

# SAFETY ALERT

## Electrician receives arc flash burns

### INCIDENT

An electrical tradesman received severe burns to both hands and left forearm when he turned on a circuit breaker to conduct phase voltage tests.

### CIRCUMSTANCES

A replacement circuit breaker had been installed on the previous shift. The following shift was assigned the task of terminating the circuit breaker output cables and recommissioning the circuit breaker and drive motor. Whilst conducting this work an electrician decided to test the continuity of each phase of the circuit breaker by closing the circuit breaker and testing for voltage prior to re-terminating the load side cables. As the circuit breaker closed an arcing fault occurred between two of the output terminals.

### INVESTIGATION

The investigation found that the cubicle door had been open prior to the 415V circuit breaker being closed. The electrician had placed himself to the side of the cubicle, before he rotated the switching shaft using a shifting spanner. It appears that the loose terminal cable clamps on the load side of the circuit breaker have come in contact with each other and an arc flash has resulted. The electrician did not receive an electric shock.



## RECOMMENDATIONS

- Clause 208 of the *NSW Occupational Health and Safety Regulations 2001* requires that an employer develop and implement safe work procedures for live testing.
- When determining work practices, test equipment and PPE for live testing, reference should be made to relevant standards, including **AS/NZS 4836 - Safe working on or near low-voltage electrical installations and equipment**, for guidance.
- Live testing should only be conducted when there is no effective testing technique that can be undertaken while the equipment is de-energised.
- Any testing method shall minimise the need for worker interaction with exposed, energised conductors.
- Creepage and clearance distances for electrical cabling systems should be verified as being suitable for the rated voltage of the installation.
- Mining operations should review safety alert [SA05-06 'Serious Electrical Shock Incident'](#)

**NOTE:** Please ensure all relevant people in your organisation receive a copy of this Safety Alert, and are informed of its content and recommendations. This Safety Alert 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**



**Rob Regan**  
**DIRECTOR**  
**MINE SAFETY OPERATIONS BRANCH**  
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