



Transporta nelaimes gadījumu un incidentu izmeklēšanas birojs

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## **Railway accident investigation final report**

### **№ 5-02/1-22**

### **(Extraction)**



**2022**

## **Translation**

Translation provided in terms of Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports.

The translation requirements of the regulation apply to the Summary, Conclusions, and Safety Recommendations sections of the Final report.

This document is the translation of Points 1, 5 and 6 of Latvian 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 Final Report in Latvian language is the authentic and official version.

## **1. Summary**

The railway traffic accident occurred on January 1, 2022 at 15.55 at Zilupe station, where, during the arrival of the train number 2624 at the 5th track of the station with a fractured wagon number 52673068 bogie side frame, the first bogie (in the direction of the train) derailed.

Wagon owner - Ltd "ZELDORVAG EESTI OU".

Wagon lessee - Ltd "INOTRANSA UAB".

Railway undertaking – Ltd "LDZ CARGO"

Infrastructure manager - state JSC "Latvijas dzelzceļš".

In the course of the investigation, the data of the wagon lessee on the wagon running and transport documentation, as well as the work organization of the companies involved was examined.

The Infrastructure manager's documentation on the wagon maintenance system was examined.

With the involvement of the Riga Technical University, a technical expertise was carried out to find out the causes of the bogie side frame fracture of the wagon involved in the accident.

The cause of the accident was the internal defects of the metal casting of the side frame of the bogie, which led to the formation of a fatigue crack during the operation of the part, the fracture of the side frame of the bogie during the movement of the train with the subsequent derailment of the wagon.

Failure to discover an old fatigue crack in the side frame of the bogie during wagon maintenance became a contributing factor.

## 5. Conclusions

### 5.1. A summary of the analysis and conclusions with regard to the causes of the occurrence

The cause of the accident was technological deficiencies made during bogie side frame number 1291-17648-2008 production, as a result of which gas cavities formed in the metal R 55 area of the side frame, which led to the formation of a fatigue crack during the operation of the part, its development with the subsequent fracture of the part and the derailment of the wagon.

The non-observance of the technological process of carriage inspection during train maintenance at Daugavpils VTAP and Rēzekne VTAP became a contributing factor.

### 5.2. Measures taken after the accident.

The Infrastructure manager has identified ten more side frames that were made in the same casting batch as the broken side frame number 1291-17648-2008. Due to this, the following actions were taken:

- A telegram was sent to VTAP\* Daugavpils, VTAP Jelgava, VTAP Liepāja, VTAP Rēzekne, VTAP Šķīrotava, VTAP Ventspils regarding actions in cases when wagons with identified side frames are arrived at JSC "Latvijas dzelzceļš" unloading stations, and the obligation to prohibit handing these wagons over for loading;
- A telegram was sent to other railway administrations (members of the CIS\*\*) with a recommendation to withdraw from operation the side frames on the list in order to prevent potential threats to the safety of railway traffic;
- From all wagon inspectors who participated in wagon number 52673068 inspection, during technical maintenance of trains at Daugavpils VTAP and Rēzekne VTAP, statements were requested, in which information was provided about the work performed on the checked trains. No damage to running parts in wagon number 52673068 they had detected.

In the course of the investigation it was established, that on January 3, 2022, the foreman of Daugavpils VTAP, in accordance with article 6.3 of the internal monitoring system of state JSC "Latvijas dzelzceļš", performed an analysis of the CCTV camera recording, which shows the action of wagon inspector on December 29, 2021, during train number 2350 maintenance of the last wagon. In this document it is recorded, that the technical maintenance of wagons was carried out with technology violation (article 2.4.2.2.9., 2.4.2.2.7. of the wagon maintenance manual).

On January 20, 2022, the Infrastructure Manager held an operational meeting at the Wagon Maintenance Department (VD), with the participation of the VD manager, the head of Daugavpils VTAP, the railway instructor and wagon inspector.

As a result of the operational meeting, it was decided to take the following measures:

- organize wagon maintenance manual knowledge test for involved wagon inspector;
- in the months of January and February, all heads of VTAP should perform one additional inspection, paying attention to observing the order of control of the technical condition of freight wagons, when inspecting the wagons;
- until February 4, 2022 all heads of VTAP should inform all wagon inspectors about the conditions and reasons of this case.

\*VTAP in Latvian railway means wagon maintenance point at the railway station (for example - VTAP Ventspils).

\*\*Commonwealth of Independent States (CIS) and Baltic countries. Area where track gauge is 1520 mm and use same freight wagon construction.

NIB checked the implementation of these measures and it was found that for involved wagon inspector had organized a knowledge test about wagon maintenance manual. In addition to the periodicity determined by the internal monitoring system, heads of all VTAPs had an additional inspection in January and February 2022 (see Table). All wagon inspectors (about 400 people) were informed about the maintenance conditions of December 29, 2021, of train number 2350, by signing up for familiarization.

Table

Additional inspections

Place of inspection	Date of inspection	Measures taken (summarized)
Rēzeknes VTAP	25.01.-29.01.2022. 01.02.-03.02.2022.	Inspection of the work quality of wagon inspectors was carried out at workplaces and in shifts; checked compliance with wagon inspection technology, checked work equipment - templates, tools, personal protective equipment; recording and elimination of identified deficiencies has been carried out
Daugavpils VTAP	26.01.-31.01.2022. 15.02.2022.	
Liepājas VTAP	28.01.2022. 15.02.2022.	
Ventspils VTAP	15.01.2022. 27.02.2022.	
Šķirotavas VTAP	18.01.-28.01.2022. 22.02.-28.02.2022.	

The scope and scale of the measures developed and implemented by the Infrastructure Manager can reduce the risk of not detecting dangerous defects during wagon maintenance.

## **6. Safety Recommendations**

As a result of the investigation, no safety recommendations were developed, because before the publication of the final report, the Infrastructure Manager clarified the causes of the accident, developed and implemented measures to improve the quality control of wagon maintenance work (see 5.2.point).