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31 March 2022

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

Dear Andrew,

RAIB Report: Dangerous occurrence at Lindridge Farm user worked crossing, near Bagworth, Leicestershire on 22 March 2012

I write to provide an update¹ on the action taken in respect of recommendation 2 addressed to ORR in the above report, published on 29 July 2013.

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

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 5 April 2022.

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 provide Network Rail SDG designers and checkers with a way of working which will remove the possibility of incorrect track circuit names being drawn on a signalling or scheme plan during its production, and then missed during the checking process. This way of working could be implemented in the software used by designers or by procedure. It is equally applicable to conceptual work (such as new designs) and non-conceptual work (such as the redrawing of an existing design).

Network Rail should, in consultation with its principal signalling contractors, review the ways of detecting and addressing incorrect track circuit names for all types of signalling or scheme plan production. The review should consider what manual or automatic methods can be used by designers and checkers. The findings of the review should then be implemented by means of a time bound programme for changes to the tools and mandated design processes that cover this activity.

ORR decision

1. This recommendation has a long and sometimes difficult history. There was some resistance to making any changes, initially, as many signal engineers believed that the existing processes were adequate but had not been applied thoroughly. There was a concerted publicity campaign to highlight the potential for serious consequences (as at Lindridge Farm) if errors and omissions were introduced.
2. Following sustained ORR pressure, Network Rail did review its processes and identified that there would be opportunities to formalise the use of a grid checking mechanism in new software being introduced for signalling design. This provides opportunities to identify and address any errors at various points during the design, construction and testing cycle.
3. Network Rail then encountered a series of technological and contractual challenges to get to the point where it had suitably functional software that was available to all its contractors. That is the main reason for the extended length of time it has taken to get a point where ORR believes that the recommendation has been addressed.
4. Network Rail has introduced updates to signalling design software that substantially reduces the possibility of incorrect track circuit names being migrated to designs of new signalling schemes.
5. 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

6. On 15 December 2015 ORR reported the following:

ORR understands that, although Network Rail has reported a completion date of 31 December 2015, it may be encountering difficulties with the proposed software and its roll out. ORR has therefore requested confirmation that the closure date is still expected to be the end of 2015.

Update

3. On 6 July 2018 Network Rail provided the following closure statement:



Signed Lindridge
Rec 2 Closure.pdf

7. On 19 March 2021 Network Rail provided Share with Pain document SwP008/14 that was sent to signalling suppliers:

Due to the signalling plans for the area being out of date, a signalling plan redraw took place and track circuit T510C was incorrectly drawn as T511C. Track circuit T511 is adjacent to T510 and contains sections T511A, T511B and T511C.

Track circuit section T511C was therefore duplicated and the duplicate entry was now between T510B and T510D.

The signalling plan was used to produce the scheme plan for this project and the error was transferred.

At the IDC it was decided to move the extremity of T511 to now include Lindridge and the 3 Merry Lees UWCs on the screen layouts on the basis that the screen layouts were in error.

The existing Leicester PSB panel was also incorrect due to another project using the re-lock scheme plan when Merry Lees UWCs were represented on the panel during fitment of telephones prior to the main commissioning into EMCC.

During the main EMCC commissioning, a test log was raised noting the error and was deferred citing a records deficiency for update of the signalling plan.

The importance of the integrity of signalling plans and scheme plans is paramount;

Opportunities existed to capture the duplication at points in the project lifecycle

Use of numbering grids as per NR/L2/SIG/11201/ModA2 'Minimum Requirements of Design Details' issue 5, compliance date 03/09/2011, Clause 1.4 Numbering Grids, would have presented an opportunity to capture these errors at both signalling plan re-draw and scheme plan production phases (Note future versions of plan software to have duplication check functionality included)

The material change that took place during the IDC should have been more effectively consulted, resulting in another check of the situation that presented itself prior to moving the crossings presentation on the signallers view

VDU layout to be produced from the approved Correlated Scheme Plan and a 'cross check' of a VDU layout vs the existing panel/diagram during reconrol projects

Consideration to be given to corresponding train detection from trackside at UWC/FP crossings with phones

Examples of numbering grids;

One Dimensional:

Signals: 101, 103, 105, 120, 122, 124.

Points: 201, 202.

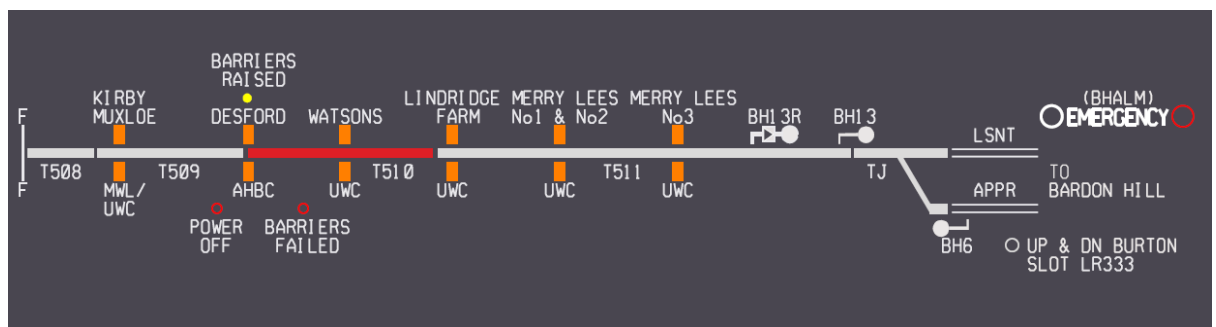
Train Detection: AA, AB, AC, BA, BB, BC.

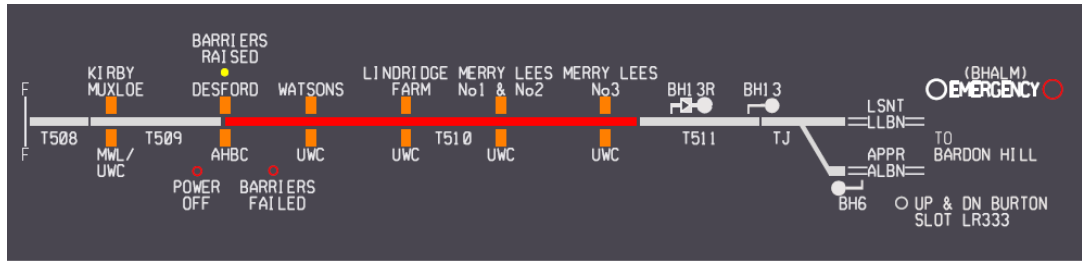
Two Dimensional:

√ denotes identity used

Main Signals & Slots (100-199)

	0	1	2	3	4	5	6	7	8	9
10x		√		√		√				
11x										
12x	√		√		√					
13x										
14x										
15x										
16x										
17x										
18x										
19x										





NR/L2/SIG/30035:



NR_L2_SIG_30035
iss 3.pdf

Previously reported to RAIB

Recommendation 2

The intent of this recommendation is to provide Network Rail SDG designers and checkers with a way of working which will remove the possibility of incorrect track circuit names being drawn on a signalling or scheme plan during its production, and then missed during the checking process. This way of working could be implemented in the software used by designers or by procedure. It is equally applicable to conceptual work (such as new designs) and non-conceptual work (such as the redrawing of an existing design).

Network Rail should, in consultation with its principal signalling contractors, review the ways of detecting and addressing incorrect track circuit names for all types of signalling or scheme plan production. The review should consider what manual or automatic methods can be used by designers and checkers. The findings of the review should then be implemented by means of a time bound programme for changes to the tools and mandated design processes that cover this activity.

ORR decision

1. ORR understands that, although Network Rail has reported a completion date of 31 December 2015, it may be encountering difficulties with the proposed software and its roll out. ORR has therefore requested confirmation that the closure date is still expected to be the end of 2015.
2. After reviewing the information provided by Network Rail ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, it has:
 - taken the recommendation into consideration; and
 - is taking action to implement it by 31 December 2015.

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

Brief Summary on what was previously reported to RAIB on 9 June 2014

3. ORR reported to RAIB that Network Rail had confirmed that an industry briefing had been drafted to remind designers of the need for a numbering grid (as required by standard NR/L2/SIG/11201/ModA2 'Minimum Requirements of Design Details') and to include split sections. Guidance on manual checking methods was documented in the Signalling Design Handbook, however, this was also to be included in the briefing as a reminder to designers and checkers. Network Rail had agreed to provide ORR with the publication date and content of the briefing.
4. Network Rail had also confirmed that automatic checking methods were available as part of the ISP 3.0 plan software, which was currently under trial and due for rollout in March 2014.

Update

5. On 26 October 2015 Network Rail submitted a revised completion date of 31 December 2015, supported by the following statement:

Network Rail has been waiting for the rollout of DTP to enable our machines on the latest version of Balfour Beatty Plans (v6) which allows the automatic identification of duplicate identities. This won't be done in its entirety until at least the end of the year (2015) as there have been a number of issues with DTP testing of all of our design packages and compatibility.

Network Rail has also written to its supply chain (Via SSL as the developer of BB Plans) as they will all need to upgrade to the latest version of BB Plans or they will be unable to update any signalling plans produced by our Signalling Design Group or other adopters of plans version 6.

Therefore timescale extension to 31 December 2015 due to our in service testify of software packages vs Windows 7.