



# SAFETY ALERT

## Electric Shock Results from Ineffective Earthing

### INCIDENT

An incident investigation involving a phase to earth fault on 1000 volt equipment in the hazardous zone at an underground mine identified ineffective earth connections in a restrained cable plug (SA06-05). Subsequent to this incident, the mine returned cables to an approved cable repair workshop.

Eighteen plugs were inspected.

Eight were found to have an extremely poor connection between the plug nose cone and the internal earthing ring.

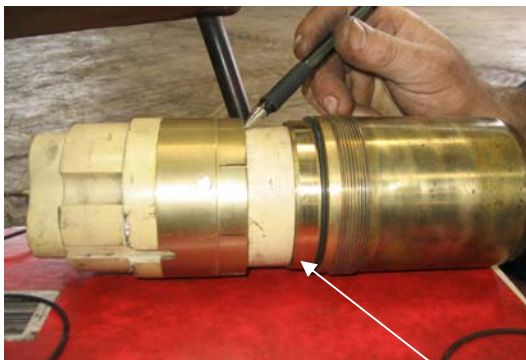
Nine were considered to have a poor connection.

### CIRCUMSTANCES

The scraping earth connection between plug earth sleeve and receptacle body was not continuously effective.

### INVESTIGATION

The cable plugs were disassembled and the earth sleeve was found to have an unreliable contact with the earth ring attached to the moulded interior.



*Earth contact points shown separated*



*Earth contact points shown joined*

The plug is manufactured by "CMI Electrical Products" and is a 300A 660/1100V Restrained Trailing Cable Plug with Integral Gland (Cat no. AF31/64SB3).

The manufacturer of the plug has developed a solution to give a much improved earth connection.

## RECOMMENDATIONS

1. Mines need to immediately implement a program of returning cables with this product attached, to an approved cable repair facility and have defective earth termination rings and earth sleeves identified and replaced.
2. The program must be completed as soon as possible.
3. Mines need to review the implementation of the recommendations contained in SA06-05

Further information on plugs and receptacles can be obtained from DPI web site [www.minerals.nsw.gov.au](http://www.minerals.nsw.gov.au).

**Signed**



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**NSW DEPARTMENT OF PRIMARY INDUSTRIES**

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