

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 3 MUEs 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

MUE – Uncontrolled gas or dust explosion

MUE critical controls

The Regulator's 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	Regulator's annual report	<u>Fires on mobile plant 2022-23</u>
December 2023	Safety alert	<u>Safety alert SA23-06 Potential heating of acetylene cylinder raises potential for underground explosion</u>
December 2023	Safety bulletin	<u>Safety bulletin SB23-10 Methane gas incidents occurred in NSW coal mines</u>
November 2023	Safety bulletin	<u>Safety bulletin SB23-09 Incidents show poor response to tyre fires on heavy earth moving machinery</u>
October 2023	Safety alert	<u>Safety alert SA23-03 Conveyor tail pulley fire</u>
June 2023	Safety bulletin	<u>Safety bulletin 23-05 Contraband identified in underground coal mines</u>
April 2023	Safety bulletin	<u>Safety bulletin 23-03 Ignition risks from rare earth magnets</u>
February 2023	Safety bulletin	<u>Safety bulletin 23-01 Explosion risk of battery units for underground battery electric vehicles</u>
December 2022	Safety bulletin	<u>Safety bulletin SB22-17 Fires on battery powered tools increase</u>
October 2022	Safety alert	<u>Safety alert SA22-06 Operator unable to activate fire suppression system during emergency</u>
September 2022	Safety bulletin	<u>Safety bulletin SB22-12 Fires occurring on mobile manufacturing unit trucks</u>
June 2022	Safety alert	<u>Safety alert SA22-01 Worker burnt during hot work</u>
October 2021	Investigation information release	<u>IIR21-14 Worker suffers serious burns in underground loader fire</u>
June 2021	Technical reference guide	<u>Hot work (cutting and welding) at mines and petroleum sites</u>

© State of New South Wales through the Department of Primary Industries and Regional Development 2024. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the Department of Primary Industries and Regional Development as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2024) and may not be accurate, current or complete. The State of New South Wales (including the Department of Primary Industries and Regional Development), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.