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31 March 2021

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

Dear Andrew,

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

I write to provide an update¹ on the action taken in respect of recommendations 2 & 3 addressed to ORR in the above report, published on 31 March 2014.

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 2 & 3 is '**Implemented**'.

We do not propose to take any further action in respect of the recommendations, 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 1 April 2021.

Yours sincerely,



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 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.

ORR decision

1. Network Rail's initial response focused on use of lubrication to manage rail wear (i.e. asset management), rather than management of derailment risk on tight curves (radius 200m or less). As lubrication was primarily considered an asset management tool rather than a safety risk control measure, its use and maintenance requirements were based on asset management needs. Subsequently we carried out inspection work to identify at route level how the risk of derailment on tight curves was being controlled.

2. From 2018-19 inspection work and Network Rail's response to the Ordsall Lane derailment RAIB recommendations, we determined that although SIN 139 makes reference to lubrication in the context of derailment on tight curves, the Network Rail risk control framework (standards and guidance) only considered lubrication on tight curves as an asset management tool. Consequently the Network Rail inspection and maintenance regime for lubrication was based on asset management needs rather managing derailment risk.

3. Linked to this we, identified that Network Rail do not provide guidance within the standards or other documentation on how to manage flange climb derailment risk on unchecked sub 200m radii curves. Furthermore, through detailed discussion with Network Rail (STE) we found no acceptance or recognition that this guidance needed to be provided. This led to the serving of an improvement notice in May 2019 to address this risk control gap.

4. Following significant work by Network Rail, they have completed the required risk assessment and implemented, via their emergency change process (NR/BS/LI/428 – compliance date 1/12/2020), additional risk controls, primarily in the form of lubrication of curves with an associated enhanced inspection and maintenance regime. Consequently we concluded that the improvement notice has been complied with.

5. On the basis that the Improvement Notice has been complied with and Network Rail has a revised standard in place and the compliance date has passed, we consider the recommendation to have been implemented.

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
- has taken action to implement it

Status: Implemented.

Previously reported to RAIB

7. On 31 March 2015, ORR reported the following:

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.

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

Update

8. Following timescale extensions, Network Rail provided the following closure statement on 19 July 2018:



20160624 Ordsall
Lane rec 2 closure st

9. Network Rail state in summary the following:

1. Standards and processes as defined in NR/L2/TRKJ3510 are considered to be coherent, contiguous and appropriate for implementation by the current organisation.

2. Joint reviews on site enabled the local teams to display their operating environment, equipment knowledge and self-assurance processes. Documentation was checked and the opportunity used to explain to practitioners how this information could be used to promote more cost effective maintenance, eg position of lubricators and assessing the "carry" of lubricant. Change control processes were generally well documented and correctly signed off by independent Route Engineers. The one DU where this was not evidenced has changed its approach since the site visit.

Feedback was given to the specific DU teams and the RAM[T] representative who could then transfer the learning to other DUs.

3. The lessons learnt from the combined exercise, coupled with the data regarding asset condition derived from Recommendation 1, are being used by Route teams to develop further action plans. The re-establishment of the rail management team led by Centre-based experts will assist in promulgating best practice.

Accordingly, the Infrastructure Manager confirms that its processes are appropriate to control the risks. These are generally being implemented in a manner which reacts to changes in external conditions which amend the appropriate levels of friction. New and emerging processes are considered to improve the overall management of friction conditions.

With the information gained by the exercise it is considered that the intent of RAIB Recommendation 2 has been met and can therefore be considered CLOSED.

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.

ORR decision

1. The RAIB recommendation has two parts: development and implementation of criteria for when to formally assess the need to bring existing track assets in line with current design standards; and development and implementation of process to record findings of such assessments.

2. Network Rail delivered the first part of the recommendation by issuing two Track Work Instructions (TWI) and a revised standard (NR/L2/TRK/2102). The recording of findings (part 2 of the recommendation) is captured by existing processes such as the Track Risk Register (TRR) and Design Risk Register (DRR). Network Rail undertook engineering verification (EV) work to confirm awareness and use of the TWIs and revised standard.

3. We have waited until now to provide an update on the recommendation as we wanted assurance that the management of tight radii curves was being managed at route level (see rec 2).

4. 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

5. On 31 March 2015, ORR reported the following:

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.

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.

Update

6. Following timescale extensions, Network Rail provided the following closure statement on 29 March 2019:



20190328 Ordsall
lane rec 3 closure st:

7. Network Rail state in summary the following:

The Professional Head (Track) reviewed and enhanced the Track Construction Standard to emphasise the application of checked rails in curves and extended the applicable radius beyond the requirement of Railway Group Standards to 250m, subject to risk assessment.

For existing track assets, a Special Inspection Notice process was commenced (SIN 139) requiring the assessment of sites and a range of action plans. This refined local knowledge and instigated a range of mitigation actions which were subsequently signed off by the Route Asset Manager as ultimate budget holder and the arbiter of network asset condition, risk management and sustainable operation. The responsibility for safe operation of the asset, in current and foreseen operational mode remains with the Delivery Unit Manager and their technically responsible staff the IME and TME.

Additionally, the following Track Work Information sheets were issued

*3G130 How to determine higher or unusual risk of derailment in track assets
3G131 How to manage residual risk when specifying work to the asset (Dec 2016)*

The outputs from SIN 139 were signed off by RAMs for every Route and received by the Professional Head (Track). This work completed in December 2016 and concluded the planned implementation of Ordsall Lane Rec 3.

*Accordingly, this Recommendation is considered **closed**.*

Subsequent actions

As part of routine verification processes, the Professional Head (Track) is reviewing the active adoption and application of the SIN 139 decisions.

The revised CP6 track funding settlement may incur an extended implementation cycle for aspects of SIN 139 implementation. This is being addressed as "Business As Usual"

Previously reported to RAIB

Recommendation 2

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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

1. 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

2. 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.*

3. 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

4. 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.

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

6. 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.*

7. 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

8. 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

9. 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

10. 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.

11. 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.*