BRITISH COLUMBIA | Ministry of Mining and Critical Minerals

HAZARD ALERT

Number 22 Mines Health, Safety and Enforcement Division: Mine.Safety@gov.bc.ca May 2026

Electrical Shock in Mines

Over the past year, there has been a steady increase in electrical shock-related incidents in BC's mining sector, including high-potential near misses and incidents causing major injury and death. The following are some of the incidents from the past 12 months:

- An electrician suffered serious injuries after receiving a high-voltage shock that travelled from one arm, across the chest, and out the other arm.
- An electrician was fatally electrocuted while working in an electrical substation.
- An electrician received an electrical shock while servicing a haul truck's DC panel, resulting in medical aid.
- An electrician received an electrical shock while servicing a cable for the hoist at a splitter box, resulting in medical aid.

Electrical Shock Hazard

Electrically powered equipment poses a significant risk to workers. Even a simple task can be extremely hazardous if the equipment isn't de-energized or handled properly. Contact with "hot," "energized," or "live" components can cause serious injury or death. Many electrical devices used in mining operations operate at high voltage and draw large amounts of power, significantly increasing the risk of serious injury.

Electricity presents a serious risk to worker health and safety, including electrocution (fatal shock), electric shock, burns, and secondary injuries (e.g., from a fall). Electrical shock occurs when the body becomes part of an electrical circuit by contacting energized parts, ground, or conductive materials. Injury severity from electrical contact depends on several interacting factors: the amount of electrical current that flows through the body, which is determined by the system voltage and the resistance of the body at the point of contact, the path the current takes through the body, the duration of exposure, and whether conditions are wet or dry. Even relatively small currents can produce effects ranging from mild tingling to severe burns or cardiac arrest, because most electrical systems can deliver extremely high current levels once a person becomes part of the circuit.

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Recommendations

- Conduct pre-job hazard and risk assessment before starting all tasks or if the task changes.
- Prioritize hazard elimination, such as isolating the electrical supply, over other control measures.
- All energy sources must be verified de-energized.
- Use the "Prove-Test-Prove" method to reduce exposure to energy-related hazards. If unsure of isolation requirements, stop work until the requirements are confirmed.
- Ensure that Safe Operating Procedures (SOPs) are fully developed, implemented and accessible to all workers. Work procedures or work instructions should be available at the point of use, and supervisors should ensure that workers clearly understand these procedures and consistently comply with them.
- Ensure that SOPs and single-line diagrams are updated whenever operational conditions change, modifications are made to electrical installations, or applicable regulatory requirements are revised.

General Regulatory Reminders

The following Health, Safety, and Reclamation Code for Mines in BC requirements are some of the regulations that must be considered when working around electrical installations and conductors:

Health and Safety Program – s.1.6.9 (1): The manager shall develop a mine health and safety program which includes: (c) safe working procedures on a departmental basis**.**

Workplace Conditions – s.1.9.1: The manager shall (1) take all reasonable and practicable measures to ensure that the workplace is free of potentially hazardous agents and conditions which could adversely affect the health, safety, or well-being of the workers.

Training – s.1.11.1: The manager shall ensure that workers are adequately trained to do their job or are working under the guidance of someone who has competency both in the job and in giving instruction, and ensure that all employees receive thorough orientation and basic instruction in safe work practices.

Codes and Standards – s.5.1.1: All electrical equipment shall be installed, maintained and operated in accordance with CSA Standard M421 Use of Electricity in Mines, in conjunction with the Canadian Electrical Code, as amended from time to time.

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Resources

- MCM – Hazard Alerts and Health and Safety Notices
- MSHA – Electrical Safety Alert
- WorkSafeBC – Working Safely Around Electricity
- BC Hydro – Electrical Safety Training