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Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
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Dear Andrew,

RAIB Report: Near-miss at Butterswood level crossing, North Lincolnshire

I write to report¹ on the consideration given and action taken in respect of recommendations 1, 2, 3 and 4 addressed to ORR in the above report, published on 16 June 2014.

The annex to this letter provides details of the consideration given/action taken in respect of this recommendation. The status of recommendations 1, 2 and 3 is '**In Progress**'. ORR will advise RAIB when further information is available regarding actions being taken to address these recommendations.

The status of recommendation 4 is '**Implemented**'. We do not propose to take any further action in respect of these recommendations 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 17 June 2015.

Yours sincerely,

Andrew Eyles

¹ 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 provide a positive indication to train drivers when automatic locally monitored level crossings have failed to operate for the approaching train.

Network Rail, in consultation with RSSB, should conduct a human factors and technical review of the indications displayed at driver's crossing indicators provided on the approach to automatic locally monitored level crossings, and evaluate alternative means (eg audible and visual) of indicating to train drivers that the level crossing has not operated as intended. A time-bound plan for improvements arising from the review should be developed using a risk-based approach.

Steps taken or being taken to address the recommendation

1. Network Rail and ORR met on 16 October to clarify the understanding of the recommendation and agree the actions required to address it. This was confirmed in an email from Network Rail on 24 October 2014 which set out the following agreed plan:

Network Rail's commitment is to undertake a review of the methods of attracting the attention of a train driver on the approach to an Automatic Barrier Crossing Locally monitored (ABCL). This will include the consideration of the provision of TPWS or AWS along with any other reasonable options that may arise from a Workshop session for the purpose of identifying options.

Network Rail will then consider the ergonomic value of each reasonable option and what contribution to the safe operation of the crossing that may accrue. Options which are reasonably practical with regard to cost and benefits will be considered for development to implementation.

2. On 17 February 2015 Network Rail advised that the deadline for completion had been extended from 31 January 2015 until 11 July 2016. The action plan summary which accompanied this extension notification stated that '*Network Rail will undertake an initial assessment of the risk of drivers failing to react...*' - Network Rail's original interpretation of the recommendation - rather than the agreed review of the '*methods of attracting the attention of a train driver on the approach to an Automatic Barrier Crossing Locally monitored (ABCL)*'.

ORR decision

3. ORR has asked Network Rail to provide confirmation that it is carrying out the action plan as agreed with ORR on 16 October 2014. Because of the lengthy 18 month delay in completing this work - which Network Rail attribute to limited resource and higher priority work on the relevant Business Critical Rules (BCR) programme – ORR has also

asked Network Rail to provide further information regarding this delay, including how the BCR programme will inform this recommendation, what work (if any) has already been carried out regarding this review and a more detailed timescale for implementation.

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

- taken the recommendation into consideration but
- has not yet demonstrated that it is taking sufficient action to implement it.

Status: In-progress. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Recommendation 2

The intent of this recommendation is to improve the reliability of all power supplies (including battery back-up arrangements) at automatic locally monitored level crossings.

Network Rail should review the arrangements in place at all types of automatic locally monitored level crossings, and make improvements to the reliability of those crossings.

The review, and associated improvements, should include (but not be limited to):

- a) locations where parallel protective systems exist (such as multiple earthing systems combined with RCD protection) where their presence can lead to unnecessary loss of the main network power supply to the level crossing;
- b) the plans in place to ensure that UPS systems maintain adequate performance throughout their life (including plans to replace UPS battery systems during the life of the UPS system); and
- c) understanding the age of UPS systems in use, and the manufacturer's life expectancy of those assets.

Steps taken or being taken to address the recommendation

5. In its response of 12 September 2014 Network Rail provided the following information:

To improve the reliability of all power supplies at automatic locally monitored level crossings, Network Rail will address this recommendation through a number of stages:

- *Network Rail will review the current maintenance work instructions to identify if there are any areas for improvement.*

- *A workshop will be led by the Engineering Supervisor to assess the current arrangements with Delivery Unit Distribution Plant Engineers (DPEs) and will establish any areas of concern.*
- *A Special Inspection Notice (SIN) shall be issued to identify and assess the various components at each level crossing. The data resulting from this will be input into Ellipse to maintain good records.*

On completion of the steps noted above, the information will be reviewed and the team will develop a business case to make improvements where identified. The timescales for implementation will be determined following the review.

ORR decision

6. Whilst ORR is satisfied with Network Rail's proposed approach to implement this recommendation, it has asked Network Rail to provide an update on progress and a detailed timescale for implementation.

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

- taken the recommendation into consideration but
- has not yet demonstrated that it is taking sufficient action to implement it.

Status: In-progress. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Recommendation 3

The intent of this recommendation is for Network Rail to be able to identify level crossings that have suffered a power supply failure so that prompt action can be taken to manage the consequences of the failure including consideration of the benefits of recent technological developments that allow remote condition monitoring at reasonable cost.

Network Rail should evaluate the practicality of remote condition monitoring of the power supply system, and key sub-systems whose failure can have the same effect as loss of power supply, at all locally monitored level crossings, so that prompt action can be taken to manage the failure (such as telling train drivers that the crossing has failed and arranging for technical staff to attend the level crossing to investigate the failure).

Steps taken or being taken to address the recommendation

8. In its response of 12 September 2014 Network Rail provided the following information:

Network Rail shall investigate the options available to incorporate level crossing power supply systems [including 'key sub systems' - confirmed by Network Rail on 17 October 2014] into the remote condition monitoring systems that shall be monitored and responded to by maintenance staff employed in the Route Operating Centres.

This will enable Network Rail to identify level crossings that have suffered a power supply failure so that prompt action can be taken to manage the consequences of the failure.

Timescales for delivery will be determined during the option selection phase of this workstream.

ORR decision

9. Whilst ORR is satisfied with Network Rail's proposed approach to implement this recommendation it has asked Network Rail to provide an update on progress and a detailed timescale for implementation.

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

- taken the recommendation into consideration but
- has not yet demonstrated that it is taking sufficient action to implement it.

Status: In-progress. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Recommendation 4

The intent of this recommendation is for First TransPennine Express to identify and implement changes where necessary to its briefing methods in order to reduce the risk of drivers making errors at key locations such as locally monitored crossings.

First TransPennine Express should review and enhance its briefing techniques and guidance material for train drivers:

- a) to explain the role of the driver at locally monitored crossings;
- b) to ensure that it properly reflects the operation of key infrastructure assets such as level crossings (including revisions to its description of the arrangements at automatic locally monitored level crossings, beyond the level of detail described in the railway rule book);

- c) to allow its train drivers to practice dealing with unannounced level crossing failures, including, for example, the use of its train driving simulator or *video-based hazard perception* exercises;
- d) by using focused, risk-based, presentation material for briefing operational staff; and
- e) by stating clearly the action drivers should take when passing the special speed restriction board of any locally monitored automatic level crossing, when a flashing red light is visible at the drivers crossing indicator

Steps taken or being taken to address the recommendation

11. In its response of 4 September 2015 TPE provided the following information:

TPE procured the services of an independent rail operational safety specialist (Andy Waters Rail) to review its current arrangements in relation to AOCL/ ABCL level crossings.

This external consultant produced a formal report, which when reviewed at a senior level within TPE enabled the progression of the action plan. TPE has subsequently revised and enhanced its safety briefing, basic driver training, and driver competence assessment procedures to cover the role of the driver in more detail. This material now goes beyond a basic understanding of the RSSB rule book requirements for drivers. Moreover it is probably more detailed at present than material in any other UK train / freight operating company.

TPE evaluated the use of its two simulators for driver familiarisation in AOCL / ABCL crossing failure scenarios. However, due to the projected costs being disproportionate to the safety benefits gained TPE has opted to utilise visual risk awareness material instead. The justification being that this is reasonably practicable. This stance was considered, supported and recommended by the external operational safety specialist as part of the review. In addition the TPE Professional Driving Policy has been revised and is currently being reprinted to reflect amended braking instructions for these types of crossing. This will be in the form of an extra section specific to ABCL / AOCL level crossings. This policy is personally issued to each driver. [TPE confirmed on 9 June 2015 that the Professional Driving Policy has been reissued.]

All TPE drivers have been refreshed on the actions to take approaching an ABCL / AOCL in a failed state. This was undertaken during the face to face briefing process, and detailed within the seasonal safety booklet issued to all safety critical staff.

Finally as this material was deemed beneficial to the wider rail industry it has been disseminated to all TOCs / FOCs via the ATOC operations Standards Forum.

ORR decision

12. ORR is content with the response provided by TPE and that it answers the intent of the recommendation. ORR agrees with the comments about the disproportionate cost of altering the simulator software and that the reasonably practicable approach to hazard perception being to use other visual aids.

13. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, First TransPennine Express has:

- taken the recommendation into consideration; and
- has taken action to implement it.

Status: Implemented