Electrical safety

Executive summary

The integrity of Electrical Assets is important to prevent people from being killed or severely injured from direct contact with electricity or as a result of fires or explosions due to catastrophic failure of assets. Most electrical accidents occur because people are working on or near equipment that is:

- Thought to be dead but which is live.
- Known to be live but those involved do not have adequate training or appropriate equipment to prevent injury, or they have not taken adequate precautions.

The rail sector has a high proportion of electrical assets that predate current legislation concerning electrical safety. It can be very challenging to make retrospective changes to these legacy assets in order to improve safety and promote better compliance with legal requirements. Even when constructing 'new' electrification schemes, there remain considerable potential barriers to meeting legal obligations when assets are being overlaid onto existing infrastructure. It is only when building from scratch (HS1 and HS2 for example) that it becomes easier to design in optimal arrangements for risk control and legal compliance.

ORR's strategic approach acknowledges these challenges. We have adopted a targeted, prioritised and proportionate plan to secure the greatest improvements to risk control and enhanced legal compliance. We have supported the mainline network in developing a programme to enhance safety at electrical assets. This includes improving procedure and process where necessary until technological change can be introduced. We have enforced on Network Rail infrastructure to promote the best working processes as interim controls.

It is recognised that when carrying out maintenance on a busy section of electrified railway it can be disruptive to apply and secure isolations by traditional means. Application of technological developments has eliminated the need for the manual isolation processes and has the added benefit of increasing the time made available work.

ORR's strategy for regulating the risks that arise from working on or near to electrical assets is to promote the elimination of the risk of working near such assets, followed by the implementation of engineering controls supplemented with robust safe working procedures. Suitable assurance activities will need to be embedded in these work procedures to ensure compliance.

The ORR will

- Continue to monitor the progress made with the application of enhancements to the rail infrastructure and standards identified by Network Rail's Electrical Safety Delivery Program. We will promote the realisation of its vision of introducing fundamental changes over a three Control Period timespan.
- Ensure that Network Rail continues to review and improve its methods and rules for working on or near to electrical assets, including adopting technology that reduces reliance on human performance and learning from other sectors where appropriate.
- Maintain pressure on industry to continue to improve asset integrity and resilience. This will reduce future disruptive failure and minimise potentially unsafe conditions.
- Engage with London Underground to appreciate how it is addressing and mitigating risks associated with ageing assets. We need to understand how what is being implemented in both the short term and over a longer timeframe is suitable and sufficient. Where necessary we will require strengthened arrangements to maintain risk control.

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