

**Oliver Stewart**  
**Senior Executive, RAIB Relationship and**  
**Recommendation Handling**



26 October 2017

Mr Andrew Hall  
Deputy Chief Inspector of Rail Accidents

Dear Andrew,

**RAIB Report: Collision between a train and a piece of equipment at Barrow-on-Soar, Leicestershire, 14 February 2016**

I write to report<sup>1</sup> on the consideration given and action taken in respect of the three recommendations addressed to ORR in the above report, published on 27 October 2016.

The annex to this letter provides details in respect of each recommendation. The status of recommendation 1 is '**implemented**' for Tarmac and '**progressing**' for Wabtec. The status of recommendation 2 is '**implementation on-going**'. Recommendations 3 and 4 are both '**non-implementation**'.

Since passing the recommendations to Wabtec, we mistakenly did not contact them with some further questions following our internal review meeting. They have since provided some further information which we will review in due course and then update RAIB if we consider it changes the status of any of the recommendations.

Yours sincerely,

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<sup>1</sup> In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Oliver Stewart

## Initial consideration by ORR

1. All 4 recommendations were addressed to ORR when the report was published on 27 October 2016.
2. After considering the recommendations ORR passed recommendations 1, 2 and 4 to Wabtec and 1, 3 and 4 to Tarmac 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 report to the attention of all other ECMs operating in the UK as it was concluded that there are equally important lessons for them. ORR did not ask these organisations to provide a reply. To ensure all relevant ECMs were identified, the report and the actions taken were also brought to the attention of the Private Wagon Federation (PWF) and Freight Technical Committee (FTC).
4. The report and learning points also informed ORR's project into the recertification of ECMs for freight wagons.

## Recommendation 1

*The intent of this recommendation is that Tarmac and Wabtec take steps to address the risk that the use and maintenance of rail vehicles poses to passing trains, not just directly to staff.*

Tarmac and Wabtec should review and improve their processes for hazard identification and risk assessment to ensure that they encompass consideration of the risk that their rail operations, including maintenance activities, might pose to other railway operations

## ORR decision

### Wabtec

5. We have asked Wabtec to confirm the outcome of their review into their processes for hazard identification and risk assessment and to qualify what they consider constitutes a mature SMS. The outcome of the review and how it is implemented will also be considered through usual supervision of the duty holder.
6. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Wabtec has:
  - taken the recommendation into consideration; and
  - is taking action to implement it, but ORR has yet to be provided with the outcome of their review and a time-bound plan for any resulting actions.

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

## Information in support of ORR decision

7. On 17 February 2017 Wabtec provided the following initial response:

*1.1 Wabtec has considered and reviewed its process for hazard identification and risk assessment and made some enhancements to ensure that, where necessary, there is consideration of what potential risks arise from its maintenance activities to other railway third party operations.*

*1.2 As part of Wabtec's continuous and pre-existing effort to ensure high standards in relation to safety, an approach internally known as "Deepwater Horizon" ("DWH") has been introduced. This includes a Failure Mode Effects Analysis ("FMEA") process to consider and assess the severity, likelihood and ease of detection of risk and generate a risk priority number ("RPN"). These ratings score from a reliability, safety and quality perspective.*

*1.3 FMEA also involves consideration of potentially the worst case scenarios. In regard to off-site freight facilities, FMEA considers the vehicles being maintained and the tasks undertaken, breaks the train structure down into different component parts and elements, and considers any potential risks arising from them that could affect other railway operations.*

*1.4 By focusing on the highest RPNs identified, the most significant critical risks will be regularly inspected by Wabtec management on a daily, weekly and monthly basis. Furthermore, additional health and safety ("H&S") site audits are also being undertaken across all freight off-site facilities to consider current site arrangements and what hazards have been assessed. This has involved shadowing employees working on site and observing the type and frequency of tasks carried out, and assessing locations and proximity of work to other operations. If locations are near to any running lines, it will consider what alternative locations may be available, if not already considered, and what, if any, other potential risks may arise from work at that location.*

*1.5 The above thinking, process and approach is already well underway, but will become more mature during 2017. It will ensure management continues to focus on the most important and critical areas identified and ensure that any potential risks have been identified and adequate controls are implemented.*

*1.6 Wabtec already operated a suite of generic and specific risk assessments, but also intend, as belt and braces, to add a specific rail operations section to the hazard identification section of its master risk assessment by end of March 2017, to ensure that, where not otherwise assessed and considered i.e. by site rules, safe systems of work, specific risk assessments, infrastructure operations and hazards are considered.*

## Tarmac

8. We are content that Tarmac have reviewed their processes for hazard identification and risk assessment and identified a number of improvements.

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

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

**Status: Implemented.**

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

10. On 30 March 2017 Tarmac provided a list of documents and processes they had in place at the time of the incident. The processes they had in place to assess and control the risks associated with operating a freight yard were summarised as follows:

*Tarmac had a number of process/procedures in place pre incident for hazard identification and risk assessment which included: Rail Standard 41, HIRA, Joint Methods of Working and Tracksides Awareness Training to set fundamental standards in relation to the way in which the businesses rail operations were conducted.*

*The purpose of these processes/procedures was to educate site managers and employees about hazard identification and risk assessment, with the overall aim of reducing the risk arising from rail activities (including maintenance) to a level as low as reasonably practicable.*

*Irrespective, post incident Tarmac invested in detailed a health and safety review of the operations at all of its 47 sites which encompass rail activity to assess the suitability of controls in place, particularly around risk management and contractor control procedures.*

*All HIRA's were reviewed to ensure that they were suitable and sufficient. In addition JMOW's were reviewed to ensure that they were sufficiently clear and concise so that roles and responsibilities were understood.*

*As a separate exercise, Tarmac instructed (a) RailFreight Consulting to audit all of its Train Operators; and (b) David Barney (Chairman of the Private Wagon Federation and Industry Expert), to audit the activities of Wagon Operators.*

*Where non-compliance has been identified, each lead contact at the relevant supplier has been asked to revert to tarmac to verify (a) the measures taken; and (b) to confirm that the non-compliance has been addressed.*

*All outstanding matters have now been dealt with, and so far as Tarmac are aware all suppliers are acting in accordance with all relevant rail regulations and associated health and safety legislation.*

*In addition, Tarmac have implemented a new Track Management Standard which sets out Tarmac's requirements in detail to ensure that all sites are correctly managed. Compliance is verified by annual audit/inspection, or sooner if circumstances arise when an earlier review is warranted.*

*Additional training has also been delivered to Tarmac employees who have responsibilities for rail activities at Tarmac's sites, which has included: (a) Rail Safety Workshops delivered by VictaRailFreight in Manchester, London, Edinburgh and Cambridge. The Workshops covered: health and safety responsibilities on site; management of documentation; hazard awareness; key interactions with personnel on site; and management of contractors. To date over 100 managers and supervisors have received this training; and (b) enhanced Tracksides Awareness training which is compulsory and employee understanding assessed by way of course assessment.*

## **Recommendation 2**

*The intent of this recommendation is to ensure that Wabtec's management of maintenance and inspection is effective.*

Wabtec should review its management arrangements at Barrow Railhead to ensure that the maintenance and inspection procedures are clearly defined, understood and correctly executed. This should include definition of the areas of the site where the type of work is prohibited or permitted.

This may also apply to other Wabtec maintenance sites.

## **ORR decision**

11. ORR is content with the review of the management arrangements Wabtec have carried out at the incident location and support the revised arrangements they plan to have in place by the end of 2017.

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

- taken the recommendation into consideration; and
- is taking action to implement it by 31 December 2017.

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

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

13. On 17 February 2017 Wabtec provided the following initial response:

2.1 Following the events at Mount Sorrell on 14 February 2016, Wabtec committed to reviewing its arrangements at site with input from its management, site, and health and safety team. Given that Tarmac oversee and control all of site operations, Wabtec gave consultation and sought agreement from Tarmac.

2.2 As a result of that review and specifically, in response to controlling scope of work and locations of work at Barrow Railhead, an updated Safe System of Work for WRL personnel at Barrow Railhead (Tarmac) was produced and approved in June 2016. Tarmac's Site Manager signed off on the document to agree to the revised system of work. The intention of the revised document was to provide further clarity around designated work areas, operations, and maintenance activities to be carried out, and define where work could and could not take place.

2.3 As previously mentioned already for recommendation 1, Wabtec are undertaking an audit of its remote freight off-site maintenance facilities to ensure that arrangements remain adequate. This initial process has already allowed the highest risk sites (based on proximity to main line railway operations and frequency of work) to be identified. All of the potentially highest priority risk sites have been visited by a review team, consisting of an independent health and safety expert (a former principal HSE Inspector) and a Wabtec Freight fitter, to consider hazards on those sites and methods for their control.

2.4 A new suite of documentation has also been designed to help standardise and reinforce the 'Essential Site Safety Rules' ("ESSR") at each location, detailing in clear and concise language, with the support of pictures to illustrate acceptable practices. These documents specifically include the following sections:

2.4.1 Tasks Permitted on Site; 2.4.2 Sign-in and induction requirements 2.4.3 Lone Working Requirements; 2.4.4 Personal Protective Equipment; 2.4.5 Work Restrictions; 2.4.6 Line Protection; 2.4.7 Shunting Operations; and 2.4.8 Emergency Contact Numbers.

2.5 "Work Restrictions" will detail any specific requirements where there may be any potential proximity risk to third party railway operations and how these will be controlled. New ESSR documents are currently being rolled and trained out and will be completed by end of 2017, starting with the most regularly visited sites by Wabtec freight department and those closest to mainline operations.

2.6 Wabtec is also investing in new technology and hardware to enable documents to be more readily distributed to the off-site fitters electronically via a central server. Each off-site fitter will be issued with a personal iPad and receive all ESSR documentation via this. The application requires each user to read and acknowledge receipt and understanding of the ESSR. There is a 'Golden Rules' questions criteria that provides a booking-on procedure requiring fitters to answer ten questions prior to work. If they cannot answer in the affirmative to all questions, work will not proceed. It is anticipated that this technology will be deployed and put into use by June 2017. This reporting process and the further regular inspections, which will take place as part of the

*DWH process, provide a further way of readily monitoring and checking execution of ESSR.*

*2.7 In light of the above, this will ensure that Wabtec will naturally consider this recommendation, if required, across its other sites. Wabtec are confident that its systems and approach would, if not already, identify hazards and necessary controls to manage and mitigate risk that may arise from its maintenance activities, including of electrical systems, where necessary. Wabtec anticipates in adopting the approach set out in regards to recommendation 1 and 2; this will continue to ensure that Wabtec's management of its maintenance activities and inspections remain effective.*

### **Recommendation 3**

*The intent of this recommendation is for Tarmac to prevent continued operation of rail wagons it owns with known defects, without introducing measures to mitigate the associated risks.*

Tarmac should review its management processes, and their implementation, to identify why no action was taken to manage the risk from continued operation of the unloading wagons after it had been informed of the unacceptable condition of the electrical system. It should introduce any necessary changes to prevent a similar occurrence

### **ORR decision**

14. It is clear from Tarmac's response that they don't agree with the recommendation. Since the RAIB report was published, the SDT fleet has been scrapped and Tarmac does not own any other wagons, therefore is no longer necessary for them to have a management process for operating wagons they own with known defects. However, Tarmac do have a management process for FOCs to report any wagon defects they identify in leased wagons and for appropriate action to be taken. Tarmac consider the existing processes to be reasonable and have not undertaken a further review.

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

- taken the recommendation into consideration;
- but do not consider any action necessary to implement it

**Status: Non-Implementation**

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

16. On 30 March 2017 Tarmac provided a detailed response and supporting documents. The conclusion of the response stated:



3.21 Tarmac engaged Wabtec as a competent, reputable, specialist, Network Rail approved rail maintenance contractor, based upon their capability, excellent reputation, and recognition within the industry.

3.22 Tarmac relied upon the advice provided by Wabtec as ECM as to what improvements were required and when. At no point did Wabtec state that the improvement works to the electrical system of the SDT were safety critical, rather the reason for the works was to improve reliability.

3.23 Wabtec issued their first quote for the electrical works in February 2014, and their second quote issued on 11 August 2015, which Tarmac approved and requested that Wabtec proceed with the first phase of design work - a completely new electrical system for 114 wagons to include a fully compatible re-wire across the whole system.

3.24 As at the date of the incident:

- a. Wabtec had implemented some electrical improvements to the SDT;
- b. Tarmac was waiting for Wabtec's electrical team to become available to undertake the remaining phases of the design work;
- c. Tarmac and Wabtec had put a system in place to monitor electrical failures which revealed a reasonable level of reliability; and
- d. Tarmac were still in discussions with relevant stakeholders as to the future of the SDTs (albeit the SDT did hold a future order book for 2016-2017).

3.25 The total investment in the SDTs from 2014 through to 2016 was near £2.25m demonstrating that Tarmac has invested and continued to invest in the future of the SDT fleet.

3.26 Evaluating the appropriate upgrade to the electrical system formed part of that investment. It was not therefore the case that Tarmac were not 'taking any action to manage the risk from the continued operation of the unloading wagons after it has been informed of the condition of the electrical system'. The chronology demonstrates that a careful and considered approach was in fact adopted.

17. On 22 October 2017, Tarmac provided the following further information in response to a question about the procedures they have in place for wagons they lease rather than own:

*All wagon defects are identified by the Freight Operators during train preparation (a mandated check on the train pre-departure on all trains).*

*The Freight Operators then report the defect to the relevant leasing company via TOPs and if necessary removes the wagon from the train.*

*Depending upon the location of the Wagon, either Tarmac, or the Freight Operator then positions the wagon for maintenance (it depends as to who does the shunting, and that changes per site).*

*The relevant entity undertakes the maintenance, and prior to the wagons return to the mainline, a further mandated pre-departure check is carried out to ensure that the wagon is defect free prior to operation.*

#### **Recommendation 4**

*The intent of this recommendation is to ensure that the electrical system deficiencies are addressed before any of the SDT fleet re-enters service.*

Before any re-entry to service, the registered keeper of the SDT vehicles should ensure that the condition of the electrical system is restored to be safe to operate in the environment in which it is to be used

#### **ORR decision**

18. In responding to the recommendations, Tarmac reported that they are planning to scrap the SDT fleet, so the recommendation to address deficiencies with the electrical system would no longer be relevant. Tarmac confirmed on 22 October 2017, that the SDT fleet have all now been scrapped.

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

- the recommendation into consideration; but
- is not taking action to implement it as the SDT has been scrapped meaning the recommendation no longer relevant.

**Status: Non-Implementation.**

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

20. On 17 February 2017 Wabtec provided the following initial response:

*3.1 Wabtec understands that having been grounded on 14 February 2016, there has been no realistic prospect of the SDT fleet re-entering service and that the registered keeper, Tarmac, intends to scrap the fleet during March and April 2017.*

*3.2 The decision as to whether the fleet re-enters service, is not something which Wabtec has any control. Therefore, in the event that the registered keeper should decide to place the fleet back into operational service, Wabtec would as the Entity in Charge of Maintenance ("ECM") assist Tarmac to ensure that the condition of the electrical system was in a fit state prior to use (specifically having regard to paragraphs 64, 69, 107, 122, 131, 132 and 133 of the RAIB report.)*

*3.3 Wabtec acknowledge all findings made and learning points identified by the report. As an ECM and freight vehicle maintainer, Wabtec also recognise the importance of its role and legal obligations to maintain vehicles in a safe condition, and remain fully committed to ensure that such obligations are complied with.*