Oliver Stewart
RAIB Recommendation Handling Manager

10 August 2023

Mr Andy Lewis
Deputy Chief Inspector of Rail Accidents

Dear Andy,

RAIB Report: Kirkby Buffer Stop Collision on 13 March 2021

I write to provide an update[1] on the action taken in respect of recommendations addressed to ORR in the above report, published on 11 August 2022.

The annex to this letter provides details of actions taken in response to the recommendations and the status decided by ORR. The status of recommendations 1, 2 & 3 is **'Open'.**

ORR will advise RAIB when further information is available regarding actions being taken to address these recommendations.

We will publish this response on the ORR website on 11 August 2023.

Yours sincerely,

[1] In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Initial consideration by ORR

1. All 3 recommendations were addressed to ORR when the report was published on 11 August 2022.

2. After considering the recommendations ORR passed recommendation 1 to RSSB, recommendation 2 to Merseyrail and Network Rail, and recommendation 3 to Mereseyrail 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. This annex identifies the correspondence with end implementers on which ORR's decision has been based.

Recommendation 1

The intent of this recommendation is that additional research be undertaken into systems which can detect and monitor driver alertness and awareness, and how these could be trialled in the industry.

RSSB, in consultation with relevant stakeholders and bodies representing staff, should undertake further research into how the detection and mitigation of a loss of alertness or attention in train drivers can be improved. This research should specifically consider the effectiveness of systems currently in operation and build on work already completed, such as the functional specification and proposed trials set out in the T1193 research report. It should also take into account relevant practice from other transport systems.

ORR decision

4. RSSB launched research project T1193 (Understanding the Functional Requirements for Train Driver Attention and Alertness Monitoring Devices) to consider the functional requirements for technology that could improve the detection and mitigation of a loss of alertness or attention in train drivers. Two TOCs and a FOC have agreed to pilot technology based on the findings of T1193; the formal procurement process for equipment is complete and contract negotiation with the preferred supplier is under way.

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

- taken the recommendation into consideration; and
- is taking action to close it

Status: Open.

Information in support of ORR decision

6. On 20 October 2022 RSSB provided the following initial response:

I am pleased to report that we accept the recommendation and will be addressing it through project IMP-T1193 (trialling technology to monitor train driver alertness and attention). This aims to understand the health and safety benefits that technology to monitor train driver alertness and attention can bring to GB rail.

Research project T1193 (Understanding the Functional Requirements for Train Driver Attention and Alertness Monitoring Devices) explored the functional requirements for technology that could be used in GB rail. This work delivered:

- *Assessment and evaluation of indicators and existing technology used in a range of different industries*
- *Operational learning from Croydon Trams and other companies and industries who have implemented technology (including aviation, haulage, road vehicles, light rail, trams and European heavy rail)*
- *A good practice model for trialling and implementing technology*
- *Fair culture principals for the implementation and operation of technology*
- *A specification setting out the functional requirements for technology to monitor train driver alertness and attention in GB rail*

The outputs of T1193 can be accessed here: https://www.rssb.co.uk/research-catalogue/CatalogueItem/T1193

Three pilot companies (C2C, LNER and DB Cargo) will be responsible for procuring and fitting a technology (based on the functional requirements developed in T1193 and with co-ordinating support by the RSSB project team where required). The RSSB IMP-T1193 will co-ordinate the trial of the technology to evaluate the role that driver alertness and attention monitoring technology and a fair culture approach may have in:

- *Developing our understanding of the causes of loss of attention, alertness, and fatigue.*
- *Identifying opportunities to improve, and how to improve, alertness, attention, and fatigue management at the individual and company level as part of a fair culture approach.*
- *Reducing the consequences of loss of alertness and attention events by physically warning drivers of potential loss of alertness and/or attention.*
- *Reducing the number of safety incidents related to fatigue and loss of alertness and attention.*

The trial has ASLEF support and industry commitment to complete the trial by the end of March 2025. The fitment programme is being funded by two different sources of income (grants), thereby demonstrating the industry's collaborative commitment to this work. The trial will include developing and implementing enablers to effectively implement and trial the technology (generated from the operational learning and good practice model developed in T1193), namely:

- *Implementation of fair culture principles generated from Phase 1 and agreed by the steering group (pilot companies, ORR, RDG, ASLEF, Network Rail, RSSB, Croydon Trams)*

- *Operational procedures setting out how the technology will operate day to day, safety status of the technology, responding to activations and data analysis and management*
- *Procurement, installation, testing, collaboration and maintenance strategy for the technology*
- *Decommissioning strategy for the technology.*

Phase 2 started in October 2022, with a focus on developing and implementing the enablers in collaboration with the trial companies. The governance of the project is as follows:

a) *The Driver Attention and Alertness Steering Group (DAASG), which is made up of the RSSB technical leads, ORR, ASLEF, Croydon Trams; representatives from the trial companies, Rail Partners and Network Rail*
b) *Project team, which is made up of RSSB research, human factors, operations, rolling stock, risk, engagement and procurement functions, and representatives from the trial companies*
c) *Internal trial company teams, which are specific project teams for each pilot company responsible for driving the project within each company.*

The trial itself is aiming to start in June 2023 for one year, with analysis taking place at 6 months and 12 months followed by reporting and recommendations to industry.

7. On 28 June 2023 RSSB provided the following update:

Period 8 (2022):

17/11/22: The project team is continuing the briefings to the various levels of the three trial companies, including a scheduled meeting with reps from all companies. The quarterly meeting with DAASG took place on 1 November, with members declaring support for the list of actions envisaged by the project team. A visit is scheduled to Croydon Trams for the trial companies to explore the Guardian technology. The operational requirements have started to be developed and preparatory work for procurement activity is under way, including finalisation of the functional requirements for the technology.

Period 9 (2022):

14/12/2022: The project team is supporting the trial companies on procurement and operational levels to continue developing the necessary documentation for the installation. A supplier day is scheduled for 13 December. This is a 'show and tell' event so all concerns can be discussed and addressed sooner rather than later. The formal procurement process is scheduled to start in January 2023.

Period 10 (2023):

11/01/2023: Workshops have been held with drivers, signallers and controllers. These have provided outputs on the current process and how well it is working in its implementation. A follow-on workshop is required to evaluate the effectiveness of the current controls. These will be held in early February.

Period 11 (2023):

09/02/23: The project team is supporting the trial companies on procurement and operational workstreams to continue developing the necessary documentation for the installation. Further advancements have been made in signing the funding contracts and in identifying the procurement path for all three trial companies. The formal procurement process is set to be finished by late February 2023.

Period 12 (2023):

08/03/23: The formal procurement process is now expected to be finished by mid-March 2023.

Period 13 (2023):

05/04/23: The project team is continuing to support the trial companies on procurement, operational workstreams, engineering change request packages and cyber security for data sharing, as well as continuing to develop the necessary documentation for the installation. Further advancements have been made in signing the funding contracts and in preparing the tender documents for procurement of the necessary equipment. The formal procurement process of engaging with the suppliers is set to start in April 2023.

Period 1 (2023):

03/05/23: The formal procurement process noted in the last update is due to be completed on 5 May. The selection of the preferred supplier for the work will then begin.

Period 2 (2023):

31/05/23: The project team is continuing to support the trial companies on procurement, operational procedures, trial plan and safety analysis, based on the high-level hazards list. The formal procurement process for equipment is due to be completed in the week commencing 5 June with the contract negotiation with the preferred supplier to be completed before the end of that month.

Period 4 (2023):

26/07/23: The formal procurement process for equipment is complete and contract negotiation with the preferred supplier is under way.

Recommendation 2

The intent of this recommendation is that the risk of buffer stop collision on the Merseyrail network is appropriately understood and controlled.

Merseyrail, working with Network Rail, should review the process of risk assessing buffer stop collisions to ensure that it identifies all foreseeable situations which could lead to a collision, and applies appropriate risk control measures. The review should include consideration of historic accidents

ORR decision

8. Merseyrail and Network Rail have reviewed the risk assessment process for buffer stop collisions. Network Rail had planned to issue the revised standard by June 2023, but has been delayed and we have asked for a reforecast date. Compliance with the revised standard was expected by September 2023, but this may be reforecast depending on when the standard is issued.

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

- taken the recommendation into consideration; and
- is taking action to close it

Status: Open.

Information in support of ORR decision

10. On 11 November 2022 Merseyrail provided the following initial response:

Merseyrail engaged formally with Network Rail and the report was reviewed at the Network Rail National Recommendations Review Panel on 6th September 2022. The following actions have either taken place or have been completed to close out the recommendation, notably:

a) The management of risk was reviewed between Network Rail Track and Signalling departments to inform the risk assessment process, with a Bow Tie representation to revise the risk assessment templates across both disciplines. Completed.

b) Work to produce the Bow Tie has reached conclusion, in the last workshop held on the 24th of October 2022. Completed.

c) Consequent review of Risk Assessment templates is planned to complete in January 2023, and is expected to prompt issue of revised standards, with an expected issue in June 2023. Thereafter, action compliance to review buffer stop collision for Merseyrail is expected in September 2023. Open and due for completion.

11. On 19 July 2023 ORR asked Merseyrail if the revised standards were issued in June 2023 and is September 2023 still the expected compliance date. Merseyrail responded on 20 July 2023 stating that they had not received the revised standard and asked Network Rail for advice on progress.

12. On 9 November 2022 Network Rail provided the following initial response:

In relation to recommendation 2 Network Rail is working with Merseyrail and have committed to the following actions:

- *The management of risk is being reviewed between Network Rail Track and Signalling departments to inform the risk assessment process, with a*

Bow Tie representation to revise the risk assessment templates across both disciplines.

- *Work to produce the Bow Tie task was concluded in the last workshop held on the 24th of October 2022.*
- *Consequent review of Risk Assessment templates is planned to complete in January 2023, and is expected to prompt issue of revised standards, with an expected issue in June 2023. Thereafter, action compliance to review buffer stop collision for Merseyrail is expected in September 2023.*

Recommendation 3

The intent of this recommendation is that Merseyrail should appropriately and effectively address the risk of fatigue.

Merseyrail should review and improve its current fatigue risk management system for safety critical staff to confirm that it meets relevant industry guidance and good practice. This review should be based on an assessment of work activities and their associated risks and available risk controls. The review should consider relevant law, guidance and practice

ORR decision

13. Merseyrail commissioned an independent review of fatigue risk management arrangements, which made three recommendations: develop a Fatigue Risk Management Plan (FRMP) using the RSSB March 2020 guidance; review use of the ORR Fatigue Factors when planning and allocating work; and establish a Fatigue Working Group (including employee representatives) which would own the FRMP. We have asked Merseyrail for an update on this work and if it is expected to be completed by 31 August 2023.

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

- taken the recommendation into consideration; and
- is taking action to close it

Status: Open.

Information in support of ORR decision

15. On 11 November 2022 Merseyrail provided the following initial response:

Merseyrail appointed a consultancy firm to undertake an independent review of the current Fatigue Risk Management arrangements in Merseyrail. The aim was to present a clear and evidence-based report outlining current arrangements and comparing them against current RSSB guidance and best practice.

As a result of the review, there are three recommendations that Merseyrail will take forward and implement, with a proposed timetable indicated:

The three key indicators of current Good Practice have been allocated as deliverables within the 2023 Safety Strategy as follows:

a) *MEL develop a specific Fatigue Risk Management Plan (FRMP) using the RSSB March 2020 guidance as a basis to demonstrate that fatigue risk is receiving leadership commitment, and that fatigue risks have been given a priority for review and improvement. This guidance provides those with direct responsibilities for managing fatigue a starting point from which to establish a FRMP. For those with more mature systems, it acts as a reference point for comparison. This action has been allocated to be created by the 30th of May 2023. Open and due for completion.*

b) *MEL should enhance the use of the 'Hidden' criteria and review the published ORR Fatigue Factors as to their use when planning and allocating work. These 'fatigue factors' are used as a comparator of best practice by the RAIB when investigating incidents, the implication being the higher the number of fatigue factors which occurred, the weaker the duty holder's management system is likely to be in controlling fatigue risk. On reflection positively, MEL adopt a high percentage of the listed factors, however this recommendation will be evaluated, and an associated improvement plan will be determined by the 30th of July 2023. Open and due for completion.*

c) *It is recommended that Merseyrail establish a Fatigue Working Group including employee representatives which would own the FRMP, with a remit that is structured to take the organisation over time from the current situation to bring it up to best practice in the UK TOC Community. The existence of evidence in this area will demonstrate a strong level of leadership commitment and management engagement, all of which have been identified as being critical to successful fatigue risk management. The working group will be formulated by the 31st of August 2023. Open and due for completion.*

These actions will be included in the Merseyrail 2023 Safety Strategy and furthermore, the recommendations have been discussed with the ORR lead inspector. We will continue to update our Inspector on our progress.

16. On 19 July 2023 ORR asked Merseyrail to you confirm if the work is still on track and is expected to be completed by 31 August 2023. Merseyrail responded on 20 July 2023 as follows:

Rec 3: *As per below:*

- *Merseyrail have developed a specific Fatigue Risk Management Plan (FRMP) using the RSSB March 2020 guidance as a basis.* ***Completed and ongoing.***

- *Furthermore, have establish a Fatigue Working Group with a remit that is structured to take the organisation over time from the current situation to bring it up to best practice in the UK TOC Community.* ***Completed and ongoing.***
- *Part of the works include that the ORR's Fatigue Factors are built into operating processes. Evaluation underway and actions formed as part of the FRMP.* ***Completed and ongoing.***

The three areas have been captured and now form part of the FRMP and will be on going. The plan including progress is shared with our ORR Inspector Anneli and now Andrew McGurgan (cc'd in).

To note, the RSSB plan to release new guidance by the end of the year also which will form part of our ongoing strategy.