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

Dear Andrew,

RAIB Report: Freight train derailment at Angerstein Junction on 3 June 2015

I write to provide an update¹ on the action taken in respect of recommendation 3 addressed to ORR in the above report, published on 1 June 2016.

The annex to this letter provides details of the action taken regarding the recommendation. The status of recommendation 3 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 June 2020.

Yours sincerely,

Oliver Stewart

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

Recommendation 3

The intent of this recommendation is to ensure that the derailment risk at Angerstein Junction is adequately controlled.

Network Rail should review and, if appropriate, alter the infrastructure configuration on the line between Angerstein Junction and Angerstein Wharf sidings to reduce its contribution to the derailment risk in the immediate vicinity of the 851A trap points.

This review should include, but not be limited to, consideration of:

- the wagon types and loads normally using the line;
- the layout of the check rail;
- the speed and braking profiles of trains using the line;
- the locations and operation of signalling equipment; and
- the location of the trap points, or the provision of alternative risk mitigation measures

ORR decision

1. In addition to the earlier work reported, Angerstein Junction was renewed by Network Rail in week 8 2019. The work, included renewal of track and signalling systems;.Network Rail advise that *as part of this renewal the catch points were moved within the Angerstein Wharf 52m back into the siding onto a configuration that does not require a check rail within them thereby completely removing the potential of a train to derail due to the catch points not having a check rail within them.*

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 October 2017 ORR reported the following:

Network Rail held a workshop on 22 May 2017 to consider changes that could be made to the infrastructure at Angerstein junction to reduce the risk of a train derailing in future. The workshop was attended by representatives of relevant asset disciplines from across Network Rail along with GB Railfreight. ORR support the cross-discipline approach Network Rail took with the workshop and the involvement of a freight operator. The workshop considered both engineering and operational controls to reduce the risk of a future derailment and has identified three key mitigation measures and a possible further long-term mitigation.

The outcome of the meeting was a HAZID report, which ORR has reviewed and concluded Network Rail have in place operational controls to reduce the likelihood of derailment at the points, and that these operational controls have reduced

vulnerability as they are interlocked into the signalling system. The purpose of these controls is to address the increase likelihood of flange climb at very low speed in vicinity of the points and reduce the consequences should a derailment occur.

Based on GBRF involvement with the HAZID and positive feedback from the Freight Technical Committee, the relevant FOCs are satisfied with the conclusions and resulting proposals, which appear proportionate to the risks involved. This solution is also achievable now, whereas any infrastructure solution is described as requiring significant work to develop that may ultimately not be successful. Network Rail have completed some of the actions identified, but have not yet provided ORR with a time-bound plan for implementation of the others.

Update

4. On 6 November 2017 Network Rail provided the following closure statement and supporting evidence:



Angerstein RAIB
Rec 3 closure.pdf



London Bridge
Panel 5 - 04 10 17.pc

5. Network Rail stated in summary the following:

Following the incident on 3rd June 2015 where one wagon of an empty freight train derailed on the approach to Angerstein Junction, near Charlton in south east London, a multi-disciplined and cross party risk assessment workshop was held and chaired by the DRAM Alan Ross (Director of Route Asset Management) on 22nd May 2017. The purpose of this was to evaluate the risks and potential mitigation measures that would prevent a re-occurrence of this incident. In attendance were representatives from NR (Networkrail) Operations Risk Control Coordinator, NR Signalling RAM (Route Asset Manager), NR Track RAM. NR Senior Route Freight Manager, NR Signalling Inspector, GB Railfreight Control Manager (also representing DB Cargo) and GB Railfreight Operations Manager. The wagons are open top construction and capable of carrying loose material. They are used for transporting loose finely crushed rock to an aggregate facility to be offloaded then leave empty. In this incident the empty wagon derailed as it left the facility because the leading right-hand wheel on one of them was carrying insufficient load to prevent the wheel climbing up the outer rail on a curved section of track. The insufficient load was due to a combination of the suspension on that wheel being locked in one position, a twisted bogie frame and an intended twist in the track. The layout of the check rail on the approach to Angerstein Junction is continuous on the curve approaching Angerstein Junction with a gap for the portion of line though the trap points L851A in advance of signal L425. At present, there exists no type-approved check rail for use through switches and crossings. We have identified that London Underground have a design, however it would require significant redesign and strengthening to cope with the type of trains running on Network Rail infrastructure. The feasibility of installing such a device has therefore been discounted. The freight

train was being operated within allowable speed limits and braking was not deemed to be a factor of this incident due to the train starting away from a stand at the next signal (L429), with the tenth wagon in the train standing over trap points L851A. With the lack of a check rail at this exact location due to design limitations, the wagon's leading wheel was able to climb the rail as the freight train pulled away. The trap points L851A are located in advance of signal L425 which protects Angerstein Junction and prevents freight services and road rail plant and rail mounted equipment accessing at the road rail vehicle access location on the branch line from obstructing Angerstein Junction. Replacing trap points L851A with a de-railer worked in conjunction with signal L425 or installing a TPWS Train Stop sensor would not be practicable, as it would neither provide protection against propelled movements passing signal L425 at danger without authority, nor against Rail Mounted Vehicles or Plant when placed on the branch via the adjacent vehicular access point. It would be highly undesirable to close this facility at this location, due to access constraints at other locations nearby. Such an alteration to the infrastructure would not be approved by the RSSB. Relocation of the trap points and signal L425 further back from the junction has been discounted due to the presence of a public foot crossing. The costs associated with its closure or diversion are unlikely to pass any cost benefit analysis due to the nature and frequency of traffic over the branch and the level of usage of the foot crossing. After this incident, Network Rail has mandated a Special Box Instruction (SBI) at London Bridge ASC. whereby the signaller may not clear signal L425 for a train to leave the Angerstein Wharf branch, without the next signal, L429 also displaying a proceed aspect ('double-blocking'), (Evidence attached). This mitigates against trains being required to restart with wagons standing over trap points L851 A, where there is no check rail. This method of working has been built into the interlocking at London Bridge ASC. Further to this, the signaller is prohibited from signalling a train past signal L430 on the Up North Kent line, when a train is departing the Angerstein Wharf branch. The purpose of this is to mitigate against a train on the opposite line being subjected to any remaining derailment risk. Further mitigation has been implemented with an enhanced frequency inspection regime now mandated at this location along with the threshold at which Maintenance intervention is required being lowered.

6. The closure statement was reviewed. Information was requested from Network Rail that demonstrates the implementation of the increased maintenance frequency and lowered intervention threshold for the track at this location. Once suitable information was provided we could propose that this recommendation is closed.

7. Network Rail provided the following update on 19 March 2019:

We are undertaking a full track renewal of Angerstein Junction on the main line in week 8. As part of this renewal we are also moving the catch points within the Angerstein Wharf 52m back into the siding onto a configuration that does not require a check rail within them thereby completely removing the potential of a train to derail due to the catch points not having a check rail within them (no approved national Networkrail design available for a check rail within catch points). This will close Rec 3.

This work is also associated with the Angerstein resignalling scheme.

8. On 21 April 2020 Network Rail stated the following:

This was completed in Week 8 last year 2019. The catchpoints were moved from the check curve onto an area of track with a greater radius hence removing the potential to cause a derailment. At the same time the S&C at Angerstein was renewed and the signalling system has been renewed. To take items further, we have also renewed the plain line siding leading up to the catch points as part of the project thereby improving the overall asset condition and removing any potential for other defects nearby to instigate a derailment through the catch points.

Previously reported to RAIB

Recommendation 3

The intent of this recommendation is to ensure that the derailment risk at Angerstein Junction is adequately controlled.

Network Rail should review and, if appropriate, alter the infrastructure configuration on the line between Angerstein Junction and Angerstein Wharf sidings to reduce its contribution to the derailment risk in the immediate vicinity of the 851A trap points.

This review should include, but not be limited to, consideration of:

- the wagon types and loads normally using the line;
- the layout of the check rail;
- the speed and braking profiles of trains using the line;
- the locations and operation of signalling equipment; and
- the location of the trap points, or the provision of alternative risk mitigation measures

ORR decision

1. Network Rail held a workshop on 22 May 2017 to consider changes that could be made to the infrastructure at Angerstein junction to reduce the risk of a train derailing in future. The workshop was attended by representatives of relevant asset disciplines from across Network Rail along with GB Railfreight. ORR support the cross-discipline approach Network Rail took with the workshop and the involvement of a freight operator. The workshop considered both engineering and operational controls to reduce the risk of a future derailment and has identified three key mitigation measures and a possible further long-term mitigation.

2. The outcome of the meeting was a HAZID report, which ORR has reviewed and concluded Network Rail have in place operational controls to reduce the likelihood of derailment at the points, and that these operational controls have reduced vulnerability as they are interlocked into the signalling system. The purpose of these controls is to address the increase likelihood of flange climb at very low speed in vicinity of the points and reduce the consequences should a derailment occur.

3. Based on GBRF involvement with the HAZID and positive feedback from the Freight Technical Committee, the relevant FOCs are satisfied with the conclusions and resulting proposals, which appear proportionate to the risks involved. This solution is also achievable now, whereas any infrastructure solution is described as requiring significant work to develop that may ultimately not be successful. Network Rail have completed some of the actions identified, but have not yet provided ORR with a time-bound plan for implementation of the others.

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

- is taking action to implement it, but ORR has yet to be provided with a timebound plan for all of the agreed actions.

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

Information in support of ORR decision

5. On 1 February 2017 Network Rail provided the following initial response:

Network Rail will hold a cross function meeting during Spring 2017, which will be led by the DRAM; the risk assessment of the crossing being the main emphasis of the meeting.

Additionally the group will review and examine the moving of the signal, in conjunction with the possibility of closing the level crossing. Network Rail's Commercial Scheme Sponsor will attend to discuss this.

Consideration will also to be given to the issues surrounding the access point for RRV.

Any resultant actions from the meeting will be agreed and action plans and timescales will be confirmed.

6. The output from the workshop on 22 May 2017 was a HAZID report which identified the following risk reduction and mitigation:

Risk reduction and mitigation

The layout of the check rail on the approach to Angerstein Junction was discussed. It is continuous on the curve approaching Angerstein Junction, save for the portion of line though the trap points L851A in advance of signal L425.

At present, there exists no type-approved check rail for Network Rail use through switches and crossings. London Underground have a design, however it would require significant redesign and strengthening to cope with the type of trains running on Network Rail infrastructure. The feasibility of installing such a device was therefore discounted.

The question of replacing trap points L851A with a de-railer worked in conjunction with signal L425 was discussed, but was not deemed to be practicable.

The question of replacing trap points L851A with a TPWS Train Stop sensor was discussed, but not found to be practicable, as it would neither provide protection against propelled movements passing signal L425 at danger without authority, nor against Rail Mounted Vehicles or Plant doing likewise when placed on the branch via the adjacent vehicular access point. It was felt that it would be highly undesirable to lose this facility at this location, due to

access constraints at other locations nearby. Such an alteration to the infrastructure would not be approved by the RSSB.

Relocation of the trap points and signal L425 further back from the junction was discounted, due to the presence of a public foot crossing. The costs associated with its closure or diversion are unlikely to pass any CBA due to the nature and frequency of traffic over the branch.

In the longer term, reopening the long-removed North to West curve towards Blackheath might be an option.

A causal factor in the three derailments which have occurred at this location, was that the train had been starting away from a stand at the next signal (L429), with the tenth wagon in the train standing over trap points L851A.

Since the last incident in 2015, Network Rail has mandated a Special Box Instruction (SBI) at London Bridge ASC, whereby the signaller may not clear signal L425 for a train to leave the Angerstein Wharf branch, without the next signal, L429 also displaying a proceed aspect ('double-blocking'). This mitigates against trains being required to restart with wagons standing over trap points L851A, where there is no check rail. This method of working has been built into the interlocking at London Bridge ASC.

Further to this, the signaller is prohibited from signalling a train past signal L430 on the Up North Kent line, when a train is departing the Angerstein Wharf branch. The purpose of this is to mitigate against a train on the opposite line being subjected to any remaining derailment risk. A review will be conducted to determine whether it remains necessary to maintain this method of working. (Action: NR Ops/TOCs/FOCs).

The panel discussed the implications of degraded working, whereby the signaller might require the Driver to pass signals L425 and L429 at Danger. This situation negates the benefits of the mitigation outlined above; consequently, Network Rail will devise an additional SBI for London Bridge ASC, which will permit the signaller to authorise Drivers to pass both signals at danger simultaneously, at this specific location only. The panel felt that this measure would maintain mitigation against derailment risk on trap points L851A. (Action: NR Ops).

Since the last incident in 2015, an enhanced frequency inspection regime has been mandated at this location, and the requisite amendments to ensure this put into place in the Ellipse system. The threshold at which Maintenance intervention is required has been lowered, however, this remains to be formalised. (Action PJ). The infrastructure was confirmed to be fit for passage of the type of rolling stock in use, at the permitted line speed of 15mph. GB Railfreight will liaise with the relevant wagon leasing company re maintenance standards.

Conclusions

The panel considered the RAIB recommendations in respect of infrastructure and operations, and judged that Network Rail had put in place reasonable measures to mitigate against a similar derailment occurring in the future at this location. The actions described in Section 4.2 above will be put into place.