

Fact sheet

Principal hazard — fire and explosion — gas or dust explosion

July 2024



The Resources Regulator has developed a broad-brush risk assessment and a program of bowties to review ‘Principal Hazard’ and ‘Control Plan’ topics.

The bowtie program identified the material unwanted events (MUE) and critical controls to prevent serious injury or death of mine workers.

The bowtie for the ‘Principal Hazard’ topic of ‘fire and explosion’ identified three MUE’s and the critical controls for assessment programs. This fact sheet provides information related to the assessment program focussing on the MUE — uncontrolled gas or dust explosion.

Principal hazard — Fire and explosion (PH0203)

MUE — Uncontrolled gas or dust explosion

MUE critical controls

The Regulators assessment program will focus on the following critical controls to prevent an uncontrolled gas or dust explosion:

- Atmosphere is maintained free from explosive mixtures of gas.
- Atmosphere is maintained free from explosive mixtures of dust.
- Explosion barriers.
- Hazardous area management (including elimination of ignition sources).
- The mine layout is designed to consider gas conditions and propensity for spontaneous combustion.
- Workers are restricted / removed from high-risk areas.
- Equipment design and operation suitable for prevention of frictional ignition event.
- Blast Design

Considerations

Mine operators should consider the material unwanted events above as a minimum and ensure that the review of critical controls to prevent serious injury or death is included within the site principal hazard management plans and associated documentation.

Fact sheet – principal hazard - fire and explosion

Other relevant safety alerts and bulletins published by the Resources Regulator:

Date published	Reference	Title
February 2024	Regulators Annual Report	Fires on mobile plant 2022-23
December 2023	Safety Alert SA23-06	Potential heating of acetylene cylinder raises potential for underground explosion
December 2023	Safety Bulletin SB23-10	Methane gas incidents occurred in NSW coal mines
November 2023	Safety Bulletin SB23-09	Incidents show poor response to tyre fires on heavy earth moving machinery
October 2023	Safety Alert SA23-03	Conveyor tail pulley fire
June 2023	Safety Bulletin SB23-05	Contraband identified in underground coal mines
April 2023	Safety Bulletin SB23-03	Ignition risks from rare earth magnets
February 2023	Safety Bulletin SB23-01	Explosion risk of battery units for underground battery electric vehicles
December 2022	Safety Bulletin SB22-17	Fires on battery powered tools increase
October 2022	Safety Alert SA22-06	Operator unable to activate fire suppression system during emergency
September 2022	Safety Bulletin SB22-12	Fires occurring on mobile manufacturing unit trucks
June 2022	Safety Alert SA22-01	Worker burnt during hot work
October 2021	IIR 21-14	Worker suffers serious burns in underground loader fire
June 2021	Technical Reference Guide	Hot work (cutting and welding) at mines and petroleum sites

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