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6 October 2017



Mr Andrew Hall  
Deputy Chief Inspector of Rail Accidents  
Cullen House  
Berkshire Copse Rd  
Aldershot  
Hampshire GU11 2HP

Dear Andrew,

**RAIB Report: Train driver receiving a severe electric shock at Sutton Weaver, Cheshire, 23 September 2014**

I write to provide an update<sup>1</sup> on the action taken in respect of recommendation 2 addressed to ORR in the above report, published on 24 June 2015.

The annex to this letter provides details of the action taken regarding this recommendation, the status of which is now '**Implemented**'. We do not propose to take any further action in respect of the recommendation, unless we become aware that any of the information provided becomes inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 6 October 2017.

Yours sincerely,



Oliver Stewart

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<sup>1</sup> In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

## Recommendation 1

*The intent of this recommendation is to minimise the occurrence of broken auxiliary wires on Mk 1 compound catenary OLE to reduce the potential for people to receive electric shocks.*

Network Rail should revise its work instructions so that inspection staff are aware of what to look for, including possible fatigue damage precursors as found during the metallurgical examinations of this investigation, and during the inspections Network Rail has already carried out (paragraph 99a).

It should produce a plan for the extension of its current detailed examinations of auxiliary wires close to, and within, protective sleeves to identify and rectify broken and damaged wire strands and protective sleeves on all of its Mk 1 compound catenary. Following this, its routine inspections should include this additional examination.

### ORR decision

1. Network Rail have reviewed their management of auxiliary catenary and have instigated a revised high level inspection regime to improve the identification of potential failure associated with the auxiliary catenary before they occur to manage the short term risk. They have also re-evaluated the system risk and reliability posed by auxiliary catenary and have taken the decision to remove the auxiliary catenary over the medium term as part of their campaign change programme for overhead line. These actions address the RAIB recommendation and will lead to the eventual elimination of this risk.

2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- Has implemented their intended actions<sup>2</sup>

**Status: Implemented.**

### Previously reported to RAIB

3. On 21 April 2016 ORR reported that it notes Network Rail's plan to improve its work instructions for high level inspection of OLE. However, whilst Network Rail has indicated that work to implement this recommendation will be completed by 31 December 2016 no detailed plan has yet been provided in support of this

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<sup>2</sup> It should be noted that whilst the revised inspection plan has been implemented and auxiliary catenary removal included as a recognised campaign change, it will take several control periods for all the auxiliary catenary to be removed.

expectation. ORR has asked Network Rail to provide more details about prospective timescales.

## Update

4. On 15 February 2017 Network Rail provided a closure statement and supporting evidence. The closure statement included the following summary:

*The requirements in standards to inspect auxiliary catenary have been reviewed and as a result the Overhead Line Equipment Work Instructions, NR/L3/ELP/27237, have been updated. Although the requirement to inspect the auxiliary wire were implicitly covered by a requirement to inspect the catenary, as a result of this incident it was considered appropriate to explicitly instruct staff to inspect the auxiliary wire for signs of fatigue.*

*Module B10, high level inspections, of the Overhead Line Work Instructions, NR/L3/ELP/27237, has been updated to cover the inspection of the auxiliary wire and the updated standard was published in December 2016. The requirement is captured in Section 4.6 of the module and it informs staff that auxiliary catenary is*

*prone to stranding beneath and around the auxiliary catenary saddles. It then instructs staff to carry out the following when undertaken a high level inspection of the Overhead Line Equipment.*

- *Check the auxiliary catenary protectors (aeroplanes/saddles) are fitted to the catenary and correctly aligned protecting the mechanical interface between the auxiliary catenary and loop dropper.*
- *Make similar checks around the aeroplane/saddles at registration points at the pull off dropper for the auxiliary catenary wire.*
- *Inspect for signs of wear or damage to the auxiliary catenary due to dropper or aeroplane/saddle movement and realign, replace/repair as necessary.*

*The update to the Overhead Line Work Instructions manages the risk associated with fatigue of the auxiliary wire and Network Rail has taken this one step further to remove the risk by including the removal of the auxiliary wire as an OLE Campaign Change, NR/L2/ELP/27009.*

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It should produce a plan for the extension of its current detailed examinations of auxiliary wires close to, and within, protective sleeves to identify and rectify broken and damaged wire strands and protective sleeves on all of its Mk 1 compound catenary. Following this, its routine inspections should include this additional examination.

### ORR Decision

1. ORR notes Network Rail's plan to improve its work instructions for high level inspection of OLE. However, whilst Network Rail has indicated that work to implement this recommendation will be completed by 31 December 2016 no detailed plan has yet been provided in support of this expectation. ORR has asked Network Rail to provide more details about prospective timescales.

2. After reviewing all the information received from Network Rail, ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, it has:

- taken the recommendation into consideration; and
- is taking action to implement it, although a timebound implementation plan is yet to be provided.

**Status: *Progressing*. ORR will provide a further update to RAIB when the status of this recommendation changes.**

### Information in support of ORR decision

3. In its initial response dated 14 January 2016 Network Rail reported the following:

*Progressive steps have been taken over the past 12 months on London North West Route (LNW) (where the majority of auxiliary catenary is located) to remove auxiliary catenary. On LNW South all the auxiliary catenary has been removed. LNW North proactively initiated high level inspections of auxiliary catenary immediately following this incident and have prioritised the removal in public accessible areas.*

*To address the finding of this investigation and the intent of the recommendation Network Rail will improve the OLE work instructions for high level inspection of OLE, NR/L3/ELP/27237 module B10, to include an enhanced inspection of auxiliary catenary. In the first instance this change to the standard will be instructed via a Letter*

*of Instruction and the modifications to the standard will be captured as part of the planned on-going update to the instructions.*

*A stakeholder review group will be convened to consider updating the OLE campaign change standard, NR/L2/ELP/27009, to include the removal of auxiliary catenary. The cost and practicality of the complete removal of auxiliary wire through the network will be assessed against the improvements in safety and reliability. If this is deemed a credible campaign change then the standard will be updated and the removal work completed.*

4. Network Rail has reported that this work will be completed by 31 December 2016.