Mines Safety Bulletin No. 177

Subject: Installation and maintenance of temporary generators

Date: 10 August 2020

Background

Temporary generators are often used on mine sites to provide short-term electricity supply during construction, shutdown or breakdown situations, or where a permanent electricity supply is not available. From 2014 to 2019, 24 electrical incidents involving the maintenance or testing of temporary generators occurred on Western Australian mine sites. In the same period, mines inspectors identified 28 defects related to temporary generator installations.

The reported electrical incidents and defects mainly relate to the following categories:

- Earth faults
- Inadequate cable installation
- Ineffective residual current devices
- Wet environment
- Battery explosion/fire
- Housekeeping

Poor housekeeping standard at a temporary generator installation.

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Summary of hazard

- The risk of harm from electric shock, due to:
  - dangerous touch potentials on equipment, as a result of inadequate earthing
  - cable damage, as a result of inadequate mechanical protection (poor installation standards)
  - faulty or ineffective circuit protection devices (poor maintenance and testing standards).
- The risk of harm from explosion, fire or acid burns from the poor installation, maintenance or storage of batteries. This risk is further elevated during battery charging and jump-starting operations.

Contributory factors

- Temporary generators not installed in accordance with the requirements of AS/NZS 3010 Electrical installations – Generating sets.
- Cable installations not installed in accordance with AS/NZS 3000 Electrical installations – Wiring rules.
- Circuit protection devices not adequately inspected, tested or maintained.
- Installation, maintenance and testing of batteries not carried out in accordance with original equipment manufacturer (OEM) requirements.

Actions required

The Department recommends the following actions are taken.

- In all generator installations, equipment must be installed in accordance with AS/NZS 3000 and AS/NZS 3010. Cables must be appropriately rated for the expected operating conditions, fixed in position and protected from damage.
- Inspect all temporary generator installations. Immediately remove from service any installation that does not comply with AS/NZS 3000 and AS/NZS 3010.
- Ensure all circuit protection devices are tested and verified to operate effectively. Ensure ongoing inspection and testing is conducted to ensure the continued effectiveness of circuit protection devices, and the safe condition of wiring.
- Ensure that temporary generators are maintained in accordance with the requirements of the OEM recommendations and relevant Regulations and Standards.

Further information

- Department of Mines, Industry Regulation and Safety

  Mines Safety Bulletin No.149 Hazards associated with batteries
  www.dmp.wa.gov.au/Documents/Safety/MSH_SB_149.pdf

This Mines Safety Bulletin was approved for release by the State Mining Engineer on 10 August 2020