



Safety Advice 18-2008 (NZ)

Induction shock – de-energised line work.

Two lines work crews working two structures apart on a twin circuit line were working on one of the circuits under an access permit, the other remaining in service for the duration of the work.

The work was removal of a temporary deviation line and reinstatement of jumpers to restore original connections in the circuit being worked on. The relationship between the two work crews was that both were performing different tasks required to achieve the overall objective of deviation removal and original circuit reinstatement. Although not specifically planned this way, or discussed, the work crew tasked with restoring the circuit connection was depending for one set of earths on a temporary earthing arrangement provided by the other work crew two towers away. However this work crew, unaware of this dependency, removed the temporary earths at their location once their task was complete. Meantime the crew reconnecting the circuit jumper continued its work unaware of the earth removal. At this juncture, a line man in the crew doing the jumper re-connection, working from a crane-mounted suspended work platform, was holding the connected jumper preparatory to completing the circuit reconnection. No bonding was in place between the broken circuit ends, and with the temporary earths at the adjacent position (two towers away) removed, one end was subject to an induced voltage, thus creating a risk exposure which should have been managed in accordance with SM-EI rule 3.603 g. At this point a wind gust caught and drove the work platform towards the other (unearthed) end of the broken circuit. The line man, still holding the jumper in one hand, used his free hand to fend off the other end of the broken circuit, and suffered a serious induction shock.

The subsequent investigation highlighted a range of issues:

- Inadequate planning;
- Lack of clear communication
- Lack of ownership by key personnel
- Failure to adhere to industry requirements.

Specific among these included:

- Job manager assumption that the two work crews would discuss the earthing arrangements before the job;
- Site supervisor assumption that the earths applied would remain in place until work at both structures had been completed;
- Failure to anticipate the conditions and maintain positive control over the suspended work platform;
- Failure to meet the earthing and bonding requirements at a break in the conductor.

This is a classic case of immediate and underlying causes and areas for management control coinciding to cause what could have been a fatal incident. The EEA advises all recipients to ensure that their planning, supervision and communication processes have sufficient rigour and application to effectively control known and likely risks associated with the job. This Advice provides a useful case study towards this end.

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