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20 February 2018

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

Dear Andrew,

**RAIB Report: Investigation into irregularities with protection arrangements
during infrastructure engineering work**

I write to provide an update[1] on the action taken in respect of recommendations 1
and 2 addressed to ORR in the above report, published on 20 August 2015.

The annex to this letter provides details of the action taken regarding these
recommendations, the status of which is now '**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 becomes inaccurate, in which case I will write to
you again.

We will publish this response on the ORR website on 20 February 2018.

Yours sincerely,

Oliver Stewart

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

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Recommendation 1

The intent of this recommendation is that Network Rail should implement its post-implementation review in such a way as to monitor and assess the impact of its planning and delivering safe work initiative.

Network Rail should ensure that its post-implementation review of the planning and delivering safe work initiative includes the collection of information on events that are indicative of irregular working during infrastructure engineering work. It should then review this information to verify that the initiative has yielded the benefits intended and, if not, to identify and implement measures to remedy this.

ORR decision

1.   Network Rail has made satisfactory arrangements for the post-implementation review of 019 standard as part of the PDSW initiative. The review includes appropriate representation from the supply industry and the ISLG and a set of measures to demonstrate embedment of the revised ways of working. ORR will monitor implementation of 019 through our inspection work.

2.   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

3.   On 6 July 2017 ORR reported that Network Rail had not responded to a letter on 29 September 2015 requesting that it provide details of its response to both recommendations by 10 November 2015. The recommendation status was 'Insufficient response'.

Update

4.   On 17 November 2017, Network Rail provided the following initial response:

'Network Rail has scheduled post implementation reviews of the introduction of the revised 019 standard at 3, 6 and 9 month intervals in the plan for PDSW. These will take place from the date of Go Live (July 2017) and will occur in October 2017, January 2018 and April 2018. The reviews will include representatives from across Network Rail Business Units and the Supply Chain as was done when the standard was developed. Representation will be requested from industry forums such as ISLG

(Infrastructure Safety Leadership Group) and RICA (Rail Industry Contractors Association) to ensure that suitable representation is gathered from across the industry.

Network Rail has a suite of compliance and quality measures which have been agreed by the business which will be monitored from the introduction of the standard and will be used to demonstrate successful embedment of the revised ways of working.

Compliance measures will be reported via CMO and provided to the Routes, Regions, Functions such that they have visibility of the critical improvements they are making.

Network Rail's benefits strategy requires the use of these key measures (lead indicators) and comparison with our existing safety lagging indicators such as LTIFR and irregular working events, and the review of relevant incidents.

Where the benefits identified are not achieved, measures to remedy this will be identified and implemented.

Timescale: 30/04/17'

Recommendation 2

The intent of this recommendation is that Network Rail should reduce the risk of engineering protection irregularities associated with railway roles that are not currently being considered as part of the planning and delivering safe work initiative.

Network Rail should develop an action plan to reduce the risk of irregular application of engineering protection arrangements by railway roles that are outside the scope of the current planning and delivering safe work initiative (for instance signallers, persons in charge of the possession and electrical control operators). As a minimum, consideration should be given to ways of reducing the likelihood of:

- protection being set up when lines are open to traffic;
- errors when arranging for work to be carried out on or near electrical traction supply equipment;
- the signalling of trains into protected areas; and
- irregularities involving the operation of level crossings within protected areas.

ORR decision

5.   In response to the recommendation, Network Rail established the Operational Close Call Steering Group (OCCSG) to consider the irregular application of engineering protection arrangements outside of PDSW. The terms of reference of the group indicate that the appropriate Network Rail functions are all represented. Four specific work streams were those identified by RAIB in the recommendation, all

of which are now complete. A number of further, long-term actions were identified during the process, which are now being taken forward by Network Rail.

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 6 July 2017 ORR reported that Network Rail had not responded to a letter on 29 September 2015 requesting that it provide details of its response to both recommendations by 10 November 2015. The recommendation status was 'Insufficient response'.

Update

8.   On 17 November 2017 Network Rail provided a closure statement containing a summary of the work they have done through the Operational Close Call Steering Group:

> *'The Operational Close Call Steering Group (OCCSG), see **Appendix A** for the terms of reference, considered the irregular application of engineering protection arrangements outside of PDSW.*
>
> *The first meeting of the Operational Close Call Steering Group was held and has included the 4 items from the report into the action log. These are:*
>
> > *a. protection being set up when lines are open to traffic;*
> > *b. errors when arranging for work to be carried out on or near electrical traction supply equipment;*
> > *c. the signalling of trains into protected areas; and*
> > *d. irregularities involving the operation of level crossings within protected areas.*
>
> *The agreed action plan was in place to demonstrate how the issues would be addressed by Network Rail and the actions taken are detailed below.*

Protection being set up when lines are open to traffic;

In order to address the occasions when protection is being set up for a possession when lines are open to traffic is being addressed by several pieces of work. There is not one single item that will address the issue raised but a number of measures have be put forward to demonstrate what has been done.

The issue of the new '019 Safety of People at Work On or Near the Line' will address the planning and briefing issue for safe systems of work. Module 02 – Planning and working in a possession and Module 03 – Planning and working using protection arrangements will be used to improve the planning for these activities. The delivery of the standard will address the issue of protection being placed whilst the lines are open to traffic as well as the wider issues around line blockages.	*Complete – compliance date September 2017*
The release of 019 is also aligned with NR/L2/OPS/202 – Principles, Timescales and Functional Responsibilities for Engineering Work, Access and Heavy Resource Planning and NR/L3/OPS/303 – T3 Possession of the Line for Engineering Work Delivery Requirements. These two standards cover the planning and briefing arrangements for possessions. The review has strengthened these arrangements and provided more clarity around the PICOP briefing prior to and during the possession. The process also requires a Safe Work Pack to be developed for Possession Support Staff to place the protection. This will provide a more structured approach and provide the information to possession support staff on the safe systems of work and work locations.	*Complete – compliance date September 2017*
The line blockage form RT3180 and RT3181 has been updated to follow the conversation between the Signaller and COSS/SWL. The form has more detail confirming the location the person is at and the location of the work activity. This again supports the release of 019.	*Form has been updated – compliance date December 2017*
The Signaller competence process (NR/L3/OPS/045 module 2.06) has been revised to have a greater focus on higher risk activities through the three year competence cycle. The protection of people and engineering work are one of the key high risk activities that will be covered	*Complete June 2017*

through ongoing training, continual assessment, simulation and competency conversations.	
The planning system (SSoWPS 2.5) being introduced alongside the release of 019 will provide a more resilient tool for the delivery of safe work packs.	*Complete*
The competency arrangements for the COSS/SWL has been updated and refreshed after the review of 019. This will provide a higher level of competence in the planning and deliver arrangements for protecting the workforce from trains and from the work activity.	*Complete – September 2017*

The evidence above covers the main areas of concern such as:

1. *The signaller & COSS/SWL agreeing the specific arrangements and the protecting signals;*
2. *How the COSS and signaller confirm and record the agreed arrangements;*
3. *The signaller making sure the line to be blocked is clear*
4. *The signaller granting the COSS an authority number*
5. *The use of additional protection where the work will affect the safety of the line*

Errors when arranging for work to be carried out on or near electrical traction supply equipment;

The issue of the new '019 Safety of People at Work On or Near the Line' will address the planning and briefing issue for safe systems of work. The modules include: Module 01 – Planning and working during incident response; Module 02 – Planning and working in a possession; Module 03 – Planning and working using protection arrangements and Module 04 – Planning and working using warning arrangements. The delivery of the standard will address the planning issues for the work activity as well as the protection. This includes the risks associated with electrical traction supply.	*Complete – compliance date September 2017*
GERT8000 Rule Book Module AC and DC have been reviewed and were found to be fit for purpose. No	*No action*

evidence in the report or in other investigation report has indicated the arrangements in the rule book are not adequate. The rule book modules for electrical safety are supported by the National Operating Instructions. The National Operating Instructions were also found to be fit for purpose. The rules and processes are very clear about preventing isolated sections being incorrectly energised. These processes are currently under review with the onset of bi-mode operations on the network.	
The release of 019 is also aligned with NR/L2/OPS/202 – Principles, Timescales and Functional Responsibilities for Engineering Work, Access and Heavy Resource Planning and NR/L3/OPS/303 – T3 Possession of the Line for Engineering Work Delivery Requirements. These two standards cover the planning and briefing arrangements for possessions. The review has strengthened these arrangements and provided more clarity around the PICOP briefing prior to and during the possession. This will provide a more structured approach and provide the information regarding the arrangements for electrical safety within the possession, in particularly the planning of isolation required for the work.	*Complete – compliance date September 2017*
The Electrical Control Operator competence process (NR/L3/OPS/045 module 2.03) has been revised to provide a more structured approach to competence. The process aligns with the structure used by the Signaller competence process with high risk activities covered through ongoing training, continual assessment, simulation and competency conversations.	*Complete – compliance date June 2017*

Additionally longer term work being undertaken that is outside of the scope of this closure statement is:

The introduction of SCADA as the Network Rail Traction Power Control Management System will provide a consistent platform for Electrical Control Operators to use. The consistent and modern platform will provide the foundation for the safer delivery of electric traction supplies and associated work on the power system.
The National Electrical Control Instructions are currently being updated through a working group with technical experts. The review is providing an update for the SCADA programme with the review also including all aspects of the instructions. The review will take up to 12 months to complete but is dependent on the delivery of the SCADA solution. Under its Electrical Safety Delivery (ESD) Programme, Network Rail is pursuing an automated isolation and earthing/shorting strategy and methodology, to improve the safety of delivering electrical isolations within the possession

> management process, which includes minimising the need for manual involvement required by traditional earthing and strapping practices , so as to reduce trackside exposure risks during maintenance and project works. This strategy has to date focused on development of new work instructions for delivering a single, safe and secure approach to isolation and earthing/shorting across the electrified networks and through deployment of d.c. circuit main shorting devices. In addition, development work has commenced looking at the remote securing of points of isolation to further reduce exposure to electrical and other hazards, to be delivered through the national SCADA platform.

> Under its ESD Programme, Network Rail is also reviewing its rules and procedures for working on or near live equipment to consider if safety improvements can be achieved in its risk assessment processes, supporting systems of work and competency frameworks, so as to minimise the risk of errors in arrangements for and delivery of work on or near live equipment.

The evidence above covers the main areas of concern such as:

1. *Only allowing authorised access to an energised line*
2. *Confirmation of isolation before applying protection*
3. *Checking the isolation was in place before confirming line as safe*
4. *Safe working practice and distance from energised equipment*
5. *Energising the correct lines*

The signalling of trains into protected areas;

The issue of the new '019 Safety of People at Work On or Near the Line' will address the planning and briefing issue for safe systems of work. The modules include: Module 01 – Planning and working during incident response; Module 02 – Planning and working in a possession; Module 03 – Planning and working using protection arrangements and Module 04 – Planning and working using warning arrangements. The delivery of the standard will address the issue of the location and planning of line blockages. In particularly there is a drive to reduce the number of lineside requests where the planning process is not as robust. Lineside requests will only be permitted where a valid fault number is available for an immediate fault to prevent planned work being completed through lineside requests.	*Complete – compliance date September 2017*
The line blockage form RT3180 and RT3181 has been updated to follow the conversation between the Signaller and COSS/SWL. The form has more detail confirming the location the person is at and the location of the work	*Form has been updated –*

activity. This again supports the release of 019. The form provides a better structure to record the additional protection used and use of reminder appliances in the signalling location.	*compliance date December 2017*
The Signaller competence process (NR/L3/OPS/045 module 2.06) has been revised to have a greater focus on higher risk activities through the three year competence cycle. The protection of people and engineering work are one of the key high risk activities that will be covered through ongoing training, continual assessment, simulation and competency conversations.	*Complete June 2017*
Section 13.2 of GERT8000 Rule Book Module TS1 has been reviewed and was found to be fit for purpose. No evidence in the report or in other investigation report has indicated the arrangements in the rule book are not adequate.	*No action*
Section 3.5 of GERT8000 Rule Book Module TS1 and the National Operating Instructions outline the single duty holder instruction for Signallers employed by Network Rail, have been reviewed and found to be fit for purpose. The National Operating Instruction provide details on the use of reminder appliances in signalling locations. This is supported by the scenarios in the competency process.	*No action*

The evidence above covers the main areas of concern such as:

1. *Better planning to prevent vehicle movements into line blockages*
2. *Reduction in lineside requests in favour of planned arrangements*
3. *Authorising vehicle movement after a line blockage has been granted*
4. *More consistent use of additional protection and reminder appliances*

Irregularities involving the operation of level crossings within protected areas.

The line blockage form RT3180 and RT3181 has been updated to follow the conversation between the Signaller and COSS/SWL. The form covers the arrangements in place for level crossings affected by the line blockage. The arrangements on the form align to the rule book requirements for the control of level crossings.	*Form has been updated – compliance date December 2017*

The issue of the new '019 Safety of People at Work On or Near the Line' will address the planning and briefing issue for safe systems of work. The modules include: Module 01 – Planning and working during incident response; Module 02 – Planning and working in a possession; Module 03 – Planning and working using protection arrangements and Module 04 – Planning and working using warning arrangements. The delivery of the 019 standard and Safe Work Packs will address the planning element for the safe system of work including any level crossing affected by the line blockage.	*Complete – compliance date September 2017*
The release of 019 is also aligned with NR/L2/OPS/202 – Principles, Timescales and Functional Responsibilities for Engineering Work, Access and Heavy Resource Planning and NR/L3/OPS/303 – T3 Possession of the Line for Engineering Work Delivery Requirements. These two standards cover the planning and briefing arrangements for possessions. The review has strengthened these arrangements and provided more clarity around the PICOP briefing prior to and during the possession. This will provide a more structured approach and provide the information regarding the arrangements for level crossing affected by the possession.	*Complete – compliance date September 2017*
The Signaller competence process (NR/L3/OPS/045 module 2.06) has been revised to have a greater focus on higher risk activities through the three year competence cycle. The protection of people and engineering work are one of the key high risk activities that will be covered through ongoing training, continual assessment, simulation and competency conversations. The competency around the operation of level crossing is also covered as a high risk activity. The operation of level crossing in different modes and within line blockages and possession will be covered more regularly by these elements in the training.	*Complete June 2017*
Section 5 of GERT8000 Rule Book Module T3 has been reviewed and was found to be fit for purpose. No evidence in the report or in other investigation report has indicated the arrangements in the rule book are not adequate. The rule book modules for level crossing are supported by the National Operating Instructions	*No action*

The evidence above covers the main areas of concern such as:

1. *Only allowing authorised vehicle movements over the crossings*

2. *Better communication with the signaller*
3. *Consistent application of the relevant rules.*

Appendix A

Meeting Title	Operational Close Call Strategy Group
Purpose and Remit	**Overall purpose:** To work proactively to provide strategic direction towards the reduction in the number of operational close call events to as low a level as possible with the long term aim of eliminating operational close calls across Network Rail. **Specific remit:** • Work collaboratively across all functions, taking a unified and consistent approach to Operational Close Calls • To define and implement an Operational Close Call strategy • To determine the creation of short term working groups, based upon trending, analysis and current high risk operational close call areas, which will be tasked with the relevant remedial work and mitigation through a clear remit from the strategy group • To provide updates, and where necessary escalate, to the Integration Group (STE) strategic matters related to Operational Close Calls • The group shall work to improve operational close call reporting in terms of accuracy, quality, efficiency and numbers. The target definition of 'quality' and 'accuracy' will be predefined prior to this initiative • Upon the above targets being achieved a reduction in the number of operational close events will be promoted via a collaborative effort with Route teams to tackle root cause and contributory factors • As part of the communications strategy, a formal framework shall be created as a platform for sharing good practice and lessons learned with the aim of achieving continuous improvement. This shall be

Meeting Title	Operational Close Call Strategy Group
	implemented and utilised within all functional areas concerned • *The communications strategy shall seek out new ways to promote work undertaken, looking to widen communication horizons whilst continuing with currently implemented communication schemes* • *The group shall continually review and propose new ways by which the Operational Close Call process and meetings may be enhanced*
Chair	*Head of Workforce Safety (STE) – David Burgess*
Deputy Chair	*Professional Head of Operations (Technical Authority - Operations) – Paul Ashton*
Secretary	*Standards Co-Ordinator (Operations) Sheila Andrews*
Members	• *Head of Level Crossings (STE)– Mark Brunnen* • *Operations Risk Specialist (STE) – Martin Biggin* • *Corporate Investigation Manager (STE) – Lee Parlett* • *Principle SHEQ Manager (RS) – Caroline Meek* • *Lead Health & Safety Representative (RMT) – Adrian Yates* • *Head of HSEA (IP) – Ian Bradler* • *Engineering Expert, Electrical Power (STE) – Richard Stainton*

Meeting Title	*Operational Close Call Strategy Group*
Optional:	• *Head of Maintenance (STE) – Tim Flower* • *Head of Workforce Safety (STE) Rupert Lown* • *Operations Manager (Route) tbc* • *Head of Route Safety Health & Environment (Route) tbc* • *Operations Principles Specialist (Operations) Tony Raine* • *Head of Ergonomics(STE) – Mike Carey*
Terms of meeting	• *All those on the member list must attend unless on annual leave or with a viable reason for non attendance, the latter of which should be pre-confirmed with the meeting chair* • *All attendees will have the opportunity to provide input to the agenda and should use this as a means to raise relevant issues with the group; however, any opportunity to resolve an issue outside of the meeting should be acted upon, in order to reduce unnecessary discussion time at meetings* • *The RAID pack should be reviewed by all members prior to each meeting and will only be discussed should there be any significant issues that require to be highlighted within the group i.e. problems with meeting target completion* • *With the end of each meeting, the chair shall provide a recap of all actions, action target dates and all other relevant issues raised throughout*
Agenda	• *RAID pack from the previous meeting; where relevant issues require to be discussed* • *Trend analysis for the previous period and rolling 12 month period.*

Meeting Title	*Operational Close Call Strategy Group*
	• *Integration Group Feedback* • *Working Group progress updates*
Inputs	• *Agenda* • *RAID Pack* • *Operational close call statistics* • *Updates from relevant working groups live at the time of the current meeting*
Outputs	• *Each meeting will provide new actions to the relevant individuals towards the achievement of the objective; each will have specified completion date* • *Remit to form specific working group as necessary* • *Issues to escalate/update to Integration Group* • *Updated RAID Pack* • *Meeting Minutes*
Frequency	*4 weekly*
Relationships	*The group will link with and provide proposals to:* • *TOM SC* • *Workforce Safety Group* • *Line Blockage Group* • *Standards Steering Groups (Various)* • *National Recommendations Review Panel.*
Communications	*The group outputs will be communicated via:* • *Representatives at the meeting to their disciplines* • *Other Professional Heads* • *Integration Group*

Meeting Title	*Operational Close Call Strategy Group*
	- *Operations Managers Group* - *Workforce Safety Group* - *National Safety Council* - *National PBR (Phil Hufton)* - *Route PBR*

• *Operational close calls*

•

Definition

An operational close call is defined as any unsafe act (formerly termed irregular working) or unsafe condition that in different circumstances could have led to an accident or personal injury or could have resulted in damage to property or equipment. These are occasions where no one was hurt or nothing was damaged, but this is more by chance than by the application of systemic controls.

This measure comprises the number of incidents of operational close calls (OCCs) that introduce significant risk to the railway (categorised as potentially significant and potentially severe) based on an evaluation of their actual or potential consequence.

The table shows the moving annual average for operational close call incidents for 2014/15 compared to previous years.

Categories of OCCCs

Category	*Definition*
Protection	*An OCC involving the work group (e.g. Controller of Site Safety (COSS) or a lookout) which results in incorrect or inadequate implementation of a line blockage, working outside of the protection limits or removal of protection. This includes near misses with staff whilst red zone working (areas where trains are still running), staff being slow to clear the line, or a failure to have a safe system of work in place.*
Possession	*An OCC involving implementation of a possession (i.e. Person In Charge of a Possession (PICOP), Engineering Supervisor, Nominated Person) which results in the incorrect placement of protection, inadequate or incorrect protection arranged, or irregularity in the removal of protection. Isolation placed incorrectly (i.e. outside of possession limits or prior to the possession being taken, trolleys placed outside of possession limits).*
Operating	*Any OCC as a result of an operator (e.g. a signaller or controller) giving permission for protection to be laid with a train not yet having passed the site of work; signalling a train into a possession / line blockage, vehicles or pedestrians trapped between gates at a level crossing or given permission to cross when the line is not clear; failure to caution trains; miscommunication when the signaller is in the lead; two trains in section; train routed into an isolated section, switching incident.*
On Track Machine or Plant / Engineering Train / Equipment	*Any OCC involving on track plant or engineering trains or involving incorrect use or placement of equipment or materials, for example unauthorised movements within possessions, machines or plant overturning, unsafe operation of machines*

Category	Definition	
	or plant, equipment or materials fouling the running line, irregularities involving scaffolding on	

6842358

Previously reported to RAIB

Initial consideration by ORR

1.   Both recommendations were addressed to ORR when the report was published on 20 August 2015.

2.   After considering the recommendations ORR passed both 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.

Recommendation 1

The intent of this recommendation is that Network Rail should implement its post-implementation review in such a way as to monitor and assess the impact of its planning and delivering safe work initiative.

Network Rail should ensure that its post-implementation review of the planning and delivering safe work initiative includes the collection of information on events that are indicative of irregular working during infrastructure engineering work. It should then review this information to verify that the initiative has yielded the benefits intended and, if not, to identify and implement measures to remedy this.

Recommendation 2

The intent of this recommendation is that Network Rail should reduce the risk of engineering protection irregularities associated with railway roles that are not currently being considered as part of the planning and delivering safe work initiative.

Network Rail should develop an action plan to reduce the risk of irregular application of engineering protection arrangements by railway roles that are outside the scope of the current planning and delivering safe work initiative (for instance signallers, persons in charge of the possession and electrical control operators). As a minimum, consideration should be given to ways of reducing the likelihood of:

- protection being set up when lines are open to traffic;
- errors when arranging for work to be carried out on or near electrical traction supply equipment;
- the signalling of trains into protected areas; and
- irregularities involving the operation of level crossings within protected areas.

ORR decision

3.   ORR wrote to Network Rail on 29 September 2015 requesting that it provide details of its response to both recommendations by 10 November 2015.

4.   No formal response to this request has been received to date, which is why the status of these recommendations is being reported as having had an 'insufficient response'. However, having escalated the issue within Network Rail, the most recent update received by ORR (31 May 2016) clarified that internal meetings are being scheduled for June 2016 to enable Network Rail to reach an understanding on how it will respond not only to these recommendations, but also in respect of other track worker safety RAIB recommendations currently linked to the PDSW initiative. RAIB should therefore note that previous timescales and commitments for PDSW related recommendations may have to be revised. ORR will provide updates to RAIB on these as soon as it is able to do so.

5.   As Network Rail has not provided a response to these recommendations, ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, it has:
- not taken the recommendations into consideration; and
- has not set out how or whether the recommendations will be addressed.

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