Fact sheet

Principal hazard – ROVOA – collision of remote-controlled equipment

May 2025

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 roads or other vehicle operating areas (ROVOA) identified 3 MUEs and the critical controls for assessment programs. This fact sheet provides information related to the assessment program focussing on the MUE – collision of remote-controlled equipment.

Principal hazard – roads or other vehicle operating areas (ROVOA)

MUE – collision of remote-controlled equipment

MUE critical controls

The Regulator's assessment program will focus on the following critical controls to prevent a collision of remote-controlled equipment:

- Separation/segregation (people to vehicles or equipment).
- Fit-for-purpose remote-controlled systems (visual and audible systems i.e. line of site) to machine.
- Software management.
- Fit-for-purpose remote controlled operating system – tele-remote facility/location.
- Provision of effective isolation, energy dissipation and verification.

Considerations

Mine operators should consider the MUE above as a minimum, and ensure that reviewing critical controls to prevent serious injury or death is included within the site principal hazard management plans and associated documentation.

Other relevant safety alerts, safety bulletins and guidance material published or referenced by the Resources Regulator:

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DATE PUBLISHED	REFERENCE	TITLE
May 2025	Code of practice	Code of practice: Electrical engineering control plan
October 2022	University of Queensland report	Human-system integration risk assessment for automation in mining
July 2022	Compliance priority report	Proximity awareness and collision avoidance technology – open cut coal mines
2009 Part 1 & 2 2013 Part 3	Australian standard AS/NZS 4240	Part 1: 2009 – design, construction, testing, installation and commissioning Part 2: 2009 -operation and maintenance - UG METEX Part 3: 2013- operation and maintenance - UG COAL
Historical MDG	MDG5004 Pitzer report	A study of the risky positioning behaviour of operators of remote controlled mining equipment