevent or mitigate those risks.

Key assessment areas will include:

- compliance with legislative requirements
- the risk assessment process
- implementation of identified risk controls
- maintenance of identified risk controls
- verification processes to ensure controls remain effective
- control of flammable substances
- control of ignition sources
- training

For more information see the regulator's Targeted assessment program fact sheet.

Additional information

Additional information and guidance on managing risks associated with fire or explosion may be available from the following resources:

- Safety Bulletin 17-02: Mines and preparing for fires (NSW Resources Regulator)
- Safety Bulletin 13-05: Too many underground fires (NSW Resources Regulator)
- Managing Risks of Hazardous Chemicals in the Workplace (Safe Work Australia)
- Fire & Rescue NSW - Guidelines and general information (Fire & Rescue NSW)
- Fire or Explosion in Underground Mines and Tunnels (Worksafe New Zealand)

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