



Translation of an excerpt of the investigation report

“Train collision Dorsfeld station on 22/11/2024”

Status as of 12/11/2025, version 1.1.

Note:

In accordance with Article 3 of Implementing Regulation (EU) 2020/572, points 1, 5 and 6 of Annex I of an investigation report shall be written in a second official European language. This translation should be available no later than three months after the delivery of the report.

The following English translation is a corresponding excerpt of the investigation report. The German language version is authoritative.

Excerpt translation:

1 Summary

The first section contains a brief description of the event, as well as information on the consequences, primary causes and safety recommendations provided in the individual case.

1.1 Brief description of the event

On 22/11/2024 at around 01:06 am, the freight train DGS 42506, which was travelling from Gernersheim to Antwerpen-Zuid (Belgium), collided with a work train at km 25.8 on track 2 of Dorsfeld station.

1.2 Consequences

One person was seriously injured, and two people suffered minor injuries. Considerable property damage amounting to around EUR 4,900,000 was caused to the railway vehicles involved and the infrastructure.

1.3 Causes

During the investigation of the event, the following actions, failures, incidents or circumstances were identified as safety-critical factors. These are differentiated into causal or contributing and systemic factors according to Implementing Regulation 2020/572. Identified shortcomings in the emergency management are also addressed.

A system with designations in square brackets is used to provide better clarity about the factors and aspects of emergency management.

A detailed assessment of the event with classification as safety-critical factors is provided in the sections below.

What happened: Date/time, and action/failure /circumstance/ incident	Causal factor	Contributing factor	Systemic factor
21/11/24 / 11:10 pm Track occupancy after the end of the work in accordance with operation and construction instructions unknown	Overview of track occupancy [F1]	-	Correct safety information about track occupancy [S1]
22/11/24 / 00:52 am After the end of the work in accordance with operation and construction instructions, track 2 remains illuminated in red	Performance of section check by the signaller [F2]	-	-
22/11/24 / 00:59 am Assessment and report that track 2 in Dorsfeld station was “free” by the rail construction supervisor	Assessment that the track was “free” and provision of report by the rail construction supervisor [F3]	-	-

Table 1: Summary of influencing factors

1.4 Safety recommendations

The following safety recommendation no. 15/2025 is made in accordance with Section 6 of the EUV [German railway accident investigation regulation] and Article 26(2) of Directive (EU) 2016/798:

It is recommended that the management of information concerning main tracks still being occupied, particularly after they have been closed due to written instructions, work track statuses, track closures, dividing of trains and/or changing to other train movements, be improved in relation to the requirements as per Delegated Regulation (EU) no. 2016/762, Annex II, criterion 4.4.3a) to g). In addition to providing the information, the time, wordings that may need to be complied with and responsibilities, the saving of the information and incorporation into other operating processes are relevant.

5 Conclusions

The following section contains a summary of the identified causal, contributing and systemic factors. In addition, two further subsections are provided containing information about measures already taken, and additional comments

5.1 Summary and conclusion

The Federal Authority for Railway Accident Investigation identified three causal factors and one systemic factor that influenced the event. These actions, failures, incidents and circumstances identified in this investigation report resulted in the train collision at Dorsfeld station.

In relation to the causal factor “Overview of track occupancy” [F1]:

In summary, it must be determined that the signaller in Horrem I had no overview of the track occupancy in Dorsfeld station after the reported end of the work in accordance with operation and construction instructions. After the departure of the tamping machine as train movement 24146 towards Horrem, she assumed that the displayed red illumination on track 2 was an error in the display after the end of the work because she could not assign this red illumination to any train. She no longer had the report from the driver of the shunting movement from DGV 34156 at 11:09 pm and had also not documented that these vehicles remained on track 2 in order to depart later as a train movement. Noting down this information, as can be done at electronic signal box workstations, for example, as a note in the operating display, would have helped the signaller in this situation to consider that the track was already anticipated to be occupied and not to schedule it for other upcoming train movements. It is true that a note alone would not have been significant enough to be able to fully perform a later safety-relevant section check in line with the requirements of guideline 408. However, it would have meant that the track occupancy would not only have been revealed in the work process when subsequent safety-related measures were implemented for the conduct of the journey following anticipated decisions.

Due to the subsequent chain of events, following the signaller’s approval of the journey of the freight train DGS 42506, there was a lack of compliance with the “Fundamental Operational Principle” as per Implementing Regulation (EU) 2023/1693, Annex B/B1, point 1. According to this, “the method of authorising a train movement shall maintain a safe interval between

trains". The DGS 42506 should not have been allowed into track 2 of Dorsfeld station, which was still occupied by vehicles.

In relation to the systemic factor "Correct safety information about track occupancy" [S1]:

The non-conclusive list in section 4.5 of this report relating to previous similar events shows a number of collisions in which the information about a main track being occupied by vehicles was not passed on to or not reliably kept available by the signaller. As operations progressed, this resulted in incorrect assumptions that tracks were free. It is true, for example, that for shunting on main tracks it was specified according to guideline 408.4841 that a signaller must gain "prior knowledge" of the occupancy of main tracks by shunting movements as per guideline 408.4841. In contrast, there are no systematic rules for the signaller about the prompt forwarding of information and consistent saving of information about occupancy of main tracks following track repair work, closures, divisions or changing of vehicles to other train movements. As a result, in the past there have been repeated dangerous events in rail transport because there were discrepancies between the knowledge about the occupancy status of a track and the actual occupancy of the track with vehicles.

In view of the different forms of signal box, the Federal Authority for Railway Accident Investigation is not aware of any uniform system that the infrastructure manager has to ensure that this information is passed on immediately and in good time to the signaller so that the signaller is able to incorporate it into further operational management. In relation to practice, the Federal Authority for Railway Accident Investigation only knows that the signallers sometimes make do with individual notes on notepads, which, for example, are attached to the signal box control unit or can be found at the workstation. In the present case, at best these records would have helped to identify that vehicles remained on track 2, but, in conjunction with the requirements of guideline 408.0471 and/or guideline 408.0231 section 2, on their own they would not have been sufficient to perform a section check. In addition to this, the current requirement from the infrastructure manager for its signallers to perform a section check before cancelling a track closure as per guideline 408.0471 section 2(4c) does not seem to be plausible as a mandatory prerequisite for cancelling a track closure. This applies in general for cases when there are actually vehicles remaining on the track after the end of, for example, construction work. In the present event, it was planned that the vehicles would temporarily remain in Dorsfeld station. Based on the regulations, in the situation with

which the signaller was presented after the premature cancellation of the track closure, she could even have conducted the required section check by instructing a train movement to drive on sight. In this case the operating process would have come to a halt because ideally this train movement would have stopped before the two vehicles on the track. This shows the pertinence of communicating safety information before it takes effect, see Delegated Regulation (EU) no. 2016/762, Annex II, criterion 4.4.3f).

Against this background, the Federal Authority for Railway Accident Investigation is issuing safety recommendation no. 15/2025 to the effect that it is recommended that the infrastructure manager improve the management of information concerning main tracks still being occupied, particularly after they have been closed due to written instructions, work track statuses, track closures, dividing of trains and/or changing to other train movements, in relation to the requirements as per Delegated Regulation (EU) no. 2016/762, Annex II, criterion 4.4.3a) to g). As the saving of information and incorporation into other operating processes are important in addition to the communication of information, the timing, any wording to be complied with and responsibilities, reference is made to the need to observe all stated sub-criteria a) to g). This indirectly requires that as a matter of principle work instructions must be consistently achievable and plausibly applicable in the operating situations to be dealt with. In the situation of this event, a section check as per guideline 408.0471 section 2(4c) was not plausibly verifiable, because it was initially planned that the vehicles would temporarily remain in the station after the end of the work until the planned departure.

In relation to the causal factor “Performance of section check by the signaller” [F2]:

According to guideline 408.0471 section 2(4c), after the end of work in accordance with operation and construction instructions it was mandatory for the signaller to perform a section check before cancelling the track closures. As the signaller herself had no overview of the actual occupancy of track 2 and also was not able to make an assessment of this directly by looking, she decided to perform a check by instructing other people. However, she only chose this procedure after the tamping machine had left with train number 24146. For this purpose, the signaller asked the rail construction supervisor, who was still present on site in Dorsfeld station, for information concerning the availability of track 2 of Dorsfeld station. The signaller was authorised to involve an instructed person from the specified group of people as per

guideline 408.0233 section 2(1). The rail construction supervisor was not explicitly mentioned in the specified regulation, but could be understood to be part of this group of people based on his qualifications and briefing on the local situation and/or the work to be performed in this context as authorised technical personnel.

When using this procedure of instructing an employee to conduct the check, the signaller should have given this employee a description of the situation of the section to be checked and its limits according to the rules by specifying distinctive points. The signaller failed to do this, and asked the rail construction supervisor for general information about the track occupancy for track 2.

Against the background of the numerous deficiencies identified in the signaller's actions (see sections 4.1.1, 4.3.1 and 5.3), the Federal Authority for Railway Accident Investigation refers to safety recommendation no. 04/2025 issued in relation to the event of the train collision on 17/11/2022 between Meinersen station and Leiferde (b Gifhorn) halt:

"In order to reinforce the risk-oriented approach in all phases of competence management, it is recommended that the procedures for maintaining and updating safety-related knowledge and skills should be inspected in a workplace-specific manner and improved if necessary. This must include the activities of employees with safety-related roles and managerial tasks at all relevant levels (Regulation (EU) 2018/762, Annex II, points 4.2.1 and 6.1.1 a))."

In relation to the causal factor "Assessment that the track was "free" and provision of report by the rail construction supervisor" [F3]:

Contrary to the requirements for his qualifications and work, when assessing whether track 2 was free of vehicles, the rail construction supervisor displayed a lack of operational reliability when he had finished his work at Dorsfeld station in terms of time and location according to the operation and construction instructions, but was still involved in operations. In response to the imprecise request from the signaller, he reported that track 2 was free of vehicles based solely on his subjective assumption. He failed to carry out a detailed assessment of whether the track was free. Making assessments of this kind was regularly part of his operational work as authorised technical personnel involved in work according to operation and construction instructions. Accordingly, it must be assumed that he had appropriate awareness of the safety relevance of reports of this kind.

In relation to the operational reliability of the rail construction supervisor, reference is also again made to safety recommendation no. 04/2025, which has already been cited above.

5.2 Measures taken since the event

According to the infrastructure manager, the signaller returned to work from 05/12/2024 after undergoing an undocumented “safety meeting” involving the head of rail service from the operations control centre and the head of railway operations west. The infrastructure manager indicated that, following the information from the Federal Authority for Railway Accident Investigation, it would check the group of employees specified in guideline 408.0233 who can be involved in checking the track in relation to defining the involvement of the rail construction supervisor.

The construction supervision specialist department of DB InfraGO AG, meanwhile, issued a ban on work for the rail construction supervisor.

Other than this, the Federal Authority for Railway Accident Investigation is not aware of any measures taken by the infrastructure manager. Finally, for the purposes of official rail supervision, the Federal Authority for Railway Accident Investigation explicitly refers to the findings relating to the level of detail and determination to deliver a result of the infrastructure manager’s internal accident investigation, see section 4.4.1.

5.3 Additional observations

Not applicable.

6 Safety recommendations

The following safety recommendation is made in accordance with Section 6 of the EUV and Article 26(2) of Directive (EU) 2016/798:

No	Addressee and safety recommendation	Relates to company
15/2025	<p>Safety authority:</p> <p>It is recommended that the management of information concerning main tracks still being occupied, particularly after they have been closed due to written instructions, work track statuses, track closures, dividing of trains and/or changing to other train movements, should be improved in relation to the requirements as per Delegated Regulation (EU) no. 2016/762, Annex II, criterion 4.4.3a) to g). In addition to providing the information, the time, wordings that may need to be complied with and responsibilities, the saving of the information and incorporation into other operating processes are relevant.</p>	Infrastructure manager