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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: Electrical arcing and fire under a train near Windsor & Eton
Riverside on 30 January 2015**

I write to provide an update¹ on the action taken in respect of recommendations 3 & 4 addressed to ORR in the above report, published on 21 October 2015.

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 3 & 4 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 7 December 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 minimise the risk associated with the possible loss of emergency lighting in a train with people on board.

South West Trains should review the need for the function that automatically shuts down the class 458/5 train after 15 minutes if traction supply is lost and no cab is in service, and 90 minutes after traction power is lost with a cab in service, and assess the risk represented by the operation of this function in circumstances where passengers or other people (such as the emergency services) may still be on the train. It should implement any actions identified by this review.

ORR decision

1. South Western Railway have confirmed that modification of the battery on Class 458/5 fleet to increase the time the emergency lights are operational in the event of a loss of power has been completed.
2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, South West Trains has:
 - taken the recommendation into consideration; and
 - has taken action to implement it

Status: Implemented.

Previously reported to RAIB

3. On 20 October 2016 ORR reported that SWT carried out a review of the battery performance for the class 485/5s and following a successful trial of a modification to allow the emergency light to remain on for 90 minutes, was planning to carry out fleet fitment work between December 2016 and February 2017.

Update

4. On 30 October 2020 South Western Railway advised that the work regarding the modification to increase emergency lighting availability has been completed.

Recommendation 4

The intent of this recommendation is to clarify the rules on the type of switch-off or isolation that is required for passenger evacuation from trains on third rail lines, to reduce delays and potential for uncontrolled egress by passengers.

Network Rail, in consultation with those Train Operating Companies which operate passenger trains on the DC electrified networks, should assess the adequacy of the

present rules relating to the evacuation of DC electric trains, and propose to RSSB any appropriate changes to module DC of the rule book to minimise the risk of uncontrolled evacuation after an incident has caused a stoppage of trains. Consideration should be given to whether there are circumstances under which it is better to permit a controlled evacuation of passengers under the protection of an emergency switch-off, rather than a temporary isolation.

ORR decision

5. In response to a number of incident where trains became stranded on DC lines, a change to the Rule Book (GERT8000-TW1) was made in September 2020. The change sets out the actions expected of a driver and signaller if a train becomes stranded and should facilitate communication between a driver and a signaller earlier in the process of a train becoming stranded, allowing mitigation action to be taken more promptly and reducing the risk of passenger detrainment.

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 20 October 2016 ORR reported that Network Rail provided an initial response, but had not properly addressed the recommendation as it is concerned with how drivers and signallers address delayed rather than an uncontrolled evacuation. We wrote to Network rail asking them to clarify the steps they will take to allow evacuations to take place more promptly, thus reducing the possibility of uncontrolled evacuation.

Update

8. Network Rail provided the following closure statement on 13 September 2016:



Windsor and Eton
30.01.15.pdf

9. Network Rail state in summary the following

Network Rail has through RSSB's TOM SC (standards committee) worked with those Train Operating Companies which operate passenger trains on the DC electrified networks to assess the adequacy of the present rules relating to the

evacuation of DC electric trains to minimise the risk of uncontrolled evacuation after an incident has caused a stoppage of trains including whether there are circumstances under which it is better to permit a controlled evacuation of passengers under the protection of an emergency switch-off, rather than a

temporary isolation.

A proposal was made and accepted at RSSB's TOM SC to amend Module M1 (see below) of the Rule Book to address the requirements of the recommendation. This will be published during December 2016.

Network Rail has as an interim measure issued a Periodical Operating Notice item to take into account the risk of uncontrolled evacuations.

6.6 Uncontrolled evacuation

You must tell the signaller that an uncontrolled evacuation is taking place and ask the signaller to provide immediate signal protection on all lines that may be affected. If necessary, you must also ask for the electric traction current to be switched off. If you cannot contact the signaller, or the signaller cannot provide signal protection, you must carry out emergency protection.

You must try and prevent passengers making an uncontrolled evacuation and warn passengers that have evacuated, of any risks.

This recommendation will be closed on CMO and an assurance check will be completed in December 2016 to ensure that the changes have been published.

10. Network Rail provided the following update on 22 October 2020:

The rule book covers a controlled (planned and isolated) evacuation, uncontrolled (unplanned with isolation but not an emergency) evacuation and an emergency (unplanned with isolation for an on train emergency) evacuation. These three scenarios cover all types of incidents and the Driver will use as appropriate.

The rule book was published as planned.

6.6 Uncontrolled evacuation

driver

You must tell the signaller that an uncontrolled evacuation is taking place and ask the signaller to provide immediate signal protection on all lines that may be affected. If necessary, you must also ask for the electric traction current to be switched off.

If you cannot contact the signaller, or the signaller cannot provide signal protection, you must carry out emergency protection.

driver, guard

You must try and prevent passengers making an uncontrolled evacuation and warn passengers, who have evacuated, about any risks.

6.7 Signaller's actions

Previously reported to RAIB

Recommendation 3

The intent of this recommendation is to minimise the risk associated with the possible loss of emergency lighting in a train with people on board. South West

Trains should review the need for the function that automatically shuts down the class 458/5 train after 15 minutes if traction supply is lost and no cab is in service, and 90 minutes after traction power is lost with a cab in service, and assess the risk represented by the operation of this function in circumstances where passengers or other people (such as the emergency services) may still be on the train. It should implement any actions identified by this review.

ORR decision

1. SWT carried out a review of the battery performance for the class 485/5s and following a successful trial of a modification to allow the emergency light to remain on for 90 minutes, is planning to carry out fleet fitment work between December 2016 and February 2017.
2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, SWT has:
 - taken the recommendation into consideration; and
 - is taking action to implement it

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

Information in support of ORR decision

3. On 8 January 2016, South West Trains provided the following initial response:

This recommendation relates to the emergency lighting on-board the Class 458/5 involved in the incident turning off after 15 minutes. During the incident, the coupler between the two units divided and, with no key in the driving cab, the trailing unit no longer recognised itself as being in service and initiated shutdown to preserve battery life. The immediate shutdown was as the result of a modification initiated by SWT in 2001, and only affects the class 485/5s. SWT have undertaken a review of the battery performance of the Class 485/5 in order to determine the optimum length of time the emergency lighting could be activated with consideration of the length of battery life. Once this review and the necessary tests have been completed, a modification will be made to the units to allow the emergency lights to remain on for 90 minutes; this is expected to be completed by July 2016.

4. SWT provided an update on 18 August 2016:

The three month trial of the first fit is underway. The unit will be checked during September to confirm that relay timings have not drifted. Assuming trial is successful full fleet roll out will commence in October.

5. On Friday 14 October 2016, South West Trains provided the following additional information:

This recommendation relates to the emergency lighting on-board the Class 458/5 involved in the incident turning off after 15 minutes. A successful trial of a modification to the emergency lighting to enable it to stay on for 90 minutes has been undertaken, this finished in September. Materials for the modification are now on order, due for delivery at the end of November, with fleet fitment roll-out due to commence December, with completion anticipated February 2017.

Recommendation 4

The intent of this recommendation is to clarify the rules on the type of switch-off or isolation that is required for passenger evacuation from trains on third rail lines, to reduce delays and potential for uncontrolled egress by passengers.

Network Rail, in consultation with those Train Operating Companies which operate passenger trains on the DC electrified networks, should assess the adequacy of the present rules relating to the evacuation of DC electric trains, and propose to RSSB any appropriate changes to module DC of the rule book to minimise the risk of uncontrolled evacuation after an incident has caused a stoppage of trains. Consideration should be given to whether there are circumstances under which it is better to permit a controlled evacuation of passengers under the protection of an emergency switch-off, rather than a temporary isolation.

ORR decision

6. Network Rail have provided an initial response, but have not properly addressed the recommendation as it is concerned with how drivers and signallers address delayed rather than an uncontrolled evacuation. We have written to Network rail asking them to clarify the steps they will take to allow evacuations to take place more promptly, thus reducing the possibility of uncontrolled evacuation.

7. 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 fully address the recommendation and provide ORR with a timebound plan for implementation.

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

8. On 30 August 2016, Network Rail provided the following initial response:

Network Rail has through RSSB's TOM SC (standards committee) worked with those Train Operating Companies which operate passenger trains on the DC electrified networks to assess the adequacy of the present rules relating to the evacuation of DC electric trains to minimise the risk of uncontrolled evacuation after an incident has caused a stoppage of trains including whether there are circumstances under which it is better to permit a controlled evacuation of passengers under the protection of an emergency switch-off, rather than a temporary isolation.

A proposal was made and accepted at RSSB's TOM SC to amend Module M1 (see below) of the Rule Book to address the requirements of the recommendation. This will be published during December 2016.

Network Rail has as an interim measure issued a Periodical Operating Notice item to take into account the risk of uncontrolled evacuations.

6.6 Uncontrolled evacuation

You must tell the signaller that an uncontrolled evacuation is taking place and ask the signaller to provide immediate signal protection on all lines that may be affected. If necessary, you must also ask for the electric traction current to be switched off.

If you cannot contact the signaller, or the signaller cannot provide signal protection, you must carry out emergency protection.

You must try and prevent passengers making an uncontrolled evacuation and warn passengers that have evacuated, of any risks.

9. ORR wrote to Network Rail on 11 October 2016 requesting further information as we did not feel the recommendation had been properly addressed:

Rec 4 says:

Network Rail, in consultation with those Train Operating Companies which operate passenger trains on the DC electrified networks, should assess the adequacy of the present rules relating to the evacuation of DC electric trains, and propose to RSSB any appropriate changes to module DC of the rule book to minimise the risk of uncontrolled evacuation after an incident has caused a stoppage of trains. Consideration should be given to whether there are circumstances under which it is better to permit a controlled evacuation of passengers under the protection of an emergency switch-off, rather than a temporary isolation (paragraph 163c).

The intent of this recommendation is to clarify the rules on the type of switch-off or isolation that is required for passenger evacuation from trains on third rail lines, to reduce delays and potential for uncontrolled egress by passengers.

Network Rail's response is to change the rules to improve how driver's and signaller's deal with uncontrolled evacuation. In our view this response has missed one of the key point of the above recommendation this was not an uncontrolled evacuation, it was a delayed evacuation that could have led to an uncontrolled evacuation.

Paragraph 157 summarises RAIB's underlying concern:

The RAIB has concluded that, to keep control and encourage safe behaviour during an incident, prompt and decisive action is necessary. Experience (including this incident) shows that if railway staff do not

take such action, passengers may try and leave the train without authority, putting themselves at risk. The present rules provide insufficient guidance on steps to be taken in circumstances where there is no immediate danger, but early evacuation is required in order to manage the situation effectively.

Network Rail needs to work with the TOCs and RSSB to think how it can change the rules to enable it to speed up evacuation to reduce the likely hood of uncontrolled evacuation. If uncontrolled evacuation occurs then the revise rule 6.6 will come into play.