



**DEPARTMENT OF MINERALS AND ENERGY
WESTERN AUSTRALIA**

SIGNIFICANT INCIDENT REPORT NO. 68

ELECTRICAL TEST INSTRUMENT – SERIOUS ACCIDENT

INCIDENT

An electrician was seriously burned by an ionisation “flash-over” which developed when he applied the test leads of a digital multimeter across the phases of 660 AC volt busbars.

CAUSE

The accident was caused by a short-circuit which resulted from an insulation failure within the test instrument. The insulation failure occurred between the connections of the input terminals to a printed circuit board.

COMMENTS AND PREVENTATIVE ACTION

The cause of the insulation failure has yet to be determined. However, examination of the instrument did reveal the following concerns:

- the 1000 AC volt marking of the range selector and the MAX 1000 AC volt warning at the input terminals, related to “peak” and not “rms” values (1000 V_p – 707 V_{rms}).
- after removal of the instrument’s front cover to change batteries, the cover could be replaced with the range selector switch in any one of five incorrect positions.

Electrical workers should take heed and immediately check their instruments/instructions and determine whether the abovementioned concerns apply.

In the absence of any specific Australian Standard, electrical test instruments should conform with IEC Publication 1010 (formerly IEC348), or equivalent.

J M Torlach
STATE MINING ENGINEER

3 September 1996

SAFETY AWARENESS SAVES LIVES