

Shared Learning

The Thameslink Programme

Issue Date: 15th March 2017 – For further info contact mike.netherton@networkrail.co.uk

Issue Number: TLP 072

Title: Unclear Substation Isolation Arrangements

Overview of Event:

On 15th December 2016 a team of electrical engineers undertaking works on low voltage (LV) equipment, during a planned HV Outage, at Lewisham Sub-Station. Whilst working they were alerted by Network Rail Maintenance that the transformer being worked on was still “live” as the residual energy had not been discharged when the supply was isolated. They were within 500mm of a Bus Bar holding the residual voltage.

Works were immediately stopped - Lewisham Electrical Control Room (ECR), Network Rail E&P Maintainer & Network Rail Project Staff were notified of the occurrence. An assessment of the potential risks from electrocution was made and works resumed, with only the Senior Electrician in a controlled environment undertaking the works, with direct supervision from Network Rail Maintainer holding Level A competence.

Underlying Causes:

- There was no HV (high voltage) assessment for the working environment
- There was a lack of pre-construction information provided for the works
- The NR Standard was not strictly followed and was vague around LV works in HV areas
- Isolation Forms gave no information about competent resources
- The WPP (Work Package Plan) was generic and not specific for the work, location and safety controls required
- Communication & briefing was poor by the contractor and NR Level A, particularly around working restrictions and the use of equipment
- Supervision and competency arrangements were not clearly documented/defined
- The Isolation process for the contractor’s work was not clear
- Co-ordination overall was inadequate including the CDM arrangements

Actions Taken As a Result of Investigation:

- NR Standard NR/L3/ELP/21067 to be expanded to cover instances where work is carried out on low voltage panels within high voltage compounds or raft sites
- The project management team to develop a written process for isolation planning
- Greater understanding of the need for HV assessments and parties responsible for provision
- Implement a detailed request form when utilising NR maintenance Level A/B/Competent person services
- More robust Principal Contractor involvement in planning contractors work
- Improvement in the project management support structures at contractor level to manage LV activities including the provision of work/site specific Work Package Plans and Task Briefing Sheets
- NR maintenance to challenge working parties have the correct level of competence
- NR Maintenance to review works undertaken by 3rd parties within substations and where possible assist with HV assessments

General Key Messages:

- The request process for HV shutdowns must be robust and communicated appropriately at all levels
- The limits of the HV permits must be communicated and understood by all personnel working within the area where a shut-down takes place
- The required level of competence to undertake specific roles must be appropriate to low or high voltage works including HV shutdowns
- Work Package Plans and Task Briefing sheets should be specifically detailed for work being carried out
- Principal Contractors processes should be robust and clear in coordination and planning of contractors work

Work Area Within Lewisham Sub-Station

