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Ms Carolyn Griffiths
Chief Inspector of Rail Accidents
Rail Accident Investigation Branch
Block A 2nd Floor
Dukes Court
Dukes Street
Woking
GU21 5BH

Dear Carolyn

Fatal accident at Moreton-on-Lugg near Hereford

I write to report¹ and update on the consideration given and the action taken in respect of the recommendations addressed to ORR in the above report published on 28 February 2011.

The annex to this letter provides full details of the consideration given/action taken in respect of recommendations 1, 2, 3 and 4 where:

- Recommendation 1 and 3 are 'in progress';
- recommendations 2 and 4 are in the process of being implemented².

We do not propose to take any further action in respect of recommendation 4 unless we become aware that any of the information is inaccurate in which case we will write to you again³. We expect to provide an update to recommendation 1 2 and 3 in August 2012. We expect to publish this report on the ORR website on 6 March 2012.

Yours Sincerely

Chris O'Doherty

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

² In accordance with Regulation 12(2)(b)(ii)

³ In accordance with Regulation 12((2)(c)



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Initial consideration by ORR

1. All four recommendations in the report were addressed to ORR when RAIB published its report 28 February 2011. After considering the report and recommendations we directed all four recommendations to Network Rail asking them to consider and where appropriate act upon them and advise ORR of their conclusions.

Detail of the consideration given and the action taken in respect of each recommendation is included below.

Recommendation 1

The intention of this recommendation is, where necessary, to implement engineered safeguards at level crossings similar to Moreton-on-Lugg. The objective is to reduce the risk of signallers opening the crossing to road users when a train is approaching, particularly as a result of interruptions or other out-of-course events.

Network Rail should identify level crossings operated by railway staff where a single human error could result in the road being opened to the railway when a train is approaching. At each such crossing, Network Rail should consider and, where appropriate, implement engineered safeguards. Safeguards for consideration should include additional reminder appliances, alarms to warn of the approach of trains, approach locking, locking of the route, run-by controls, and local interlocking of train detection and signalling systems with level crossing controls.

Details of steps taken or being taken to implement the recommendation

2. In its response of 23 May 2011 Network Rail stated:

Following the Moreton-on-Lugg incident, Network Rail undertook a number of actions, including:

- *The issue of an Operations Alert on 26 May 2010 ('Immediately Transferable Lessons from Serious Operational Incidents-Information for signallers and front line operational staff')*
- *The Moreton-on-Lugg incident forming part of the Quarterly Safety Brief*
- *Level crossing operation being covered by Cognisco testing – module TW9 operation of level crossings (all types) in SCAP 6 (August – December 2010).*

An approach locking review group was implemented in response to action J1.1 of the Network Rail led industry formal investigation into Moreton-on-Lugg with a remit to identify those sites interlocked to the signalling but without approach locking and recommend appropriate mitigation actions. This review identified 119 sites and a larger mitigation programme has been implemented both to install signalling controls as required at the identified crossings and to manage the risk in the short term. This mitigation programme consists of the following.

- *Short Term Mitigation Plan to brief operational staff at the identified sites (to be delivered by Operations and Customer Services (O&CS)) has been completed.*

- *Implementation of an Approach Locking Retrofit Programme to install appropriate signalling controls at all level crossings to be delivered in a two phase rollout. (to be delivered by Asset Management (AM))*
- *A Long Term Mitigation Assessment of those sites planned for the phase 2 rollout to confirm that suitable alternative controls are not already in place (to be delivered by Network Operations (operational Services) and Engineering (Ergonomics)) for completion by 31/03/14(CP4)*
- *Installation of approach locking as part of level crossing renewals already identified as being implemented prior to the completion of the approach locking retrofit programme.*

The phase 1 rollout programme was authorised at the 18th April 2011 Signalling Power and Communications (SP&C) Project Panel for delivery of the 44 identified high priority sites, including Moreton-on-Lugg, with all sites completed by 31st March 2012. The phase 2 rollout programme will be finalised upon completion of the long term mitigation assessment programme (item 3) with a planned timescale of completion of the required remaining sites by 31st March 2013.

ORR decision

3. Having reviewed the response ORR has concluded that Network Rail has taken the recommendation into consideration but notes that it is behind schedule with only 20 high priority sites now expected to be completed by 31 March 2012 with the remaining 24 high priority sites now expected to be complete by 12 July 2012. ORR will also clarify conflicting dates between the Long Term Mitigation Assessment and the completion of the phase rollout programme.

Status: - *In progress.* ORR will provide an update to RAIB in August 2012.

Recommendation 2

The intention of this recommendation is that implementation of Network Rail's level crossing risk management process will identify and assess the risks from all aspects of the design, operation and maintenance of equipment and systems, including signalling, so that mitigation measures can be identified and implemented.

Network Rail should enhance its level crossing risk management process to include identification, assessment and management of the risk associated with:

- human error by signallers and crossing keepers;
- operational arrangements, in particular with regard to the ability of operators to cope with interruptions, such as telephone calls, and other out-of-course events;
- equipment design, in particular where it is not compliant with latest design standards; and
- maintenance and inspection arrangements, particularly where these are used to identify and remedy any equipment functional and performance deficiency.

The process should allow for sufficient liaison between the relevant engineering and operational departments.

When addressing risks identified by the implementation of the revised process, Network Rail should prioritise the implementation of required mitigation measures to level crossings where consequences of operator error are severe and not protected by engineered safeguards.

Details of steps taken or being taken to implement the recommendation

4. In its response of 23 May 2011 Network Rail stated:

Following a meeting between the Head of Level Crossings and the Operations Risk Control Specialist, it has been decided to procure the services of a risk / human factors consultancy to carry out this work as part of the interim measures. It will also enable the required long term changes to the risk assessment process to be made. Internal discussions are currently being held with the Ergonomics team and suitable suppliers.

5. Having considered this response we did not understand what Network Rail was seeking to achieve by engaging a consultant. We wrote to Network Rail on 7 July 2011 asking for more detail of the work to be carried so that we could judge the effectiveness of its actions.

6. In a further response dated 17 August 2011 Network Rail stated:

Network Rail has reviewed the progress of this recommendation. Firstly, we have identified Signaller/Crossing Keeper error issues specifically associated with level crossings, including;

- *CCTV – Scanning technique*
- *CCTV – Scanning, observing the screen for the duration of the lowering sequence*
- *CCTV – Attention & awareness, ‘switching on’ when pressing crossing clear*
- *MCG/MCB – check indications/repeaters/block instruments before opening the crossing*
- *MCG – physically observe and check gate stops are in place to prevent gates swinging open*
- *MCG/MCB – late operation of barriers/gates eg letting one or two extra road vehicles through*
- *UWCT – permission granted with train in section*
- *UWCT – communications, sounding confident and authoritative at all time*
- *Failure mode – communications – between Signaller and LCA*
- *Failure mode – communications – between Signaller and S&T e.g. barriers under local control for testing and taking them back into auto mode for passage of trains*
- *Failure mode – communications – between Signaller and Driver, cautioning when crossing is under local control. Also failure to use reminder appliances.*
- *Failure mode – communications – between CK/Signaller and Signaller – where SB has control of protecting signals, keeping them informed etc.*
- *Failure mode – wrong direction moves – lower barriers.*

These elements are to be covered within the new Signaller Competency Process.

Secondly, the Irregular Working – Working Group analyse irregular working events and precursors. The level crossing team are to input into the action plans relating to level crossings going forward.

There is currently a Risk Management Improvement Programme which is working to improve level crossing risk management. It has been recognised that the scope of the current risk assessment is too narrow and will be expanded to cover local and bespoke factors specific to the environment, type and functionality of the crossing.

The Level Crossing Risk Management Programme includes a large number of workstreams around six packages of work. One of the key elements is to develop a single specialist resource for level crossings incorporating both inspection and risk assessment. Senior members of staff at the ORR have been fully briefed on this programme and one has been invited to join an independent group to review the content, output and progress of the programme.

Finally, Network Rail recognise that the current risk assessment process does not capture equipment design, therefore a cross-functional workshop is to be held to assess issues relating to equipment design within level crossing types and the impact that they can have on the risk profile, including how they can influence (or be influenced by) irregular working.

As a result of the review and given the work involved, the proposed timescale for full closure of this recommendation is 31 May 2012.

ORR decision

7. ORR, having considered the information provided, has concluded that, in accordance with the Railway (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

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

ORR does not therefore propose to take any further action unless we become aware that the information presented here becomes inaccurate, in which case we will write to RAIB again.

Status: Network Rail taking action to implement the recommendation

Recommendation 3

The intention of this recommendation is to ensure that whenever signalling renewal or major maintenance work is planned, those responsible understand when it is necessary to formally evaluate the opportunity to improve compliance with the latest engineering standards.

Network Rail should develop and implement:

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

Details of steps taken or being taken to implement the recommendation

8. In its response dated 23 May 2011 Network Rail stated:

A review of the current Signalling Policy as well as the industry and company standards will be carried out. The review will consider the existing criteria already in place with respect to bringing signalling and level crossing assets into compliance with the latest design standards as well as the current process for making the risk assessment to determine what changes are required under circumstances such as :

- 1. a full renewal*
- 2. a partial renewal*
- 3. major maintenance activities*

For each of these categories a gap analysis will be required to confirm what current design standard requirements need to be implemented for each design category and a risk assessment carried out to determine the impact of not bringing the design to current standards at that time. This review shall also utilise a risk assessment based methodology to verify the impact associated with implementing any change in criteria on existing procedures / standards and any cost impact on the CP4 and CP5 business plans.

The review will require representatives from

- Signalling Engineering,*
- Infrastructure Projects*
- Asset Management (S&T)*
- Maintenance.*

The outputs of this review shall then be used to inform any proposed changes to the standards where there is an additional requirement to bring an asset in line with the latest design standards, and the implications for CP4 and CP5 funding. This shall be supported by a Network Rail level 2 standard detailing the process that should be followed when making these decisions and how to record them

9. Whilst we were generally content with the response from Network Rail we would have preferred to have seen Operations Division included in the list of representative. We explained this in a letter to Network Rail dated 7 July 2011. Network Rail provided the following response on 17 August 2011

Your observation is entirely valid and we should have included the requirement for Operations to be part of the review. The National Level Crossing team are now fully involved with the review of the risks associated with the renewals strategy.

ORR decision

Having considered the response from Network Rail ORR has concluded that Network Rail should provide a date for the proposed review. We wrote to Network Rail on 13 February 2012 requesting further information.

Status: - In progress ORR to provide an update an update to RAIB in August 2012.

Recommendation 4

The intention of this recommendation is for Network Rail to understand the risk posed by the use of non-critical information systems in signal boxes and implement practical mitigation measures.

Network Rail should assess the risk associated with the use of TRUST, and similar information systems, by signallers when undertaking safety critical activities, and implement appropriate mitigation measures. This assessment should include a review of the extent to which signallers may be distracted or misled, and the influence of factors such as the location and orientation of any associated equipment.

Details of steps taken or being taken to implement the recommendation

11. In its response dated 23 May 2011 Network Rail stated:

This recommendation will be addressed through 3 distinct phases of work:

- 1) *Data collection – this will involve site visits and interviews with signaller's to understand what information they use TRUST for and how it informs their ability to signal trains safely and effectively. Specifically, data will be collected across a range of different signalling locations to determine:*
 - a) *the issues associated with the location of TRUST and similar information sources*
 - b) *the timing (sequencing and prioritisation) of activities involved in obtaining/checking information in TRUST and other information sources*
 - c) *the nature of the information provided by TRUST and how it compares to other information sources*
- 2) *Risk assessment - the information from phase 1 of the work will be used to inform a risk assessment to be lead by Operations and Customer Services and representatives from Ergonomics and Safety and Compliance as appropriate to clarify and evaluate the risks associated with the use of TRUST. The risk assessment will also generate possible mitigations for reducing potential risks.*
- 3) *Mitigation measures - development and delivery of an action plan to reduce the risks associated with use of TRUST and other similar information systems. It is envisaged this may involve more detailed assessment of the positioning of such equipment, changes to training, clarity around the procedures for using TRUST and reminders.*

Note: Initial investigations already reveal that there are some short term benefits to reviewing local box training plans in respect of how use of TRUST is incorporated. Therefore some mitigations work may be done in parallel to the data collection and risk assessment phases.

The data collection and risk assessment phase will be completed by September 2011. It is envisaged that any mitigation measures arising from the risk assessment, such as more detailed site surveys to review the positioning of TRUST equipment, will take a further 6 months to complete giving a completion date of March 2012.

ORR decision

12. ORR, having considered the information provided, has concluded that, in accordance with the Railway (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

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

ORR does not therefore propose to take any further action unless we become aware that the information presented here becomes inaccurate, in which case we will write to RAIB again.

Status: - *Network Rail is taking action to implement the recommendation*