

MINISTRY FOR INNOVATION AND TECHNOLOGY

TRANSPORTATION SAFETY BUREAU

FINAL REPORT (EXTRACTION)



2020-0515-5 (HU-6275)

Railway Accident / Derailment Hatvan (Switch № 33), 2 June 2020

Translation

This document is the translation of Points 1, 5 and 6 of Hungarian version of the Final Report. Although efforts have been made to translate the mentioned parts of the Final Report as accurately as possible, discrepancies may occur. In this case, the Hungarian Final Report is the authentic, official version.

Basic principles of the safety investigation

The purpose of the safety investigation fulfilled by Transportation Safety Bureau (TSB) as National Investigation Body of Hungary is to reveal the causes and circumstances of serious railway accidents, railway accidents and railway incidents and propose recommendations in order to prevent similar incidents. The safety investigation is not intended to examine and determine fault, blame or liability in any form.

The findings of the safety investigation are based on an assessment of the evidence available and obtained by TSB in the course of the investigation, taking into account the principles of a fair and impartial procedure. In the Final Report, the persons involved in the occurrence shall be referred to by the positions and duties they had at the time of the occurrence.

The Final Report shall not have binding force and no appeal proceedings may be initiated against it.

This safety investigation has been carried out by TSB pursuant to relevant provisions of

- Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents;
- Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports;
- in the absence of other related regulation of the Act CLXXXIV of 2005, the TSB conducts the investigation in accordance with Act CL of 2016 on General Public Administration Procedures.

Act CLXXXIV of 2005 is to serve compliance with Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety.

The competence of the TSB is based on Government Regulation № 230/2016. (VII.29.) on the assignment of a transportation safety body and on the dissolution of Transportation Safety Bureau with legal succession.

The safety investigation is independent of other investigations, administrative infringement or criminal proceedings, as well as proceedings initiated by employers in connection with the accident or incident.

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1. SUMMARY

On 2 June 2020, the leading wagon (the buffer wagon) of the freight train № 45290-1 with one buffer wagon and 23 loaded tank cars running from Tiszaújváros to Šturovó (Párkány) stations derailed with both axles on the switch № 33 while the train was approaching Hatvan station. The derailed wagon knocked down an exit signal. No one was injured in the accident, no dangerous goods were released into the environment, and the wagon was scrapped subsequently.

The occurrence may be attributed to the fact that there was an intense track gauge decrease in the track at the location of the derailment, and the light wagon placed at the front of the train is more sensitive to such track anomaly.

Systemic factors

- A rule change to relieve railway undertakings from the obligation to apply buffer wagons had already been prepared but not yet become effective (due to a delay) before the occurrence;
- It was already found in earlier investigated cases that the infrastructure manager's track supervision system was not suitable for revealing the track anomaly concerned therefore TSB issued a safety recommendation relating to the issue, but no action was taken.

The former problem was resolved when the prepared rule change became effective, but the unresolved state of the latter shows that the infrastructure manager's safety management system does not work properly. Therefore, TSB issues a safety recommendation to the railway transport authority, but naming the infrastructure manager as the entity responsible for taking action.

5. CONCLUSIONS

5.1 Summary

5.1.1 Causal factors

Any action, omission, event or condition, or a combination thereof that if corrected, eliminated, or avoided would have prevented the occurrence, in all likelihood:

- a) There was an intense track gauge decrease in the turnout curve №
 33 which had not been detected and repaired by the track supervision system;
- b) The light wagon placed as buffer wagon at the front of the train was sensitive to the track anomaly concerned;
- c) Possible causes inherent in the technical condition of the derailed wagon could neither be demonstrated nor excluded.

5.1.2 Contributing factors

Any action, omission, event or condition that affects an occurrence by increasing its likelihood, accelerating the effect in time or increasing the severity of the consequences, but the elimination of which would not have prevented the occurrence:

- a) The anomaly of intense track gauge decrease in the turnout curve cannot be identified by observing the rules of track supervision;
- b) The planned introduction of the modified rules relating to buffer wagons was postponed from April to August, due to external circumstances.

5.1.3 Systemic factors

Any causal or contributing factor of an organisational, managerial, societal or regulatory nature that is likely to affect similar and related occurrences in the future, including, in particular the regulatory framework conditions, the design and application of the safety management system, skills of the staff, procedures and maintenance:

a) The infrastructure manager does not implement an important safety management task, namely that immediate corrective actions should be taken (relating to known safety risks) in order to prevent similar occurrences.

5.2 Actions taken

As regards actions taken, CER Zrt. mentions inclusion of the occurrence in their training syllabus, rehearsing and testing the knowledge of the related rules, given that neither technical nor human shortcomings had been found on the company's part.

MÁV Zrt. reported no action taken, but they are planning to delete the evaluation of track gauge changes from their track supervision system. The reason is that, in their opinion, the anomalies identified by using that parameter occur too frequently during the track supervision measurement, while the accident statistics do not confirm the hazardous nature of such anomalies.

However, the IC's position is that the occurrence concerned can also be linked to an anomaly of that kind, and that the disproportionate frequency may rather be related to selection of a too strict dimension limit.

5.3 Other factors

Other factors which cannot be linked to the case but increase risk:

a) The track supervision entity's planning activity covers a fairly long time span and does not manage changes in a sufficiently flexible manner.

5.4 **Proven procedures, good practices**

The IC identified no factors or acts which would have mitigated the consequences of the occurrence or would have helped avoiding more a serious outcome.

5.5 Lessons learnt

Safety procedures may also have incremental risks (e.g. unfavourable running safety of a buffer wagon intended as a fire protection measure), while the severity of certain risks may change as a result of technical development (fire protection of the wagons from the locomotive). Therefore, it is justified to review and modify the safety procedures as necessary from time to time (in the case concerned, the solution chosen was to omit the buffer wagon), but it is also justified to monitor the effect of the change in the future.

Reliable track supervision depends on proficient work of the operational staff, as well as on the procedures they are expected to apply. Procedures must follow the development of the industry and respond to newly identified risks, and changes necessary to mitigate such risks must be elaborated and introduced.

That is the railway undertaking's responsibility even when no notice comes from the authorities.

6. SAFETY RECOMMENDATION

Safety recommendations, together with the findings and conclusions in the final investigation report, represent important information for the further improvement of railway safety. Accordingly,

- The authorities responsible for safety shall take action as necessary to ensure that safety recommendations are duly taken into consideration and applied where appropriate;
- The organisations responsible for introducing such safety recommendations shall start, with no delay, the risk assessment and risk such management activities related to the contents of safety recommendation within the procedural framework of their safety management system.

Within 90 days of the issue of the safety recommendation, they shall report back to the IC on the actions taken or planned or on their non-acceptance (with justification) of such safety recommendation.

When issuing the final report on the investigation into a similar occurrence which took place in Kelebia in 2017, TSB also issued a safety recommendation relating to modification of track supervision measurements. As no action has been taken in that case yet, **TSB maintains such earlier safety recommendation, with the addition that MÁV Zrt. is responsible for implementation thereof.** At the same time, with regard to the lack of action taken, TSB issues a safety recommendation relating to the review of the operation of the railway infrastructure manager's safety management system.

6.1 BA2020-0515-5-01

The IC found during the investigation that the railway infrastructure manager had failed to take action to manage the risk identified by an earlier investigation and recognised by them, but makes such actions dependant on external constraints (administrative orders). This violates a principle of the safety management system, namely that the railway infrastructure manager is responsible for taking immediate corrective action as necessary in order to prevent re-occurrence of accidents.

Number: BA2020-0515-5-01

Addressee: Railway Authority Division, Ministry for Innovation and Technology

Responsible for introduction: MÁV Zrt.

TSB recommends Railway Authority Division, ITM to consider reviewing the safety management system of MÁVV Zrt. as well as its operation, in order to see whether it adequately provide taking immediate corrective actions in response to newly revealed risks and whether the company carries out safety management activity accordingly.

By acceptance and expected implementation of the safety recommendation, the railway undertaking may be compelled to manage the identified risks.