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Ms Carolyn Griffiths  
Chief Inspector of Rail Accidents  
Cullen House  
Berkshire Copse Rd  
Aldershot  
Hampshire GU11 2HP

Dear Carolyn,

**RAIB Report Locomotive derailment at Ordsall Lane Junction, Salford, 23 January 2013**

I write to report<sup>1</sup> on the consideration given and action taken in respect of the recommendations addressed to ORR in the above report, published on 31 March 2014.

The annex to this letter provides details of the consideration given/action taken in respect of each recommendation.

We expect to update you on progress with regard to recommendation 3 by 31 July 2015.

Where recommendations are being reported as 'Implementation on-going' ORR will continue to monitor progress and will advise RAIB when actions being taken to address this recommendation have been completed.

We will publish this response on the ORR website on 30 April 2015.

Yours sincerely,

Russell J Keir

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<sup>1</sup> 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 31 March 2014.
2. After considering the recommendations ORR passed the recommendations to Network Rail asking it 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 this report to the attention of London Underground and Nexus Rail as it was concluded that there are equally important lessons for them. ORR did not ask these organisations to provide a reply.
4. The HRA brought this report to the attention of its members in its newsletter: Operating and Safety Matters.

### Recommendation 1

*The intent of this recommendation is to reduce the risk of derailment on small radius curves by ensuring that non-compliances with currently prescribed requirements for check rails are identified and mitigated.*

Network Rail should identify all curves that are non-compliant with Railway Group standard GC/RT5021 [Track System Requirements] and Network Rail standard NR/L2/TRK/2102 [Design and Construction of Track] in respect of the need to fit a check rail. For each identified curve, Network Rail should implement measures to adequately mitigate the risk of derailment. These may include one or both of the following methods, although other means of mitigation may also be appropriate:

- installing a check rail on the curve; and
- managing rail lubrication on the curve to a suitable level of availability.

Implementation of this recommendation may require Network Rail to review curvature information recorded on track geometry measurement train runs.

### Steps taken or being taken to address the recommendation

5. On 23 July 2014, Network Rail provided the following information:  
*A review has commenced and sites recorded by track geometry measurement train runs have been analysed and distributed to routes for confirmation of:*

- *track construction and presence of check rail*
- *lubrication regime and maintenance status*
- *operational usage (intensity and vehicle type)*
- *additional tracks recorded by means other than measurement trains for similar analysis*

*The focus of the review will be passenger lines and freight adjacent to line usage as described above; it is intended to exclude freight only lines from this exercise.*

*The responses and details will be monitored through the Special Inspection Notice (SIN) procedure.*

*Confirmation of site conditions will enable prioritised implementation to be planned based on the degree of non-compliance, the site specific risks and pre-existing mitigation actions.*

*Track construction type will significantly affect the ease and speed with which check rails can be installed. Site specific intervention actions will be developed from a range of options which will include:-*

- *determination and confirmation of existing lubrication regime (all sites)*
- *enhancement of lubrication regime*
  - *fitment of check rails to existing construction*
  - *wood – relatively straightforward*
- *concrete – very disruptive*
- *relay to compliant design*

*In some extreme cases mitigation may include operating restrictions. In particular the routing of excursion trains, heritage rolling stock or vehicles with P1 wheel sets over higher risk locations may have to be prohibited pending commercial considerations.*

*The initial responses to the data collection SIN are expected by the end of September 2014. The nature, extent and timescales for subsequent action will be developed and planned by 31 January 2015.*

*The resource profile for the fitment of check rails or relaying of track will be co-ordinated and prioritised with other track renewals and investment programmes.*

*Timescale: 31 January 2015*

6. The SIN sets out the requirements for curves of less than 200m radii and for curves with radii between 201m and 250 m. Where it is identified that a check rail is fitted, it requires engineers to consider the adequacy of interim arrangements to reduce the risk of flange climb (section 5) pending a longer term solution.

7. The SIN requires that for curves with a radii  $\leq 200\text{m}$ , that a resourced programme to enable all sites to be fitted with a check rail within 52 weeks of SIN publication be approved by the Route RAM(T) and submitted to the Professional Head Track by 20 March 2015. Similar arrangements exist for curves between 201m and 250m by 17 July 2015, although the plan should only identify where a check rail is required, by priority.

8. On 27 February 2015, Network Rail notified ORR that SIN 139 had been issued on 6 February 2015 and will be formally briefed to the Route Asset Managers Track (RAMT) on 24 February 2015.



### **ORR decision**

9. ORR note that Network Rail has issued instructions to its Routes to identify all curves that are not fitted with a check-rail:

- less than or equal to 200m radius and to have developed plans by 1 June 2015; and
- For curves between 200m and 250m radius and to have developed plans by 10 August 2015,

to manage derailment risk

The instruction applies to all curves on Network Rail infrastructure and goes beyond standard GC/RT5021

Timescale: 9 February 2016

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 and
- is taking action to implement it. (Timescale: 9 February 2016)

**Status: Implementation On-going.** ORR will advise RAIB when the actions to address this recommendation have been completed.

## Recommendation 2

*The intent of this recommendation is that Network Rail should understand any changes that it has introduced to infrastructure management processes that have had a detrimental effect on their ability to control derailment risk on small radius curves and take actions to reduce the risk so far as is reasonably practicable.*

Network Rail should review its approach to managing changes that may affect the friction on small radius curves to understand whether any alterations to infrastructure and/or management arrangements, have resulted in higher levels of friction.

At locations where it is considered that the rail friction is greater than that which applied previously, actions should be taken to reduce the corresponding increase in derailment risk so far as is reasonably practicable. These actions may include:

- improvements to the rail lubrication equipment that is provided and/or the associated management processes; and/or
- the provision of a check rail.

## Steps taken or being taken to address the recommendation

11. On 23 July 2014, Network Rail provided the following information: *A review of current standards NR/L3/TRK 3510 Rail Friction management and 3510/A01 "Lubrication of Plain Line Running Rails, Check Rails and S&C" has been completed. The processes are well defined and form the basis of Business Critical Rules (BCR) Means of Control.*

*This material is built into training material linked with the BCR process.*

*A review will be conducted to establish whether the expected management processes are being implemented. This will be achieved through undertaking a sample review of Delivery Units who have installed electric lubricators to confirm the standards referred to above have been applied.*

*The review will assess whether organisational changes and availability of suitably capable staff continue to deliver the control processes as planned. Feedback to the Delivery Units and Route management teams will be provided for corrective action as necessary.*

*Timescale: 31 January 2015*

12. On 18 August 2014, ORR wrote to Network Rail asking for further information on how its review and subsequent control measures considers the risks associated with small radii freight only lines. On 25 November 2014 Network Rail responded stating that:

*Network Rail consider that SIN 139 will address current sites as highlighted in paragraph 112 and request affirmation by ORR of this position. Additionally the proposed future version of NR/L2/TRK/2102 Track Construction Standard is being refined to expect:*

- *Check rail to be fitted in the range up to 225m radius, unless a risk assessment identifies that it is not necessary. This will increase renewals and project costs where fitted.*
- *In the range of  $226m \leq 250m$  radius check rails should be not be fitted unless a risk assessment identifies benefits within ALARP principles.*

13. On 27 February 2015, Network Rail notified ORR of a timescale extension until 30 November 2015:

*The extension is requested to allow Network Rail to:*

1. *Review its approach*
2. *Understand if changes have increased friction*
  - *Infrastructure*
  - *Management arrangements*
3. *Where friction has increased, reduce risk to ALARP*
  - *Improve lubrication*
  - *Or provide checkrail*

### **ORR decision**

14. ORR has reviewed SIN 139 and note that the scope of the SIN does not differentiate between passenger and freight lines and therefore accepts that it considers the risks associated with all small radii curves, this addresses the concern raised by ORR on 18 August 2014.

15. ORR awaits the output of Networks Rails actions to address the recommendation due in early February 2015.

16. 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 and
- is taking action to implement it. (Timescale: 30 November 2015)

**Status: Implementation On-going.** ORR will advise RAIB when the actions to address this recommendation have been completed.

17. Separately, ORR notes that SIN 139 requires a risk assessment to be carried out on curves with radii of 201m to 250m but with no explicit plans to implement findings of those risk assessments. ORR has written to Network Rail recommending that where necessary, on a risk based approach, it should implement its findings.

### **Recommendation 3**

*The intent of this recommendation is to improve compliance with current design standards when track renewal or major maintenance work is undertaken.*

Network Rail should develop and implement:

- criteria for when it is necessary to formally assess the need to bring existing track assets in line with current design standards; and
- a process to record the findings of such assessments.

### **Steps taken or being taken to address the recommendation**

18. On 23 July 2014, Network Rail provided the following information:

*Network Rail expects compliant infrastructure and that non-compliances will be removed when specifying renewals or selecting methods of maintenance. These requirements are included in company standard.*

*Track design policy (NR/L2/TRK/2102 cl 4.1) specifies work to achieve a solution that delivers business outputs, eliminates hazards and reduces likely risks from hazards where elimination is not possible.*

*The specified requirements of the product are controlled by engineering assurance processes (NR/L2/TRK/2500 [Technical Approval in the Design of Track Infrastructure]) which require detailed designs to address or control non-compliances.*

*The design management process defines how schemes should affirm compliant design during the development and detailed design stages. Routine Design Control processes usually achieve compliant designs or instigate the non-compliance process identified above.*

*Risk logs are developed under project control processes.*

*Where a non-compliance is to be perpetuated it is formally incorporated in the Network Rail Deviation database called "Tracker". This is the process to record findings of such assessments.*

*The Professional Head of Track will review and refine the existing company processes with the implementation teams specifically in relation to risk assessment processes and controls.*

*A sample review of Design Control process will be undertaken by Professional Head [Track] representatives to assess the level of knowledge, understanding, application and control by design teams.*

*The results of these reviews will inform what further action may be required.*

*Timescale: 31 March 2015*

19. On 18 August 2014, ORR wrote to Network Rail seeking clarification on:

- How Network Rail's referenced process for identification and removal of non-compliances when specifying track work apply to maintenance & works delivery schemes, as the two standards appear contradictory in this area and appear to potentially exclude many non-renewal works.
- How the two reviews proposed will consider how non-renewal work by maintenance teams and works delivery units capture the intent of this recommendation and referenced standards.

On 25 November 2014 Network Rail responded stating that:

**Response to concern a**

- *Clarification will take the form of a cascade briefing to RAM[T] [Route Asset Manager (Track)] for use and implementation with TMEs [Track Maintenance Engineers] and their teams. TMEs specify the works required for maintenance, their technical teams are required to confirm the extent and specification of works. It may not be possible to achieve compliance but the expectation is to minimise non-compliance, for example, limited clearance to centre girder bridges may extend to reasonable track realignment but not to bridge reconstruction. The extent of realignment may not be possible cost effectively due to possession regimes or the relative prioritisation of sites. Control of residual risk must be considered equally with emerging risks.*
- *Works Delivery schemes are specified by the RAM[T]. The implicit requirement to achieve standards will be restated. Recognise that there are processes which permit the continuation of existing non-compliances subject to risk assessment and the application of ALARP principals. Within the wider railway system, the interaction between different technical functions needs to be identified as the optimised whole life solution may include many parties. The specifier will continue to be the arbiter of the combined solution.*

**Response to concern b**

*Within the principals of optimised whole life costs and ALARP, combined with design processes, we do not believe there is the contradiction you propose. The reviews will:*

1. *Select a sample of sites allocated for non-renewal work which may include the opportunity for non-compliances*
2. *Confirm whether a pre-existing non-compliance exists and is documented*
3. *Establish the scope of work proposed*
4. *Review adequacy of the specification and any associated design*
5. *Review adequacy of any risk assessment associated with the site*
6. *Discuss with the responsible engineers the extent to which awareness and control of the process can be improved*

**ORR decision**

20. ORR does not believe Network Rail's response to concern (a) has been adequately addressed. ORR will continue to engage with Network Rail to clarify the criteria to be used by works delivery and maintenance organisations.

21. ORR met with Network Rail, on 21 January 2015, to discuss this recommendation. Network Rail agreed to re-consider and clarify its arrangements for determining when to apply the criteria to assess compliance with track standards of non-renewal activity (as the current arrangements largely rely on TME and SM(T) competence); and set out its arrangements to assure correct implementation.

**Status: In progress.** *ORR will update RAIB by 31 July 2015 on the action being taken to address this recommendation.*