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6 December 2021

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

Dear Andrew,

**RAIB Report: Fatal accident at Tibberton No. 8 footpath crossing on 6 February 2019**

I write to provide an update<sup>1</sup> on the action taken in respect of recommendation 1 addressed to ORR in the above report, published on 10 October 2019.

The annex to this letter provides details of actions taken in response to the recommendation and the status decided by ORR. The status of recommendation 1 is **'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 has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 7 December 2021.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Oliver Stewart', written in a cursive style.

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 for Network Rail to understand the risk to crossing users presented by fog at passive level crossings and to ensure that the risk to an individual using a passive level crossing in fog is acceptably low.*

Network Rail should analyse and evaluate the risk of fog affecting the safe use of those passive level crossings where users are entirely reliant on the sighting of trains. This analysis should take into account regional and local variation of the likelihood of fog, its potential impact on visibility and the effectiveness of any existing mitigation measures. Network Rail should then use the output of this evaluation to develop and implement a strategy to adequately mitigate the effects of fog at passive level crossings (paragraphs 114c and 115). This strategy should include the development and provision of:

- guidance for level crossing managers on how to identify crossings at which fog is a reasonably foreseeable risk;
- a range of possible mitigation measures to make crossings safe to use in fog (this may involve other railway parties such as the Rail Delivery Group);
- a methodology for prioritising level crossings on the basis of the risk arising from fog at the crossing; and
- a timebound plan for the implementation of the appropriate mitigation measures at the prioritised crossings.

## ORR decision

1. Network Rail commissioned an external supplier to develop a tool using historical data to identify passive level crossings vulnerable to fog. This information is used to make fog risk part of the narrative risk assessment for level crossings. Network Rail has issued guidance (LCG 21) to support the tool, embed its use in the risk assessment process and standardise its deployment.

2. ORR consider that Network Rail has taken appropriate action to address the recommendation, raising the profile of fog risk in the wider risk assessment process while showing the limitations of what is possible.

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

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

**Status: Implemented.**

## Previously reported to RAIB

4. On 9 October 2020 ORR reported the following:

Network Rail has undertaken a programme of work to identify areas of the rail network most vulnerable to fog. Once locations have been identified, Network Rail will update the guidance given to Level Crossing Managers and reconsider prioritisation of actions with regard to passive level crossings.

Individual routes have provided us with information about the measures they currently have in place or are planning. We have asked Network Rail to provide details of any joint consideration of mitigation measures with RDG or TOCs/FOCs. Fog will not be included in the update of ALCRM due to difficulties with quantifying the impact of fog.

We are frustrated by the delays to the introduction of Meerkat and are monitoring Network Rail's development and roll out of this technology.

We share Network Rail's long term view that technology that provides active warnings is currently the most feasible solution for reducing the risk to users of passive crossings in foggy conditions. The inclusion of fog in risk assessments will help inform the decision of which crossings need active warnings, such as MSLs.

## **Update**

5. On 5 November 2021 Network Rail provided the following closure statement:



[N193-05] Tibberton  
Rec 1 Closure.docx

## Previously reported to RAIB

### Initial consideration by ORR

1. The recommendation was addressed to ORR when the report was published on 10 October 2019.
2. After considering the recommendations ORR passed recommendation 1 to Network Rail asking them to consider and where appropriate act upon them and advise ORR of its conclusions. The consideration given to each recommendation is included below.
3. ORR also brought the recommendation to the attention of other infrastructure managers that operated level crossings as it was concluded that there are equally important lessons for them from this incident. ORR did not ask these organisations to provide a reply.
4. This annex identifies the correspondence with end implementers on which ORR's decision has been based.

### Recommendation 1

*The intent of this recommendation is for Network Rail to understand the risk to crossing users presented by fog at passive level crossings and to ensure that the risk to an individual using a passive level crossing in fog is acceptably low.*

Network Rail should analyse and evaluate the risk of fog affecting the safe use of those passive level crossings where users are entirely reliant on the sighting of trains. This analysis should take into account regional and local variation of the likelihood of fog, its potential impact on visibility and the effectiveness of any existing mitigation measures. Network Rail should then use the output of this evaluation to develop and implement a strategy to adequately mitigate the effects of fog at passive level crossings (paragraphs 114c and 115). This strategy should include the development and provision of:

- guidance for level crossing managers on how to identify crossings at which fog is a reasonably foreseeable risk;
- a range of possible mitigation measures to make crossings safe to use in fog (this may involve other railway parties such as the Rail Delivery Group);
- a methodology for prioritising level crossings on the basis of the risk arising from fog at the crossing; and
- a timebound plan for the implementation of the appropriate mitigation measures at the prioritised crossings.

### ORR decision

5. Network Rail has undertaken a programme of work to identify areas of the rail network most vulnerable to fog. Once locations have been identified, Network Rail will update the guidance given to Level Crossing Managers and reconsider prioritisation of actions with regard to passive level crossings.

6. Individual routes have provided us with information about the measures they currently have in place or are planning. We have asked Network Rail to provide details of any joint consideration of mitigation measures with RDG or TOCs/FOCs. Fog will not be included in the update of ALCRM due to difficulties with quantifying the impact of fog.

7. We are frustrated by the delays to the introduction of Meerkat and are monitoring Network Rail's development and roll out of this technology.

8. We share Network Rail's long term view that technology that provides active warnings is currently the most feasible solution for reducing the risk to users of passive crossings in foggy conditions. The inclusion of fog in risk assessments will help inform the decision of which crossings need active warnings, such as MSLs.

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

- taken the recommendation into consideration; and
- is taking action to implement it by August 2021.

**Status: Progressing. ORR will advise RAIB when actions to address this recommendation have been completed.**

### **Information in support of ORR decision**

10. On 8 January 2020 Network Rail provided an initial action plan, and an updated version on 6 October 2020:

#### **Action Plan**

*The head of level crossings will, in partnership with the Director of Incident Management and Operational Security review how Network Rail's meteorological service provider can help prioritise relevant locations based on fog proclivity.*

*Predicting areas most impacted by fog will be mapped by the met. service provider. This should be completed by **March 2020**.*

*It was identified in March 2020 that we can get four years meteorological data from weather stations from around the country. This data has now been analysed by our supplier Aecom and correlated against our passive estate. It has been identified that c.50% of our passive estate are within 20km of weather stations. We have deduced that the data for these crossings can be used with a reasonable degree of confidence to understand the historical prevalence of fog. The dataset is being developed into a fog incidence data tool and is in the final throes of delivery, with completion assured within October 2020.*

*Predicting actual bouts of fog is beyond reasonable practicability but historical intelligent datasets and local knowledge will improve our understanding and risk management process.*

*Once complete Network Rail will be able to understand in greater detail what extra guidance to Level Crossing Managers is required. It is estimated that this work will take a further six months to complete any required guidance and publish following Network Rail processes with Publication due in **September 2020**.*

*Aecom have developed a draft process and associated documentation to help us develop a level crossing guidance document which will be integrated into our risk management process. Some delays have occurred in finalising the guidance as we develop a process for the assessment of those crossings which are greater than 20km from weather stations. A revised timescale of January 2021 for issue and publication.*

*Adverse weather is currently highlighted as a key risk driver as part of the ALCRM output – as currently used in the prioritisation process – but there is no specific risk adjustment for the prevalence of fog. STE will review whether specific numerical risk adjustments should be overlaid on the ALCRM output and if so, provide any extra guidance on how fog should be taken into account as part of Routes' risk reduction prioritisation process. This will be complete by **December 2020**.*

*We have discussed this with ADL, the authors of the ALCRM algorithms, and we have determined that at this time quantifying the impact of fog and/or adverse weather in ALCRM is not achievable with any degree of accuracy. Therefore, it is proposed to use the more detailed process (highlighted above) to enhance the contents of narrative risk assessments.*

*Network Rail currently has available (integrated or overlay) Miniature Stop Lights to mitigate sighting deficiencies, and is developing an additional lower cost solution through its R&D Meerkat project. This will be available for deployment from **December 2020**.*

*The deployment date of Meerkat is currently under review. We have engaged with RDG and the wider industry on the possibility of using visibility whistle boards as a further means of reducing risk where reduced visibility is known to occur.*

*Routes will be asked to use the outputs above to review their current prioritised plans for the passive level crossing estate. By **August 2021** any changes to current deployment plans will be understood by Routes. While deployment would be expected to extend into at least CP7, it is at this point that the recommendation will be considered closed.*

*This work has not yet commenced. However, due to the complexities identified in the assessment criteria, the timescales originally predicted are not reasonable and will need to be reassessed and agreed with the Regions. This will be undertaken in conjunction with the publication of the guidance document.*