

# SIGNIFICANT ELECTRICAL SAFETY INCIDENT ADVICE



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DATE OF ACCIDENT/INCIDENT: 22/11/03 DATE OF INITIAL TRANSMISSION: 06/04/04	esaa NUMBER: 02/2004 esaa DATE OF TRANSMISSION: 06/04/04

**Brief Description of Accident/Incident (include voltage):**

During normal service a 66kV Current transformer, Tyree type 06/66/16 failed explosively, scattering porcelain throughout the switchyard. The fault was interrupted successfully by the bus bar protection. It was the first time that a unit of this type had failed explosively.



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### Extent of Injury/Damage

There were no injuries to staff or public. Damage was sustained to the adjacent CT and circuit breaker.

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### Local Action Taken:

The CT had recently undergone routine Insulation Resistance (IR), Dielectric Dissipation Factor (DDF) and Capacitance testing. The results were not as favourable as those for the family of 27 that had been tested up until that time. Some others had their DDF / DLA test terminals modified due to deterioration, but this had not been required for the failed unit. On site Insulation Resistance, Dielectric Dissipation Factor and Capacitance tests were performed on all other units not tested in the previous six months, together with oil sampling. Units have been taken out of service or have been roped off, where both IR is below 40Gohm and DDF above 0.6 and Capacitance greater than 360, or when DGA includes greater than 30ppm Methane, 10ppm Ethylene or 50ppm Ethane. Subsequent laboratory tests of some units has proved the susceptibility of the site electrical tests to insulation cleanliness and moisture, together with the integrity of the DLA test terminal and connection insulation.

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### Additional Comments:

This type of CT was manufactured in the mid 1970's.

The cause of failure is inconclusive, and further investigations are underway to help determine whether other CTs with poor tests results indicate if the failure could be associated with a faulty DLA tap connection to earth.

These units have a glass oil sight bulb at the base. This was broken on the failed unit, which may have been the result of internal pressures, or if vandalised or otherwise, loss of oil could have been the cause of failure as there was arcing damage to the upper portions of the hairpin primary conductor.

In the meantime, it is recommended that the integrity of DLA connections be checked where there is a possibility of corrosion due to dissimilar metals.

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### FURTHER INFORMATION - CONTACT:

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