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27 May 2021

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

Dear Andrew,

RAIB Report: Loss of safety critical signalling data on the Cambrian Coast line on 20 October 2017

I write to provide an update[1] on the action taken in respect of recommendation 4 addressed to ORR in the above report, published on 19 December 2019.

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 4 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 1 June 2021.

Yours sincerely,

Oliver Stewart

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

Recommendation 4

The intent of this recommendation is to ensure that data crucial to an investigation, which might otherwise be lost while attempting to recover the train service, is retained after any future control system failure on the Cambrian lines. The recommendation addresses the need for location specific instructions when it is impractical to include necessary detail in documents applying across the rail network.

Network Rail, in conjunction with Hitachi STS, should implement a procedure to ensure the capture and retention of data which could prove useful for investigating any future safety related failure of the European Rail Traffic Management system (ERTMS) on the Cambrian lines. Implementation should, if appropriate, include installation of additional or modified equipment. Consideration should be given to the periodical download of data as well as specifying a process to be followed during a recovery of service

ORR decision

1. Hitachi have produced a maintenance instruction for Network Rail on how to extract data from systems for investigation that do not save that information automatically. The maintenance instruction is to be used following a wrong side failure in order to save data for investigation before systems are restarted.

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

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

Status: Implemented.

Previously reported to RAIB

3. On 18 December 2020 ORR reported the following:

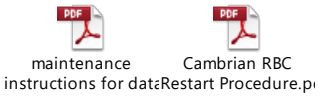
Network Rail Wales route has implemented a procedure to download and retain data held in the ETCS. Hitachi STS are developing a suitable data logging system as part of the Baseline 2.3.0.d development and implementation work required for the operation of the CAF train fleet. The work was expected to be completed by September 2020, but has been delayed by the COVID-19 pandemic. Commissioning is not expected until March 2021.

Update

4. On 26 April 2021 Hitachi provided the following update:

I have been advised by the Project Manager for the ERTMS Cambrian Project that this action is now closed. Note (Ref.: 90001020.E00.EN) produced and signed off by NR on the 22nd February 2021.

5. On 11 May 2021 Network Rail provided a copy of the procedure supplied by Hitachi and the RBC reset checklist:



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ORR decision

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

- taken the recommendation into consideration; and
- is taking action to implement it by 30 March 2021.

Status: Implementation ongoing. **ORR will advise RAIB when actions to address this recommendation have been completed.**

Information in support of ORR decision

3. On 27 March 2020 Network Rail provided the following initial response:

NR has procedures in place to retain incident evidence at the time of an incident prior to any destructive testing or intentional system reboot.

Network Rail Wales route has implemented a procedure to download and retain data held in the ETCS. Data is extracted in hexadecimal form and converted to a useable form by the technicians as part of a daily scheduled routine and would be undertaken prior to any destructive testing or intentional system reboot.

A process was developed for the recovery of service to ensure insertion of TSRs into the GEST following the incident in October 2017. This was used satisfactorily by the technicians following subsequent rollovers of the RBC. It should be noted

that a rollover is not a fault. The RBC software will trigger a rollover as a safe response when authority movement conflicts, or other exceptional events, are detected.

An update was made to the RBC in approximately March 2019 since which no rollover has occurred and the recovery process has not been required.

Hitachi STS has agreed to replace the GEST with a version similar to that used on the TGV system which includes non-volatile memory to retain TSRs. This system is planned to be installed in summer 2020. (Recommendation 5). This will remove reliance on the recovery of service process which has not been invoked since the RBC update.

A data logger does not currently exist to extract and retain data. Discussions with Hitachi STS indicate this would not be a simple task and would take more than installation of typical data loggers. It would most likely involve significant data changes to the SICAM/SILAM equipment systems and the data collection ability of the track side equipment at Machynlleth. This would be a lengthy and costly exercise if undertaken as a standalone project.

Hitachi STS are being instructed to investigate the development of a suitable data logging system as part of the Baseline 2.3.0.d development and implementation work required for the operation of the CAF train fleet.

4. On 23 April 2020 Hitachi STS provided the following initial response:

The system delivered on Cambrian has a Juridical recorder with the EVC on-board and a RBC maintenance equipment which automatically stores RBC internal status and data exchanged with other sub-systems.

A note will be produced containing a table which will list every log in all the Trackside (and Onboard) systems that should be downloaded in case of a suspected wrong-side failure. We will just list the titles of the logs and provide a cross-reference to the relevant O&M manual that documents the details. This note will also advise about the periodic download and the process to follow in case a failure before or after the recovery of the system.

The proposed timescale for this implementation is September 2020.

5. On 11 November 2020, Hitachi STS confirmed a revised timescale of 18 December 2020.