



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

SAFETY BULLETIN

Free-steered vehicles used in underground coal mines – electrical circuits

INCIDENT

Incidents have occurred at coal mines on flameproof free-steered vehicles where electrical faults have not been detected and cleared by electrical circuit protection.

CIRCUMSTANCES

Lighting circuit cables have been damaged and intermittent arcing has been noticed. The electrical protection installed failed to detect the faults as the magnitude of the fault current was similar to the normal load current.

INVESTIGATION

Inspection and maintenance regimes had failed to identify defective cable installations on the free-steered vehicles.

Regimes of increased inspection and improved mechanical protection of cables have not prevented further incidents occurring.

Electrical protection could not detect and clear faults that were reasonably foreseeable.

The incidents resulted in the development of alternator-based protection systems that can detect such faults and disconnect the supply to the faulted circuit.

RECOMMENDATIONS

All users must review the electrical installations on flameproof free-steered vehicles. The review should consider:

1. Installation of electrical cables and components such that they are protected and located to minimise the risk from foreseeable damage.

2. The suitability of the electrical protection to detect and clear faults that have the potential to cause incendive arcing.
3. Installation of reliable protection systems that can detect intermittent arcing faults and disconnect the electricity supply as quickly as possible.

NOTE: Please ensure all relevant people in your organisation receive a copy of this Safety Bulletin, and are informed of its content and recommendations. This Safety Bulletin should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

Signed



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