

Lessons Learnt from a Formal Investigation



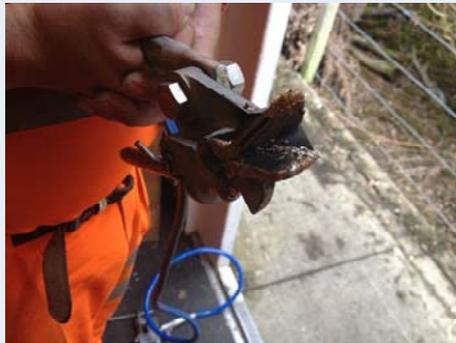
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Title: Feeder Station Isolation Irregularity, Milton Fen, 23 August 2013

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Voltage transformer and local earth showing electrical arc damage

Overview of Event

- In the early hours of 23 August 2013 a team of maintenance staff from Romford and Tottenham depots were undertaking work to replace roof-mounted ceramic bushings at Milton feeder station, north of Cambridge.
- Following isolation of the overhead line, an isolation of half of the building was taken; the other half was still electrically live and being supplied from the adjacent UK Power Networks substation.
- Once the Permit to Work had been issued, a Distribution Technician made preparations to disconnect one of the bushings from the “B” section busbar. In accordance with Distribution Work Instructions he used an additional local earth. As he brushed one end of the lead across the busbar an arc flash occurred as the busbar – still electrically live at 25kV– was shorted to earth.
- He suffered a large flash burn to his right hand and arm, a second technician, suffered minor flash injuries to his left arm.

Underlying Causes: Isolation Planning

- The planning and checking of the Milton feeder station electrical isolation lacked the necessary rigor and attention to detail. This resulted in significant errors and important information omitted from the Isolation Detail Form.
- The isolation encompassed only the minimum necessary to undertake the work. Although it would have been possible to have isolated the entire feeder station with alternative switching arrangements being applied.

Behaviours

- The isolation was not correctly implemented.
- On the night of the accident there was a lack of leadership and cohesion within the maintenance team.

Emergency Preparedness

- Emergency services attended the wrong location due to confusion regarding the actual location of Milton feeder station.

Key Message: Consistent, detailed and diligent HV building electrical isolation planning has to be matched with detailed and diligent HV building electrical isolation on-site implementation if it is to ensure the health and safety of colleagues whose work is dependant upon it.