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Live 11kV Cable Arc Flash Incident

On Friday 6 April 2018 a Northern Powergrid Jointsman used a ratchet cutter on what he believed to be a dead HV cable. The cable was in fact live and the resulting 11kV flashover caused significant injuries to the jointsmans hands. The Jointsman was wearing two layers of arc flash / flame retardant clothing which prevented injuries to the rest of his body. The immediate response from his colleagues on site was excellent. First aid was given quickly and an emergency burns pack applied to his injured hands and the emergency services contacted. The Jointsman was kept in hospital overnight and discharged the following day. We are maintaining close contact with him as he recovers at home and we hope to see him back at work soon.



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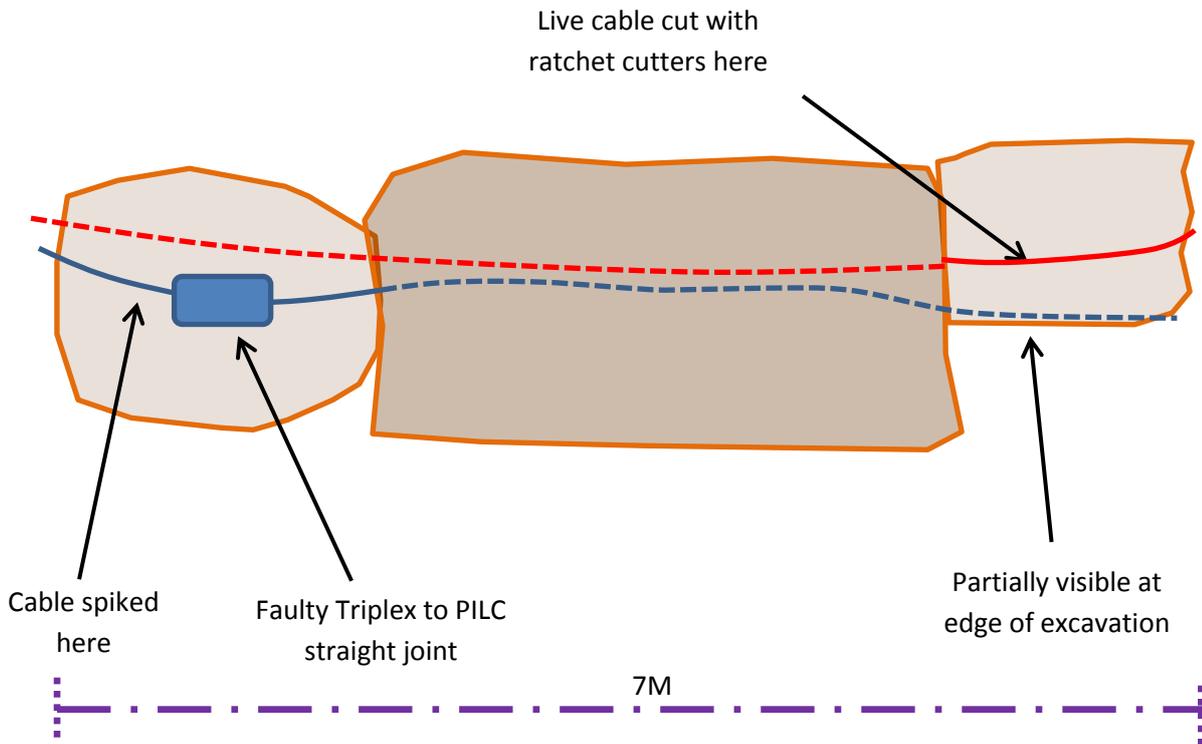
INTERNAL



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The investigation into this incident is ongoing but it is appropriate to share more information with you.

The work involved a planned 11kV cable fault repair. The faulty section of cable had been correctly isolated and earthed. Two joint bays had been excavated fully exposing a single 11kV cable in each with a partially excavated cable trench between the two bays. A cable had been identified and spiked under a Sanction for Test in one of the joint bays. A Permit to work was issued for removal of the spike gun and cable jointing. In the second joint bay the live 11kV cable was cut.



Dead - Thornaby Woolco to Thornaby Rhodes 11kV Feeder

Fully exposed and visible —————
 Underground and not visible - - - - -

Live - Thornaby Trenchard North to Thornaby Trenchard 11kV Feeder

Fully exposed and visible —————
 Underground and not visible - - - - -



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Without preempting the outcome of the investigation, it is appropriate to remind operational staff of the rules and responsibilities, under the Distribution Safety Rules (DSR) and the Operational Practice Manual (OPM), when working on, or setting people to work on our underground HV cable network.

Distribution Safety Rules (DSR)

4.1 GENERAL REQUIREMENTS

All **High Voltage Apparatus** and **Conductors**, including those that are damaged or have faulted, **Shall** be treated as **Live** unless they have been made safe in accordance with Rule 4.1.1.

4.1.1 Subject to the exceptions stated below and those expressly permitted by individual Rules, no person **Shall** undertake any repair, maintenance, cleaning, alteration or such work, on or within the **Safety Distance** of an exposed **Conductor** or on any part of a **High Voltage System** unless such parts of the **System** are:

- *(e) identified at the point of work by **Approved** means; and
- *(f) released for work and the measures taken under this rule are formally communicated to the **Working Party**, using an **Approved** Procedure which involves the issue of appropriate **Safety Documents** which **Shall** not be issued unless the issuer and the recipient are fully conversant with the precise parts of the **Systems, Apparatus** and **Conductors** to be worked upon, the nature and also the extent of the work to be done and the safety precautions to be taken.

5.9 HIGH VOLTAGE CABLES

*5.9.2 Before issuing a **Permit-to-Work** for work on a **High Voltage** cable, the **Senior Authorised Person**, in addition to the procedure of Rule 4.1.1 **Shall**, by the use of **Approved** spiking procedures or other **Approved** means, at the point of work identify the cable to be worked on and then prove it **Dead**. The **Control Engineer** **Shall** be informed before and immediately after any cable is spiked.

Section 9 RESPONSIBILITIES OF PERSONS

9.4 SENIOR AUTHORISED PERSONS

9.4.4 When issuing a **Safety Document**:

- (i) fully explaining the contents of the **Safety Document** to the recipient and ensuring that the recipient understands the nature and extent of the work or testing to be done and the safety precautions to be taken;

Operational Practice Manual (OPM)

WC3 High Voltage Cables

WC3.2 **Approved** exceptions. The cable need not be spiked:

WC3.2.1 Where the cable can be traced visually or using a 'running noose' to a point where the **Conductors** are **Earthed**.

Further briefing material will be provided regarding this incident as the investigation continues.