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3 February 2023

Mr Andy Lewis
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Andy,

RAIB Report: Freight train derailment at Lewisham, south-east London on 24 January 2017

I write to provide an update¹ on the action taken in respect of recommendation 2 addressed to ORR in the above report, published on 28 February 2018.

The annex to this letter provides details of actions taken in response to the recommendations and the status decided by ORR. The status of recommendation 2 is '**Closed**'.

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 6 February 2023

Yours sincerely,

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

Oliver Stewart

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

Recommendation 2

The intent of this recommendation is to ensure suitable confirmation that the track is adequately supported, or where this is not possible, that suitable mitigation measures are put in place, in particular following renewal and heavy maintenance, where there has been significant disturbance to the track and ballast.

With respect to hand back into service following track renewal, and other work likely to result in significant change to track geometry or the supporting ballast, Network Rail should:

- assess and define the criterion (for instance degree of track bed disturbance) for which it is expected that the vertical track geometry should be confirmed under load, and
- define the specific mitigation measures that need to be applied when this is not possible.

It should then update its process and guidance to include objective limits and mitigation measures, as necessary, and brief its track teams (both in-house and those working for its suppliers and contractors) on changes made.

ORR decision

1. As set out in the closure statement, Network Rail have undertaken a thorough and detailed review of their control standards and guidance regarding criteria for confirmation of vertical track geometry following track bed disturbance, and mitigation arrangements required when this confirmation is not possible. Network Rail have concluded that the standards and guidance clearly define the criterion for which it is expected that vertical track geometry must be confirmed under load and mitigation where this is not possible.

2. An ORR track engineer undertook a detailed review of Network Rail's closure statement against the requirements of the recommendation and identified areas where further clarification/discussion was required:

- the use of remote monitoring equipment.
- use of maintenance tolerances vs. design tolerances
- temporary hand back of track into traffic (e.g. between weekend possessions)
- use of manual lifting and packing for S&C, particularly where the design has complexities. (Note: this is covered under recommendation 1 from the RAIB report).

3. These issues were discussed in detail with Network Rail in May 2020 with further detail provided to ORR in writing addressing the issues raised. We noted that:

- Network Rail have product acceptance for remote condition monitoring of voids under track and such equipment is available for use. Such

products have been incorporated into specific instructions, e.g. for high speed handback.

- Maintenance tolerances are the minimum safety of line requirements, and design tolerances set quality requirements.
- Temporary hand back risks are controlled by correct application of the requirements of Module 13 of NR/L2/TRK/001.

4. From our review and discussions with Network Rail, we concluded that the control standards and the review of them address the recommendation:

- criteria for confirmation of vertical track geometry following track bed disturbance, and
- define the specific mitigation measures when this is not possible.

5. We also noted the application of these standards by a competent engineer, the work implemented in response to recommendations 3 & 4 and the work nearing completion for recommendation 1, taken as a package, address the risks identified from the RAIB Lewisham investigation report.

6. 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
- taken action to implemented it.

Status: Closed.

Previously reported to RAIB

7. On 22 February 2019 ORR reported the following:

The RAIB report identified soft spots in the track bed as a potential factor in the incident. The recommendation refers to track bed disturbance, but the response is framed in the terms of ballast disturbance. We have asked Network Rail to confirm that the scope of the review (and any subsequent action) covers both ballast stiffness and track bed stiffness.

As with Rec 1, we have asked Network Rail for feedback after step 1 (March/April 2019) in order to understand the outcome of the review of current standards, processes and practices before any subsequent programme of work is finalised.

Update

8. On 15 October 2019 Network Rail provided the following closure statement.

Undertaken a thorough detailed review of

9. Network Rail state in summary the following:

In Summary, current standards already clearly define the criterion for which it is expected that the vertical track geometry must be confirmed under load, i.e. in every case following renewal.

In detail, a review of company Standards, guidelines, methods of measurement and assessment of track renewals has been undertaken, to assess criterion for which it is expected that the vertical track geometry should be confirmed under load, and specific mitigation measures needed to be applied when this is not possible.

The criterion for confirming vertical track geometry underload is defined by the following forms of measurement.

- *Dynamic track geometry recording by tampers where available.*
- *Surveying equipment to provide static measurement supported by void meters to determine the dynamic element of measurement.*
- *Visual inspection of the track under the passage of trains, including on site engineering trains and on track machines.*
- *Controlled, documented assessment by suitably certified & competent persons.*
- *Continued assessment of the track under the passage of trains until the competent person is satisfied.*
- *Contingency plans if the track does not meet the requirements for the safe operation of trains at the proposed opening speed.*

The considered response of the Chief Engineer [Track and Switch & Crossing] is that the above provision for the recommendation is sufficiently addressed. The intent of this recommendation has been met and therefore considered CLOSED.

Previously reported to RAIB

Recommendation 2

The intent of this recommendation is to ensure suitable confirmation that the track is adequately supported, or where this is not possible, that suitable mitigation measures are put in place, in particular following renewal and heavy maintenance, where there has been significant disturbance to the track and ballast.

With respect to hand back into service following track renewal, and other work likely to result in significant change to track geometry or the supporting ballast, Network Rail should:

- assess and define the criterion (for instance degree of track bed disturbance) for which it is expected that the vertical track geometry should be confirmed under load, and
- define the specific mitigation measures that need to be applied when this is not possible.

It should then update its process and guidance to include objective limits and mitigation measures, as necessary, and brief its track teams (both in-house and those working for its suppliers and contractors) on changes made.

ORR decision

1. The RAIB report identified soft spots in the track bed as a potential factor in the incident. The recommendation refers to track bed disturbance, but the response is framed in the terms of ballast disturbance. We have asked Network Rail to confirm that the scope of the review (and any subsequent action) covers both ballast stiffness and track bed stiffness.

2. As with Rec 1, we have asked Network Rail for feedback after step 1 (March/April 2019) in order to understand the outcome of the review of current standards, processes and practices before any subsequent programme of work is finalised

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
- is taking action to implement it by 30 June 2020.

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

Information in support of ORR decision

4. On 5 December 2018 Network Rail provided the following initial response:

Network Rail will review the processes concerning handback into service following ballast disturbance that may result in significant change to track geometry or the supporting ballast.

1. The process to be applied to the review/consideration

- 1.1. Review the guidance currently provided within Network Rail standards and Track Work Information sheets (by March 2019);
- 1.2. Providing an overview of available dynamic testing methodologies;
- 1.3. Consider the need to provide a form of risk based approach to inform concerning the hand back of track after significant disturbance & failure of OTM (by March 2019);
- 1.4. Consider how dynamic track geometry can be continually monitored on disturbed ballast sites until the track bed is deemed settled (by March 2019);
- 1.5. Confirming the criteria which should be used to determine whether disturbed Track should be monitored dynamically (by March 2019).

2. The rigor to be applied to understanding potential issues

- 2.1. Do the current standards & existing bow ties to date provide clarity on the risks associated with disturbed ballast sites in respect to the management of track geometry? If found inadequate revise Standards & Bow ties;
- 2.2. What are the current methodologies available & any alternatives? Are they effective in notifying the responsible party of the risk of derailment from dynamic geometry irregularities due disturbed ballast sites still requiring settlement.? What alternatives measures are available & the practicality of employing such?
- 2.3. What are the additional factors that contribute towards the risk of derailment for disturbed ballast sites, e.g.
 - Frequency of measurement / monitoring
 - Duration of measurement / monitoring
 - S&C
 - Line speed
 - Axle load
 - Component type
 - Competence

3. The person proposed to be involved in the review/considerations

- 3.1. STE, Principal Track Engineer Ian Dean leading a workshop of other STE members with members of RAM track & IP teams.

4. How the outcomes of the review/consideration will be documented

- 4.1. If adequate, summarise the salient points in the closure statement. (April 2019). If inadequate, set a programme to undertake an update to the standards / bow ties as appropriate. (October 2019). Note the use of the standards Emergency Change process will be considered if an earlier issue of updated critical or baseline limits is needed.
- 4.2. Summarise in a report the current state of the art & found deficiencies. Set a programme to conduct any improvements as appropriate (October 2019).
- 4.3. Undertake dissemination at quarterly Standards briefing as appropriate. The requirements of any new or revised Standards will be included within the corporate Functional Audit Plan and/or Engineering Verification regimes (December 2019).
- 4.4. Standards compliance date - March 2020.

*4.5. Post-implementation review of standards change (June 2020).
Timescale: 30 June 2020*