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6 August 2020

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

Dear Andrew,

RAIB Report: Train fire at South Gosforth on 8 January 2013

I write to provide an update[1] on the action taken in respect of recommendation 1 addressed to ORR in the above report, published on 25 September 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 1 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 7 August 2020.

Yours sincerely,

Oliver Stewart

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

Recommendation 1

The objective of this recommendation is that Nexus, with support from DBTW, should identify and mitigate the risk associated with electrical breakdown in the train line breaker assemblies.

Nexus, supported by DBTW, should carry out a detailed assessment of the risk associated with faults in the line breaker unit, which should include:

- identification of actual and potential failure mechanisms and an estimate of their likely frequency;
- consideration of the possible effects of line breaker faults, taking account of the configuration and reliability of the electrical protection systems currently provided on the Metro system; and
- consideration of possible consequences, taking account of the potential for fire in high risk environments, such as tunnels. Appropriate actions to reduce the risk and potential consequences of failures should be defined and implemented following the review.

ORR decision

1. Nexus carried out a failure mode events analysis and a risk assessment on the line circuit breakers and concluded that the additional control measure of multi-function relays at substations was a reasonably practicable additional control measure, which would reduce the risk to what they considered to be an acceptable level.

2. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Nexus has:

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

Status: Implemented

Previously reported to RAIB

3. On 3 December 2015 ORR reported the following:

ORR is content that the implementation of this recommendation will be driven by the Nexus response to the Walkergate RAIB report, which also related to the reassessment of similar risks. Implementation of the Walkergate recommendations will satisfy South Gosforth recommendation 1 in a more robust manner than originally proposed. ORR considers that interim mitigation measures introduced by Nexus must be suitably robust to effectively control the risk and ORR is working with Nexus and DBTW to ensure this is achieved.

Update

4. On 26 November 2019 Nexus provided the following update:

Completely new line breaker components have been installed in the Metrocar fleet very successfully. Additionally, multi-functional relays (MFRs) have been installed in substations across Nexus-controlled infrastructure, significantly increasing system resilience and diagnostic capability; and as part of the Nexus asset renewal programme, work is well underway to completely renew overhead line hardware, improving mechanical resilience and electrical conductivity. Almost 25% of the OLE renewal programme is complete at the time of writing.

5. On 25 March 2020 we wrote to Nexus and stated that in order to progress South Gosforth recommendation 1 could they please provide us with a copy of the risk assessment relating to faults in the line breaker unit and confirmation that all the requisite actions had been implemented or were in the process of being so.

6. Nexus provided the following risk assessment material on 16 June 2020:

LB failure mode Risk Assessment V 2

LB Failure modes Master index sheet

Previously reported to RAIB

Recommendation 1

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ORR Decision

1. ORR is content that the implementation of this recommendation will be driven by the Nexus response to the Walkergate RAIB report, which also related to the reassessment of similar risks. Implementation of the Walkergate recommendations will satisfy South Gosforth recommendation 1 in a more robust manner than originally proposed. ORR considers that interim mitigation measures introduced by Nexus must be suitably robust to effectively control the risk and ORR is working with Nexus and DBTW to ensure this is achieved.

2. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Nexus and DBTW have:

- taken the recommendation into consideration; and
- are taking action to implement it by 30 June 2016.

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

Brief summary of progress previously reported to RAIB

3. On 9 June 2014 ORR reported to RAIB that Nexus and DBTW had produced a joint action plan to reduce the risks associated with line circuit breaker fires and enhance D.C. protection systems, and a joint assessment of risks had taken place.

Update

4. On 28 May 2015 Nexus provided updated versions of the risk assessment and risk assessment summary sheet:

> *It is worth noting that this risk assessment was considered complete until we suffered a further event involving a line breaker in August 2014. As a result of*

that the Risk Assessment (RA) has been comprehensively reviewed. This is now being further reviewed following the release of an independent forensic examination of a line breaker by HSL laboratories which was requested by the ORR. Once that final review is completed the RA will be formally acknowledged by both Nexus & DBTW and the final version will be sent to you.


Rec 1 RA Summary sheet Metro car fire Ja


RA Rec 1 Metro car fire Jan 13.pdf


Action Plan for ORR 06-09-13 Update V1 5

5. On 19 August 2015 Nexus provided a further updated version of the risk assessment and the following supplementary information:

The RA has been updated following the Tyne & Wear accident at Walkergate station in August 2014 which resulted in the overhead line parting. The ORR investigation into that event included a scientific examination of the Line breaker (a part of the train equipment) which 'failed' as part of the event. The updated RA has also considered the findings of this report.

Following the event at Walkergate station in August 2014, the RAIB investigation report has included a recommendation to:

"identify (or review) and assess jointly created risks that occur at all interfaces between the infrastructure, power operations and trains. This should include the use of suitable risk assessment methodologies appropriate for identifying potential failure modes and their consequences, and a recognised technique for assessing the extent to which additional mitigations are required to reduce the risk as low as reasonably practicable. To this end, Nexus and DBTW should ensure that they have access to, and utilise, competent advice on conducting assessments of system-wide risks".

The stated approach to this is to combine the current RAs that we have to help satisfy the requirements of this recommendation.


LB Failure modes Master index sheet V2


LB failure mode Risk Assessment V 2.6 SIG