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3 March 2014

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

Dear Carolyn

RAIB report: Collision between a train and a car at Beech Hill level crossing

I write to report¹ on the consideration given and actions taken in respect of recommendations 1, 2, 3, 4 addressed to ORR in the above report published on 24 September 2013.

The annex to this letter provides details of the consideration and actions where recommendations 1, 2, 3 and 4 are reported as 'in progress'.

We expect to update you on progress with recommendations 1 and 2 by 31 May 2014, and on recommendations 3 and 4 by 31 January 2015.

Yours Sincerely

Chris O'Doherty

¹ In accordance with The Railways (Accident Investigation and Reporting) Regulations 2005 para 12(2)(b)

Response to RAIB

1. All 4 recommendations were addressed to ORR when RAIB published its report on 24 September 2013. After considering the report and its recommendations, we passed all four recommendations to Network Rail, Nexus and the Heritage Railway Association, asking them to consider and where appropriate act upon them. Details of consideration given and any action taken, in respect of these recommendations are provided below.

Recommendation 1

The purpose of this recommendation is to replace, with LED units, all remaining 36 W wig-wags at level crossings, with those having 'Bliss' lenses a priority. Network Rail issued Special Inspection Notice SIN121 on 9 May 2013 to locate all such crossings on its infrastructure. This inspection is to be completed by 27 September 2013.

Infrastructure managers should determine which level crossings are fitted with 36 W road traffic light signal (wig-wag) units or with 'Bliss' lenses and draw up a time bound plan so that their replacement with LED units is done as soon as possible, those with 'Bliss' lenses being dealt with first.

Actions taken or being taken to address the recommendation

2. In its response on 2 December 2013, Network Rail provided the following information:

A Special Inspection Notice (SIN) was issued to the Routes to identify all sites currently fitted with 36W road traffic light signal units or Bliss lenses. A sponsor has been allocated to the work and this recommendation informs the sponsor remit – to replace the units with LED units. The sponsor is reviewing the scope and the scale of the project and is working to pull together the timescales for delivery, which will be risk based. Once the scale of the project is known, investment will be sought at the Network Rail investment panel. Once the project scope and programme has been defined a date for the closure of the recommendation will be provided.

3. Further information was provided by Network Rail on 3 February 2013. This is attached at Annex B

ORR decision

4. Having considered the information provided by Network Rail, ORR has concluded that Network rail is taking action to address the recommendation. We await confirmation from Network Rail that financial authority has been granted and that work has begun. We will update RAIB by 31 May 2014.

Status: In progress, we will update RAIB by 31 May 2014

5. In its response on 3 December 2013 Nexus stated:

Please note that work on implementing a range of improvements at our AOCL's was in progress before this incident occurred and report produced. I have attached a copy of a presentation covering the range of considerations and progress against them. This presentation was given to ORR as part of an inspection carried out on 13 November 2013, which was a follow up to a collision incident at our Callerton crossing on 2 September 2013.

You will note from the attached that we are also considering installing LED wig-wags at all five of our crossings but have an issue to resolve with regard to LED's in conjunction with red light enforcement cameras (Gatso's), which we have fitted at three of the crossings. Again, ORR is currently helping us to clarify the position so that we can make an informed decision.

Nexus responded previously on the issue of 36W halogen lamps with Bliss lenses following the issue of USA Incident report No. 619 stating, Nexus changed to the recommended 50W lamps in the late 80's/early 90's in line with the standard and do not have any Bliss lenses fitted.

ORR decision

6. Having considered the response from Nexus, ORR has concluded that Nexus had already addressed the risk the recommendation seeks to address, all 36W lamps have previously been changed to 50W lamps.

Status: Implemented

7. In its response on 27 January 2014, the Heritage Railway Association stated:

This will be passed to our members in February when they will be requested to take the actions suggested.

ORR decision

8. Having considered the information provided by the Heritage Railway Association, ORR has concluded that action is being taken to address the recommendation. We will confirm that the recommendations have been passed on to its members by the Heritage Railway Association and update RAIB by 31 May 2014

Status: In progress, we will update RAIB by 31 May 2014

Recommendation 2

The purpose of this recommendation is to devise a method of assessing the risk of a bright background and glare preventing wig-wags, and other crossing equipment, from being seen and propose means of mitigating this (e.g. higher powered LED wig-wags, barrier skirts or other means of improving barrier conspicuity).

Infrastructure managers should put in place a method of identifying those locations where there is a significant risk from sunlight impairing the visibility of level crossing wig-wags and barriers, propose suitable mitigation measures where appropriate and

implement these measures. The method should be based on suitable research and include specific consideration of the possibility of glare, and the wig-wags being seen against a bright background and the barriers against a dark background, taking into account environmental factors and seasonal daytime variations. A programme of training and briefing of the staff carrying out the assessment should be implemented

Actions taken or being taken to address the recommendation

In its response on 2 December 2013, Network Rail provided the following information:

9. *Currently there is not enough known about glare at level crossings to produce guidance on a method of identification and suitable mitigation measures. Glare has been noted to be a contributory factor for some accidents but has not been looked at in detail during previous RSSB research projects including T756 Research into traffic signs and signals at level crossings. Whether the effects of glare on wig-wag signals could be mitigated has not been looked into.*

Network Rail considers that the glare issue would be best tackled by a bespoke piece of research: in effect a separate project to T756. The National Level Crossing Team are currently evaluating requirements to form a project remit to submit to RSSB to understand the issues with specific consideration of the possibility of glare, the wig-wags being seen against a bright background and the barriers against a dark background, taking into account environmental factors and seasonal daytime variations and glare on road surfaces. The research project will also look to identify possible engineering solutions and suitable mitigations. The research proposal and consideration will be completed by the end of February 2014. The resulting project will include the training and competence requirements.

ORR decision

10. Having considered the response from Network Rail, ORR has concluded that it is taking action to address to recommendation. We await confirmation from Network Rail that the research proposal has been completed and expect to update RAIB by 31 May 2014.

Status: In progress, we will update RAIB by 31 May 2014

11. In its response on 3 December 2013, Nexus stated:

Nexus has recently gone through an exercise covering all five of the AOCL's on the system to identify a range of improvements. This exercise included visibility of Wig Wags at crossings taking account of sunlight conditions. Two of the five crossings have subsequently been fitted with extended hoods to mitigate the issue of sunlight impeding visibility/conspicuity. In addition two further crossings have had LED Wig-Wags fitted. In the case of the remaining, fifth crossing there are currently no changes identified or planned.

ORR decision

12. Having considered the information provided by Nexus, ORR has concluded that it has taken action to address the recommendation.

Status: Implemented

13. In its response on 27 January 2014, The Heritage Railway Association stated:

This will be passed to our members in February when they will be requested to take the actions suggested.

ORR decision

14. Having considered the information provided by the Heritage Railway Association, ORR has concluded that action is being taken to address the recommendation. We will confirm that the recommendations have been passed on to its members by the Heritage Railway Association and update RAIB by 31 May 2014

Status: In progress, we will update RAIB by 31 May 2014

Recommendation 3

The purpose of this recommendation is to introduce a new 'brighter' type of LED wig-wag for use at sites where sunlight glare has been identified as a factor.

Infrastructure managers should, in conjunction with the other industry parties, develop a new type of wig-wag unit with higher luminous intensity than the existing LED units for use at crossings where high background luminance and sunlight glare is a particular problem, and install these units at the appropriate locations.

Actions taken or being taken to address the recommendation

15. In its response on 2 December 2013, Network Rail provided the following information:

Network Rail will carry out a study over the next 12 months to investigate the feasibility of increasing the luminous intensity (light output) of the LED-type level crossing wig-wag units. The scope of the work will need to include a human factors study of the effects to pedestrians and road traffic vehicle users of the increased luminous intensity for a flashing road traffic signal.

A period of 12 months is required to conduct this feasibility study, also being dependent upon the required timeline for specialist ergonomic support. The outcome of the feasibility study will be considered by the Professional Head and further actions as necessary.

ORR decision

16. Having considered the information provided by Network Rail, ORR has concluded that it is taking action to address the recommendation. We await further information on the feasibility study and will update RAIB by 31 January 2015.

Status: In progress, we will update RAIB by 31 January 2015

17. In its response on 3 December 2013, Nexus stated:

Nexus would support other more influential Infrastructure managers in seeking to develop new, improved brighter wig-wag units and when available would consider replacing existing units.

ORR decision

18. Having considered the response from Nexus, ORR has concluded that it would be willing to consider further action if options become available as result of the work being undertaken by Network Rail.

Status: In progress, we will update RAIB by 31 January 2015

19. In its response on 27 January 2014, The Heritage Railway Association stated:

We do not propose taking any action on this recommendation. The recommendation to develop a new higher intensity lamp requires significant technical research and, we understand, a change in the current Regulations as agreed within Europe. We do not consider that our members can usefully contribute to this development. If such a lamp is developed, approved and recommended for use we will review our position.

ORR decision

20. Having considered the response the Heritage railway Association, ORR has concluded that it would be willing to consider further action if options become available as result of the work being undertaken by Network Rail

Status: In progress, we will update RAIB by 31 January 2015**Recommendation 4**

The purpose of this recommendation is to ensure the inspection and maintenance process confirms that wig-wag light units continue to meet their specification (types other than 36 W, which will have been dealt with in Recommendation 1). This may be achieved by means of testing/inspection or by replacing lamps at the end of a defined service life.

Infrastructure managers should enhance the inspection and maintenance process for wig-wag lamps to provide assurance that they continue to meet their specified performance standard.

21. In its response on 2 December 2013, Network Rail provided the following information

Network Rail will conduct a national sample survey of wig-wag lamps and lenses over the next 12 months. A sample number of 24V 50W RTL lamp units will be removed from level crossing sites during annual maintenance inspections of level crossing equipment and will be submitted for specialist testing to determine the

performance characteristics measured against the required specified performance criteria for 24V 50W wig-wags.

ORR decision

22. Having considered the response from Network Rail, ORR has concluded that it is taking action to address the recommendation. We will update RAIB by 31 January 2015.

Status: In progress, we will update RAIB by 31 January 2015

23. In its response on 3 December 2013, Nexus stated:

Nexus has implemented and enhanced inspection and maintenance regime of 4 weekly inspections of wig-wags for visibility/conspicuity taking account of the prescribed sighting positions

ORR decision

24. Having considered the response from Nexus, ORR concluded that we needed more explanation on how its enhanced inspection and maintenance regime provides assurance that the specified performance standard is met.

Status: In progress we will update RAIB by 31 January 2015

25. In its response on 27 January 2014, The Heritage Railway Association stated:

We will remind members that they should have an inspection and maintenance system that checks for the alignment and conspicuity of wig-wag units, but we do not propose to take any action to advise members to undertake more technical testing to specifications when as yet there appears to be no objective method for doing so. If research by Network Rail manages to develop a cost effective method for doing this then we will review our position.

ORR decision

26. Having considered the information provided by the Heritage Railway Association, ORR has concluded the position adopted by the Heritage Railway is reasonable and is linked to the work being undertaken by Network Rail. We will update RAIB by 31 January 2015.

Status: In progress, we will update RAIB by 31 January 2015