



Safety Bulletin



To: All operational staff and contractors

From: Mark Elliott, Operations Assurance Manager

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Inadequate testing results in operational events

We have had two recent events that highlight the requirement to identify phase and neutral connections correctly and undertake appropriate testing prior to connecting customers or apparatus.

1. Reversed polarity from mobile generator results in electric shock.

A 40KVA single phase mobile, trailer type, generator was connected to surface wiring at a house where PNB earthing is employed.

The operator did not adequately identify and uniquely mark the neutral conductor at the surface wiring or adequately install the temporary earth stake from the generator, as a result, crossed polarity was imposed to the premises. This resulted in the network earth stake becoming live which led to the customer's dog receiving an electric shock.

The generator utilised the network earth rod (low resistance) rather than the substandard generator earth stake (high resistance) as the neutral reference such that the generator energised the neutral and earth connections, crucially including the network earth stake that resulted in the electric shock.



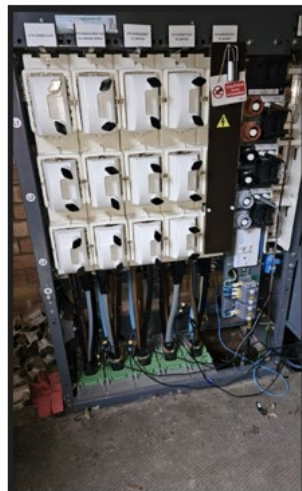
Earth Stake installed incorrectly.



Polarity of surface wiring not identified or marked.

2. Failure to confirm neutral results in failure of monitoring apparatus.

An operative was fitting Alvin Guard monitoring apparatus to an LV board. The leads were not long enough to install at the preferred position, so the operator moved to the rear of the LV board. The operator assumed the neutral connection via its colour rather than undertaking appropriate testing which resulted in line voltage instead of phase voltage being applied to the apparatus causing its failure.



How could this have been prevented?

These events highlight the requirement for operators to positively identify via testing and/or uniquely marking phase and neutral conductors such that there shall be no doubt regarding their identification before connecting customers or apparatus.

What we want you to do.

All authorised persons operating on the Low Voltage network shall adhere to the requirements of the Distribution Safety Rules (DSR) and Operational Practice Manual (OPM), in particular the relevant extracts appropriate for these events are

- **DSR 8.1.6**

Where work or testing involves the initial connection, or the re-arrangement of **Conductors** to a consumer, supply **Shall** not be commenced or recommenced to that consumer until checks have been made at an appropriate point on the **System** to ensure correct polarity at the supply terminals. Where necessary, in the case of three-phase supplies, the phase rotation **Shall** also be checked.

- **DSR 8.1.8**

When work or testing on the **Low Voltage System** is planned, precautions **Shall** be taken to safeguard the integrity of the **Low Voltage System** and in the process prevent, so far as reasonably practicable, **Danger** to Third Parties,

- **OPM OC4 (f)**

Procedure for energising Low Voltage Apparatus and Conductors:

f. Check for polarity, earth loop impedance, phase rotation (for 3 phase) and correct operation.

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