Report 11/2022: Collision between a passenger train and a hand trolley at Challow

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Summary

At 06:09 hrs on 21 October 2021, a passenger train travelling at 123 mph (198 km/h) struck a hand trolley on the track near Challow, Oxfordshire. The train was the first to pass through the area after the completion of overnight maintenance work. There were no injuries among the passengers or crew on board and the train did not derail. The hand trolley was destroyed by the impact and debris from it caused damage to equipment under the train. The collision also resulted in minor damage to the track.

A maintenance team had carried out overnight work at Challow and no one noticed the team had left its hand trolley on the track. The checks undertaken before handing back the railway for normal operation also had not identified the hand trolley's presence. A process which formed part of these checks was the line clear verification process. It was used to monitor what vehicles, including hand trolleys, were placed on and taken off the track during the overnight work. However, there were weaknesses within this process, and these were compounded by the maintenance team not following the process as it was required to on the night concerned.

Underlying factors related to the weaknesses within the line clear verification process were:

- It was reliant on human actions for its successful implementation, which the rail industry had recognised, but not yet implemented any measures to avoid or mitigate errors.
- It was separate to the work planning process as defined by Network Rail's company standards. This was a possible underlying factor.
- Network Rail's assurance activities had not detected that staff in the Swindon delivery unit welding and grinding section were not complying with the line clear verification process. This was a possible underlying

factor.

A further probable underlying factor was that hand trolleys were being routinely used at night without displaying any red lights and that no assurance activities were taking place within work sites to monitor compliance to this requirement.

RAIB observed that after the accident, the train was allowed to travel at a speed above that which should have been permitted given the level of damage it had sustained. RAIB also observed that there were multiple issues with how the work at Challow was planned by Network Rail.

Recommendations

RAIB has made five recommendations to Network Rail. The first is to establish how the existing line clear verification process can be improved while the second is to consider what technology could be used by its staff to support the process. The third recommendation is to propose an amendment to the Rule Book so that hand trolleys are required to display an illuminated red light in both directions at all times when on the track. The fourth is for Network Rail to have processes in place to ensure that any hand trolley placed on its track has illuminated red lights displayed in both directions. The fifth recommendation is to review the effectiveness of its safety assurance activities which check that hand trolleys are being used correctly and safely.

RAIB also identified three learning points. The first reminds maintenance staff about the importance of complying with all rules and standards concerning how trolleys and rail skates should be used on Network Rail's infrastructure. The second highlights the importance of clear communication between the staff at a train involved in an accident and those based in control rooms to establish what damage has been sustained by a train, so that the appropriate controls can be put in place before the train is permitted to move. The third is that staff involved in planning maintenance work produce documents that are accurate, appropriate and specific for the task that is being carried out, and involve those responsible for the work in the planning of it.

Andrew Hall, Chief Inspector of Rail Accidents said:

> Systems and processes designed to detect any equipment left on the track before lines re-open after maintenance work, should not be reliant solely on human performance in the middle of a dark night. There are technological solutions which can assist with addressing this issue, and this accident is an example of an opportunity missed.
>
> Our investigation found that the railway had identified the risk of equipment, such as hand trolleys, being left on the line and that it could mitigate this risk by improving the line clear verification process. However, it had not yet implemented the

changes required when this accident occurred. This meant that the process remained vulnerable to human error. In this case, this vulnerability was made worse because relevant procedures were not followed correctly. Technology has an important role to play in improving the safety of the railway and it is important that the development of solutions to better support staff are prioritised.

It is also a concern that hand trolleys were routinely being used on the track at night without displaying red lights. But it is of equal concern that no activity to monitor this requirement was being undertaken. Once again, assurance activities intended to check that rules are being followed and that processes are being implemented correctly were not effective.

Notes to editors

1. The sole purpose of RAIB investigations is to prevent future accidents and incidents and improve railway safety. RAIB does not establish blame, liability or carry out prosecutions.

2. RAIB operates, as far as possible, in an open and transparent manner. While our investigations are completely independent of the railway industry, we do maintain close liaison with railway companies and if we discover matters that may affect the safety of the railway, we make sure that information about them is circulated to the right people as soon as possible, and certainly long before publication of our final report.

3. For media enquiries, please call 01932 440015.

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