



# SAFETY ALERT

## SERIOUS ELECTRIC SHOCK INCIDENT

### INCIDENT

An electrical service engineer was rendered unconscious when he received multiple electric shocks and suffered burns to the head, right arm and left hand. An electrician discovered the victim, isolated power and called for first aid assistance. The victim was stabilised by site first aiders and then by ambulance officers. The victim was transported to hospital for an ECG and observation. The victim's injuries have required ongoing medical treatment including a skin graft and a substantial loss of work time.

### CIRCUMSTANCES

The electrical service engineer was engaged to convert field devices from low voltage to extra low voltage as part of a mine wide initiative to reduce potential for electric shock. The electrical service engineer commenced preliminary work of installing cables external to an electrical enclosure.



While working alone the electrical service engineer opened an enclosure containing energised circuits in order to draw the cables into the enclosure. He made contact with a direct current source of 460 volts.

#### **Picture 1.**

*The photograph at left is a re-enactment of the position where the victim was prior to and after receiving multiple electric shocks. A DC contactor and bus bars are in the immediate vicinity of the victim's head and right hand.*

### INVESTIGATION

The electrical service engineer had discussed the job with a site supervisor and a plan was developed to install field wiring in the first instance. In addition, a future time was arranged to isolate the equipment to install electrical components within the enclosure. Unfortunately the victim chose to open the enclosure and to work in proximity to the energised conductors without isolating the power supply.

Contributing factors include:

- The electrical enclosure was not locked. Access to the locked doors of the building housing the enclosure is restricted by issue of keys to authorised people.
- A sign on the door of the enclosure advised persons not to enter enclosure “unless authorised”.
- The electrical service engineer has performed periodic electrical maintenance and repairs on the equipment for more than 25 years.
- An engineering scope of work, isolation schedule and safe work procedure were not prepared for the work on this occasion.
- The requirements of the mine’s Contractor Management Plan and Isolation Rules were breached.

## RECOMMENDATIONS

1. Mines should review work practices and ensure work is not undertaken in close proximity to exposed energised electrical conductors.
2. Mines should review contractor management and ensure that documented scopes of work and appropriate supervision are provided.
3. Mines should ensure electrical enclosures are properly secured against unauthorised access. Note only competent electrical trades people or engineers should be authorised to open electrical enclosures.
4. Mines should apply the Guidelines for the Safe Use of Electricity in NSW Mines, MDG 2004 to enhance electrical engineering safety. This document provides guidance for prevention of electric shock and burns. Additional reference material is contained in Workcover Industry Code of Practice “Low Voltage Electrical Work”.



**BILL BARRACLOUGH**  
**A/AREA MANAGER – SOUTHERN**  
**NSW DEPARTMENT OF PRIMARY INDUSTRIES**

<sup>1</sup> Available for purchase:

[www.minerals.nsw.gov.au/prodServices/publications/mine\\_safety/safety/Guidelines\\_for\\_the\\_Safe\\_Use\\_of\\_Electricity\\_in\\_NSW\\_Mines](http://www.minerals.nsw.gov.au/prodServices/publications/mine_safety/safety/Guidelines_for_the_Safe_Use_of_Electricity_in_NSW_Mines)

<sup>2</sup> Available on line: [http://www.workcover.nsw.gov.au/NR/rdonlyres/D7FFBAC5-3243-4F43-9376-79A0149459E7/0/cop\\_lowvolt\\_964.pdf](http://www.workcover.nsw.gov.au/NR/rdonlyres/D7FFBAC5-3243-4F43-9376-79A0149459E7/0/cop_lowvolt_964.pdf)

View more safety alerts at [www.minerals.nsw.gov.au](http://www.minerals.nsw.gov.au). If you would like to receive safety alerts by email, send your details to [safetyalert@minerals.nsw.gov.au](mailto:safetyalert@minerals.nsw.gov.au).

Mine Safety Report No:	SA05-06
File No:	05/1475
Comet ID:	317519740001
Prepared by:	R Kennedy
Date Created:	13 APRIL 05