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15 May 2014

Carolyn Griffiths
Chief Inspector of Accidents
Cullen House
Berkshire Copse Road
Aldershot
Hampshire GU11 2HP

Dear Carolyn

RAIB report: Accident involving a pantograph and the overhead line near Littleport, Cambridgeshire

I write to report on the consideration given and action taken in relation to the recommendations from the above report published on 20 May 2013.

The annex to this letter provides detail of the consideration given and action being taken by Network Rail to address the recommendations. Both recommendations remain 'in progress' and we expect to update RAIB by 31 July 2014.

We expect to publish this response on the ORR website on 2 June 2014.

Yours Sincerely

Chris O'Doherty

Response to RAIB

1. The two recommendations contained in the report were addressed to ORR when the report was published on 20 May 2013.
2. After considering the recommendations we passed them over to Network Rail asking it to consider and where appropriate act upon them; and advise ORR of its conclusions. The consideration given to each recommendation is included below.

Recommendation 1

The intention of this recommendation is to ensure that the risks associated with the authorisation of Temporary Non-Compliance certificates are properly assessed, and that appropriate mitigation is implemented.

Network Rail should review the manner in which Temporary Non-Compliance certificates (TNCs) are being used in relation to overhead line equipment, and take corrective action if they are being issued without risks being adequately assessed and mitigated.

Actions taken or being taken to address the recommendation

3. On 11 October 2013 Network Rail provided the information below:

NR/L2/ELP/21087 contains periodicity of proactive maintenance activities and reactive intervention levels. It also includes action to be taken if the proactive maintenance cannot be completed within the timescale.

This action is a simple risk assessment, with a number of questions to be answered. The response to these items dictates further action.

The questions asked for deferring high level inspection includes the risk of OLE positional misalignment with track due to track renewals, but not slipping structures.

A structured for risk assessment has been developed as part of the Risk Based Maintenance (RBM) programme. This reviews wire run maintenance more holistically.

This methodology will be issued as a Letter of Instruction (LoI) against NR/L2/ELP/20087, prior to the publication of the Electrification Business Critical Rules programme.

The methodology will be described in a simple flow chart process, rather than the numerous tables which NR/L2/ELP/21087 contains.

The methodology also requires additional mitigation for high speed locations with public exposure.

The LoI will also clarify:

- *what is backlog maintenance; and*
- *when it is necessary to apply for a TNC and what corrective actions are expected to support a TNC application.*

ORR met with Network Rail on 27 January 2014, following this meeting Network Rail provided the additional information below.

A review of the NR/L2/ELP/21087 was undertaken as part of the Risk Based Maintenance (RBM) programme. This highlighted the following concerns, including:

- *lack of clarity over when a TNC is required;*
- *lack of consideration of the current status of the OLE geometry;*
- *possibility for the TNC to be continuously extended;*
- *risks associated with debris during a dewirement not considered;*
- *the lack of escalation, should a depot have a significant quantity of OLE wire runs under TNCs.*

A risk review and escalation process was presented to the Electrification and Plant Route Asset Managers (EPRAM) on 11 February 2014. The EPRAMs were generally supportive but provided some constructive comments.

The process has now been strengthened with 10 separate flow charts describing the process for addressing the mitigation for extending the maintenance duration. Each process has a dedicated form to be completed per wire run which guides the applicant through the process.

The process now includes the requirement for confirming the OLE geometry is within maintenance tolerance. If it is not the geometry defect has to be fixed within fixed timescales.

The process also requires more frequent low level inspection if the high level inspection is non-compliant and includes a methodology for converting existing TNCs to the new process.

Once the consensus over the exact timescales has been reached with the RAMs it will be presented to the DRAMs prior to issue. This methodology will be issued as a letter of Instruction (LOI) against NR/L2/ELP/21087 in June 2014, prior to the publication of the Electrification Business Critical Rules programme. Timescale for completion is 30 June 2014.

ORR decision

4. ORR has considered the latest information provided by Network Rail; however we do not currently understand how the process will actually be implemented. We also note that forms have not been generated to capture issues relating to temporary bonding, pneumatic tensioning systems and structures and foundations. We expect to meet with Network Rail by 25 May 2014 to discuss the outstanding issues and will update RAIB by 31 July 2014.

Status: In progress. We will update RAIB by 31 July 2014.

Recommendation 2

The intent of this recommendation is to provide maintenance personnel who are required to check alignment of the overhead line equipment with information that is in a format that can be easily used, and is appropriate for their level of competence.

Network Rail should review the standards and procedures for the management of overhead line alignment in order to provide maintenance staff with a simple means of relating measurements that are recorded at site to required alignment criteria. The review should include, at least, consideration of

- providing maintenance staff with information allowing them to determine the acceptable range of contact wire positions at every support; and

- removing the need for maintenance staff to make their own assessment of pantograph movements when determining if adjustments to the overhead line are required.

Actions taken or being taken to address the recommendation

5. On 11 October 2013 Network Rail provided the following information:

The methodology for height and stagger analysis will be changed from dynamic to static. This will provide a less complex method of calculation, and remove uncertainty of subjective evaluation.

The calculation will require staff to measure the mid span offset of the wire from the track centre line. This will then be used to determine as the first interventional level, and also latter in calculation. The geometry analysis will also provide a guide on the critical wind speed.

Maintenance evaluation criteria will be developed for all different types of OLE system designs.

The Risk Based Maintenance (RBM) OLE programme introduces OLE technical tasks for the first time. This will allow the work to be resourced and planned efficiently and remove the unintended consequence of this work currently being considered as unproductive.

A competency & training programme for this new methodology will also be developed.

6. ORR met with Network Rail on 27 January 2014, following which Network Rail provided the information below.

Network Rail undertook a review of the standards and procedures for the management of overhead line alignment. The review identified the following three actions:

1) *The methodology for height and stagger analysis will be changed from dynamic to static. This will provide a less complex method of calculation and will provide maintenance staff with information to determine the acceptable range of contact wire positions at every support and remove the need for staff to make their own assessments of pantograph movements when determining if adjustments to the overhead line are required. A competency and training programme for this new methodology will also be developed – timescale of September 2014.*

2) *The Risk Based Maintenance OLE programme introduces OLE Technical tasks for the first time. This will allow the work to be resourced and planned efficiently and remove the unintended consequence of this work currently being considered as unproductive (pilot to be introduced by May 2014).*

3) *In the long term ORBIS are developing a system to display design stagger, and recorded measurements from the measurement fleet. This will allow easier identification of stagger deviations along with rate of change information (pilot to be introduced by December 2014).*

ORR decision

7. Having considered the additional information provided by Network Rail we cannot identify suitable evidence that the review it has carried out has addressed the specific points in the recommendation. We expect to meet with Network Rail by 25 May 2014 to discuss the outstanding issues and will update RAIB by 31 July 2014.

Status: In progress. We will update RAIB by 31 July 2014.