R E P U B L I C O F B U L G A R I A
NATIONAL AIR, MARITIME AND RAILWAY TRANSPORT, ACCIDENTS INVESTIGATION BOARD (NAMRTAIB)

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FINAL REPORT

of

Investigation of significant railway accident – derailment of DFT № 80694 between the stations Lyubenovo distributing station – Simeonovgrad on 15.08.2025

Sofia 2026

OBJECTIVE OF INVESTIGATION AND EXTENT OF RESPONSIBILITY

The National Air, Maritime and Railway Transport Accidents Investigation Board (NAMRTAIB), which is an independent safety investigation body performs the investigation of significant accidents, accidents and incidents. The National Board is within the Council of Ministers (CM) of the Republic of Bulgaria, and aims to find the circumstances and causes that led to the accidents and incidents occurrence in order to improve the safety and to avoid such in future as the priority is given to avoiding significant accidents.

The investigation, which the NAMRTAIB performed is independent from any judicial investigation, and does not include the determination of fault or responsibility.

The investigation is performed in accordance with the requirements of DIRECTIVE (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway transport safety, the Railway Transport Act (RTA), Ordinance No59 dated 5.12.2006 on the rail transport safety management, as well as per Agreement dated 11.04.2023 on the interaction during investigation of accidents and incidents in the air, maritime and railway transport between the Prosecutor's Office of the Republic of Bulgaria, Ministry of Interior, and the National Air, Maritime and Railway Transport Accidents Investigation Board.

The Investigation reports follow the requirements of REGULATION (EU) 2020/572 of the Commission dated 24 April 2020 on the reporting structure for railway accident and incident investigation reports.

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ABBREVIATIONS, USED IN THE REPORT

„Bulmarket Rail Cargo" EOOD – Railway undertaking for freight traffic
SE NRIC – State enterprise „National railway Infrastructure Company "(railway infrastructure manager)
DFT – Direct Freight Train
EDB – Electrical Dynamic Brake
RS – Railway section
RTA – Railway Transport Act
TOU – Traffic organization unit at SE NRIC
RAEA/NSA – Railway Administration Executive Agency, National Safety Authority
km – Kilometre along the rail track
OCL – Overhead contact line (catenary)
EoTC – End of transitional curve
MoI – Ministry of Interior
Ordinance № 58 – on the rules for the technical operation, train traffic and signalling in the rail transport
Ordinance № 59 – Ordinance on the rail transport safety management
NAMRTAIB – National Air, Maritime, and Railway Transport Accidents Investigation Board (Independent Specialized National Investigation Body)
BoTC – Beginning of transitional curve of the rail track
TF – Task Force
SE – Signalling equipment
RRS – Rail Rolling Stock
RIEW – Regional Inspection of Environment and Waters
MSL – Manual Switch Locker
RMoKD – Relay management of key dependence (type of interlocking)
ECM – Entity in Charge of Maintenance
SMS – Safety Management System
TRMS – Train resource management system
TMWI – Technician mechanic wagon inspector
TGM – Technician group manager
TOSAMD – Train operation and station activity management Division
DCCM – Device for communications, connections and messages in stations
CDG – Central dispatching guide of the railway infrastructure manager at SE NRIC

1. Summary

1.1. Brief description of the event.

On August 14, 2025, DFT No. 80694 for Belozem station was composed at the Varna freight park station. DFT No. 80694 consisting of 34 full tank wagons, type Zas, 136 axles, 2564 tons, 519 meters, served by electric locomotive in lead No. 91521080032-1 with locomotive driver first person and locomotive driver second person and pushing auxiliary locomotive No. 91520087023-5 with a locomotive driver departed from Varna freight park station at 22:32 p.m. The railway company "Bulmarket Rail Cargo" EOOD operated the train.

DFT No. 80694 was additionally assigned at the request of the railway company "Bulmarket Rail Cargo" EOOD. Two locomotives, 34 full tank wagons and staff of the railway company „Bulmarket Rail Cargo“EOOD served the train. The traffic route was Varna freight park - Syndel - Karnobat - Nova Zagora - Simeonovgrad - Dimitrovgrad - Plovdiv - Belozem.

During the movement of DFT No. 80694 from the Varna freight park station to the place of derailment of the train at 05:23 a.m. at the Lyubenovo distributing station - Simeonovgrad interstation, there was no problem with the movement of the train.

During the movement of DFT No. 80694, the locomotive driver first person of locomotive No. 91521080032-1 at 05:23 a.m. around km 11+500 in the interstation Lyubenovo distributing station - Simeonovgrad saw lighting and a strong shaking of the catenary. The train was disconnected, the train brake was activated, and the pantograph was automatically removed due to lack of voltage in the catenary.

After the train stopped, the locomotive driver first person saw that only the first wagon was left behind the locomotive, and about 150-200 meters away was the rest part of the derailed train, and a fire broke out in the tanks, which quickly grew.

The locomotive driver was the first person to call the national emergency number 112 and informed about the fire.

The locomotive crew of locomotive No. 91521080032-1 with the available two fire extinguishers from the locomotive put out the fire around it.

Around 05:26 a.m., the traffic manager/senior train dispatcher replaced at the Plovdiv TOU was notified by the locomotive driver, first person of DFT No. 80694, about the derailment and subsequent ignition of a group of wagons from the train at the Lyubenovo distributing station - Simeonovgrad interstation.

At 05:27 a.m., the teams from RS FSaCP Simeonovgrad, RS FSaCP Harmanli, RS FSaCP Dimitrovgrad, RS FSaCP Haskovo, RS FSaCP Svilengrad and RS FSaCP Lyubimets were directed to the place of the accident.

At 05:28 a.m., the senior train dispatcher replaced at the Plovdiv TOU notified the train dispatcher of the Stara Zagora - Karnobat and Nova Zagora - Simeonovgrad sections about the derailment and the subsequent ignition of the tank wagon from DFT No. 80694 at the Lyubenovo distributing station - Simeonovgrad interstation.

From 06:30 a.m., the movement of all vehicles in the Lyubenovo distributing station - Simeonovgrad interstation has been suspended.

On August 15, 2025, at 11:45 p.m., the fire was located and extinguished. 14 specialized fire-fighting vehicles of the FSaCP from the country took part in extinguishing the fire.

At 18:22 p.m. on 19/08/2025, the train dispatcher by order restored the movement of trains in the Simeonovgrad - Lyubenovo distributing station at the speed according to the schedule, with the derailment point 200 meters long, trains to move at a speed of up to 15 km/h.

Because of the derailment, heavy material damage was caused to the rail track, to the catenary facilities, 13 tank wagons were completely destroyed by the fire and the fuel of 11 of them leaked into the ground. The 20 kV transmission line of the national power transmission network was interrupted due to the fire. There were no injured staff on the two locomotives. The train traffic on the 83rd railway line was stopped for five days.

1.2. Location and time of the event occurrence.

The event occurred between the stations Lyubenovo Predatelna and Simeonovgrad at km 11+771 at 05:23 on 15.08.2025. The derailment zone of the first derailed wagon No. 31527850315-8 is in a right curve with radius R=700 m, length L=687 m, elevation H=60 mm, transition curves 2xLsp.=72 m and profile i=2‰ in descent in the direction of train movement. The rail track is laid with rails type S49 – 25 meters, reinforced concrete sleepers type ST-4, fasteners PAK-68I (fig. 1.1, 1.2, 1.3, 1.4).

Fig. 1.1 Scheme of the place of derailment of DFT № 80694

Fig. 1.2 The area of derailment of 13 wagons of DFT № 80694

Fig. 1.3 Derailment of wagons of DFT № 80694

Fig. 1.4 The first derailed wagon № 335279454505-7, second of the composition of DFT № 80694

The Simeonovgrad and Lyubenovo distributing stations are located in the Simeonovgrad - Nova Zagora section of the 83rd railway line. The line is a conventional single-track, electrified, with speeds up to 60 km/h. The line connects the first and eighth main railway lines.

1.3. Causal, contributing and systemic factors.

- Causal factor for the derailment is the unsatisfactory technical condition of the railway infrastructure, expressed in unacceptable differences in the transverse level in the circular curve, combined with malfunctions in plan.
- Contributing factor is the influence of the horizontal transverse (centrifugal) force in the transition zone from a transitional to a circular curve with different radiuses.

1.4. Direct causes and consequences of the event.

Cause for realizing the accident in the derailment zone – the rail track has unacceptable malfunctions above the level and plan limit values. As it can be seen from the measurements, calculations and analysis carried out, it was found that there was a combination of axis and level faults in the rail track derailment zone.

Because of the accident, about 100 meters of rail track were damaged in the Lyubenovo distributing station - Simeonovgrad, one pole was broken and the catenary was interrupted. 13 tank wagons were severely damaged, derailed and burned by the fire that occurred, caused by a spark from the catenary and the spill of diesel fuel from the tanks, which also caused environmental pollution.

1.5. Safety recommendations and addressees to which they are addressed.

In order to prevent other similar accidents, the Chair of the Investigation Commission proposes to the National Safety Authority (RAEA) safety recommendations related to the SE NRIC and "Bulmarket Rail Cargo" EOOD.

- With recommendation 1, it is suggested that SE NRIC and "Bulmarket Rail Cargo" EOOD familiarize the interested personnel with the contents of the report.

- With recommendation 2, it is proposed that the SE NRIC analyse the data provided by the independent body "TINSA" Ltd. The Rail Track Measuring Laboratory EM-120 on 14.11.2023 along the section Nova Zagora – Simeonovgrad, measured the data. It is also proposed the SE NRIC to take measures to eliminate the malfunctions of the rail track (in terms of flush/twist, level and vertical deformations of the rails in the joints), which do not meet the requirements for class "C" for speed ≤ 60 km/h, or complete overhaul.

- With recommendation 3, it is proposed that SE NRIC take measures to issue a permit from "Railway Administration" EA for placing into service structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" in accordance with the order of art. 44a, para. 2 of Ordinance No. 57.

- With recommendation 4, it is proposed that SE NRIC take measures to conduct trainings for the management and executive staff responsible for the maintenance and repair of the 83rd railway line Simeonovgrad - Nova Zagora in order to increase their knowledge.

- With recommendation 5, it is proposed that "Bulmarket Rail Cargo" EOOD conducts additional training for locomotive management personnel (instructors and drivers) regarding the management of heavy freight and long-haul trains when running in diverse and complex sections of the infrastructure.

2. Investigation

2.1. Decision for starting the investigation.

Decision to initiate a safety investigation was made by the member of the Administrative Board of the NAMRTAIB in the Republic of Bulgaria, leading the investigation of railway accidents and incidents. The investigation is focused on the organization of operation, maintenance and repair of the railway infrastructure along the 83rd railway line as well as the transport of freight performed by the railway undertaking with its own rolling stock aiming at the prevention of serious accidents

2.2. Motives for the decision to initiate the investigation.

The member of the Administrative Board of the NAMRTAIB, leading the railway investigation section, took the decision to initiate the investigation based on art. 20, paragraph 1 of Directive (EU) 2016/798, art. 115к, paragraph 1, item 1 of RTA, and art. 76, par. 1, item 1 of Ordinance No 59 dated 5.12.2006 after the performed inspections at the place of the accident and the derailed RRS as well as the collected and analysed information.

2.3. Scope and restrictions of the investigation.

The scope of the investigation examined and analysed the rail system related to the maintenance and operation of locomotives and freight wagons and the maintenance and operation of the rail infrastructure in the accident area of 83rd deviation line, as well as the safety management system (SMS) of both entities.

The investigation is undertaken taking into account the circumstances and causes that led to the occurrence of the accident - derailment of thirteen tank wagons from the composition of DFT No. 80694, which led to material damage to both entities SE NRIC and “Bulmarket Rail Cargo” EOOD, and environmental pollution.

2.4. Competences of the persons, involved in the investigation.

The member the NAMRTAIB AB, head of the railway transport accidents investigation unit headed the Investigation Commission. The members of the Commission are independent external experts - qualified persons from higher transport educational institutions, scientific circles, experts with qualifications in the field of railway infrastructure and rail rolling stock, hired with civil contracts until the completion of the investigation.

2.5. Communication and consultations with the persons and entities, involved in the event.

The Commission determined the parameters of the investigation and coordinated its actions with the Task Force, which included representatives of the entities involved in the accident ("Bulmarket Rail Cargo" EOOD and SE NRIC). The Task Force collected the necessary documents and samples, written statements of the personnel involved in the accident, the records from the recording devices of the train locomotive No. 91521080032-1, hauling the DFT No. 80694. The materials and documents were handed over to the Chair of the Commission for Investigation in the NAMRTAIB. The Chair of the Investigation Commission requested and received from the railway company "Bulmarket Rail Cargo" EOOD the records from the two locomotives to establish the movement of the train and auxiliary locomotive of DFT No. 80694. The Chair of the Investigation Commission at the place of the accident conducted an interview with the locomotive drivers of the two locomotives. An interview was also conducted with the central dispatch management of the train movement, as well as with the Unit for operational movement of trains in Plovdiv at the SE NRIC that were related to the accident. The Chair of the Investigation Commission requested from the SE NRIC to provide information downloaded from the registration and recording device of the TRMS, regarding the actual movement of the train. Information was requested and provided on the repair and maintenance of the railway track in the Lyubenovo distrbuting station - Simeonovgrad section by the SE NRIC. The Investigation Commission at the NAMRTAIB requested the section to be measured by the independent body "TINSA" EOOD. The Investigation Commission at the NAMRTAIB was provided with the data from the last measurement of the railway track with the EM-120 Track Measurement Laboratory in the section of the 83rd railway line in the Simeonovgrad - Lyubenovo distributing station section, carried out on 25.08.2025, as well as the measurements in the same section carried out in 2023. Information on the registration, ownership, repair and maintenance of

the derailed 13 wagons was requested and provided by "Bulmarket Rail Cargo" EOOD. An interview was conducted with the safety authorities and the management of the railway company "Bulmarket Rail Cargo" EOOD and SE NRIC.

2.6. Extent of cooperation from the participating entities.

During the investigation, the managers of the railway company "Bulmarket Rail Cargo" EOOD and the State Entity NRIC provided assistance and the necessary materials and documents to the Chair of the Investigation Commission at the NAMRTAIB.

In accordance with the requirements of Ordinance No. 59, the Task Force supports the work of the Investigation Commission. The Task Force with the representatives of the entities involved in the accident prepared a report on the facts and circumstances of the accident in a standard form and the head of the Task Force submitted, with a handover protocol, the report with the documents and materials collected to it to the Chair of the Investigation Commission at the NAMRTAIB.

2.7. Methods and techniques of investigation and analysis.

On 15.08.2025 at 05:39 a.m., the member of the Administrative Board of NAMRTAIB, with competence to investigate railway accidents, was notified by mobile phone by the senior dispatcher on duty at the CDG at the SE NRIC of an accident that had occurred.

At 05:53 a.m. the call was confirmed by SMS on the mobile phone with the following text:

„From 05:04 a.m. to .... train 80694 /BM/ occupied the Lyubenovo – Simeonovgrad interstation due to a derailment.“

On 15.08.2025, after the on-site inspections, the member of the Administrative Board of NAMRTAIB with competence to investigate railway accidents decided to initiate a safety investigation and notified the heads of the two entities present at the scene of the accident, as well as notified the event to the European Railway Agency (ERA).

On 18.08.2025 the member of the NAMRTAIB AB with the Investigation Commission,

Fig. 2.1 Derailed 13 wagons of DFT № 80694

consisting of external experts on the RRS and rail track left for the scene of the accident. At the Lyubenovo distributing station - Simeonovgrad, the Investigation Commission was organized to establish the point of ascent of the second wagon of the train, and the parameters of the rail track were also measured. An interview was conducted on site with the safety representatives of the two entities. During the inspection of the interstation, the point of ascent of the left wheel of the third wheelset of wagon No. 33527954505-7 was established on the head of the left rail at km 11+771. After traveling

2.30 meters, the wheelset derailed to the left of the rail thread in the direction of train movement. In the presence of the Investigation Commission, a control measurement of the rail track in the derailment zone was carried out. The train moved for about 100 meters with the derailed wheelset of the wagon and dragged twelve more wagons behind it, which derailed and lay on the side of the rail track, to the left and right (Fig. 2.1).

On August 18, 2025, in the period from 16:30 p.m. to 17:30 p.m., the Investigation Commission at the NAMRTAIB carried out inspections and measurements of the parameters of the rail track in the area of the derailment of the second wagon of DFT No. 80694, and the hidden subsidence were also measured with density meters. The measurements carried out by the Investigation Commission at the NAMRTAIB confirmed the measurements of the Task Force carried out on 15.08.2025.

On 20 and 21.08.2025, at the site in the Industrial Park in the town of Radnevo, owned by "Bulmarket Group" AD, where the derailed 13 tank wagons were located, in the presence of the Task Force and the Investigation Commission for Safety at the NAMRTAIB, visual inspections of the burned tank wagons were carried out. The parameters of the wheelset of the thirteen derailed wagons were also measured. The measured parameters of the wheelset of all derailed wagons were within standards, for which finding protocols were drawn up.

2.8. Difficulties faced during the investigation.

През времето на разследваното произшествието представителите на железопътното предприятие „Булмаркет Рейл Карго“ ЕООД, ДП НКЖИ и оперативната група, оказаха съдействие на Комисията за разследване във връзка с безопасността в НБРПВВЖТ.

During the investigation of the accident, the representatives of the railway undertaking „Bulmarket Rail Cargo" EOOD, SE NRIC and the Task Force provided full assistance to the Commission for Safety Investigation at the NAMRTAIB.

2.9. Interaction with the judicial authorities.

At around 05:30 a.m. at the scene of the accident after receiving a notification from the 112-telephone number, the first to arrive at the place of the accident were patrol bodies of the Ministry of Interior Simeonovgrad. By order of the Ministry of Interior, the area of the accident was fenced off and access to cars and official and external persons was limited. All traces of the vehicles and the railway infrastructure were preserved until the arrival of the bodies of the pre-trial proceedings from the Haskovo RISO and the safety investigation body in the NAMRTAIB with the competence to investigate railway incidents at the Council of Ministers.

The member of the NAMRTAIB AB, the Haskovo RISO and the specialized teams with vehicles of the FSaCP to extinguish the burning tanks were allowed to the protected area. The movement of trains in the Lyubenovo distributing station - Simeonovgrad was stopped.

In accordance with the current Agreement on Cooperation between the investigative bodies of the Prosecutor's Office of the Republic of Bulgaria, the Ministry of Interior and the NAMRTAIB, effective from 11.04.2023, the investigation actions were coordinated between the Haskovo RISO and the head of the investigation regarding safety in the NAMRTAIB. The boundaries of the scene of the accident and the sequence of the investigation actions were determined with a view to independent and safe handling and preservation of the established material evidence.

At 13:30 p.m. on 15.08.2025, parallel inspections began in broad daylight by the pre-trial investigation bodies of the Haskovo RISO together with the member of the NAMRTAIB AB.

The pre-trial investigation was carried out by competent investigative bodies of the Haskovo RISO under the supervision of a supervising prosecutor from the Haskovo District Prosecutor's Office, and the inspections ended at 16:00 p.m.

On 15.08.2025 at 16:00 p.m., written permission was given to the head of the Task Force by the pre-trial proceeding authorities from the Haskovo RISO to begin restoration activities.

On 15.08.2025 at 16:05 p.m., written permission was given by the member of the NAMRTAIB AB to the head of the Task Force to begin restoration activities on the railway infrastructure.

2.10. Other important information for the investigation context.

Experts from the railway company "Bulmarket Rail Cargo" EOOD are downloaded the records from the registering and recording devices of locomotive No. 91521080032-1, at the head of the train, and from the pushing auxiliary locomotive No. 91520087023-5, which served DFT No. 80694 on 15.08.2025 and submitted them to the Chair of the Investigation Commission. The Investigation Commission analysed the provided records from the recording devices of the two locomotives to establish the movement of the train from the Varna freight park station to the place of the accident.

After the analysis of the movement of DFT No. 80694, it was found that the clock of the recording device of the train locomotive No. 91521080032-1 was checked and it is in accordance with astronomical time.

When analysing the movement of DFT No. 80694, the Investigation Commission at the NAMRTAIB took as authoritative the times registered by the clock of the train locomotive No. 91521080032-1.

3. Description of the event

3.1. Information on the event and the context.

3.1.1. Description of the type of event.

On 14.08.2025, DFT No. 80694 of "Bulmarket Rail Cargo" EOOD in a composition of 34 wagons, 136 axles, 519 meters, 2564 tons, served by electric locomotive No. 91521080032-1 with a locomotive driver first person and a locomotive driver second person and a pushing auxiliary locomotive No. 91520087023-5 with a locomotive driver departed from Varna freight station at 22:32 p.m., additionally assigned to the train schedule for Belozem station.

DFT No. 80694 was assigned to travel at the request of the railway company "Bulmarket Rail Cargo" EOOD. The composition of the train of 2 locomotives and 34 tank wagons, type Zas and the personnel was served by the railway comapny "Bulmarket Rail Cargo" EOOD. The train run on the route Varna freight park - Syndel - Karnobat - Nova Zagora - Simeonovgrad - Dimitrovgrad - Plovdiv - Belozem. The wagons in DFT No. 80694 are tanks for the transport of dangerous goods, class 3 according to RID, filled with diesel fuel.

During the movement, the train increased its travel time, staying at Povelyanovo station for 6 minutes to meet with ST No. 20895 of "Bulmarket Rail Cargo" EOOD. To Velichkovo station, the detour increased by 6 minutes due to permanent speed reductions introduced by the Shumen railway station in the Syndel - Yunak - Velichkovo section, to Dalgopol station, the travel time increased by 1 minute due to an unobserved locomotive detour, at Podvis station it stayed for 3 minutes due to a meeting with DFT No. 90570.

On 15.08.2025, DFT No. 80694 departed from Radnevo station at 04:33 a.m. and passed Lyubenovo distributing station without stopping on the third track at 05:01 a.m. for Simeonovgrad station, 48 minutes before the scheduled time.

As it can be seen from the explanations of the locomotive driver, first person, from the departure of DFT No. 80694 at 22:32 p.m. from Varna freight station to 05:23 a.m. at the scene of the accident, there were no problems with the control of the train.

During the movement of DFT No. 80694, the locomotive driver, first person of locomotive No91521080032-1 at 05:23 at around km 11+500 in the Lyubenovo distributing station - Simeonovgrad saw lighting around the train and strong shaking of the catenary. The disconnection of the train followed that, and the automatic train brake was activated. The pantograph was automatically removed due to lack of voltage in the catenary.

After the train stopped, the locomotive driver first person opened the cabin door and saw that only the first wagon was left behind the locomotive and about 150-200 meters away was the rest of the train, with tanks on fire and the fire spreading rapidly.

The locomotive driver second person, after the train stopped, opened the left cabin door and noticed that dry grass was burning next to the locomotive and the first wagon, and the fire was spreading.

The locomotive driver first person called the national emergency number 112 and informed about the fire.

The two available fire extinguishers from the locomotive were used to extinguish the grass around the locomotive and the first wagon, and the fire was extinguished.

At around 05:26 a.m., the traffic manager/senior train dispatcher replaced at the Plovdiv TOU was notified by the locomotive driver, first person of DFT No. 80694, about the derailment and subsequent ignition of the derailed wagons of the train in the Lyubenovo distributing station - Simeonovgrad interstation.

At 05:27 a.m., teams from the Simeonovgrad RS FSaCP, Harmanli RS FSaCP, Dimitrovgrad RS FSaCP, Haskovo RS FSaCP, Svilengrad RS FSaCP and Lyubimets RS FSaCP left for the place of the accident.

At 05:28 a.m., the traffic controller/senior train dispatcher on duty at the Plovdiv TOU notified the traffic controller/train dispatcher of the Stara Zagora - Karnobat and Nova Zagora - Simeonovgrad sections about the derailment and subsequent fire of wagons from the DFT No. 80694 at the Lyubenovo distributing station - Simeonovgrad interstation.

At 05:29 a. m. the traffic controller on duty at the Lyubenovo distributing station received an order from the electrical systems technician/power dispatcher to turn off sectional disconnectors No. 01 and No. 71 at the Lyubenovo distributing station.

At 05:31 a.m., the traffic controller on duty at the Lyubenovo distributing station turned off sectional disconnectors No. 01 and No. 71.

At 05:38 a.m. the team from the Simeonovgrad RS FSaCP arrived at the scene and found that derailed diesel fuel tankers were burning, there was a broken pole and a broken catenary on the rolling stock and a broken wire from a 20 kV transmission line passing over the railway line. After confirmation from the RS FSaCP operations centre that the voltage was turned off, actions were initiated to localize the fire, which was spreading along the dry grass around the rail track.

At 06:00 a.m., more teams from the Elhovo RS FSaCP, Yambol RS FSaCP, Nova Zagora RS FSaCP, Sliven RS FSaCP, Stara Zagora RS FSaCP and Kazanlak RS FSaCP were dispatched to the scene of the accident.

At 06:30 a.m., the train dispatcher issued an order to stop all trains and vehicles in the Lyubenovo distributing station - Simeonovgrad, with the exception of recovery vehicles.

At 07:00 a. m. on 15.08.2025, the Fire and Rescue Service authorities to an area of about 500 m² localized the fire.

On 15.08.2025, the first category Task Force, appointed by telegram No. 40/15.08.2025 of the railway infrastructure manager inspected the accident site and took action to collect information about the accident.

DFT 80694 occupied the Lyubenovo distributing station - Simeonovgrad from 05:23 a.m. after the derailment of 13 tank wagons filled with diesel fuel, including ten lying wagons from the second to the eleventh with numbers 33527954505-7, 33527954566-9, 33527962684-0, 33527965364-6, 33527954503-2, 33527962692-3, 33527954580-0, 33527962615-4, 33527954571-9, 33527962651-9, and three straight wagons. The twelfth to the fourteenth with numbers 33527954573-5, 33527962637-8, 33807966899-6, of which the 12th and 13th wagons derailed with all axles and the 14th wagon with two wheelset of the first bogie.

Because of the derailment, about 719,961 litres of diesel fuel were spilled on the ground and a fire broke out in the wagons. About 100 meters of railway track, one broken pole and a broken catenary were damaged.

The Task Force has established the point of ascent of the derailed second wagon of the DFT No80694 train at km 11+771.

The following was done to clear the interstation area and restore the train traffic:

On 15.08.2025 at 08:25 a.m., diesel locomotive No. 92520006029-9 of "BDZ-Cargo" EOOD departed from Simeonovgrad station to pull train locomotive No. 91521080032-1 together with the first wagon No. 33807966632-1 to Simeonovgrad station.

On 15.08.2025 at 09:04, to ensure the gauge of the catenary, work train No. 83994 – rail self-propelled specialized machine (RSSM) type AGMU-E7 No. 99529436005-3 departed from Lyubenovo distributing station to km 11+771 with a return to Lyubenovo distributing station.

At 10:11 a.m., diesel locomotive No. 92520006029-9 of "BDZ-Cargo" EOOD returned to Simeonovgrad station without train locomotive No. 91521080032-1 and wagon No. 33807966632-1, due to lack of gauge of the catenary.

At 10:17 a.m., a column of specialized machines AGMU-E6 No. 99529436004-6 and RSKM-17 No. 99529431017-3 left Simeonovgrad station for the interstation area to ensure the gauge of the catenary.

On 15.08.2025, at 11:45 a.m., the fire was finally extinguished. 14 specialized firefighting vehicles of the FSaCP participated in extinguishing the fire.

At 15:08 p.m., work train No. 83994 - specialized machine type AGMU-E7 No. 99529436005-3 returned to Lyubenovo distributing station.

At 15:08 p.m., a gauge was opened from the catenary for diesel traction and for pulling the derailed wagons from the Simeonovgrad - Lyubenovo distributing station. The section remained with the voltage turned off and the catenary grounded.

At 15:12 p.m., a diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD departed from Lyubenovo distributing station to pull the pushing auxiliary locomotive No. 91520087023-5, together with 10 derailed tank wagons from the DFT No. 80694 for Lyubenovo distributing station.

At 15:36 p.m., a column of specialized vehicles AGMU-E6 No. 99529436004-6 and RSKM-17 No. 99529431017-3 returned to Simeonovgrad station.

At 15:40 p.m., diesel locomotive No. 92520006029-9 of "BDZ Cargo" EOOD departed again from Simeonovgrad station to pull the train locomotive No. 91521080032-1 together with the first wagon No. 33807966632-1 to Simeonovgrad station;

At 16:00 p.m. on 15.08.2025, the pre-trial investigation bodies in the Haskovo RISO completed the procedural investigative actions and a written permit for recovery was given.

At 16:05 p.m., a written permit was given by the Deputy Chair of the NAMRTAIB AB to start emergency recovery actions.

At 16:38 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD pulled the pushing auxiliary locomotive No. 91520087023-5, together with 10 wagons from DFT No. 80694, at Lyubenovo distributing station.

At 16:53 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD departed from Lyubenovo distributing station to pull the remaining ten wagons from DFT No. 80694 to Lyubenovo distributing station.

At 17:05 p.m., diesel locomotive No. 92520006029-9 of "BDZ-Cargo" EOOD pulled train locomotive No. 91521080032-1 together with the first wagon No. 33807966632-1 to Simeonovgrad station on the fifth track.

At 17:53 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD pulled the remaining ten wagons from the composition of DFT No. 80694 at the Lyubenovo distributing station. At 17:30 p.m., the Task Force in the presence of the member of the NAMRTAIB AB carried out the first measurement of the railway track, and a report on the technical condition of the railway track was prepared.

On 16.08.2025 at 00:19 a.m., DFT No. 80692, consisting of locomotive No. 91520087023-0 with 20 wagons from the composition of DFT No. 80694, departed from Lyubenovo station, bound for Stara Zagora station.

On 16.08.2025, at the Stara Zagora factory station, on a wagon scale of the company "Ekotrans Build" EOOD, a control measurement of the full twenty tank wagons with Nos. 37807850401-6, 31527851622-6, 8352794056-0, 31527851951-9, 335279655335-6, 33527954575-0, 37807950183-9, 33527962636-0, 33527965323-2, 33527962665-9, 37807950428-8, 31527851864-4 was carried out. 33527965325-7, 33527962678-2, 33527965362-0, 33527965332-3, 33527962683-2, 33527962613-9, 33807966475-5, 33527954579-2 from the composition of DFT No. 80694 for verification of the declared weights.

On 18.08.2025, at Stara Zagora station, the records were downloaded from the recording device of a pushing auxiliary locomotive No. 91520087023-5, and at Lyubenovo distributing station, the records were downloaded from the recording device of a locomotive No. 91521080032-1.

On 19.08.2025 at 01:10 a.m. from Simeonovgrad station to Dimitrovgrad station, DFT No. 10692 was sent with locomotive No. 91521080032-1 together with the first wagon No. 33807966632-1 from the composition of DFT No. 80694.

On 19.08.2025 at 07:50 a.m. from Dimitrovgrad station to Plovdiv distributing station, DFT No. 80590 departed with locomotive No. 91521080032-1 and the first wagon No. 33807966632-1.

On 19.08.2025 at 10:12 a.m. at Plovdiv distributing station, the first wagon No. 33807966632-1 from the composition of DFT No. 80694 was measured and the same was sent to Belozem station where it was unloaded.

On 19.08.2025 at 15:36 p.m. from Belozem station ST No. 80890 with wagon No. 33807966632-1 empty, for Plovdiv marshalling yard.

On 19.08.2025 at 18:22 p. m. the train dispatcher by an order restored the movement of trains in the Simeonovgrad - Lyubenovo distributing station at the scheduled speed. From km 11+600 to 11+800 (the derailment zone) all trains to move at a speed of up to 15 km/h.

On 20.08.2025 at 10:13 a.m. from the Plovdiv marshalling yard ST No. 10890, wagon No. 33807966632-1 was taken empty to Plovdiv station.

On 20.08.2025 at 11:00 a.m., an inspection was carried out at the Plovdiv Locomotive Depot and a report was drawn up on the technical condition of wagon No. 33807966632-1.

Tank wagons with numbers 33527954505-7, 33527954566-9, 33527962684-0, 33527965364-6, 33527954503-2, 33527962692-3, 33527954580-0, 33527962615-4, 33527954571-9, 33527962651-9, 33527954573-5, 33527962637-8, 33807966899-6 suffered severe damage because of the derailment and the fire that broke out in them. The wagons from the accident site were loaded onto cars and taken to the site in the Industrial Park in the town of Radnevo.

Fig. 3.2 Traffic route of DFT № 80694 and the place of the accident

- Origin station for the train movement – Varna station;
- Main stations along the train alignment;
- Final destination station – Belozem station;
- Stopping station before the derailment of DFT № 80694 – Radnevo;
- Place of accident – between the stations Lyubenovo distributing station and Simeonovgrad;
- Track, which DFT № 80694 has passed;

3.1.2. Date, punctual time and location of the event.

On 15.08.2025 at 05:23 a.m. along the interstation Lyubenovo distributing – Simeonovgrad at km 11+771, derailed the second wagon № 33527954505-7 of DFT № 80694. The place of derailment is in inclination i= 2‰ in descent in the train movement direction, right curve with radius R=700 m, length L=687 m, super-elevation H=60 mm, transitional curves along Lt.=72 m, rails type S 49, sleepers ST 4, fastening PAK-68I, jointed rail track with supported joints (Fig. 1.1).

3.1.3. Description of the place of event:
Location of the accident place.
Geographic width: 42° 6'27.54"N;

Geographic length: 25°52'8.96"E (fig. 3.3).

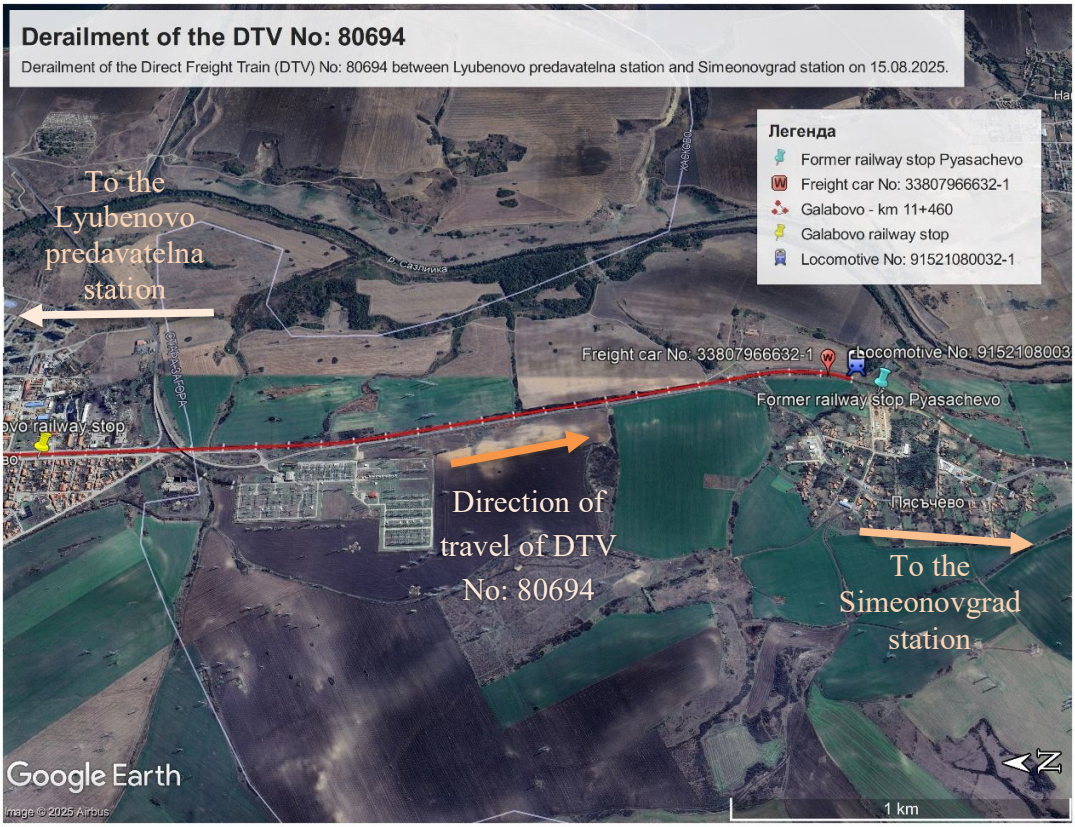


Fig. 3.3 GPS layout of the place of derailment of DFT № 80694

3.1.3.1. Meteorological and geographical condition at the time of the event.

- In the dark part of the day – 05:23 a.m. as per the data of the recording device of locomotive № 91521080032-1 head of train;
- Air temperature: 17º C;
- Wind speed and direction: 4 km/h, from Southwest;
- Weather – cloudy with normal visibility of the signals;
- The stations Lyubenovo distributing and Simeonovgrad are geographically located in the Southeastern part of the rail network.

3.1.3.2. Performance of construction activities on the site or in vicinity.

Construction works including repairs to the rail track and facilities before and on 15.08.2025, in the Lyubenovo distributing station - Simeonovgrad interstation, in the accident area were not carried out.

3.1.4. Fatalities, injuries and material damages:

3.1.4.1.Employees of the railway infrastructure manager or railway undertaking.

None.

3.1.4.2.Other persons officially connected with the location of the event.

None.

3.1.4.3.Passengers.

None.

3.1.4.4.External persons.

None.

3.1.4.5.Cargo, luggage or other property.

Because of the derailment and the punctured tank wagons a diesel fuel was spilled within the easement of the rail track and the soil – 719 961 liters amounted to 1 436 712,22 BGN excise duty included;

3.1.4.6.Rolling stock, infrastructure and environment.

- Material damages of locomotive № 91521080032-1 none;
- Material damages of locomotive № 91520087023-5 none;
- Material damage of 2-nd wagon № 33527954505-7, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 45 003,38 BGN;
- Material damage of 3-rd. wagon № 33527954566-9, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 8 668,76 BGN;
- Material damage of 4-th wagon № 33527962684-0, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 7 874,68 BGN;
- Material damage of 5-th wagon № 33527965364-6, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 69 414,46 BGN;
- Material damage of 6-th wagon № 33527954503-2, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 45 003,38 BGN;
- Material damage of 7-nth wagon № 33527962692-3, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 9 480,68 BGN;
- Material damage of 8^{-th} wagon № 33527954580-0, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 9 583,17 BGN;
- Material damage of 9-nth wagon № 33527962615-4, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 6 411,00 BGN;
- Material damage of 10-nth wagon № 33527954571-9, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 10 206,84 BGN;
- Material damage of 11-nth wagon № 33527962651-9, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 8 466,76 BGN;
- Material damage of 12-th wagon № 3352795457-5, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 9 231,50 BGN;
- Material damage of 13-nth wagon № 33527962637-8, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 8 001,16 BGN;
- Material damage of 14-nth wagon № 33807966899-6, type Zas – derailed with the four wheelset and burnt, caused damages to the draft gear and body shell amounting to 43 028,00 BGN;
- Material damages, caused to the rail track along the interstation Lyubenovo distributing – Simeonovgrad amounting to 16 630,40 BGN;
- Material damages, caused to the safety and signalling equipment – none;
- Material damages, caused to the catenary along the interstation Lyubenovo distributing – Simeonovgrad amounting to 16 630,40 BGN;
- Material damages caused to the environment at approximately 500 m² amounting to 80 000 BGN.

Caused damages: 1 830 346,79 BGN

3.1.5. Description of other consequences, including event impact on the usual activity of the participants.

In the period from 05:23 a.m. on 15.08 until 18:22 p.m. on 19.08.2025, the railway infrastructure manager and railway undertakings generated other costs for changing the train operation schedule along the section Simeonovgrad – Nova Zagora.

- Deviated trains of the railway undertakings – 17 – 2 237,08 BGN;
- Cancelled trains of the railway undertakings – 5 - 1 030,23 BGN;
- Assigned trains of the railway undertakings – none;

- Delayed trains of the railway undertakings – 7 - 3 496,00 BGN;
- Costs for rehabilitation means – 5 642,92 BGN;

Other costs: 12 406,23 BGN
Total damages and costs: 1 842 753,02 BGN

3.1.6. Identity of the participants and their functions.

Railway infrastructure:

- SE National railway infrastructure company has a Safety Authorization № BG 21 2023 0001 period of validity 01.07.2023 ÷ 30.06.2028

Staff of SE NRIC involved in the accident:

- Head of district „Maintenance of rail track and structures“ Stara Zagora;
- Controller, permanent way and structures;
- Head of district „Maintenance of rail track and structures“ /unified;
- TGM along the railway section Dimitrovgrad;
- Trackwalker along Dimitrovgrad railway section;
- Traffic manager on duty along Lyubenovo railway station on shift;

Railway undertaking:

„Bulmarket Rail Cargo” EOOD has:
License for railway transport services № 212, valid from 14.05.2015 for transport of freight and locomotive traction;
Personnel of, Bulmarket Rail Cargo” EOOD involved in the accident:

- Engine driver first person of locomotive № 91521080032-1;
- Engine driver second person of locomotive № 91521080032-1;
- Engine driver of locomotive № 91520087023-5.

3.1.7. Description of the respective parts of the railway infrastructure and signalling system:

3.1.7.1.Type of the track, railway switch, railway level-crossing etc.

The event occurred along the interstation Lyubenovo distributing – Simeonovgrad at km 11+771. The track is in inclination i= 2‰ in a downhill along the train direction, right curve with radius R=700 m, length L=687 m, super elevation H=60 mm, transitional curves along Lt=72 m, rails type S 49, sleepers ST 4, fastening PAK 68I, jointed rail track of supported doubled sleepers.

3.1.7.2.Interstation block system, station installation, type of signaling and messages.

- *Interstation block system:*

The interstation Lyubenovo distributing – Simeonovgrad is equipped with Semi-automatic block system (SABS) type „Stepanov“ – functional.

- *Station interlocking:*

Station Lyubenovo distributing is equipped with station interlocking type Relay device with key dependence (RDKD) (fig. 3.4) with entrance, warning and exit semaphores along the speed signalling – functional. (fig. 3.6 and fig. 3.7).

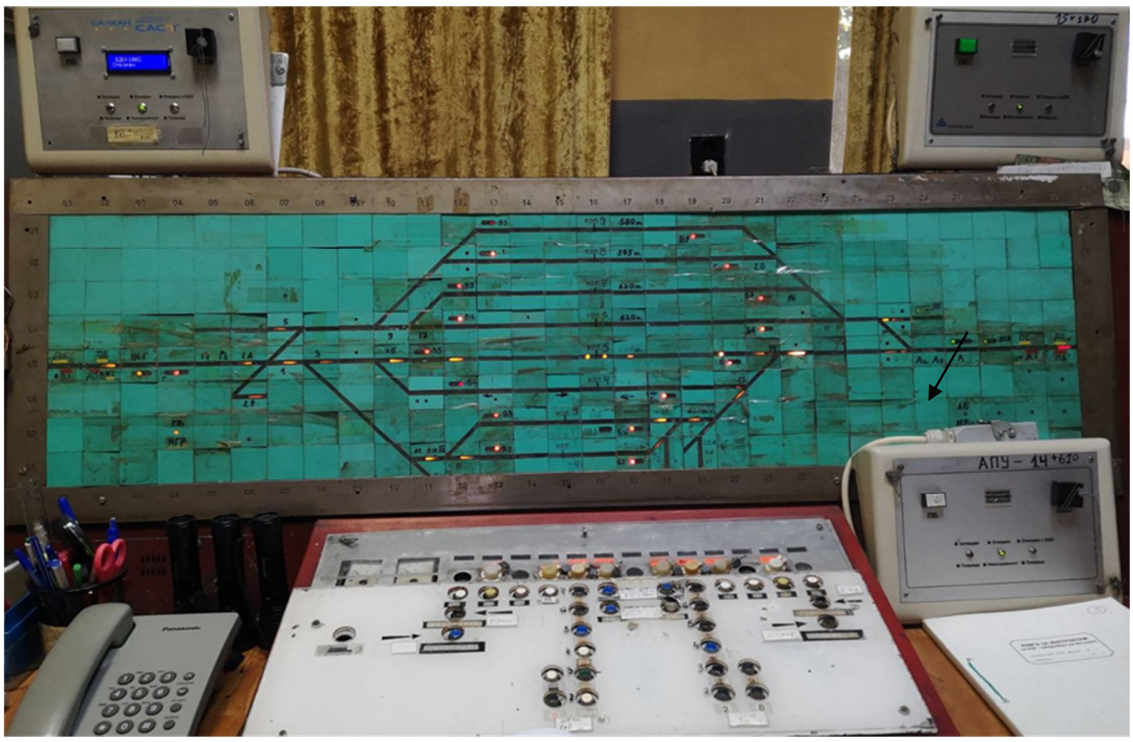


Fig. 3.4 Station interlocking at Lyubenovo distributing station

Simeonovgrad is equipped with route-computer interlocking (RCI) type „Electra-2“ (fig. 3.5), with entrance, warning and exit semaphores under the speed signalling – изправни (fig. 3.6 and fig. 3.7).

- *Type of signalling:*

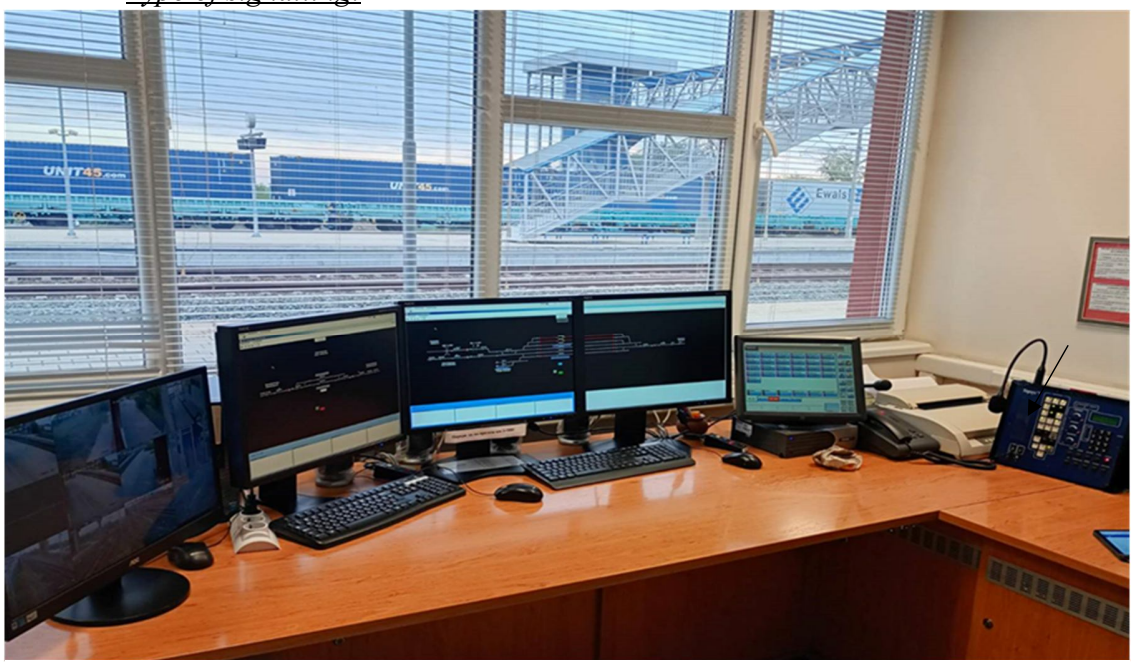


Fig. 3.5 Station interlocking at Simeonovgrad station

In Lyubenovo distributing station and Simeonovgrad the entrance and exit semaphores are under the speed signalling – functional before and after the accident (fig. 3.6 and fig. 3.7).

Fig. 3.6 Entrance semaphore under the speed signalling

Fig. 3.7 Exit semaphore under the speed signalling

- *Messages:*

The stations Lyubenovo distributing and Simeonovgrad are equipped with Device for communications, connections and messages (DCCM-8) for incoming and outgoing messages from the station with the neighboring stations and the train dispatcher – functional (fig. 3.8);

Fig. 3.8 Device for communications, connections and messages DCCM-8

3.1.7.3.Train protection systems.

Along the section from Simeonovgrad to Nova Zagora station, within which is also Lyubenovo distributing station, there is no train protection system. The stations are equipped with a Train dispatching radio connection (TDRC), by which are performed radio connections between the engine drivers, train dispatcher, traffic managers in the stations and available trains along the section.

3.1.8. Other information referring the event.

Train documents „Way-bill“, „Nature sheet“and „Brake mass certificate“ of DFT № 80694, that are in conformity with the train parameters (fig. 3.9 – 3.14).

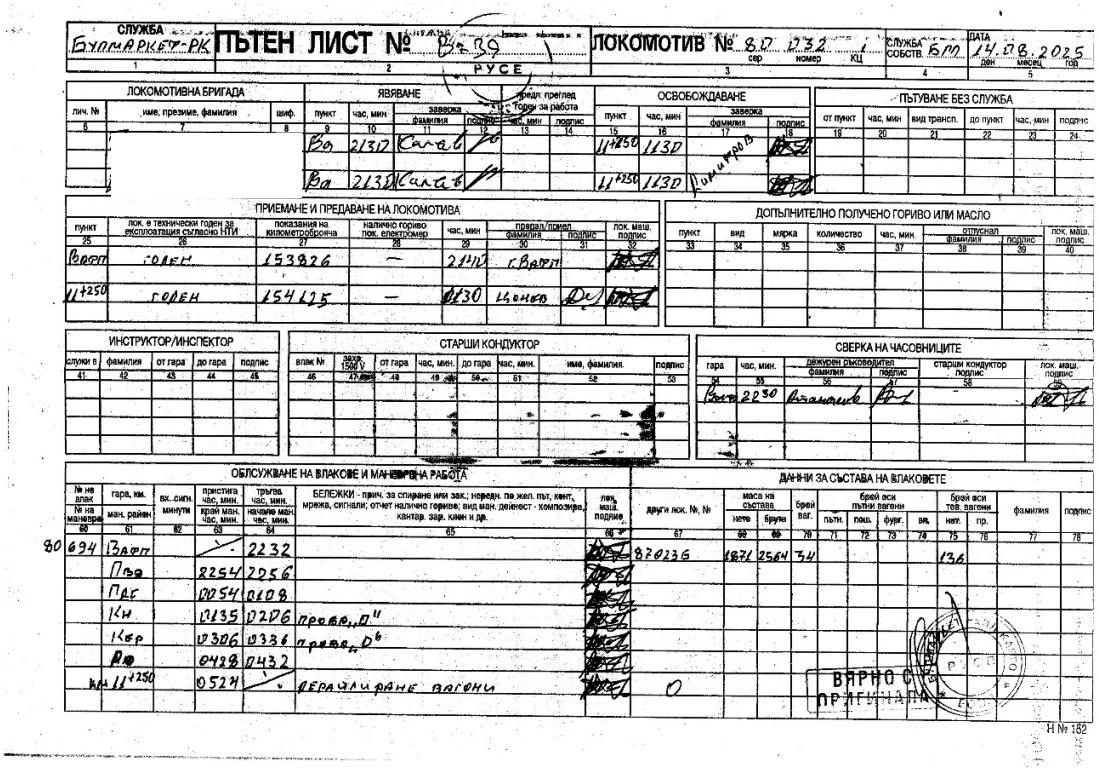


Fig. 3.9 Way-bill of locomotive № 91521080032-1 – front part

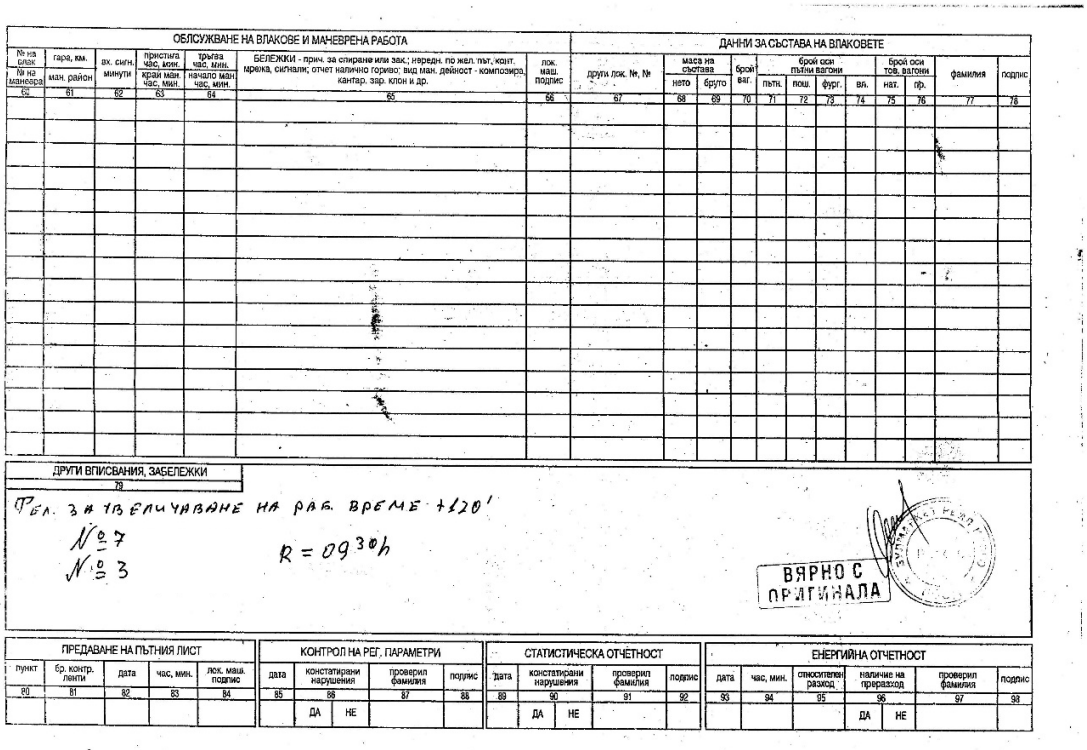


Fig. 3.10 Way-bill of locomotive № 91521080032-1 – rear part

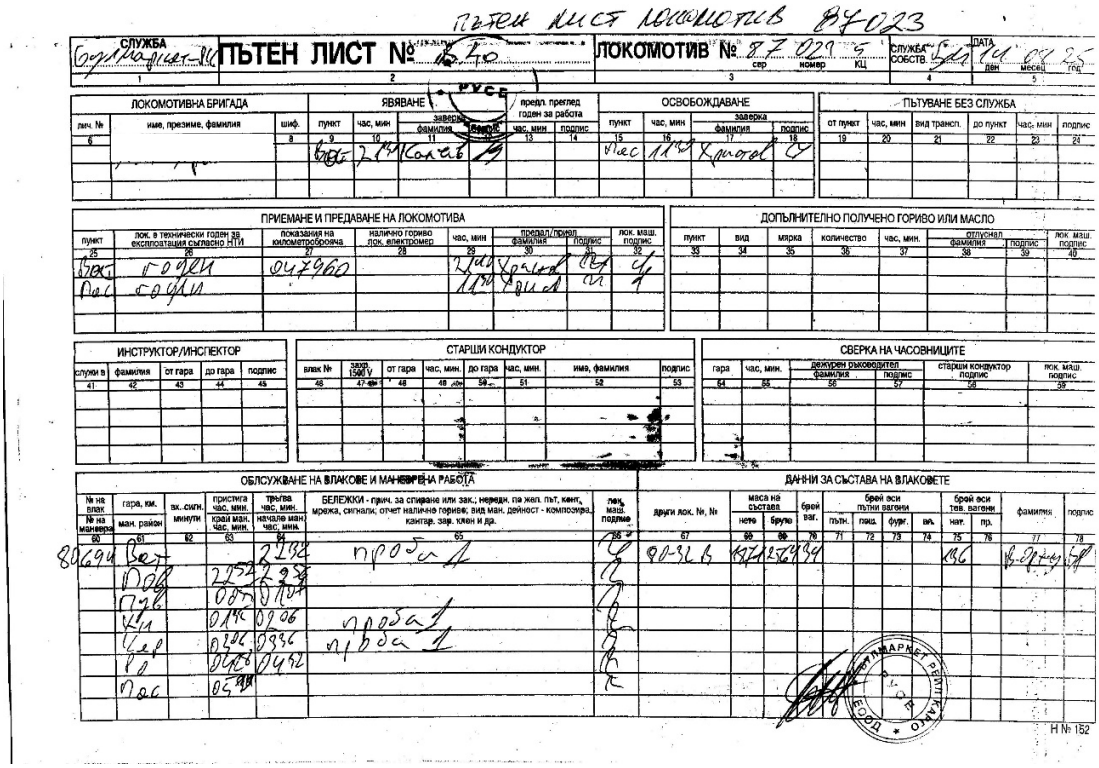


Fig. 3.11 Way-bill of locomotive № 91520087023-5 – front part

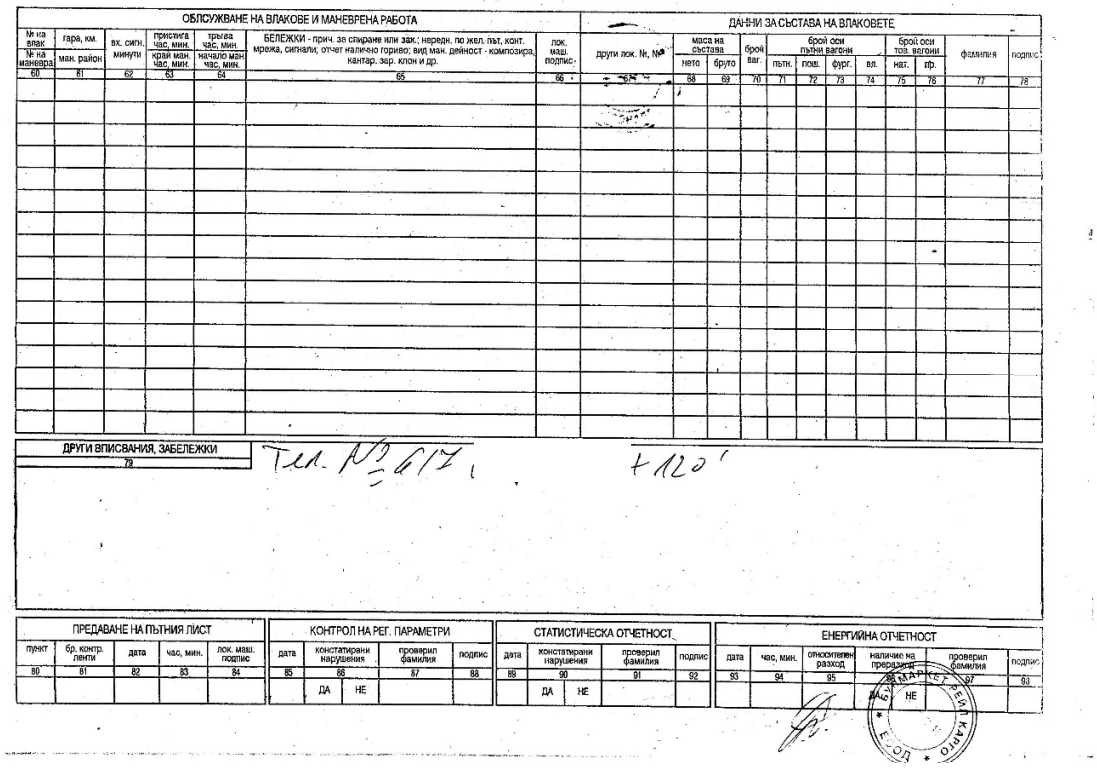
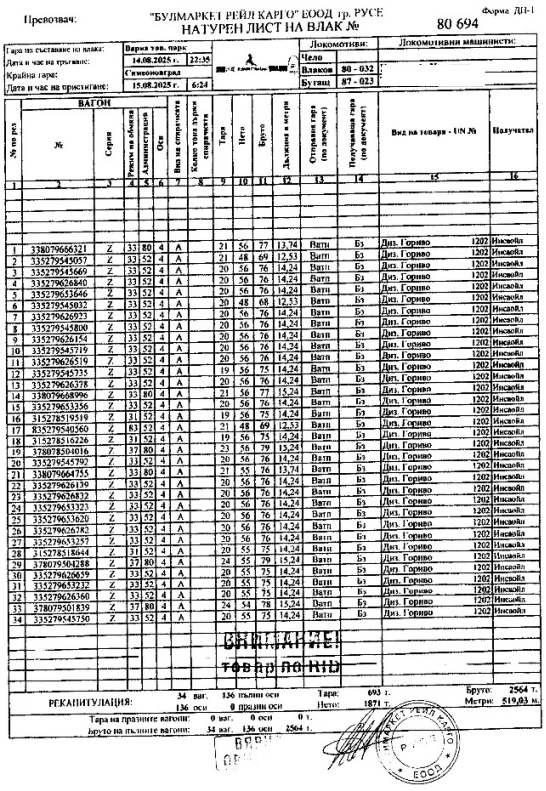


Fig. 3.12 Way-bill of locomotive № 91520087023-5 – rear part



Превозвач: "БУЛМАРКЕТ РЕЙЛ КАРГО" ЕООД гр. РУСЕ Форма ДП-1

НАТУРЕН ЛИСТ НА ВЛАК № 80 694

Гара по съставяне на влака: Варна тов. парк
Дата и час на тръгване: 14.08.2025 г. 22:35
Крайна гара: Симеоновград
Дата и час на пристигане: 15.08.2025 г. 6:24

Локомотиви: Чело 80 - 032; Влаков 87 - 023; Бутащ

Локомотивни машинисти:

№ по ред	ВАГОН №	Серия	Собственик на вагона / Администрация	Ос	Вид на спирачната система	Общо тегло върху спирачките	Тара	Нето	Брутно	Дължина в метри	Натоварена гара (по закачане)	Разтоварна гара (по автосчет)	Вид на товара - UN №	Получател
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	33807666321	Z	33	80	4	A		21	56	77	13,74	Ватц	Бз	Диз. Гориво	1202 Инсолй
2	33527954057	Z	33	52	4	A		21	48	69	12,53	Ватц	Бз	Диз. Гориво	1202 Инсолй
3	33527954669	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
4	33527962840	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
5	33527965366	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
6	33527954032	Z	33	52	4	A		20	48	68	12,53	Ватц	Бз	Диз. Гориво	1202 Инсолй
7	33527962693	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
8	33527954800	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
9	33527962815	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
10	33527954719	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
11	33527962651	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
12	33527954735	Z	33	52	4	A		19	56	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
13	33527962837	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
14	33807966899	Z	33	80	4	A		21	56	77	15,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
15	33527965336	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
16	31527819519	Z	31	52	4	A		19	56	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
17	83527954060	Z	83	52	4	A		21	48	69	12,53	Ватц	Бз	Диз. Гориво	1202 Инсолй
18	31527810226	Z	31	52	4	A		19	56	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
19	37807850016	Z	37	80	4	A		23	56	79	15,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
20	33527954792	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
21	33807966755	Z	33	80	4	A		21	55	76	13,74	Ватц	Бз	Диз. Гориво	1202 Инсолй
22	33527962639	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
23	33527962832	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
24	33527965323	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
25	33527965320	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
26	33527962782	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
27	33527965325	Z	33	52	4	A		20	56	76	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
28	31527818644	Z	31	52	4	A		20	55	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
29	37807950188	Z	37	80	4	A		24	55	79	15,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
30	33527962659	Z	33	52	4	A		20	55	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
31	33527965322	Z	33	52	4	A		20	55	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
32	33527962636	Z	33	52	4	A		20	55	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
33	37807901839	Z	37	80	4	A		24	54	78	15,24	Ватц	Бз	Диз. Гориво	1202 Инсолй
34	33527954750	Z	33	52	4	A		20	55	75	14,24	Ватц	Бз	Диз. Гориво	1202 Инсолй

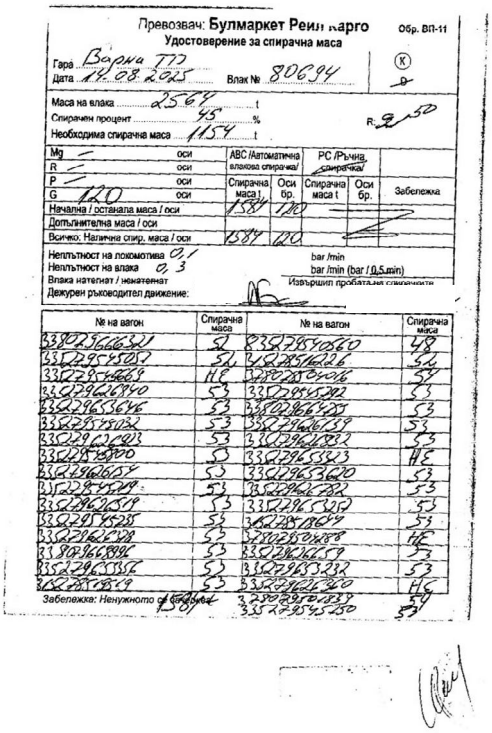
~~ВНИМАНИЕ! товар по НИВ~~

РЕКАПИТУЛАЦИЯ: 34 ваг. 136 оси 136 пълни оси 0 празни оси Тара: 693 т. Нето: 1871 т. Брутно: 2564 т. Метри: 519,03 м.

Тара на празните вагони: 0 ваг. 0 оси 0 т.

Брутно на пълните вагони: 34 ваг. 136 оси 2564 т.

Fig. 3.13 Nature sheet of DFT № 80694



Превозвач: Булмаркет Рейл карго Обр. ВП-11

Удостоверение за спирачна маса

Гара Варна ТТ Дата 14.08.2025 Влак № 80694

Маса на влака 2567 t
Спирачен процент 45 %
Необходима спирачна маса 1154 t

		ABC /Автоматична въздушна спирачка/		РС /Ръчна спирачка/		
Mg	оси					
R	оси					
P	оси	Спирачна маса t	Оси бр.	Спирачна маса t	Оси бр.	Забележка
G 120	оси	1584	120			
Начална / останала маса / оси		1584	120			
Допълнителна маса / оси						
Всичко. Налична спир. маса / оси		1584	120			

Нетълтност на локомотива 0,1 bar /min
Нетълтност на влака 0,3 bar /min (bar / 0,5 min)
Влака натегнат / ненатегнат Извършил пробата спирачки
Дежурен ръководител движение:

№ на вагон	Спирачна маса	№ на вагон	Спирачна маса
33807666321	52	33527954669	48
33527954057	52	33527962840	52
33527965366	48	33527954032	52
33527962693	52	33527954800	52
33527962815	52	33527954719	52
33527962651	52	33527962837	52
33527954735	52	33807966899	52
33527965336	52	31527819519	52
83527954060	52	31527810226	52
37807850016	52	33527954792	52
33807966755	52	33527962639	52
33527962832	52	33527965323	52
33527965320	52	33527962782	52
33527965325	52	33527962659	52
33527962636	52	37807901839	52
33527954750	52		

Забележка: Ненужното се зачертава

Fig. 3.14 Brake mass certificate of DFT № 80694

3.2. Factual description of the occurred.

3.1.1. Direct sequence of the events that led to the accident, including:

3.1.1.1.Actions that the involved in the event persons undertook.

From the written statements of the locomotive crew, servicing locomotive No. 91521080032-1 of DFT No. 80694, since the departure of the train at 22:32 p.m. from the Varna freight park station to the Lyubenovo distributing station - Simeonovgrad interstation there were no problems with the movement of the train. During the movement of the train, the locomotive driver first saw at 05:23 a.m. around km 11+500 at the Lyubenovo distributing station - Simeonovgrad interstation a bright light around and a strong shaking of the catenary.

After the train stopped, the locomotive driver first opened the cabin door and saw that only the first wagon remained after the locomotive and about 150-200 meters away was the rest of the train, as a group of tank wagons had derailed and caught fire.

The locomotive driver, second person, after the train stopped, opened the cabin door and noticed that dry grass was burning next to the locomotive and the first wagon and the fire could affect them.

Around 05:25 a.m., the locomotive driver, first person, called the national emergency number 112 and informed about the accident.

Two fire extinguishers from the locomotive were used to extinguish the fire next to locomotive No. 91521080032-1 and wagon No. 33807666632-1 and the fire was extinguished.

Around 05:26 a.m., the locomotive driver, first person, notified the traffic manager/senior train dispatcher replaced at the Plovdiv TOU about the derailment and subsequent ignition of a group of wagons from the train in the Lyubenovo distributing station - Simeonovgrad section.

At 05:28 a.m., the traffic controller/senior train dispatcher on duty at the Plovdiv TOU notified the traffic controller/train dispatcher of the Stara Zagora - Karnobat and Nova Zagora - Simeonovgrad sections about the derailment and subsequent ignition of the group of wagons from DFT No. 80694 in the Lyubenovo distributing station - Simeonovgrad section.

At 05:29 a.m., the traffic controller on duty at the Lyubenovo distributing station received an order from the energy dispatcher to turn off sectional disconnectors No. 01 and No. 71 in the Lyubenovo distributing station.

At 05:31 a.m., the traffic controller on duty at the Lyubenovo distributing station turned off sectional disconnectors No. 01 and No. 71.

At 06:29 a.m., the train dispatcher suspended the movement of all vehicles in the Lyubenovo distributing station - Simeonovgrad section from 06:30 a.m., with the exception of rehabilitation vehicles.

- As it can be seen from the transcript prepared by the railway company "Bulmarket Rail Cargo" EOOD, of the movement records of DFT No. 80694, served by locomotive No. 91521080032-1, it is evident that the train departed from Radnevo station at 04:31 a.m. In the Radnevo - Simeonovgrad section, the train was moving and observing the maximum speed and speed limits. At 05:22:40 a.m. at a speed of 56 km/h, a violation of the main air duct was detected, with the locomotive speed dropping sharply to 0 bar. The locomotive covered the distance of 210 meters in 23 seconds and at 05:23:03 a.m. it finally stopped. No speed violations were detected during the train's movement from the starting station to the scene of the accident.

3.1.1.2.Rolling stock and technical facilities functioning.

As per data that the railway undertaking “Bulmarket Rail Cargo” EOOD and the Railway infrastructure manager SE NRIC presented to the Investigation Commission before the accident, the rolling stock (locomotives and wagons), rail track and structures of the railway infrastructure were functional.

DFT № 80694 was additionally assigned in the TOS and moves along the direction Varna freight park – Syndel – Karnobat – Simeonovgrad – Dimitrovgrad – Plovdiv – Belozem (fig. 3.15).

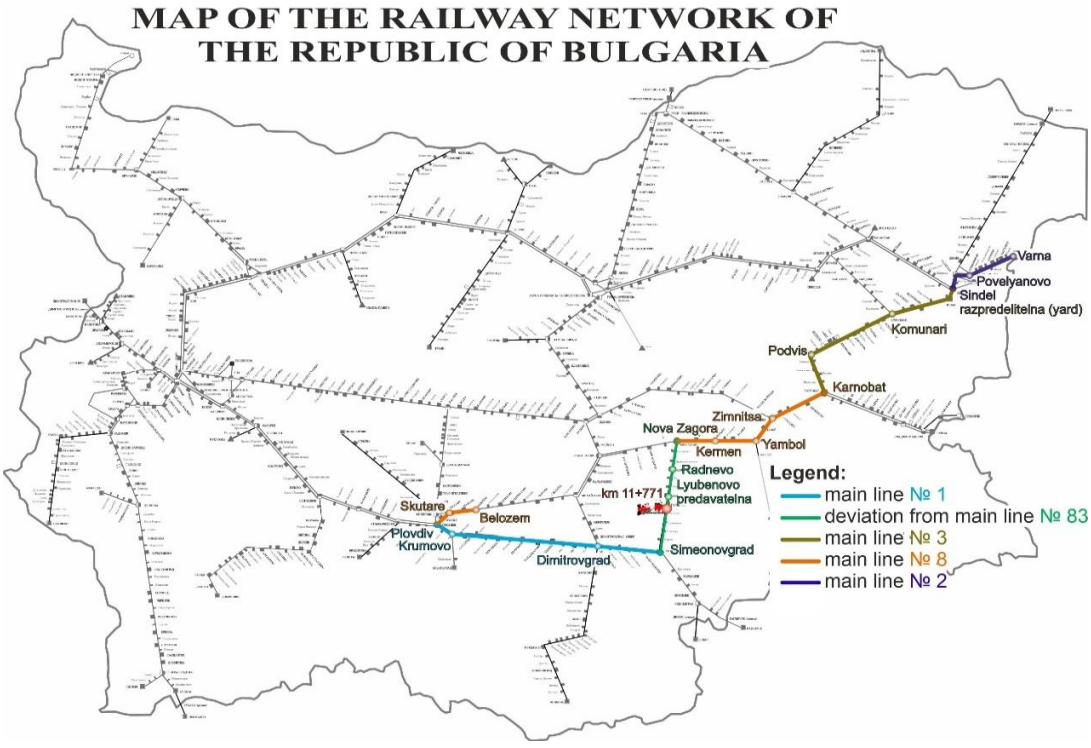


Fig. 3.15 Route of DFT № 80694 from Varna station to Belozem Simenovgrad.

3.1.1.3.Operational system functioning.

The operational system for train traffic control in the Simeonovgrad - Nova Zagora section and in the Lyubenovo distributing station - Simeonovgrad section, at the time of the accident, was functioning without interruption - normally.

Before the accident, five freight trains passed through the section in different directions with different masses, as shown in Table 3.1.

Table 3.1

влак №	заминава от гара		±	Локомотив1	Локомотив2	Превозвач	Пълни вагони	Празни вагони	Пълни Оси	Празни Оси	тара	нето	бруто	бр. Вагони Общ	метра	пристига в гара		±
80591	Сим	16:47	-148	1080024	1080031	"Булмаркет Рейл Карго" ЕООД	0	0	0	0	0	0	0	0	50	Лн	17:22	-145
83691	Лн	17:38	-22	44072		"ТБД Товарни превози" ЕАД	5	6	20	24	137	503	760	11	154	Сим	18:10	-22
80692	Лн	21:30	-57	1080011		"ТИМК Рейл" ЕАД	23	0	94	0	0	352	886	23	524	Сим	22:01	-57
44140	Сим	01:41	-28	1080033		"Булмаркет Рейл Карго" ЕООД	15	0	60	0	0	756	1155	15	319	Лн	02:12	-28
80694	Лн	05:04	-48	1080032	87023	"Булмаркет Рейл Карго" ЕООД	34	0	136	0	0	1871	2564	34	519	Дерайлира	05:30	-

3.1.2. Sequence of the events from the beginning of the occurrence until the end of the rescue services actions.

3.1.2.1.Undertaken measures for protecting and guarding the event location.

On 15.08.2025 at around 05:30 a.m., authorities of the Simeonovgrad RD MoI arrived at the scene of the accident, the area and the approach to the accident were restricted for access to vehicles and external and official persons. The Simeonovgrad RD MoI carried out inspections on site in order to preserve the material evidence for an upcoming investigation.

3.1.2.2. Actions of the emergency rescue services.

At 05:27 a.m., teams from the Simeonovgrad RS FSaCP, Harmanli RS FSaCP, Dimitrovgrad RS FSaCP, Haskovo RS FSaCP, Svilengrad RS FSaCP and Lyubimets RS FSaCP departed for the scene.

At 05:38 a.m., the Simeonovgrad RS FSaCP team arrived at the scene and found that 13 tank wagons had derailed and were burning, with diesel fuel spilling, a broken pole and a broken catenary that had fallen onto the rolling stock, and a broken wire from a 20 kV power line passing over the railway line. After confirmation from the RS FSaCP operations centre that the voltage had been turned off, actions were initiated to localize the fire, which was spreading rapidly through the dry grass around the rail track.

At around 06:00 a.m., the remaining fire trucks arrived at the scene of the accident with teams that were involved in extinguishing the burning tanks.

At 06:00 a.m., more teams from the Elhovo RS FSaCP, Yambol RS FSaCP, Nova Zagora RS FSaCP, Sliven RS FSaCP, Stara Zagora RS FSaCP and Kazanlak RS FSaCP left for the scene.

At 07:00 a.m. on 15.08.2025, the fire was localized to an area of about 500 m².

At 11:45 a.m. on 15.08.2025, the fire was finally extinguished. 14 specialized fire trucks from the FSaCP participated in extinguishing the fire.

3.1.2.3. Actions of the emergency rehabilitation services.

From 06:30 a.m. on 15.08.2025, the train dispatcher suspended the movement of all vehicles in the Lyubenovo distributing station - Simeonovgrad section, with the exception of recovery vehicles.

A plan for the recovery activities in the section was prepared.

On 15.08.2025 at 08:25 a.m., diesel locomotive No. 92520006029-9 of "BDZ Cargo" EOOD departed from Simeonovgrad station to pull train locomotive No. 91521080032-1 with the first wagon No. 33807966632-1 to Simeonovgrad station;

At 09:04 a.m., to ensure the gauge of the catenary, a specialized machine type AGMU-E7 No. 99529436005-3 departed from Lyubenovo distributing station to km 11+771 with a return to Lyubenovo distributing station;

At 10:11 a.m., diesel locomotive No. 92520006029-9 of "BDZ Cargo" EOOD returned to Simeonovgrad station due to lack of gauge of the catenary;

At 10:17 a.m., a column of specialized AGMU-E6 machines No. 99529436004-6 and RSKM-17 No. 99529431017-3 departed from Simeonovgrad station to provide gauge for the catenary to km 10+990;

At 15:08 p.m., a specialized AGMU-E7 machine No. 99529436005-3 returned to Lyubenovo distributing station;

At 15:08 p.m., a gauge was opened from the catenary for diesel traction and to pull the derailed wagons from the Simeonovgrad - Lyubenovo distributing interstation. The interstation remained with the voltage turned off and grounded;

At 15:12 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD departed from Lyubenovo distributing station to pull auxiliary pushing locomotive No. 91520087023-5, together with 10 attached tank wagons from DFT No. 80694 to Lyubenovo distributing station;

At 15:36 p.m., the column of specialized vehicles AGMU-E6 No. 99529436004-6 and RSKM-17 No. 99529431017-3 returned to Simeonovgrad station;

At 15:40 p.m., diesel locomotive No. 92520006029-9 of "BDZ-Cargo" EOOD departed from Simeonovgrad station to pull train locomotive No. 91521080032-1 with the first wagon No. 33807966632-1 for Simeonovgrad station;

At 16:00 p.m. on 15.08.2025, after the completion of the procedural and investigative actions by the pre-trial proceedings authorities from the Haskovo RIS, a written permit for restoration activities was given;

At 16:05 p.m., permission was given by the Deputy Chair of the NAMRTAIB AB to begin emergency restoration actions;

At 16:38 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD pulled the auxiliary pushing locomotive No. 91520087023-5, together with 10 wagons from the composition of DFT No. 80694, at the Lyubenovo distributing station;

At 16:53 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD departed from Lyubenovo distributing station to pull the remaining ten wagons from the composition of DFT No. 80694 to Lyubenovo distributing station;

At 17:05 p.m., diesel locomotive No. 92520006029-9 of "BDZ Cargo" EOOD pulled train locomotive No. 91521080032-1 with the first wagon No. 33807966632-1 to Simeonovgrad station;

At 17:53 p.m., diesel locomotive No. 92520006113-1 of "Mini Maritsa-Iztok" EAD pulled the remaining ten wagons from the composition of DFT No. 80694 to Lyubenovo distributing station;

At 17:30 p.m., the Task Force measured the railway track and established the point of derailment of the second wagon of the train;

On 19.08.2025 at 18:22 p.m., the train dispatcher ordered the restoration of train movement in the Simeonovgrad - Lyubenovo distributing station at scheduled speed. From km 11+600 to 11+800, all trains and vehicles were to move at a speed of up to 15 km/h.

4. Analysis of the event

4.1. Participation and responsibilities of the entities, involved in the event.

4.1.1. Railway undertaking

Analysis of the movement of DFT № 80694.

An analysis of the movement of DFT No. 80694 was carried out using the data downloaded from the recording devices of the two locomotives in the train: the leading locomotive No. 91521080032-1 and the pushing auxiliary locomotive No. 91520087023-5.

The information downloaded from the recording devices is a valuable objective source of data for the accurate determination of the beginning, course and end of the processes related to the movement and it is accepted as a valuable document for the investigation of accidents in the field of transport safety.

A detailed analysis of the movement of DFT No. 80694 was carried out from the Lyubenovo distributing station to the stop and settlement of the locomotive at km 11+460 in the Lyubenovo distributing station - Simeonovgrad section.

DFT No. 80694 departs from Varna Freight Park station on schedule at 22:32 p.m., observing section speeds and reductions on the railway track during the train's movement.

Analysis of the movement data of the leading locomotive № 91521080032-1.

Siemens Mobility produces the locomotive – Germany in 2024 with fabric №23846/2024 and it is registered into the railway vehicle register of the Republic of Bulgaria under № 91521080032-1 BG-BMDM.

The locomotive is type „Siemens Smartron“of locomotive series 1080 (fig. 4.1).

On the locomotive is installed a digital speedometer installation system „REDBOX“, which registers and records the main parameters within the locomotive movement, train movement respectively.

The registered data are split into two packages: analogue and digital. The following parameters are used within the data reading (fig. 4.2):

- Analogue data (upper part of the chart):
  - Movement speed (km/h): pos. 1, marked in red color;
  - Pressure in the main air duct: pos. 2, marked in the blue color (the values in the pressure are reflected in Table 4.2):

Fig. 4.1 Locomotive № 91521080032-1

Table 4.1

Registration of the chart	Position of the brake valve	Pressure of the main air duct, [bar]
0	Impact filling	>5.0
1	Trip (completely charged and loosed brake) 1A	5.0
2	Last extent of loosing 1B	4.8
3	Held first extent	4.6
4	Held second extent	4.4
5	Held third extend	4.28

6	Held fourth extend	4,15
7	Held fifth extend	4,0
8	Held sixth extend	3,85
9	Held seventh extend	3,7
10	Complete held	3,5
11	Fast held	<3.2

- Digital data (lower part of the chart):
  - Information on the applied drag force: position 3, green color, (F_ZSGM_Rec_LocoStatus_0); indications: 0 – traction regime; 1 – lack of traction regime (movement on inertia);
  - Information on the applied electro-dynamic stop: position 4, dark red color, (F_ZSGM_Rec_LocoStatus_7); indications: 1 – presence of electro-dynamic stop; 0 – lack of electro-dynamic stop;
  - Information on the activation of automatic pneumatic brake by the brake valve

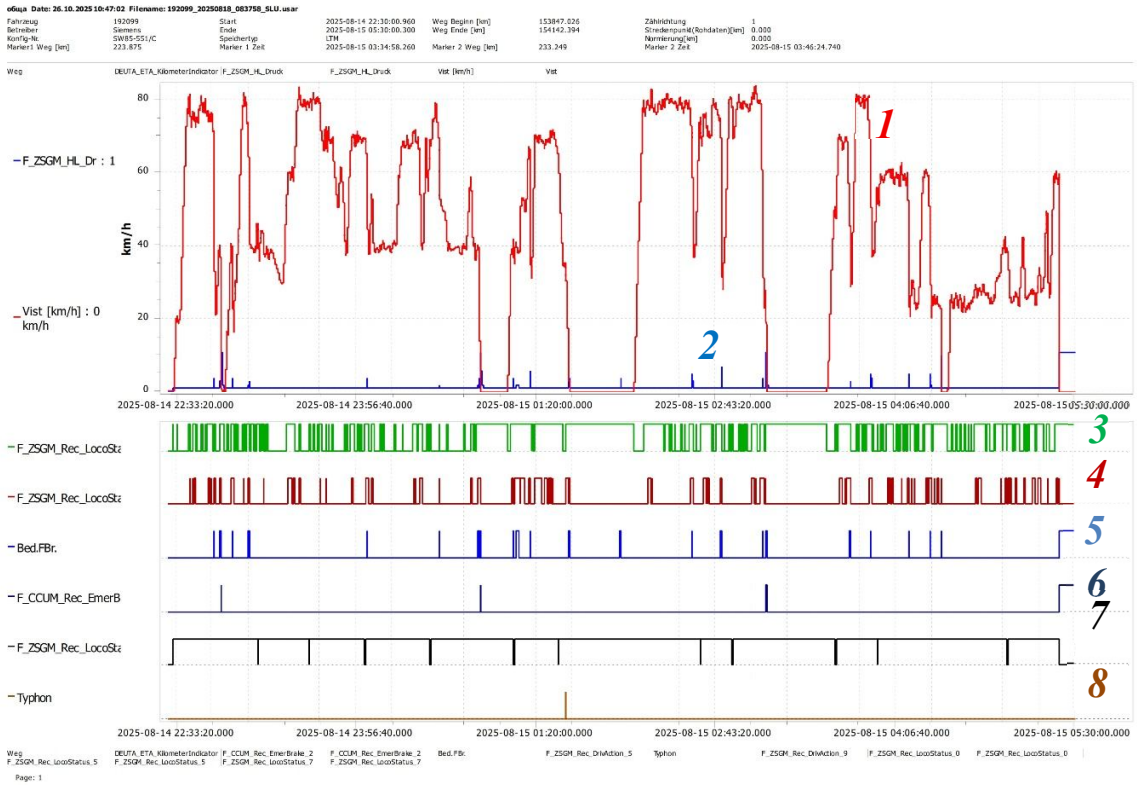


Fig. 4.2 Chart with the registered and recorded movement data of DFT № 80694 from the registering device of the leading locomotive № 91521080032-1

(F_ZSGM_Rec_DrivAction_5): position 5, blue colour; indications: 1 – presence of pneumatic stop; 0 – lack of pneumatic stop;

- Information on activation of the automatic pneumatic brake from valve for immediate stop or from split of the main air duct (F_CCUM_Rec_EmerBrake_2): position 6, dark blue colour; indications: 0 – lack of activation; 1 – activation;
- Information on the condition of the main air switch of the locomotive (F_ZSGM_Rec_LocoStatus_5): position 7, black colour; indications: 1 – presence of voltage in the locomotive; 0 – lack of voltage in the locomotive;
- Information on activated air sound signal (F_ZSGM_Rec_DrivAction_9): position 8, brown colour; indications: 1 – submission of a sound signal; 0 – lack of a sound signal;

The passed distance is measured by the locomotive speedometer installation and serve as an unambiguous positioning of the train during its movement.

DFT № 80694 departed from Varna station at 22:32:05 p.m. (fig. 4.3, pos. 1). During the movement, it respected the sectional speeds and reductions along the rail track. Due to different reasons, it stopped at a few places along the route:

- In Povelyanovo station: from 22:54:42 p.m. until 22:55:35 p.m. for 0:00:53 hours (fig. 4.3, pos. 2);
- In Podvis station: from 0:54:45 a.m. to 1:07:04 a.m. for 0:12:19 hours (fig. 4.3, pos. 3);
- In Karnobat station: from 1:35:45 a.m. until 2:05:33 a.m. for 0:29:48 hours, where it performed a test B (fig. 4.3, pos. 4);
- Along Zimnitsa station it passed without stopping at 2:33:32 a.m. with speed 36,8 km/h (fig. 4.3, pos. 5);
- Along Yambol station it passed without stopping at 2:46:52 a.m. with speed 28,0 km/h (fig. 4.3, pos. 6);
- In Kermen station: from 3:07:13 a.m. until 3:35:01 a.m. for 0:27:48 hours, without performing tests B (fig. 4.3, pos. 7);
- Through Konyovo station it passed without stopping at 3:46:22 a.m. with speed 29,0 km/h (fig. 4.3, pos. 8);

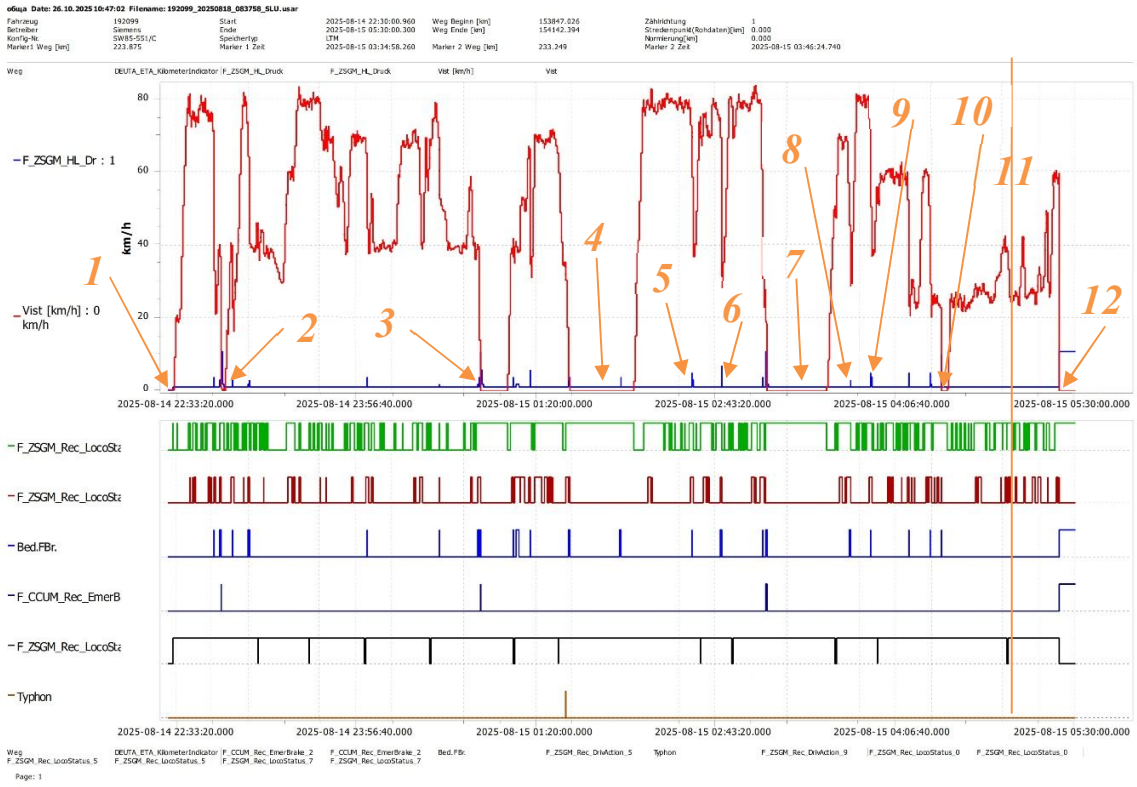


Fig. 4.3 The schedule of the total travelling time of DFT № 80694 from the origin station to the place of the accident

- Through Nova Zagora station it passed without stopping at 3:56:09 a.m. with speed 36,9 km/h (fig. 4.3, pos. 9);
- In Radnevo station: from 4:28:13 a.m. to 4:31:08 a.m. for 0:02:55 hours (fig. 4.3, pos. 10);
- Through Lyubenovo distributing station passed without stopping at 5:01:03 a.m. with speed 24,0 km/h (fig. 4.3, pos. 11);
- At km 11+460 along Simeonovgrad – Lyubenovo distributing station at 5:23:07 a.m. (fig. 4.3, pos. 12).

The admissible movement speed of DFT № 80694 along the 83rd railway line Simeonovgrad – Nova Zagora was 60 km/h. The train moved with similar to that speed from Nova Zagora to Lyubenova mahala halt around 16 km (fig. 4.4, pos. 1). While approaching Lyubenova mahala halt the engine driver held with the electro-dynamic brake (EDB) at 04:12:18 a.m. with speed 60,2 km/h (fig. 4.4, pos. 2). Soon after that action he also held with the automatic train brake (ATB) at 04:12:48 a.m. after 464 meters within speed of 51,7 km/h. Then he reduced the pressure in the main air duct at 4,4 bar (fig. 4.4, pos. 3). As a result the speed reduced to 20,4 km/h (fig. 4.4, pos. 4), and then increased to 30,8 km/h, again it reduced to 22,8 km/h and again it increased to 60,8 km/h at 04:21:05 a.m. after 5,633 km (fig. 4.4, pos. 5).

At 04:21:05 a.m. at 20,700 km from Nova Zagora station within speed 60.8 km/h the engine driver activated several times EDB, and at 04:23:01 a.m. at 1,8 km. He also activated the ATB, reducing the pressure in the main air duct up to 4,4 bar and immediately after loosed the ATB and turned off the EDB (fig. 4.4, pos. 6 and 7). The speed reduced to 20,3 km/h at 04:23:37 a. m. at 22,830 km from Nova Zagora station, and then started to increase. For 1,592 km for 00:03:50 hours the speed changed between 26,7 and 22,8 km/h (fig. 4.4, pos. 8).

At 04:27:54 a.m. the engine driver activated almost simultaneously the ATB and EDB, as decreased the pressure in the main air duct up to 3,5 bar (fig. 4.4, pos. 9). The speed started to decrease

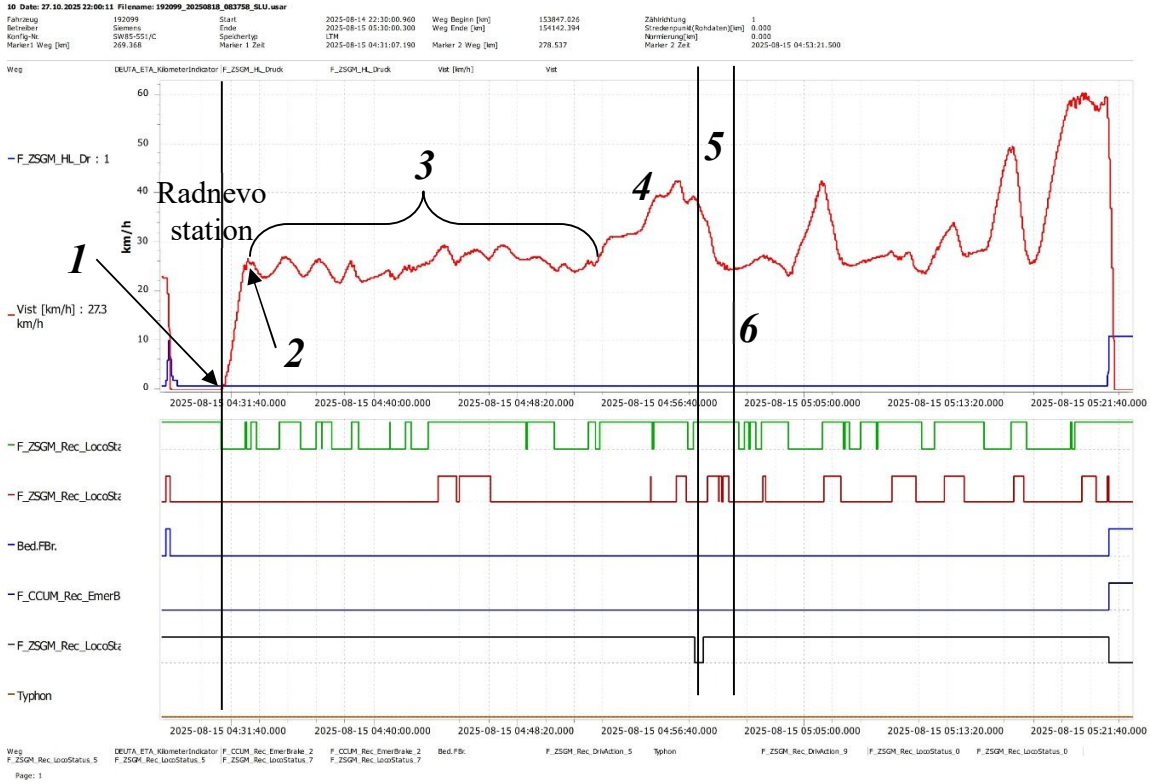


Fig. 4.5 Chart of movement of DFT № 80694 from Radnevo station to Lyubenovo distributing

fast up to 0,0 km/h and at 04:28:14 a.m., after it passed 269,368 km from its origin station, DFT № 80694 established in Radnevo station.

DFT No. 80694 stayed at Radnevo station from 04:28:14 a.m. to 04:31:07 a.m. for 00:02:53 hours (Fig. 4.5, pos. 1). At 04:31:07 a.m. it set off, with the speed increasing to 25.4 km/h for 00:01:21 for 0.252 km (Fig. 4.5, pos. 2). From this moment until 04:53:21 for 8.917 km for 00:20:52 hours, the speed varied in the narrow interval between 21.9 and 29.4 km/h (Fig. 4.5, pos. 3). From 04:53:21 a.m. the speed

started to increase, reaching 31-32 km/h for 00:01:30 hours for 0.790 km, increased again to 40 km/h and then to 42.5 km/h at 04:57:44 a.m., 11.734 km after departure from Radnevo station (Fig. 4.5, pos. 4). From that moment, the speed started to decrease due to the natural resistance of the train movement, because the locomotive pantograph was removed from 04:58:40 a.m. to 04:59:10 a.m. for 00:00:30 hours, during which time the train travelled 0.317 km and the speed reached 35 km/h, i.e. decreased by 4 km/h (Fig. 4.5, pos. 5). At 04:59:23 a.m. the driver activated the EDB, which caused the speed to decrease more rapidly to reach a value of 24-25 km/h when passing through the Lyubenovo distributing station at 05:01:03 a.m. (Fig. 4.5, pos. 6).

After leaving the Lyubenovo distributing station the speed increased and at 05:02:44 a.m. it reached a value of 26.9 km/h (Fig. 4.6, pos. 1), 0.728 km after the station, after which it decreased by applying the EDB, to 23.4 km/h at 05:04:46 a.m., after another 0.591 km (Fig. 4.6, pos. 2). The speed then increased to 42.4 km/h at 05:06:01 a.m. after passing 1.025 km (Fig. 4.6, pos. 3). Again, the speed decreased by applying EDB to 25.2 km/h (Fig. 4.6, pos. 4), increased to 28 km/h at 00:03:21 a.m. over 1,500 km (Fig. 4.6, pos. 5) and decreased again to 24.1 km/h (Fig. 4.6, pos. 6). The speed reached a value of 33.6 km/h at 05:13:43 a.m. Then 5.969 km after passing the Lyubenovo distributing station (Fig. 4.6, pos. 7), decreased to 27.7 km/h (Fig. 4.6, pos. 8), increased again to 48.8 km/h (Fig. 4.6, pos. 9) and decreased again to 26.1 km/h at 05:18:12 a.m., 8.549 km from the Lyubenovo distributing station (Fig. 4.6, pos. 10).

From that moment the speed started to increase sharply and after 2,246 km and 00:02:58 hours, at 05:21:10 a.m. reached value of 60,4 km/h (fig. 4.6, pos. 11). Thus, at 05:19:10 a.m. DFT № 80694 passed Galabovo halt in a traction regime and accelerating movement, with speed 37,8 km/h (fig. 4.6, pas. 12).

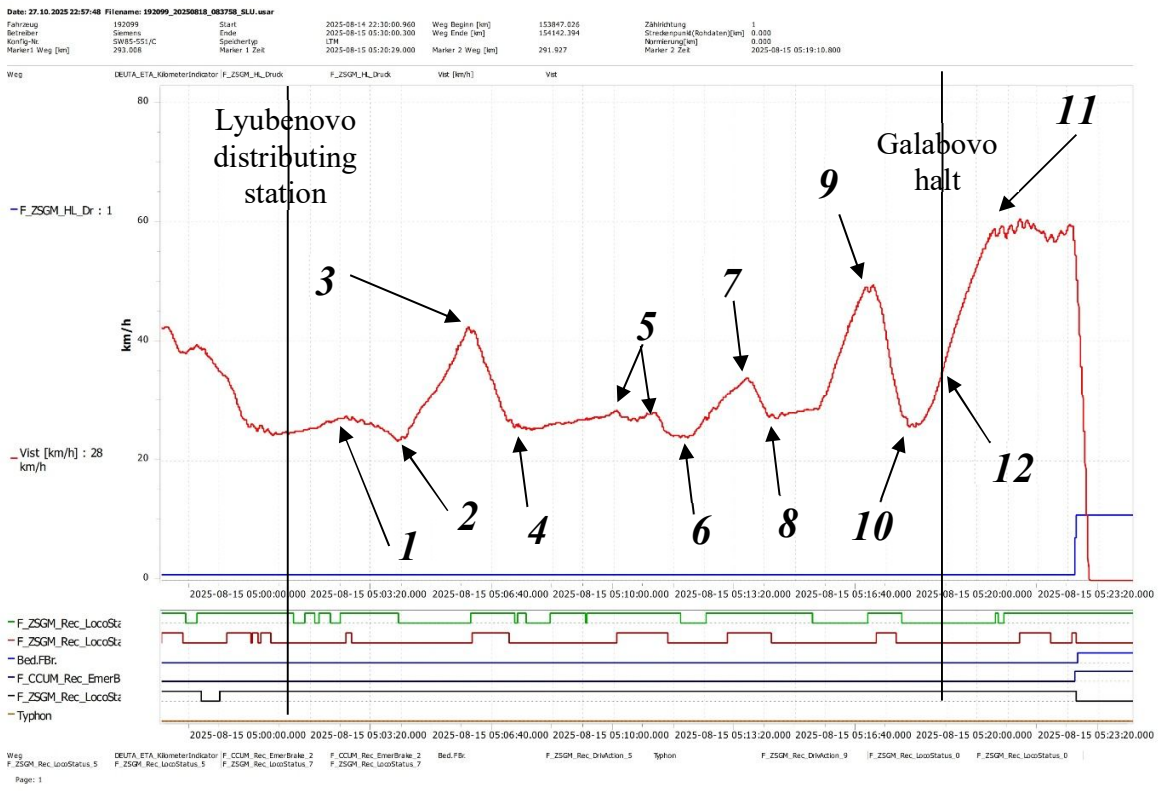


Fig. 4.6 Chart of the travelling time of DFT № 80694 from Lyubenovo distributing to the place of the accident

It is characteristic the way the train was controlled that when reaching the speed set for the section, deviations of ±5 km/h were observed. Exclusively the combined control lever in traction and EDB modes

carried out the control of the locomotive, respectively the train. Since leaving Radnevo station, the driver did not use the ATB.

At 05:20:30 a.m., 293.028 km from the start of the movement of DFT No. 80694, 00:02:37 and 2.339 km before the accident, at a speed of 58 km/h, the driver switched off the traction mode. He controlled the movement using the EDB, because of which the speed of movement changed between 57.2 and 60.4 km/h (Fig. 4.7, pos. 1).

At 05:22:36 a.m., 2.064 km before the final stop, the driver once again activated the EDB, because of which the speed began to decrease smoothly from 59.4 to 56.8 km/h (Fig. 4.7, pos. 2). At 05:22:39 a.m., i.e. 00:00:02 hours and 0.039 km after the action, the speed began to decrease sharply (Fig. 4.7, pos. 3). The train being separated caused the sharp decrease in speed. At 05:22:40 a.m., 0.023 km and 00:00:01 hours after that, at a speed of 56.4 km/h, the pressure in the main air duct began to decrease due to a break due to the splitting of the train (Fig. 4.7, pos. 4). At 05:22:42 a.m. after 0.012 km 00:00:00.7 hours at a speed of 53.5 km/h, the EDB was switched off (Fig. 4.7, pos. 5). At 05:22:44 a.m. after 00:00:01 hours and 0.026 km at a speed of 50.3 km/h the main air duct of the locomotive (MAD) was automatically switched off and the pantograph was removed (Fig. 4.7, pos. 6). At 05:22:46 a.m., 00:00:01 hours and 0.025 km after the automatic removal of the pantograph, at a speed of 47.2 km/h the driver activated the ATB in fast braking mode (Fig. 4.7, pos. 7).

B 05:23:07 a.m., 295,367 km from its departure of the origin station the speed decreased up to 0,0 km/h, and the locomotive of DFT № 80694 established at km 11+460 along the interstation Lyubenovo distributing – Simeonovgrad (fig. 4.7, pos. 8).

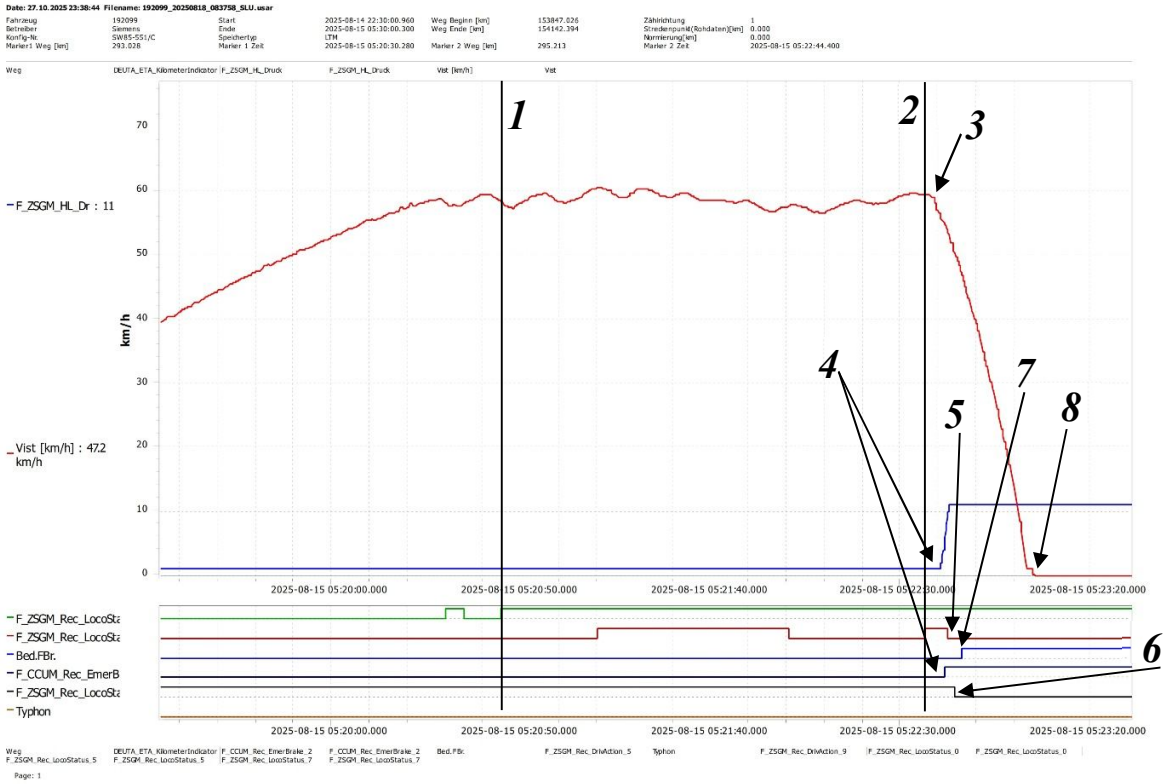


Fig. 4.7 Chart of the total travelling time of DFT № 80694 from Galabovo halt to the place of the accident

Analysis of the movement data of pushing auxiliary locomotive № 91520087023-5.

Analysis of the data, downloaded from the registering recording device of locomotive №91520087023-5 – pushing auxiliary.

The locomotive produced by „British Rail Engineering Limited“ (BREL) – Great Britain in April 1974 as within the years had had the names:

- Highland Chieftain (03.07.1978 – .11.1982);
- Velocity (1985 – 2000);
- Polmadie (2000 – 2005);
- Velocity (2011 –).

It was bought in October 2012 by the railway undertaking „Bulmarket DM“OOD and it was registered in the railway vehicles register in the Republic of Bulgaria under № 91520087 023-5 BG-BMDM.

The locomotive is of locomotive series 87 (fig. 4.8).

The locomotive is with following technical characteristics:

- Gauge: 1435 mm;
- Purpose: highway;
- Wheelset formula: Bo′-Bo′;
- Length: 17 830 mm;
- Width: 2648 mm;
- Height: 3994 mm;
- Proper mass: 83 500 kg;
- Maximum voltage: 3720 kW;
- Constructive speed: 177 km/h;
- Brake mass: 83 500 kg;
- Minimum diameter of inscription 80 m;
- Type: electrical;
- Type of power supply: alternating current, 50 Hz ~25 kV;
- Transmission ratio of the gears of the wheelset reducer: 1:2,2815;
- Axle load: 20,0 t;
- Diameter of the driving wheelset: 1156 mm;
- Maximum dragging force within departure: 258 kN;
- Estimated speed: 114,7 km/h;
- Dragging force within the estimated speed: 98,9 kN;

Fig. 4.8 Locomotive № 91520087023-5

To the locomotive is installed digital speedometer installation system "HASLER TELOC EVA", which registers and records the main and most important parameters during the movement of the locomotive, respectively the train.

The registered time in the electronic unit of the locomotive differs from the real astronomical time by 211 hours. Thus, the registered time of establishment of DFT No. 80694 after the accident at km 11+460 according to the registration of the locomotive was at 10:23:52 a.m. on 07.08.2025, which corresponds to the real astronomical time 05:23 hours on 15.08.2025.

After establishing the train at the accident site, the rear buffers of locomotive No. 91520087023-5 were located at km 12+000, i.e. about 230 meters from the place of derailment of the wagons.

The registering on the speedometer installation of locomotive № 91520087023-5 do not differ from those of the leading locomotive № 91521080032-1 (fig. 4.9). From its departure from Varna freight park station (fig. 4.9, pos. 1) to Kermen station DFT № 80694 stayed in Povelyanovo station (fig. 4.9, pos. 2), in Podvis station (fig. 4.9, pos. 3), in Karnobat station (fig. 4.9, pos. 4) and in Kermen station (fig. 4.9, pos. 5).

Fig. 4.9 Chart of the travelling time of DFT № 80694 from origin station to Kermen station

Fig. 4.10. Chart of the travelling time of DFT № 80694 from Podvis station to the place of the accident

Fig. 4.10 shows the schedule of movement of DFT No. 80694 from Podvis station to the location of locomotive No. 91520087023-5 at km 12+000 after the accident. The stops at Podvis station (Fig. 4.10, pos. 1), at Karnobat station (Fig. 4.10, pos. 2) and at Kermen station (Fig. 4.10, pos. 3) are again

marked. This was done in order to overlap the two schedules and not to lose the connection between them. Further, the train passed without stopping through Konyovo station (Fig. 4.10, pos. 4), Nova Zagora station (Fig. 4.10, pos. 5) and stopped at Radnevo station (Fig. 4.10, pos. 6). The train's movement is described in detail in the analysis of the movement of locomotive No 91521080032-1.

Locomotive № 91520087023-5 established at km 12+000 after the derailment of 13 wagons of the train composition (fig. 4.10, pos. 7).

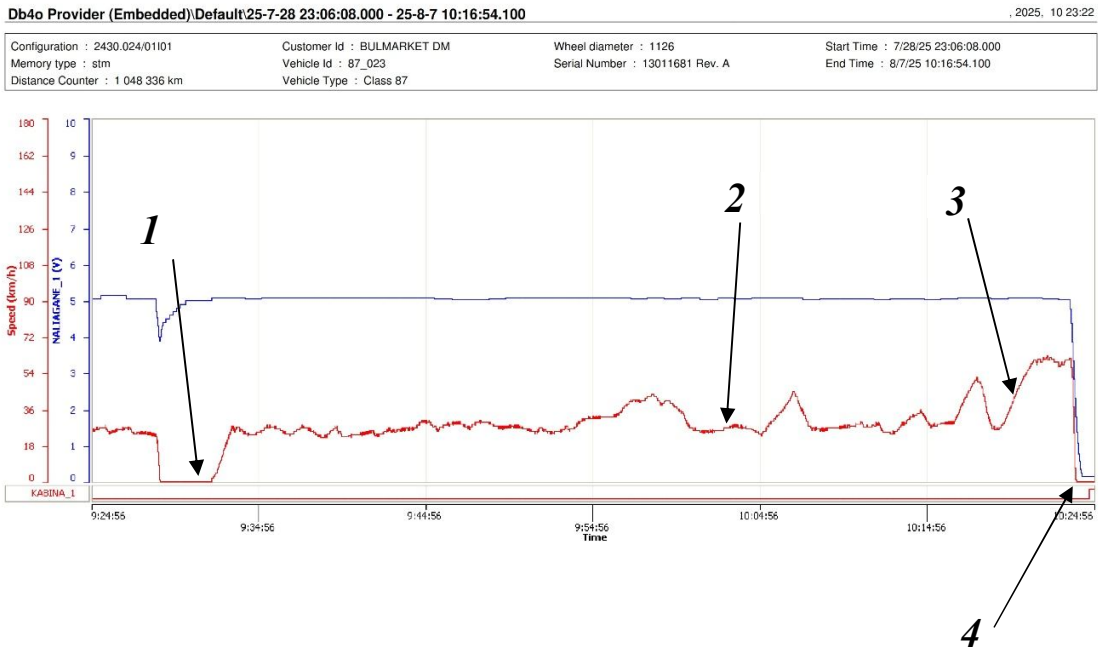


Fig. 4.11 Chart of the travelling time of DFT № 80694 from Radnevo station to the place of the accident

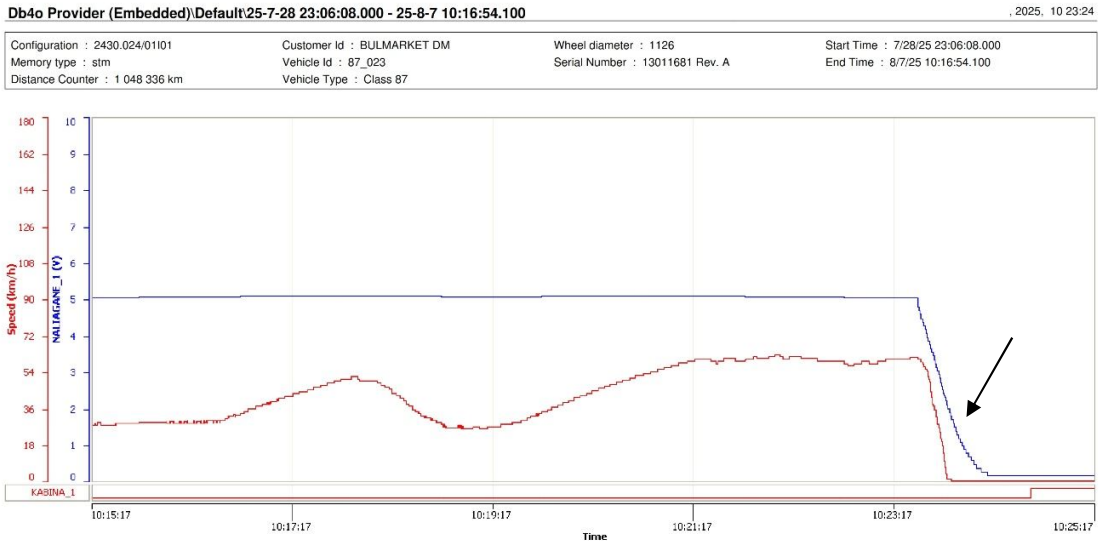


Fig. 4.12. Chart of the travelling time of DFT № 80694 from the origin station to the place of the accident

Fig. 4.11 shows the last stop of DFT No. 80694 at Radnevo station, the change in speed in the Radnevo – Lyubenovo distributing station and Lyubenovo distributing station – Simeonovgrad section to the accident site at km 11+460, with locomotive No. 91520087023-5 located at km 12+000. The

following positions are marked: pos. 1: Radnevo station; pos. 2: Lyubenovo distributing station; pos. 3: Galabovo stop; pos. 4: the location of locomotive No. 91520087023-5 at km 12+000.

On fig. 4.12 is evident that the pressure in the main air duct in locomotive No. 91520087023-5 decreased slower than the decrease in speed, which is clear evidence that the locomotive did not activate the automatic brake.

The movement speed along the interstation Lyubenovo distributing – Simeonovgrad is with low values due to the presence of many reductions up to 25 and 30 km/h, evident from fig. 4.13.

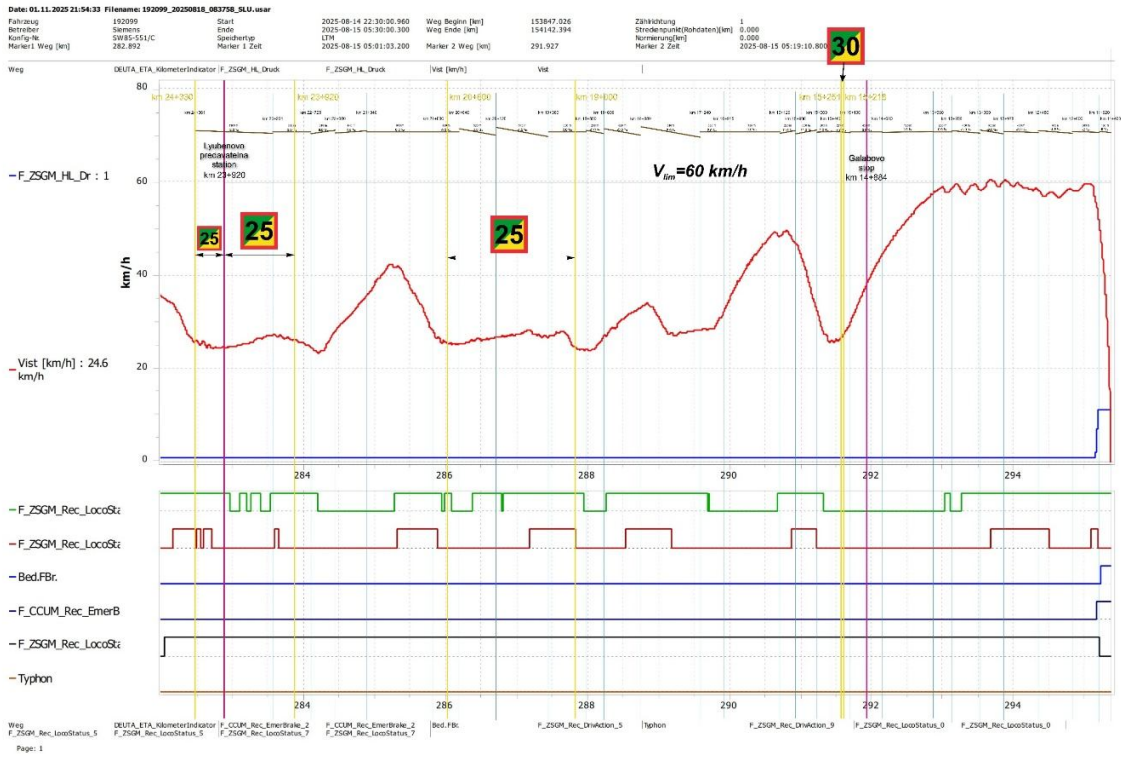


Fig. 4.13.

Analysis of the dragging and pushing locomotive of DFT № 80694

When analysing the movement of the two locomotives, it was found that in certain intervals their instantaneous speeds differ by different values. It cannot be expected that two units of traction rolling stock (in the case the two locomotives located at the beginning and end of the train set), separated by 34 wagons, which are connected by elastic connections to each other, will move continuously at the same speed. The train is not a solid body, but a system consisting of many units complex in structure, elastically connected to each other and interacting with the railway track. During movement, an extremely large number of factors influences them, which is why it is practically impossible to equalize their speeds. The compressive and tensile forces arising between the individual units in the train set are large, but they always exist and are not a prerequisite for throwing any of the wagons off the railway track. The uneven loading should not be commented on, since the train is entirely composed of tank wagons with liquid cargo, which is automatically redistributed equally on all the wheels of the wagons.

4.1.2. Infrastructure manager.

4.1.2.1. Analysis of the technical condition of the rail track along the interstation Simeonovgrad – Lyubenovo distributing.

Within the movement of DFT № 80694 in the transitional curve with length 72 m, at 41 m after its end at km 11+771 in the circular curve of the second wagon of the third wheelset the left wheel stepped on the crown of the left rail in the curve with radius *R=700 м* and superelevation *H=60 mm* (fig. 4.14).

Fig. 4.14 Point of stepping up of the flange of the left wheel on the rail crown

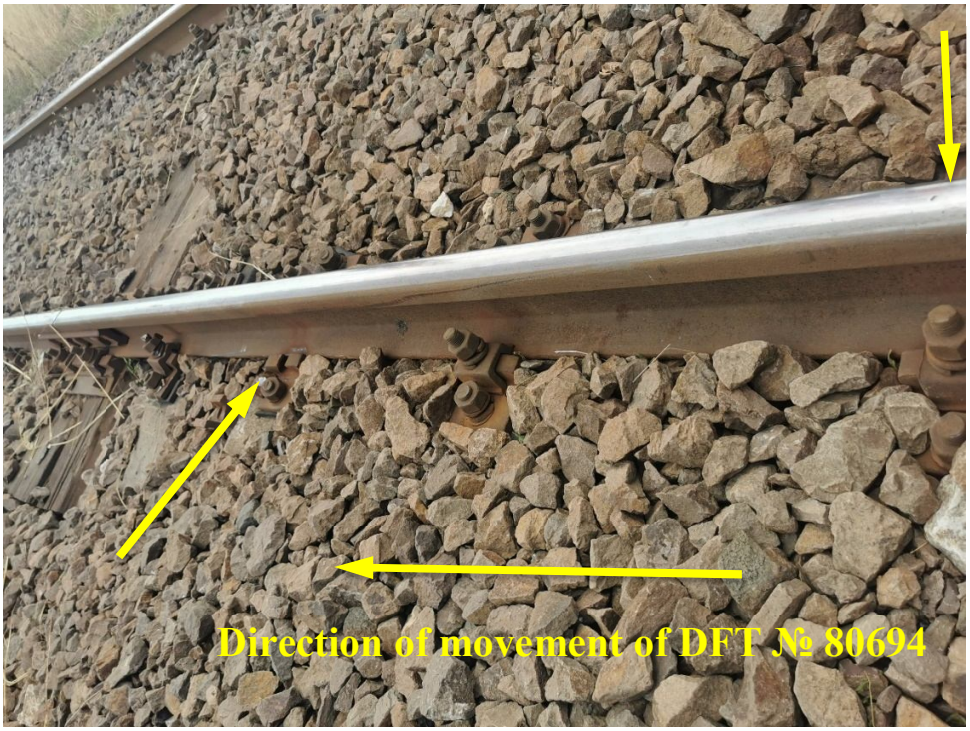


Fig. 4.15 Point of slide of the left wheel from the rail

The flange of the left wheel moved along the head of the rail without leaving a serious mark and after 2.9 m the wheel slided to the left from the outer part of the rail, leaving a visible mark at km 11+768.10 m (Fig. 4.15). The second wheelset of the second bogie of the wagon also derailed.

Due to the large inertial mass of the train and the appearance of centrifugal force in the circular curve of the railway track, the derailed wagon was pushed to the left and took a perpendicular position to the axis of the railway track. The third and fourth wagons derailed and settled next to it, which were subsequently overtaken by the fifth, sixth and seventh wagons, and after them the remaining wagons derailed, reflected in the scheme of the accident. 12 wagons with all wheelset derailed, and the thirteenth wagon derailed with only the first bogie.

The moving of the bogie from the railway track caused the second wagon to be uncoupled from the first wagon to the locomotive, in which the right-hand buffer plate was torn off, and the left buffer was severely deformed.

After the uncoupling of the second wagon from the first wagon, the locomotive settled at km 11+460 and the first derailed wagon at km 11+493.

The free space between the first and fifth derailed wagons was 147 meters. The derailed wagons were scattered on a 2‰ slope downhill in the direction of the train's movement.

The derailed wagons settled on a 2‰ and 4.5‰ slope downhill.

About 100 m of railway track was destroyed, as well as damaged catenary facilities, including a broken pole.

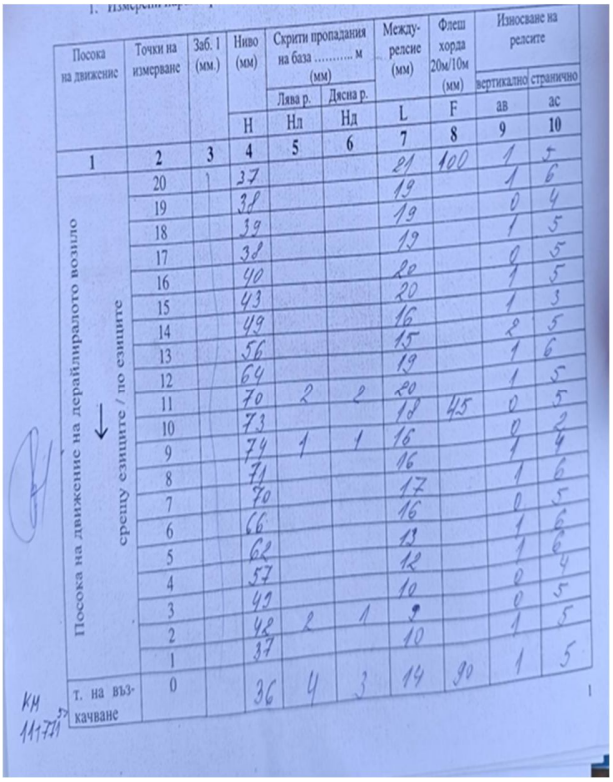
When the second wagon of DFT No. 80694 train derailed with its third wheelset, the pushing locomotive was at about km 12+257.

The end of the train was at about km 12+257 at the time of the derailment of the second wagon.

Measuring of the rail track:

I. On gauge:

From the protocol of the Task Force for the rail track measurement is evident that the maximum gauge is from +20 mm (1455 mm) and is in points 11, 15 and 16. The values correspond to the requirements of the normative documents (fig. 4.16 and 4.17).

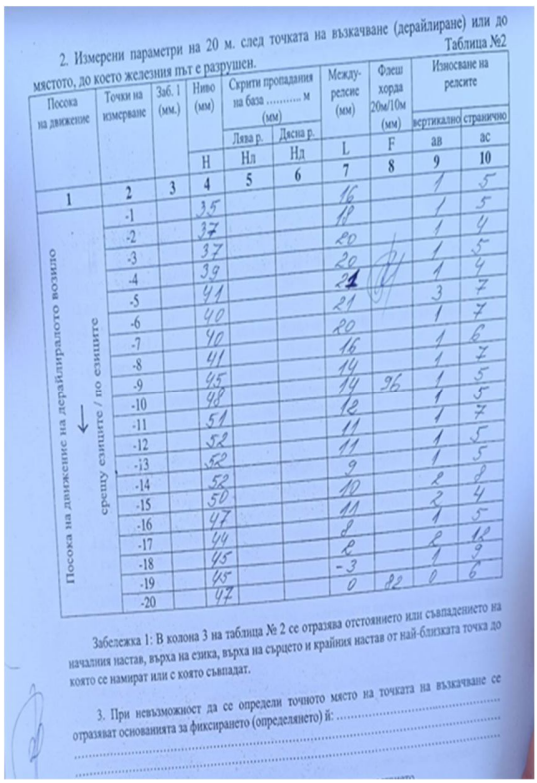


Посока на движение | Точки на измерване | Заб. 1 (мм.) | Ниво (мм) | Скрити пропадания на база ..... м (мм) Лява р. | Дясна р. | Между-релсие (мм) | Флеш хорда 20м/10м (мм) | Износване на релсите вертикално | странично

			H	Нл	Нд	L	F	ав	ас
1	2	3	4	5	6	7	8	9	10
Посока на движение на дерайлиралото возило ↓ срещу езиците / по езиците	20		37			21	100	1	5
	19		38			19		1	6
	18		39			19		0	4
	17		38			19		1	5
	16		40			20		0	5
	15		43			20		1	5
	14		43			16		1	3
	13		56			15		2	5
	12		64			19		1	6
	11		70	2	2	20		1	5
	10		73			18	45	0	5
	9		74	1	1	16		0	2
	8		71			16		1	4
	7		70			17		1	6
	6		66			16		0	5
	5		62			13		1	6
	4		57			12		1	6
	3		49			10		0	4
	2		42	2	1	9		0	5
	1		37			10		1	5
т. на въз-качване	0		36	4	3	14	90	1	5

КН 11+771

Fig. 4.16.



2. Измерени параметри на 20 м. след точката на възкачване (дерайлиране) или до мястото, до което железния път е разрушен. Таблица №2

Посока на движение	Точки на измерване	Заб. 1 (мм.)	Ниво (мм)	Скрити пропадания на база ..... м (мм) Лява р.	Дясна р.	Между-релсие (мм)	Флеш хорда 20м/10м (мм)	Износване на релсите вертикално	странично
			H	Нл	Нд	L	F	ав	ас
1	2	3	4	5	6	7	8	9	10
Посока на движение на дерайлиралото возило ↓ срещу езиците / по езиците	-1		35			16		1	5
	-2		37			18		1	5
	-3		37			20		1	4
	-4		39			20		1	5
	-5		41			21		1	4
	-6		40			21		3	7
	-7		40			20		1	7
	-8		41			16		1	6
	-9		45			14		1	7
	-10		48			14	96	1	5
	-11		51			12		1	5
	-12		52			11		1	7
	-13		52			11		1	5
	-14		52			9		1	5
	-15		50			10		2	8
	-16		47			11		2	4
	-17		44			8		1	5
	-18		45			2		2	12
	-19		45			-3		1	9
	-20		47			0	92	0	6

Забележка 1: В колона 3 на таблица № 2 се отразява отстоянието или съвпадението на началния настав, върха на езика, върха на сърцето и крайния настав от най-близката точка до която се намират или с която съвпадат.

3. При невъзможност да се определи точното място на точката на възкачване се отразяват основанията за фиксирането (определянето) ѝ: .....

Fig. 4.17.

II. On transverse level:

Parameters of the curve:

- BTC1 (under km) = km 11+197;
- ETC1 (under km) = km 11+269;
- L_1 transitional curve with length 72 m;
- ETC_2 (under km) = km 11+812;
- BTC2 (under km) = km 11+884;
- L_2 transitional curve with length 72 m.

Circular curve 11+812 – 11+269 = 543 m;

R = 700 m; H = 60 mm;

Total length of the curve: $\mathbf{543 + 72 + 72 = 687\ m}$

Due to the movement of only freight trains along the section with admissible speed of up to 60 km/h, the superelevation is in the curve is given under the formula:

$$\boldsymbol{H_{teor.} = \frac{11,8.V_{max}^2}{R} = \frac{11,8.60^2}{700} = 60\ mm}$$

Rails type S49, L = 25 m with supported (doubled) wooden sleepers.

Fastening PAK-68 I and reinforced concrete sleepers ST-4.

The derailed second wagon from the train composition with the following parameters:

Total length from buffer to buffer – 12,53 m.

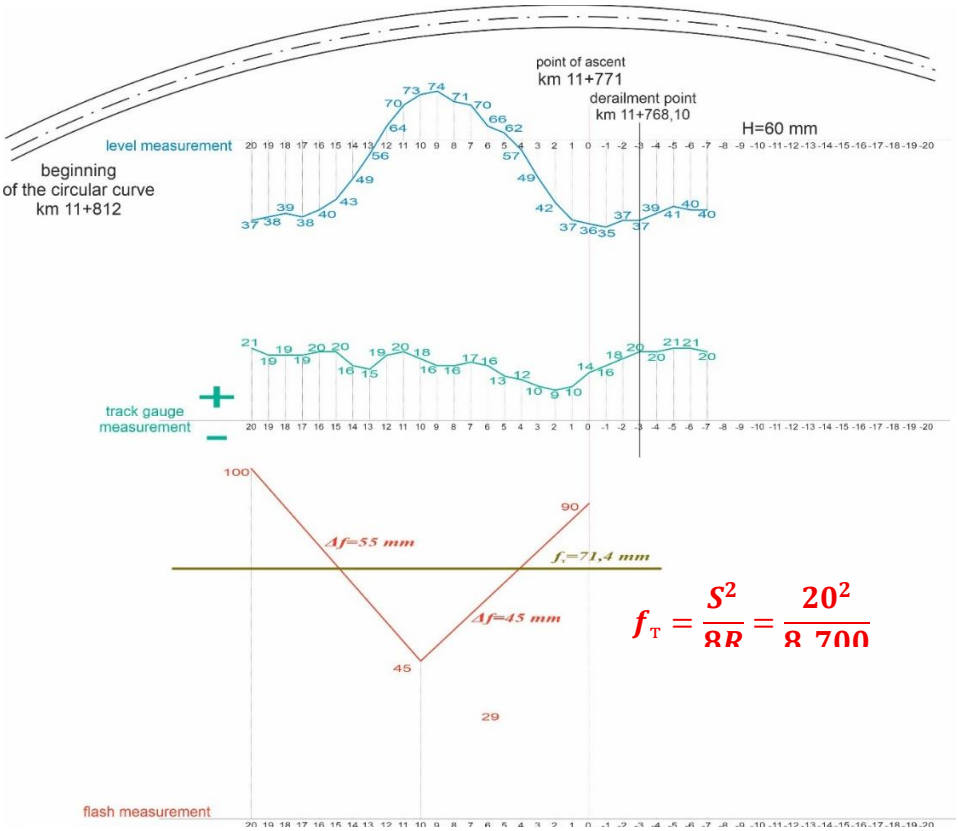
The distance between the central bolts and bogies – 7,12 m (base of the wagon)

Transverse level of the rail track in the points with hidden downgrade is changing as follows:

p.0 → measured 36 mm, becomes 35 mm;

p. 2 → measured 42 mm, becomes 41 mm;

p. 7 → measured 70 mm, remains 70 mm.



$$f_T = \frac{S^2}{8R} = \frac{20^2}{8.700}$$

Fig. 4.18 Chart of amendment of parameters of the rail track: blue – measuring of level; green – measuring of gauge; red – measuring of levelling

Extracts of the transverse level in the circular curve with $\boldsymbol{H = 60\ mm}$ out of the admissible deviations in the superelevations, exceeding the limits for V_{max}≤60 km/h=±15mm, measured in p.p. 0, 1, 2, 16, 17, 18, 19, 20 (fig. 4.18).

p. 0 = 35 mm (corrected level);

p. 7 = 70 mm; difference = 35 mm;

Transition of the rail track (ramp of the superelevation) $\boldsymbol{k = \frac{L}{H} = \frac{7120}{35} = 203 \implies k = 1:203,}$ which is sharper than 1:231 as per table 3.8, pg. 52 of the ,,Instruction for current maintenance of the rail track and switches" and sharper as per the requirements on Appendix №7 to art. 48, par. 6 for threshold inclinations of the rail track, where within base 7 m, k =1:231, of Ordinance № 58, threshold inclination of the rail track transition.

III. Under measured levelling:

The measuring is performed by chord S = 20 m at 10 m.

Theoretic levelling under the formula:

$$\boldsymbol{f_{т} = \frac{S^2}{8R} = \frac{20^2}{8.700} = 71,4\ mm}$$

p.0 = 90 mm

p.10 = 45 mm

p.20 = 100 mm

After the measuring and calculation of the levelling in the circular curve with length L=543 m and radius R=700 m in the area of derailment were found additionally around three radiuses with the following parameters: R=500 m, R=550 m and R=1111m.

The difference between the neighboring levelling in p. 10 and p. 20=100–45=55 mm.

The difference is greater than the threshold limit of 48 mm as per Table 4.11, pg. 110 of ,,Instruction for current maintenance of the rail track in the switches".

After the performed measurements, calculations and analysis it was established a combination of malfunctions under axis and level.

Around the point of stepping up and derailment there was no mudded ballast prism.

From the performed inspection and maesurements of the curve from km 11+197 to 11+884 on 19.08.2025 the following malfunctions were found:

1. In the cited section, a large number of metal braces were inserted, welded to the ribbed pads in order to maintain the track gauge within standards (due to the breakage of the sealing sleeves in the reinforced concrete sleepers) (Fig. 4.19)

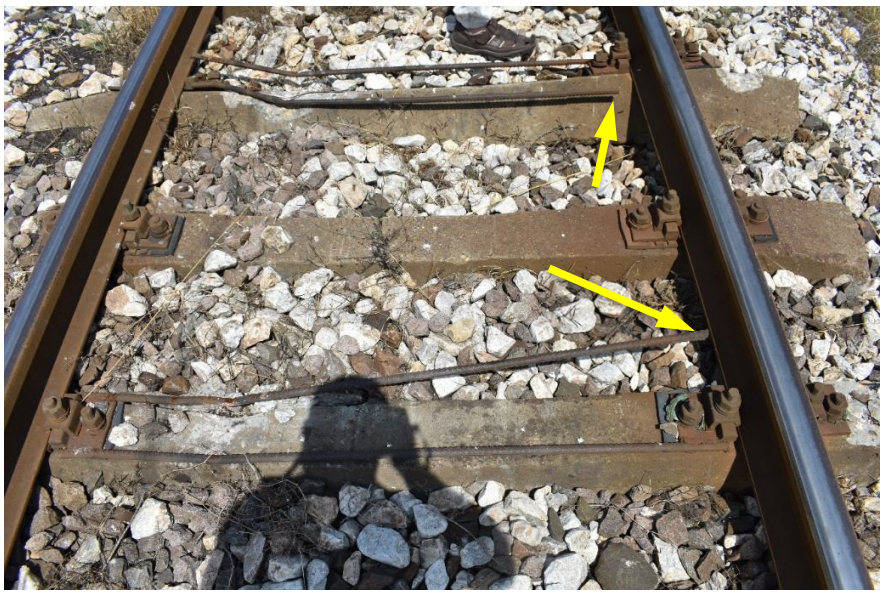


Fig. 4.19.

2. There were established multiple groups of inclinated reinforced concrete sleepers, and due to that

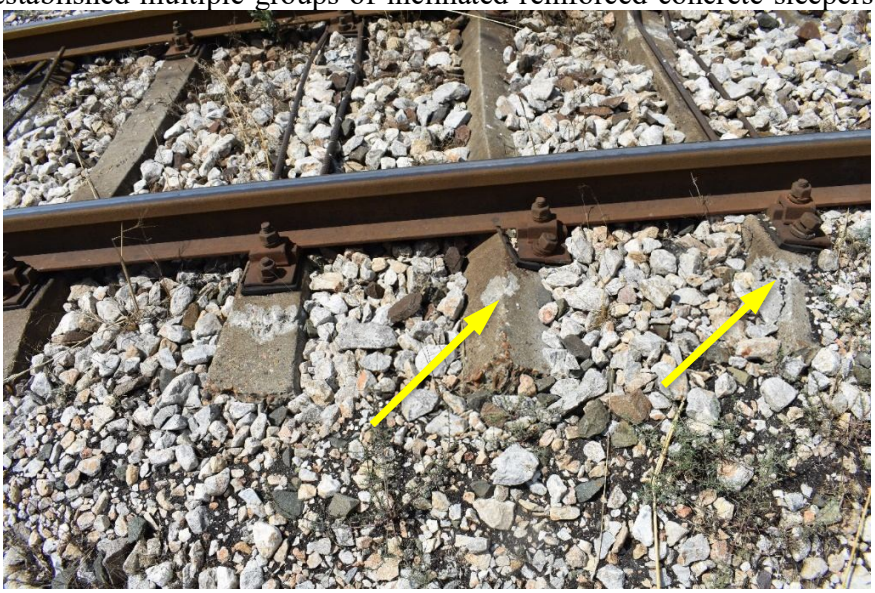


Fig. 4.20.

fact the rails foot were in contact with the concrete of the sleepers, which led to compromising the bolt connecting the metal pad with the sleeper (fig. 4.20).

3. Vertically deformed rail ends in the joints, differences in the levelling and the level of the railway track were found. The same irregularities were also found during the derailment of IDFT No. 46660 in 2024, as well as from the measurement of the railway track by the EM 120 Track Measuring Laboratory of the company "TINSA" EOOD, carried out on 14.11.2023 along the Simeonovgrad - Nova Zagora section. That was why an unsatisfactory assessment was given for the 83rd railway line as a whole for the condition of the railway track in the section (with a normative score of QI=4.1, the actual score from the measurements for the 83rd railway line is QI=3.9 in 2023) (Fig. 4.21).

The combination of irregularities under axis and level before and around the point of stepping up,

Fig. 4.21.

causing horizontal transverse taking over and bouncing in the vertical plane of RRS caused the derailment of the wagons.

The railway track in the above-mentioned section is a fifth category class “C” for a speed of up to 60 km/h, with detected malfunctions. This requires measures to eliminate the malfunctions or re-categorization with an allowable speed of up to 40 km/h.

The Investigation Commission found low control on the part of the management and executive staff, who did not eliminate the registered malfunctions, after the measurement of the railway track with the EM-120 Track Measuring Laboratory in 2023 and the subsequent manual measurements.

4.1.2.2. Analysis of the causes for the fire occurrence in the derailed wagons.

Upon entering DFT No. 80694 around km 11+600, the derailed 13 wagons of the train composition struck and broke a pole of the catenary. Because of the breakage, the contact wire sagged and fell onto the rolling stock, grounded the substation of the catenary and caused an electric arc. The resulting arc caused the ignition of the diesel fuel, which leaked from the derailed and punctured tanks of the tank wagons. At that moment, the locomotive crew of locomotive No. 91521080032-1, at the head of the train, saw strong lighting around in front of them (caused by the electric arc). When the diesel fuel ignited, was formed a high and strong flame, which also burned the wires passing over the catenary of a 20 kV transmission line, supplying electricity to the population in the area.

4.1.3. Entities in charge of the technical maintenance.

Infrastructure manager

SE NRIC possesses a Certificate № BG/31/0023/0001 for an Entity in charge of maintenance with a validity period from 22.03.2023 to 21.03.2028 and a scope of activities – freight wagons, passenger coaches and RSSPM;

Railway undertaking

„Bulmarket Rail Cargo“ EOOD possesses a Certificate № BG/31/0025/0002 with a validity period from 03.08.2025 to 02.08.2030 for an Entity in charge of maintenance of diesel and electrical locomotives, freight wagons and specialized wagons for the transport of dangerous goods;

4.1.4. Manufacturers or providers of rolling stock and railway products.

Non-applicable.

4.1.5. National Safety Authority.

Railway Administration Executive Agency is the National Regulatory Body on Safety in the Republic of Bulgaria.

4.1.6. Notified bodies or Risk assessment bodies.

"TINSA" EOOD owns Permit No. 002-2 for performing activities to evaluate activities of a subsystem or a part of a subsystem with the requirements of the national safety rules or with the technical rules, valid from 15.07.2021.

Scope of the Permit

Subsystems:

- Energy;
- Infrastructure;
- Control, command and signalling;
- Rolling stock - freight wagons;
- Rolling stock - locomotives and passenger rolling stock.

"TINSA" EOOD has a Certificate No. BG/36/0021/0001 for assessment body for performing an independent assessment of the implementation of the risk management procedure and its results, valid from 02.05.2023 to 02.04.2026.

Scope of evaluation activities

Structural areas of the railway system:

- Infrastructure;
- Energy;
- Control, command and signalling on railway lines;
- On-board control, command and signalling;
- Rail Rolling stock.

Functional areas of the railway system:

- Traffic operation and management;
- Maintenance;
- Telematic applications for freight and passengers.

Assessing the overall coherence of risk management:

- The organization;
- The methodology;
- Technical aspects necessary to assess the compliance and completeness of the risk assessments and the safety level of the system.

4.1.7. Certifying bodies of the entities in charge of the technical maintenance.

The Railway Administration Executive Agency as the National Safety Authority for railway transport performs certification of the entities in charge of the vehicles maintenance (ECM) in accordance with Directive 2004/49/EC and Regulation (EU) 445/2011, as per Ordinance No 59 on the railway transport safety management, and on the maintenance functions in accordance with Directive 2004/49/EC and Regulation (EU) 445/2011.

From June 16, 2020 the RAEA performs certification of the ECM as per the Commission Implementing Regulation (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011.

4.1.8. Persons or entities involved in the event, documented or not in the respective safety management systems or indicated in register.

Railway infrastructure

● SE NRIC implements Safety Procedure SP 2.09 "Methodology for determining, assessing and managing of the risk" version 06 effective from 01.09.2021, part of the SMS.

● SE NRIC maintains a register of railway infrastructure (RINF) of Bulgaria, which data is provided to the European Railway Agency, as per the requirements of Implementing Regulation No. 2023/1694 on TSIs and RINF, which amends and supplements Regulation No. 2019/777 on RINF.

Railway undertaking

"Bulmarket Rail Cargo" EOOD is a licensed railway undertaking under Art. 37, para. 7 of the Railway Transport Act, which holds a Single Safety Certificate. The National Safety Authority audits annually the company in accordance with the DELEGATED REGULATION (EU) 2018/761 of the Commission of 16 February 2018 laying down common safety methods for supervision by national safety authorities following the issuance of a single safety certificate or a safety authorisation in accordance with Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 1077/2012.

The railway undertaking applies a Safety Management System. In order to comply with the regulatory requirements that are part of the SMS, "Bulmarket Rail Cargo" EOOD complies with the requirements of Art. 180a, para. 1 of Ordinance No. 58 of 2.08.2006, namely on the national railway infrastructure to operate railway vehicles (vehicles) that have a European Vehicle Number (EVN), have a certain ECM, and are entered in the National Register of Vehicles under Art. 61 of Ordinance No. 57 or in the National Register of Vehicles of another Member State of the European Union, or are registered under an international treaty to which the Republic of Bulgaria is a party. The composition of DFT No. 80694 consists of vehicles meeting the requirements of Ordinance No. 58.

The locomotives and wagons included in the composition of DFT No. 80694 are within the maintenance cycle, both in time and in kilometres, as required by (section 4.2.2.5.2. "Train composition") of Implementing Regulation (EU) 2019/773 on the technical specification for interoperability relating to the "Operation and Traffic Management" subsystem of the European Union rail system.

4.2. Rolling stock and technical facilities.

4.2.1. Factors, deriving from the design of the rolling stock, railway infrastructure or technical facilities.

Non-applicable.

4.2.2. Factors deriving from the installation and placing into service of the rolling stock, railway infrastructure and technical facilities.

Non-applicable.

4.2.3. Factors deriving from manufacturers or another provider of railway products.

Non-applicable.

4.2.4. Factors, deriving from the technical maintenance and/or modification of the rolling stock or the technical structures.

Non-applicable.

4.2.5. Factors due to the entity in charge of the technical maintenance, workshops for technical maintenance and other technical maintenance service providers.

Non-applicable.

4.2.6. Other factors or consequences considered as involved within the investigation objectives.
Non-applicable.

4.3. Human factor

4.3.1. Individual human characteristics.

4.3.1.1. Training and development, including skills and experience.

Railway undertaking:

● Locomotive driver, first person of locomotive No. 91521080032-1:

- Diploma No. 000511, with acquired qualification "Railway equipment electrical locomotives", training conducted in the period 1990 ÷ 1993, training institution VVTU "Todor Kableshkov" - Sofia;
- Certificate for driving a locomotive BG 71 2016 0309 issued by the RAEA;
- Certificate No. 199 for holding the position "Driver, locomotive instructor" in "Bulmarket Rail Cargo" EOOD from 01.11.2021
- Additional certificate issued by "Bulmarket Rail Cargo" EOOD for rolling stock for which the driver is allowed to drive - series 43.000, 44.000 and 45.000 from 14.08.1993, and series 85.000, 86.000 and 87.000 from 28.05.2018, valid from 03.11.2016 to 03.11.2025 on the national railway infrastructure of the Republic of Bulgaria and at the border crossings of Kapikule and Dimitrovgrad (ZS).

● Locomotive driver, second person of locomotive No. 91521080032-1:

- Certificate of competence No. 24457, with acquired competency for "Locomotive driver", training conducted in the period 01.08. ÷ 21.10.2022, training institution, "Regina Training Centre" - Ruse, issued by the RAEA;
- Locomotive driving certificate BG 71 2024 0027 issued by the RAEA;
- Certificate No. 265 for holding the position of "Driver, locomotive" in "Bulmarket Rail Cargo" EOOD from 03.11.2022;
- Additional certificate issued by "Bulmarket Rail Cargo" EOOD for rolling stock for which the driver is allowed to drive - series E 85.000, 86.000 and 87.000 from 28.10.2022, valid from 22.03.2022 to 22.03.2033 on the national railway infrastructure of the Republic of Bulgaria and at the border crossings of Kapikule and Dimitrovgrad (ZS).

● Locomotive driver of locomotive No. 91520087023-5:

- Diploma No. 22909, with acquired qualification "Railway equipment diesel locomotives", training conducted in the period 1985 ÷ 1988, training institution VNVTU "Todor Kableshkov" - Sofia;
- Certificate of competence No. 170, with acquired qualification "Locomotive driver of electric locomotives", training conducted in the period 10.04. ÷ 10.09.1992, training institution BDZ Company, issued by BDZ Company;
- Certificate for driving a locomotive BG 71 2022 0033 issued by the RAEA;
- Certificate No. 253 for holding the position of "Locomotive Driver" at "Bulmarket Rail Cargo" EOOD from 01.12.2021;
- Additional certificate issued by "Bulmarket Rail Cargo" EOOD for rolling stock for which the driver is permitted to drive - series E 43.000, 44.000 and 45.000 from 10.09.1992, and series E 85.000, 86.000 and 87.000 from 16.09.2020, valid from 10.05.2022 to 10.05.2031 on the national railway infrastructure of the Republic of Bulgaria and at the border crossings of Kapikule and Dimitrovgrad (ZS).

Railway infrastructure:

● Head of the Stara Zagora Railway Region;

Certificate of Competence No. 23730, acquired qualification "Construction Technician in Repair and Maintenance of Railway Lines and Facilities", training conducted in the period 10.05. ÷ 05.10. 2021, training institution QPC at NRIC, issued by the RAEA;

Diploma No. 064993, acquired in the specialty "Technology and Transport Management", training conducted in the period 2024 ÷ 2025, training institution University of Ruse "Angel Kanchev", issued by the training institution University of Ruse "Angel Kanchev";

- Certificate No. 2131 for holding the position of "Head of the Railway Region" in the Railway Section - Plovdiv from 27.10.2021;

● Controller, railway track and facilities;

- Diploma No. 000080, acquired in the specialty "Civil Engineer", training conducted in the period 1986 ÷ 1991, training institution training institution VNVTU "Todor Kableshkov" - Sofia, issued by training institution VNVTU "Todor Kableshkov" - Sofia;

- Certificate No. 52 for holding the position of "Railway Controller" in the Railway Section - Plovdiv from 31.08.2015

● Head, Railways Section/Unified;

- Diploma No. 002135, acquired in the specialty "Track Builder", training conducted in the period 1995 ÷ 1998, training institution Secondary Sergeant Railway School Gorna Oryahovitsa, issued by the training institution Secondary Sergeant Railway School Gorna Oryahovitsa;

- Certificate of professional qualification No. 051911, acquired legal capacity "Team Leader", training conducted in the period 28.11.2005 ÷ 16.05.2006, training institution QPC NRIC, issued by;

- Certificate No. 2405 for holding the position of "Head of the Railway Section" at the Railway Section - Plovdiv from 02.09.2024;

● TGM railway section Dimitrovgrad;

- Certificate of competence No. 24988, acquired qualification "Construction technician for repair and maintenance of railway lines and facilities", training conducted in the period 03.10.2022 ÷ 01.03.2023, training institution QPC at NRIC, issued by the RAEA;

- Certificate No. 2308 for holding the position of "Technical Group Manager for Railways" in Railway Section - Plovdiv from 22.03.2023.

● Railway station attendant at the Dimitrovgrad railway section;

- Certificate of competence No. 18616, acquired "Railway Station Attendant", training conducted in the period 18.07. ÷ 05.08.2016, training institution QPC at NRIC, issued by the RAEA";

- Certificate No. 2312 for holding the position of "Walkman, railway line" in the Railway Section - Plovdiv from 02.05.2023

● Duty traffic controller at Lyubenovo station, shift handover;

- Certificate of competence No. 26069, acquired "Head of traffic", training conducted in the period 13.11.2023 ÷ 28.05.2024, training institution QPC at NRIC, issued by the RAEA;

- Certificate No. 3273 for holding the position of "Head of traffic" in the TOSAMD- Plovdiv from 10.07.2024

4.3.1.2. Medical and personal circumstances, which influence the event, including the presence of physical and psychological stress.

Railway undertaking:

● Locomotive driver, first person of locomotive No. 91521080032-1:

- Single health information file No.995 dated 16.04.2025, issued by the National Multidisciplinary Transport Hospital - Sofia.

Conclusion: fit for a driver, locomotive instructor.

- Psychological certificate No. 1138/06.11.2023, issued by the Psychological Laboratory at the National Multidisciplinary Transport Hospital Sofia for a driver, locomotive instructor.

Conclusion: admitted for a period of 3 years until 06.11.2026.

● Locomotive driver, second person of locomotive No. 91521080032-1:

Medical card dated 24.03.2025, issued by TDKC - EOOD, Burgas.

Conclusion: fit for a driver, locomotive.

- Psychological certificate No. 971/15.07.2024, issued by the Psychological Laboratory at the Multidisciplinary Transport Hospital - Plovdiv for a locomotive driver.

Conclusion: admitted for a period of 5 years until 15.07.2029.

● Locomotive driver of locomotive No. 91520087023-5:

Single health information file No. 2647 of 25.08.2025, issued by the National Multidisciplinary Transport Hospital Sofia for a driver, locomotive instructor.

Conclusion: fit for a locomotive driver.

- Psychological certificate No. 218/19.02.2024, issued by the Psychological Laboratory at the National Multidisciplinary Transport Hospital Sofia for a locomotive driver.

Conclusion: admitted for a period of 3 years until 19.02.2027.

Railway infrastructure:

● Head of the RS region Stara Zagora;

Preliminary medical examination card dated 01.04.2024, issued by the Plovdiv Multidisciplinary Transport Hospital.

Conclusion – fit for the RS region head.

● Controller, railway track and facilities;

Preliminary medical examination card dated 18.09.2023, issued by the Plovdiv Multidisciplinary Transport Hospital.

Conclusion – fit for Controller, railway track and facilities.

• Head, RS section/united;

Preliminary medical examination card dated 10.09.2024, issued by AIPPM Dr. Krasimir Petrov Tanchev Haskovo.

Conclusion – fit for the RS head.

● TGM railway section Dimitrovgrad;

Preliminary medical examination card dated 10.09.2024, issued by the Plovdiv Multidisciplinary Transport Hospital.

Conclusion – fit for "Technician, Head of the Railway Transport Group".

● Stationmaster at the Dimitrovgrad railway section;

Preliminary medical examination card dated 23.04.2025, issued by the Plovdiv Multidisciplinary Transport Hospital.

● Duty traffic controller at the Lyubenovo station, shift handover;

Single health information file dated 04.06.2025, issued by the Plovdiv Multidisciplinary Transport Hospital.

Conclusion – fit for traffic controller.

- Psychological certificate No. 787/24.06.2025, issued by the Psychological Laboratory at the Plovdiv Multidisciplinary Transport Hospital for traffic controller.

Conclusion: admitted for a period of 5 years, valid until 24.06.2030.

4.3.1.3.Fatigue.

Railway undertaking:

● Locomotive driver first person of locomotive No. 91521080032-1:
Break: from 14.08.2025 hour 08 minutes 00 to 14.08.2025 hour 21 minutes 30
Started work: 14.08.2025 hour 21 minutes 30 – (13 hours and 30 minutes)

● Locomotive driver second person of locomotive No. 91521080032-1:
Break: from 13.08.2025 hour 01 minutes 00 to 14.08.2025 hour 21 minutes 30
Started work: 14.08.2025 hour 21 minutes 30 – (20 hours and 30 minutes)

● Locomotive driver of locomotive No. 91520087023-5:
Break: from 08.08.2025 at 22:00 to 14.08.2025 at 21:30
Started work: 14.08.2025 at 21:30 – (143 hours and 30 minutes)

Railway infrastructure:

• Head of the Stara Zagora Railway Station District;
Break from 14.08.2025 hour 16 minutes 45 until 15.08.2025 hour 08 minutes 00
Started work: 15.08.2025 hour 08 minutes 00 – (15 hours and 15 min.)

● Controller, railway track and facilities;
Break: from 14.08.2025 hour 16 minutes 45 until 15.08.2025 hour 08 minutes 00
Started work: 15.08.2025 hour 08 minutes 00 – (15 h. and 15 min.)

● Head of the Dimitrovgrad Railway Section/Unified District;
Break: from 14.08.2025 hour 16 minutes 45 until 15.08.2025 hour 08 minutes 00
Started work: 15.08.2025 hour 08 minutes 00 – (15 h. and 15 min.)

● TGM railway section Dimitrovgrad;
Break: from 14.08.2025 hour 16 minutes 45 until 15.08.2025 hour 08 minutes 00
Started work: 15.08.2025 hour 08 minutes 00 – (15 h. and 15 min.)

● Trackwalker along the railway section Dimitrovgrad;
Break: from 14.08.2025 hour 18 minutes 00 until 15.08.2025 hour 09 minutes 00
Started work: 15.08.2025 hour 09 minutes 00 – (15 h. and 00 min.)

● Traffic Manager on duty in Lyubenovo distributing station on-shift;
Break: from 12.08.2025 hour 19 minutes 00 until 14.08.2025 hour 19 minutes 00
Started work: 14.08.2025 hour and 19 minutes 00 – (48 h. and 00 min.)

4.3.1.4.Motivation and attitudes
Non-applicable

4.3.2. Work related factors:

4.3.2.1.Tasks planning.
Railway infrastructure:

● SE NRIC – railway infrastructure manager, carries out maintenance, repair and operation of the railway infrastructure. Prepares a year-round schedule for the movement of all categories of trains on the main and secondary railway lines in the Republic of Bulgaria. Prepares schedules and timetables of additionally requested trains and vehicles proposed by the railway undertakings for movement on the railway network. Carries out current maintenance of the railway infrastructure and facilities.

The railway infrastructure manager is a certified structure by the National Safety Regulatory Authority as a structure responsible for the maintenance of freight wagons (property of the infrastructure manager).

In accordance with the issued Certificate for the Entity in charge of maintenance, carries out activities for the maintenance of freight and passenger wagons, RSPSM (property of the infrastructure manager);

Railway undertaking:

● "Bulmarket Rail Cargo" EOOD carries out rail freight transport according to the Train Composition Plan, according to the Train Movement Schedule and according to additionally requested and assigned trains with a request from the enterprise to the railway infrastructure manager.

The National Safety Regulatory Authority as a structure certifies the railway enterprise responsible for the maintenance of locomotives and freight wagons.

According to the issued Certificate of ECM, they carry out maintenance activities on diesel and electric locomotives, freight wagons and wagons specialized for the transport of dangerous goods.

4.3.2.2.Constructive particularities of the facilities that influence the connection human-machine.
Non-applicable.

4.3.2.3.Communication means.

Communication links at the stations and the Lyubenovo Distributing and Simeonovgrad interstation, as well as with the relevant switch posts at the stations, with the adjacent stations and with the train dispatcher of the section are carried out with DCCM 8. The stations are equipped with train dispatching radio communication (TDRC).

The shift traffic manager on duty at the Lyubenovo Distributing and Simeonovgrad stations is provided with service mobile phones.

The locomotive crews of locomotives No. 91521080032-1 and No. 91520087023-5 are provided with service mobile phones.

The control cabins of the two locomotives are equipped with radio stations for train dispatching radio communication (TDRC) and GSM R.

4.3.2.4.Practices and processes.

Non-applicable.

4.3.2.5.Operation rules, local instructions, staff requirements, prescriptions for technical maintenance and applicable standards.

Infrastructure manager

● SE NRIC applies national and departmental regulations part of the SMS, relevant to the activities of the railway infrastructure manager:

- Working procedure WP 5.01-08 Rules for interaction between the operational services of SE NRIC and railway undertakings in the daily planning and management of trains on the railway infrastructure of SE NRIC;
- Working procedure WP 5.01-07 Instructions for work of switchman/posts at the operational points of SE NRIC;
- Working procedure WP 5.01-04 Instructions for work of the traffic manager on duty at the operational points of SE NRIC;
- Instruction VND – 1 for interruption and restoration of the operation of railway infrastructure sites managed by SE NRIC, when carrying out reconstructions, modernizations, renewals, rehabilitations and repairs;
- Instruction VND-130 for the movement of trains during reconstruction, modernization, renovation (renewal), rehabilitation and replacement (repair) within the framework of maintenance at railway infrastructure sites managed by the SE NRIC.
- Safety Procedure PB 4.07. Instruction for the arrangement and maintenance of the superstructure of the railway track and railway switches;
- Rules for current maintenance of the railway track;
- Rules for the maintenance and repair of the rail elements of railway switches

Railway undertaking

"Bulmarket Rail Cargo" EOOD applies national and departmental regulatory acts part of the SMS, relevant to the activities of the railway enterprise:

- Safety Procedure PB-47, Version 1, issued on 27.02.2015. Procedure for exchanging information with the railway infrastructure manager, railway undertakings and enterprises performing maintenance of railway vehicles;
- Instruction for maintenance of electric and diesel locomotives, Version 2, issued on 04.01.2024;
- Safety Procedure PB-43, Version 1, issued on 25.02.2015. Instruction for work of a mechanic technician, wagon inspector;
- Instruction for conducting pre-trip /pre-shift/ medical examinations, as well as the procedure and method for establishing the use of alcohol or other intoxicating substances by operating personnel, Version 2, issued on 02.05.2024;
- Safety Procedure PB-07, Version 1, issued on 04.02.2015. Locomotive Drivers Operating Instructions;

4.3.2.6.Working time of the involved personnel.

Infrastructure manager

The participating staff of SE NRIC in accordance with the requirements of the provisions of Ordinance No. 50 of 28.12.2001 and the Labour Code, engaged in ensuring the movement of passengers and freight in railway transport, works on a 12-hour shift of summed working hours. The staff engaged

in the repair and maintenance of the railway track works full-time, 8-hour working days, 40-hour working weeks;

Railway undertaking

The participating personnel of "Bulmarket Rail Cargo" EOOD, in accordance with the requirements of the provisions of Ordinance No. 50 of 28.12.2001 and the Labour Code, engaged in the transport of freights in the rail transport, work on a 12-hour shift, for which a summed calculation of working hours is applied.

4.3.2.7.Risk treatment practices.

Railway infrastructure

● SE NRIC applies the following standards:

- Safety Procedure PB 2.09 "Methodology for determining, assessing and managing risk" version 06 in force from 01.09.2021, part of the SMS;
- Implements a Program for conducting a risk assessment for the health and safety of workers and employees in force from 09.09.2024, part of the SMS;
- Implements a Methodology for quantitative risk assessment in force from 02.09.2024, part of the SMS;
- Implements Instructions, Rules and Orders in relation to assigned work to employees in the operating divisions, as well as work performed by External Contractors under specific circumstances and hazards, consistent with the specific requirements for repair and maintenance of the railway infrastructure, part of the SMS.

Railway undertaking

●„Bulmarket Rail Cargo" EOOD, applies the following standards:

- Safety Procedure PB-48 Methodology for risk analysis and assessment, Version 1, issued on 15.01.2020, which includes:
- Interface management;
- Hazard identification;
- Code of practice and risk assessment;
- Reference system for risk assessment;
- Hazard management procedures;
- Assessment bodies;
- Definitions listed in the risk assessment methodology

risk assessment.

4.3.2.8.Context, machinery, equipment and indications for shaping the working practices

Non-applicable.

4.3.3. Organizational factors and tasks:

4.3.3.1.Planning of the working force and the working load.

In both entities, SE NRIC and "Bulmarket Rail Cargo" EOOD, in accordance with the requirements of the European and national regulations, have established methodologies and working models of good European practices in accordance with professional experience. The work is planned and relevant in accordance with the prescribed rules, instructions and orders, which are part of the SMS for the personnel responsible for the safety and operation in railway transport.

4.3.3.2.Communications, information and teamwork.

Non-applicable.

4.3.3.3.Recruitment, staffing requirements, resources.

Railway infrastructure

● In SE NRIC the recruitment is performed through an approved "Strategy for Human Resources Management 2021÷2025".

In the SE NRIC, the selection of personnel is carried out according to the established "Rules for recruitment, selection and appointment of personnel in the central administration of the SE NRIC" in force from 01.12.2020.

The recruitment, selection and appointment of personnel is carried out by the "Human Resources Management" department, which is responsible for:

- Recruitment;
- Maintaining a database of the personnel;
- Creation of a system of selection techniques for recruitment;
- Carrying out the selection together with the head of the unit;
- Documenting the process and communicating with staff;
- Appointment.

Railway undertaking

● In "Bulmarket Rail Cargo" EOOD, personnel selection is carried out according to Procedure PB-33 for personnel recruitment and selection, Version 1, issued on 03.02.2025, which includes:

- Identification of personnel needs;
- Development of a job description;
- Methods for recruiting candidates;
- Preliminary selection of personnel;
- Conducting an interview;
- Evaluation and selection of a candidate;
- Job offer.

4.3.3.4. Compensation (remuneration).

Railway infrastructure

• SE NRIC has approved "Internal rules for wages" in force from 01.09.2024, which regulate issues related to the work wages and other additional remunerations of the company's personnel:

- General provisions for the organization of the salary in the entity;
- Determining and distributing the funds for wages - sources, order and way of forming the remuneration;
- Determination and amendment of the work wages and additional remuneration;
- Regulation, order and method of payment of wages.

Railway undertaking

● "Bulmarket Rail Cargo" EOOD applies "Internal Salary Rules" in force from 01.06.2025, which regulate issues related to the salary of the personnel in the enterprise:

- General provisions;
- Formation of salary funds;
- Determination and amendment of basic monthly salaries;
- Additional remuneration;
- Calculation of gross monthly salaries;
- Procedure and method of payment of salaries;

In "Bulmarket Rail Cargo" EOOD on 01.06.2025, Rules for determining additional remuneration for achieved results were approved, which include the personnel entitled to additional remuneration. The personnel participating in the operation are on a permanent basic employment contract. The remuneration is formed according to the employment contracts for each position.

4.3.3.5. Implementation management and supervision.

Railway infrastructure

SE National Railway Infrastructure Company

• Bureau Veritas Certification Holding SAS – UK Branch certifies that the management system of the above-mentioned organization has been assessed and its compliance with the requirements of the ISO 9001:2015 management standard has been established with initial certification on 12-03-2009, the certificate is valid until 11-03-2027.

Scope of certification – Management of the processes for providing railway infrastructure to licensed undertakings, management and control activities for the development, repair, maintenance and operation of railway infrastructure, collection of infrastructure charges, development of train schedules, management of train work on railway infrastructure, preparation, maintenance and storage of a register for land and railway infrastructure sites, implementation of investment policy in the development and modernization, maintenance, and repair of the railway infrastructure.

• In the period 20.02.2025, an audit was carried out in the SE "National Railway Infrastructure Company" by an independent assessor "Bureau Veritas Bulgaria" EOOD, which certified that the management system in the railway entity was assessed and is in compliance with the requirements of the Quality Management System standard in accordance with the requirements of ISO 9001:2015 was established. The certificate was reissued on 11.03.2025, valid until 11.03.2028.

Railway undertaking

„Bulmarket Rail Cargo" EOOD

● DNV GL Det Norsk Veritas - Hovik Norway issued a Management System Certificate, certification start date 08.01.2021, updated on 08.01.2024, confirming that the management system of "Bulmarket Rail Cargo" EOOD complies with the standard for environmental management systems ISO 14001:2015Y. This certificate covers the scope of activity: Operation of railway vehicles. Management and implementation of railway freight transport. The certificate is valid until 07-01-2027.

● DNV GL Det Norsk Veritas - Hovik Norway issued a Management System Certificate, certification start date 14.01.2021, updated on 17.01.2024, confirming that the management system of "Bulmarket Rail Cargo" EOOD complies with the labor health and safety standard ISO 45001:2018. This certificate covers the scope of activity: Operation of railway vehicles. Management and implementation of railway freight transport. The certificate is valid until 14-01-2027.

● DNV GL Det Norsk Veritas - Hovik Norway issued a Management System Certificate, certification start date 07.03.2016, updated on 08.07.2025, confirming that the management system of "Bulmarket Rail Cargo" EOOD complies with the quality management system standard ISO 9001:2015. This certificate covers the scope of activity: Operation of railway vehicles. Management and implementation of railway freight transport. The certificate is valid until 07-03-2028.

4.3.3.6. Leadership, powers related issues.

Non-applicable.

4.3.3.7. Organizational culture.

Non-applicable.

4.3.3.8. Legal issues (including the respective European and national rules and provisions)..

Non-applicable.

4.3.4. Regulatory framework conditions and safety management system application.

Railway infrastructure

- Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety;
- Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010;
- COMMISSION IMPLEMENTING REGULATION (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011;
- COMMISSION IMPLEMENTING REGULATION (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009;

- Railway Transport Act;
- ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management.

Railway undertaking

- Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety;
- Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010;
- COMMISSION IMPLEMENTING REGULATION (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011;
- COMMISSION IMPLEMENTING REGULATION (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009;
- Railway Transport Act;
- ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management

4.3.5. Environmental factors.

In connection with the requirements of Art. 4. para. 1, item 3 of the Law on the Responsibility for the Prevention and Remediation of Environmental Damage (LRPRED), RIEW Haskovo has taken the necessary actions. The environmental damage to the soil has been determined, which created a significant risk to human health because of the pollution, through direct introduction of substances (diesel fuel) into the soil.

According to Art. 3, item 1 of LRPRED, it applies in cases of caused environmental damage, as a result of carrying out activities for the transport of dangerous goods within the meaning of the RID Regulations for the transport of dangerous goods.

RIEW Haskovo has issued instructions to the SE NRIC and "Bulmarket Rail Cargo" EOOD to clean the area of the accident from residual elements of the railway infrastructure and derailed wagons.

RIEW Haskovo has carried out several soil samples to establish the boundaries of the affected territory and the depth of the spill of about 719,961 litres of diesel fuel. Initially, on 21.08.2025, samples were taken from 6 points in the area of the burned-out tanks with the spill of diesel fuel, which were tested for the content of petroleum products by the Regional Laboratory - Burgas. The results of the tests performed are reflected in Test Protocols and prove significant exceedances of the maximum permissible and intervention concentration for petroleum products, set out in Ordinance No. 3 of 01.08.2008 on the norms for the permissible content of harmful substances in soils for 4 of points.

On 03.11.2025, the RIEW Haskovo took new soil samples from 6 more points on both sides of the railway line. The samples were taken from a depth of 0-20 cm and 20-40 cm, in accordance with the provisions of Appendix No. 3 to Art. 5, para. 3 of Ordinance No. 3 on the norms for permissible content of harmful substances in soils.

Samples were taken from the following geographical coordinates:

Point No. 7: N 42º 06' 35.9", E 25º 52' 09.8";

Point No. 8: N 42º 06' 36.5", E 25º 52' 11.7";

Point No. 9: N 42º 06' 36.3", E 25º 52' 12.4";

Point No. 10: N 42º 06' 32.7", E 25º 52' 12.5";

Point No. 11: N 42º 06' 33.7", E 25º 52' 09.2";

Point No. 12: N 42º 06' 32.1", E 25º 52' 08.8".

Each sample is formed from a large number of mixed soil samples taken from about 100 m² around the indicated coordinates. The results of the tests performed, reflected in the Test Protocols, show a content of petroleum products less than the limit of quantification for both sampling depths. In none of

the indicated points there were no excesses of the precautionary and maximum permissible concentrations of petroleum products, listed in Ordinance No. 3 of 01.08.2008

The Haskovo RIEW has presented to the two railway entities, SE NRIC and "Bulmarket Rail Cargo" EOOD, a Program with remediation measures, which envisages mechanical removal of the contaminated soil layer on an area of about 500 m² at a depth of 0-20 cm with certain boundaries. A map (drawing) of the area designated for cleaning and restoration of the area is attached to the program.

4.3.6. Labour conditions (noise, illumination, vibrations).

Non-applicable.

4.3.7. Meteorological and geographic conditions.

The Lyubenovo Distributing and Simeonovgrad stations are located in the southeaster part of the railway network of the Republic of Bulgaria;

Described in details in section 3.1.3.1.

4.3.8. Construction works, performed on the spot or in very proximity.

Construction works for repair and maintenance of the railway infrastructure on 15.08.2025 in the Lyubenovo distributing station - Simeonovgrad section in the accident area were not carried out

4.3.9. Any other significant factors for the investigation objectives.

Non-applicable.

4.4. Feedback and control mechanisms, including risk and safety management, as well as monitoring processes:

4.4.1. Regulatory framework conditions.

Commission Delegated Regulation (EU) 2018/761 of 16 February 2018 establishing common safety methods for supervision by national safety authorities after the issue of a single safety certificate or a safety authorisation pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 1077/2012

Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010

ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management.

4.4.2. Processes, methods and results from the activities on the risk assessment and monitoring that the involved entities performed:

Railway Infrastructure Manager

- SE NRIC applies safety procedure PB 2.09 "Methodology for risk identification, assessment and management" version 06 in force from 01.09.2021, which is part of the SMS.
- In the period 20.05.2024 ÷ 28.06.2024, an internal planned audit of the Electrical Distribution Division (EDD), Railway track and Facilities (RTF), Signalling and Telecommunications (SaT) and Train Traffic and Capacity Management (TTCM) of the processes covered by the Safety Management System (SMS) was carried out in the structural divisions of SE NRIC, in order to establish compliance with the requirements of Ordinance No. 59. Reports from the inspections of the audited divisions with remarks and recommendations with deadlines for elimination were prepared.
- In the period 24.04.2025 ÷ 13.06.2025, an internal planned audit of the Electrical Distribution Division (EDD), Railway track and Facilities (RFS) and Signalling and Telecommunications (SaT) was carried out in the structural divisions of SE NRIC. An internal audit of the processes covered by the Safety Management System (SMS) was conducted in order to establish compliance with the requirements of Ordinance No. 59. Reports from the inspections of the audited divisions were prepared with remarks and recommendations with deadlines for elimination.

- Changes in the activities of SE NRIC related to the accident that occurred and which fell under the definition of "significant" within the meaning of IMPLEMENTING REGULATION (EU) No. 402/2013 were not made.

Railway undertaking.

- „Bulmarket Rail Cargo" EOOD,
- In the period 27.09.2024 ÷ 16.10.2024 in connection with the requirements of Safety Procedure PB-38 "Internal Audits" in the structural units and central management of „Bulmarket Rail Cargo" EOOD, an internal planned audit was carried out as scheduled to verify the implementation of the Safety Management System (SMS) in accordance with the requirements of Directive (EU) 2016/798 and Regulation (EU) 1078/2012 of the Commission for the implementation of the requirements for the safe operation of rail transport on the national railway infrastructure. Audited units – central management, Sofia Unit, Plovdiv Unit, Burgas Unit, Varna Unit and Ruse Unit. A report was prepared on the inspections of the audited units, with proposed recommendations with deadlines for elimination.
- In the period 27.10.2025 ÷ 14.11.2025 in connection with the requirements of Safety Procedure PB-38 "Internal Audits" in the structural units and central management of "Bulmarket Rail Cargo" EOOD, an internal planned audit was carried out as scheduled to verify the implementation of the Safety Management System (SMS) in accordance with the requirements of Directive (EU) 2016/798 and Regulation (EU) 1078/2012 of the Commission on the implementation of the requirements for the safe operation of rail transport on the national railway infrastructure. Audited units - central management, Sofia Unit, Plovdiv Unit, Burgas Unit, Varna Unit and Ruse Unit. A report was prepared on the inspections of the audited units and recommendations were proposed with deadlines for elimination.
- Changes in the activities of "Bulmarket Rail Cargo" EOOD, related to the accident that occurred and fell under the definition of "significant" within the meaning of the IMPLEMENTING REGULATION (EU) No 402/2013, have not been carried out.

4.4.2.1.Entities in charge of the technical maintenance.

Railway infrastructure

- SE NRIC holds a Certificate for an Entity in charge of maintenance No. BG/31/0023/0001, valid from 22.03.2023 to 21.03.2028 with a scope of activity - Specialized vehicles for maintaining the railway infrastructure, Passenger coaches, second-class Bm and Freight wagons for transportation and maintenance of the railway infrastructure;

Railway undertaking

- "Bulmarket Rail Cargo" EOOD holds a Certificate for an Entity in charge of maintenance of locomotives and freight wagons No. BG/31/0021/0002 with a validity period from 21.05.2021 to 20.05.2026.

4.4.2.2. Producers and all other participants.

Non-applicable.

4.4.2.3. Reports for independent risk assessment.

"TINSA" Ltd. holds a Certificate EIN BG/36/0021/0001 of an assessment body for conducting an independent assessment of the implementation of the risk management procedure and its results, valid from 05.02.2021 to 04.02.2026.

1. The Safety Investigation Commission of the NAMRTAIB has been provided with a report from "TINSA" Ltd. with an analysis of the measured parameters of the railway track on 14.11.2023 in the section of the 83rd railway line Simeonovgrad - Nova Zagora.

- the Simeonovgrad - Lyubenovo distributing station is in satisfactory condition - (the arithmetic mean value of the score does not exceed the limit for the respective speed and class "C" /QI a-b < QI lim/, but the score for individual sections of 200 m exceeds the limit /QI > QI lim/);

- section starting from km 11+600 to km 11+800 (single faults - vertical drops in level);

2. After the accident occurred in the Simeonovgrad - Lyubenovo distributing section on 15.08.2025 at km 11+771, the NAMRTAIB Safety Investigation Commission requested a measurement

with the EM 120 Track Measuring Laboratory from the independent assessment body "TINSA" Ltd., after the damaged section of the railway track was restored. "TINSA" Ltd. provided a report and analysis to the NAMRTAIB Safety Investigation Commission with the measured parameters of the railway track, carried out on 28.08.2025 in the Simeonovgrad - Lyubenovo distributing section, which is in the section of the 83rd railway line.

- It is evident from the downloaded data of the EM 120 Road Measuring Laboratory that the section in the derailment zone and the renewed railway track from km 11+600 to km 11+800 is in good technical condition. All other data for the interstation area show that the railway track has defects in vertical drops, level, levelling and twists based on 1.8 and 9 meters;

- The condition of the railway track is satisfactory (the arithmetic mean value of the score does not exceed the limit for the respective speed and class "C", but the score for individual sections of 200 meters exceeds the limit) in the interstation area.

4.4.3. Safety management system of the involved.

Railway infrastructure.

- SE NRIC applies safety procedure PB 2.09 "Methodology for identification, assessment and risk management version 06" in force from 01.09.2021, which is part of the SMS and safety instructions have been written and approved to it.

Violations of national regulatory acts and safety procedures that are part of the SMS of SE NRIC, related to maintaining the superstructure of the railway track:

 Ordinance No. 58/2.08.2008 on the rules for technical operation, train movement and signalling in railway transport:

o Art. 48, para. 3, item 1, b. "a", para. 5, item 2, para. 6:

"(3) Deviations from the location of the rail threads relative to each other in straight sections and from the specified cant for horizontal curves shall not exceed:

item 1. for railway lines with a standard track gauge of 1435 mm:

a) for a maximum speed of up to 60 km/h: ±15 mm;"

"(5) In the cases of deviations specified in paragraph 3, slopes (ramps) shall not be permitted during operation:

item 2. at a speed of over 50 km/h - steeper than 1:400;"

"(6) In all cases, regardless of the speed of movement, slopes steeper than those specified in Appendix No. 7 shall not be permitted."

"Appendix No. 7 to Art. 48, paragraph 6:

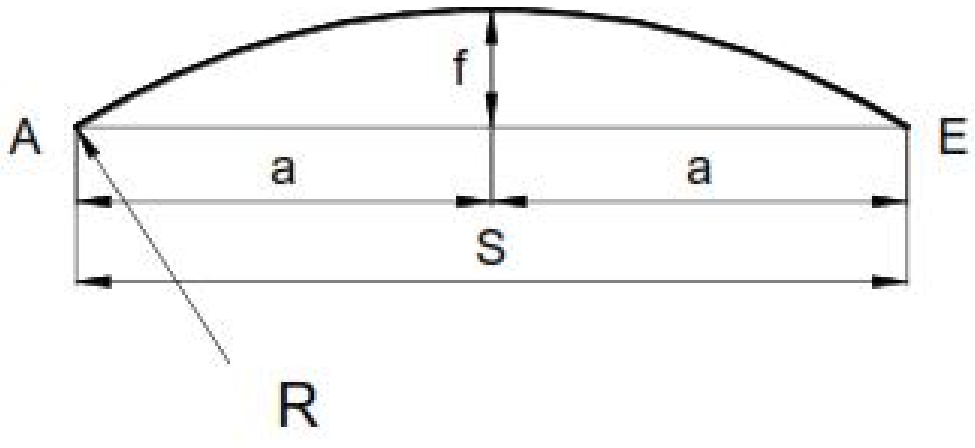
Threshold limits of the rail track

Base (m)	1÷4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	**9**	9,5	10	11	≥11
1:K	150	166	182	195	207	216	231	240	250	261	**268**	277	286	294	300

Base of the first derailed wagon № 33527954505-7 at km 11+771 and 9 meters.

- ✓ Instruction on planning on maintenance of the track superstructure and railway switches:
  - o it 4. Main prescriptions on laying and maintenance of the rail track superstructure.
  - o it. 4.9. Norms for adjustment of the rail track in plan (straight sections and curves):

„…The measuring of the levelling becomes in the mid of the chords with length 10 m or 20 m at 14 mm under the rolling surface of the rails, from the internal and external part of the rail on the whole curve and at 50 m in the adjacent straight sections (drawing 4.8).“



Drawing 4.8

„Chord with length 10 m is used for measuring the levelling in curves with R=300 m, and with length 20 m – in curves with R>300 m. The assessment of the condition of a given curve with the help of the levelling differences is based on the circumstance that to each size of the levelling conforms to a certain size of the radius in the curve under the formula:

$$f_т = \frac{S^2}{8R}$$

where:

$f_т$ – theoretic levelling of the circular curve;

S – Chord of the levelling measurement S=20 m for curves with R>300 m;

R – Chord of the circular curve, R=700 m.

The diagram of the measured levelling is built as along the abscissa axis are reflected the points of the measurements, and as Y-axis are reflected the measured levelling. Along the straight sections is accepted the amount of the opposite deviations within chord 10 m, and does not exceed 4 mm within speeds higher than 120 km/h. Nevertheless the categories of the lines the threshold of the amount is 8 mm. Within speeds of 80 km/h up to 120 km/h, this value is 6 mm within chord 10 m. Within lines of 5 and 6 class, the value is 8 mm within the same conditions. The admissible levelling differences in mm are displayed in Table (4.11).

Table 4.11

Speed km/h	Acceptance within the repairs and new construction		Start of the current maintenance		Threshold acceptable	
	Δf_{10}	Δf_{20}	Δf_{10}	Δf_{20}	Δf_{10}	Δf_{20}
>120	1	2	3	6	10	20
80 до120	1	2	4	8	14	28
60 до 80	2	4	6	10	15	31
до 60	5	10	16	32	24	**48**

- ✓ Safety procedure SP 4.01: Rules for current maintenance of the rail track.
  - Art. 175, par. 1:

„(1) The rail track control in loaded condition, indicated in Appendix 1, is performed through measuring of the geometric characteristics of the rails, rail track, gauge, video shooting of the

superstructure and ultrasonic scan of the track substructure during movement, by use of specialized technical means – track measuring wagons or laboratories."

Appendix 1:

13.	Measuring the condition of the railway track with a track measurement laboratory	The entire railway network of the SE NRIC. The geometry and gauge of the railway track are measured, the condition of the superstructure elements is monitored and a ground penetrating radar scan of the ground surface is performed to a depth of up to 2.0 m.	According to a schedule approved by the General Director of SE NRIC at the following frequency: – gauge – for all lines once every 12 months – control of the railway track - for lines I – V class – once every 6 months and for lines VI* class – once every 12 months; – ground-penetrating radar scanning of the ground surface – once every 48 months.	Measurements are carried out with a track-measuring laboratory.	The results are presented on paper or magnetic media in graphic form, according to the instructions for assessing the railway with a track-measuring laboratory.	It is used when accepting repaired and newly constructed sections of the railway track.

As it can be seen from the data requested and provided by "TINSA" Ltd. for the period 2024÷2025, SE NRIC has not measured the parameters of the railway track on the 83rd railway line with a Track Measuring Laboratory. It is unacceptable that a line with a capacity and high load voltage for freight transport from and to the Republic of Türkiye is not maintained under control and within standards.

In 2023, after measurement with the Track Measuring Laboratory of "TINSA" Ltd. on the Nova Zagora - Simeonovgrad section, defects in the railway track were identified and cited in a report. That required quick and urgent measures to eliminate them, or SE NRIC to undertake re-categorization of the section and reduce the speed of movement to 40 km/h.

The Investigation Commission found that the management and executive staff underestimated the control of the human and organizational factor in safety. SE NRIC has a developed safety management system with a set of Safety Procedures, Instructions, Rules, and orders that have not been updated over time and in connection with the serious accidents and other incidents that have occurred, the staff does not comply with and does not implement the provisions therein.

Railway undertaking.

● "Bulmarket Rail Cargo" EOOD implements a system of procedures forming a Safety Management System, one of these procedures being PB-48 "Risk Analysis and Assessment Methodology", version 1 of 15.01.2020".

4.4.4. Safety Management System of the entities in charge of the technical maintenance.

Railway infrastructure

● SE NRIC holds a Certificate of an Entity in charge of maintenance No. BG /31/0023/0001, valid from 22.03.2023 to 21.03.2028 with a scope of activity - Specialized vehicles for maintaining the railway infrastructure, Passenger coaches, second-class Bm and freight wagons for transportation and maintenance of the railway infrastructure;

Railway undertaking.

● "Bulmarket Rail Cargo" EOOD holds a Certificate of an Entity in charge of maintenance No. BG/31/0025/0002 with a validity period from 03.08.2025 to 02.08.2030 - Freight wagons, diesel and electric locomotives and specialized wagons for the transport of dangerous goods.

4.4.5. Results from the supervision, performed by the National Safety Authority.

The results of the audits and inspections carried out regarding the functioning of the Safety Management System of SE NRIC and "Bulmarket Rail Cargo" EOOD, in accordance with the requirements of Regulation (EU) 2018/761, Regulation (EU) No. 1169/2010, Ordinance No. 56 and

Ordinance No. 59 for meeting the specific requirements of European legislation and national rules for the design, maintenance and operation of the managed railway infrastructure, show that the companies maintain the SMS and can fulfil the requirements provided for in the relevant regulatory acts.

Railway infrastructure:

1. In the period from 22.04.2024 to 15.05.2024, the National Safety Authority (NSA) carried out an annual planned supervision of the SE NRIC to establish common safety methods in relation to the SMS requirements under Directive (EU) 2016/798, not any inconformity was found.

2. In the period from 22.04.2025 to 16.05.2025, the National Safety Authority (NSA) carried out an annual planned supervision of the SMS of the SE NRIC to establish common safety methods in relation to the SMS requirements under Directive (EU) 2016/798, not any inconformity was found.

Railway undertaking:

1. In the period from 11.03.2024 to 15.03.2024, the National Safety Authority (NSA) carried out an annual planned supervision of the SMS of "Bulmarket Rail Cargo" EOOD according to the approved "Plan for conducting an annual safety supervisory audit" on-site.

2. In the period from 20.06.2024 to 21.06.2024, the National Safety Authority (NSA) supervised the activities of "Bulmarket Rail Cargo" EOOD, as an entity in charge of maintenance of vehicles for which Certificate No. BG 31/0022/0004 was issued in accordance with the requirements of Regulation EU No. 779/2019.

3. In the period from 25.03.2025 to 26.03.2025, the National Safety Authority (NSA) conducted an audit of "Bulmarket Rail Cargo" EOOD within the framework of the procedure for issuing a Certificate for an entity in charge of maintenance. Not any incompliances were found during the audit, recommendations were issued (implemented).

4. In the period from 31.07.2025 to 01.08.2028, the National Safety Authority (NSA) conducted an audit of "Bulmarket Rail Cargo" EOOD within the framework of the procedure for issuing a Single Safety Certificate. Not any inconformity was found during the audit, recommendations were issued (implemented).

4.4.6. Permits, certificates and assessment reports, provided by the National Safety Authority or other Conformity Assessment Bodies

● SE NRIC holds a renewed Safety Authorization No. BG 21/2023/0001, valid from 01.07.2023 to 30.06.2028;

● "Bulmarket Rail Cargo" EOOD holds a Single Safety Certificate BG 10 2025 0256, valid from 05.08.2025 to 04.08.2030;

● "TINSA" Ltd. holds a Certificate EIN BG/36/0021/0001 for an assessment body for conducting an independent assessment of the implementation of the risk management procedure, valid from 05.02.2021 to 04.02.2026.

1. After the accident occurred along the Simeonovgrad - Lyubenovo distributing station on 15.08.2025 at km 11+771, the Safety Investigation Commission at the NAMRTAIB ordered a measurement with the EM 120 Track Measuring Laboratory by the independent assessment body "TINSA" Ltd. The railway track along the damaged section was restored. On 28.08.2025, "TINSA" Ltd. carried out a measurement of the railway track along the Simeonovgrad - Lyubenovo distributing line section, which is in the section of the 83rd railway line. On 01.09.2025, "TINSA" Ltd. provided a report and analysis to the Investigation Commission at the NAMRTAIB with the measured parameters of the railway track.

- As it can be seen from the downloaded data of the Track Measuring Laboratory EM 120, it is clear that after the repair of the railway track from km 11+600 to km 11+800 in the derailment zone, it was in good technical condition;

- All other data for the railway section show that the railway track has defects in vertical level drops, levelling and twists based on 1.8 and 9 meters;

- The general technical condition of the railway track in the interstation area is satisfactory (the arithmetic mean value of the score does not exceed the limit for the respective speed for class "C", the score for individual sections of 200 meters exceeds the thresholds values) in the interstation area.

4.4.7. Authorizations for placing into service of permanently fixed facilities and permits for placing to the market of new vehicle.

Non-applicable.

4.4.8. Other system factors.

Non-applicable.

4.5. Previous similar cases.

The Safety Investigation Commission at the NAMRTAIB investigated an accident of a similar nature in the neighbouring interstation.

Derailment of wagons from IDFT No. 46660 between the stations Lyubenovo distributing station - Radnevo on 03.02.2024.

On 03.02.2024 at 06:50 a.m., IDFT No. 46660 departed from the Kapikule border station - Republic of Türkiye, consisting of 32 wagons, 64 axles, 576 meters, 898 tons, serviced by locomotive No. 91523186012-2 of the railway company "DB Cargo Bulgaria" EOOD. At Kapikule station, a wagon inspector of the railway enterprise "DB Cargo Bulgaria" EOOD carried out a technical inspection. The train arrived at 07:15 a.m. at the border station Svilengrad - Republic of Bulgaria. At Svilengrad station, customs and border inspection and exchange of the locomotives with another locomotive No. 91521688030-1 were carried out. A "D" test of the automatic train brakes was carried out before the train's departure.

IDFT No. 46660 departed from Svilengrad station at 08:54 a.m., serviced by locomotive No. 91521688030-1 with a locomotive driver and an assistant locomotive driver, employees of the railway enterprise "DB Cargo Bulgaria" EOOD. After analysing the data downloaded from the technical means of movement of IDFT No. 46660 (locomotive recording device No. 91521688030-1 and data from the GPS system for tracking the movement of the locomotive), as well as from the testimony of the locomotive crew, the Investigation Commission at the NAMRTAIB established that IDFT No. 46660 passed without stopping from Svilengrad station to Radnevo station.

At 10:17 a.m., a switchman/level crossing guard at Post No. 2 at Radnevo station ordered the route and opened the entry signal for a second track with a stop.

A switchman/level crossing guard at Post No. 2 monitored the passage of the train. He saw that the penultimate carriage had derailed.

When IDFT No. 46660 entered the second track at Radnevo station, the traffic controller on duty noticed strong dusting and twisting of the last two wagons of the train. When the last two wagons passed through the technical canal of the track, a side door on the 31st wagon came off, after which the second door fell off, and the last 32nd wagon rose onto the platform and tilted to the left in front of the station building. The locomotive driver felt the train pulling and quickly stopped.

During the movement, the train observed the section speed and the reductions from Svilengrad station to Radnevo station.

Because of the derailment, material damage was caused to the railway track, in the Lyubenovo distributing station - Radnevo section, to the railway switches and to the signalling equipment for the second track at Radnevo station, as well as to the two derailed wagons. No personnel were injured.

From 10:20 a.m. on 03.02.2024 to 15:00 p.m. on 04.02.2024, the train movement in the Simeonovgrad - Nova Zagora section was interrupted.

From 15:00 p.m. on 04.02.2024, the train movement in the Lyubenovo distributing station - Radnevo section in the derailment zone was restored at 25 km/h.

The causal factor for the derailment is a combination of vertical forced oscillations of the wagon (galloping), caused by the worn joints of the railway track with horizontal movement of the second wheelset of the penultimate wagon towards the right (inner) rail, as a result of the appearance of a horizontal transverse force before exiting the transition curve.

A contributing factor is the low gross weight of the two-axle wagon (empty) and the peculiarities of its spring suspension, equipped with parabolic springs with bilinear characteristics.

Direct causes of the event.

Combination of the vertical forced oscillations of the wagon (galloping), caused by the worn joints of the railway track with horizontal movement of the second wheelset of the penultimate wagon towards the right (inner) rail due to the appearance of a horizontal transverse force before exiting the transition curve, supplemented by the low weight of the two-axle wagon (empty).

5. Conclusions

5.1.Summary of the analysis for the event causes.

The Investigation Commission reviewed and analysed the documentation collected and provided by the SE NRIC and Bulmarket Rail Cargo EOOD on the maintenance and operation of the railway infrastructure, as well as on the maintenance and operation of the derailed tank wagons from DFT No. 80694.

The Investigation Commission repeatedly carried out detailed inspections and measurements including all parameters of the railway track in the area and outside the derailment area.

- Carried out an analysis of the technical condition of the railway from the data and protocols downloaded from the EM-120 Track Measuring Laboratory in November 2023, as well as the measurement in the Lyubenovo distributing station - Simeonovgrad section in August 2025.
- Carried out several inspections and measurements of the derailed tank wagons.
- Carried out an analysis of the speed of locomotive at the head of the train and the pushing auxiliary locomotive, compared the movement data and it was established that there were no differences in the train movement regime along the route and specifically in the Lyubenovo distributing station - Simeonovgrad section until the moment of the accident.
- Conducted an interview with the personnel involved in the accident of the two entities - SE NRIC and "Bulmarket Rail Cargo" EOOD.
- Analysed the circumstances related to the technical condition and parameters of the railway track and established that the condition of the railway track does not meet the technical requirements.
- Analysed the data from the measured parameters of the derailed 13 tank wagons and established that there were no deviations from the permissible norms of the rolling stock in operation.
- Analysed the data downloaded from the measured parameters of the first three derailed tank wagons from the composition of DFT No. 80694. After the measurements, the Commission established that the first to derail was the 2nd wagon No. 33527954505-7, followed by the 3rd wagon No. 33527954566-9 and the 4th wagon No. 33527962684-0, before the accident, they were technically in good condition. The wagons had an automatic train brake turned on.

Both the Task Force and the Investigation Commission in the NAMRTAIB at km 11+771 in the Lyubenovo distributing station - Simeonovgrad, established the place of derailment of the second wagon from DFT No. 80694. The combination of axle and level faults before and around the point of elevation, causing horizontal transverse drift and bouncing in the vertical plane of the railway track, caused the derailment of the wagons.

Because of the derailment of the second wagon, it also dragged the remaining 12 tank wagons derailed, 11 tanks lay on the right and left of the railway track, the tanks were punctured and diesel fuel began to leak, part of it burned, and the rest seeped into the soil. On some of the tanks, the running parts (bogies, axles, etc. elements) were torn off and scattered. The last three wagons derailed from the railway track and remained in a straight state of the running parts.

The permissible speed of the train according to the schedule and in the section between the stations Lyubenovo distributing - Simeonovgrad is 60 km/h, the registered speed of the train at the time of the accident was 56 km/h, which was below the permissible speed for the section. At the time of the derailment, the train was moving with an activated electrodynamic brake, given the slope of 2 ‰ downhill in the direction of movement of the train, described in detail in item 4.1.1. The two locomotives were not in traction mode.

As it can be seen from the transport documents, before the accident, the locomotives and wagons of DFT No. 80694 were technically in good condition and the train was provided with a brake mass.

5.2. Undertaken measures after the event occurrence.

The head of the investigation at the NAMRTAIB, after the inspections and coordination of actions with the two entities, gave permission to move the derailed and burned tank wagons loaded on a motor vehicle from the derailment site to the Industrial Site in the town of Radnevo, owned by "Bulmarket Group" AD. There were performed measurements of the technical parameters of the wagons and reports were drawn up.

On 18.08.2025, after a written permit was given, the railway infrastructure manager undertook the restoration of the railway track and the catenary in the Lyubenovo distributing station - Simeonovgrad section and the restoration of traffic and capacity on the section of the 83rd railway line.

The Regional Directorate for Environmental Protection - Haskovo issued instructions to the SE NRIC and "Bulmarket Rail Cargo" EOOD to clean the area of the accident from residual elements of the railway infrastructure and the derailed wagons.

RIEW – Haskovo conducted several soil samples to determine the boundaries of the affected area and the depth of the diesel fuel spill. It was found that the soil was contaminated by the petroleum derivative on an area of 500 m² and at a depth of 0÷20 cm.

RIEW – Haskovo issued instructions with deadlines to the participants in the railway accident, SE NRIC and "Bulmarket Rail Cargo" EOOD, to clean the soil with the cited parameters by scraping, transporting and disposing of the affected terrain.

5.3. Additional findings.

In 2021, the electrification of the section of the 83rd railway line Nova Zagora - Simeonovgrad was completed.

By letter No. ŽI-23828/16.06.2021 submitted by the SE NRIC to the RAEA, a file was provided under Art. 45, para. 2 of Ordinance No. 57 of June 9, 2004 on achieving interoperability of the national railway system with the railway system of the European Union (Ordinance No. 57) with a request for an assessment of whether the size of the construction works necessitates the issuance of a new permit for commissioning of the site: "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" for the structural subsystem "Energy".

By order No. 14-00-59/22.06.2021 of the Executive Director of the RAEA of Bulgaria, a commission was appointed to conduct an inspection in accordance with Art. 44a, para. 2 of Ordinance No. 57 of the file received from the SE NRIC for the Agency's opinion on the technical terms of reference for design and the safety report for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" for the structural subsystem "Energy" and to prepare an opinion. After reviewing and analysing the submitted documents and the assessment made by the Commission, inconsistencies were identified, of which the RAEA of Bulgaria notified the SE NRIC and requested the inconsistencies to be eliminated. By letter No. ŽI-50789/10.12.2021 of the SE NRIC, the following were submitted to the RAEA: Technical Terms of Reference for Design, Safety Report and Order No. Z-1769/21.10.2021 of the Director General of the SE NRIC for the appointment of a Risk Assessment Board in accordance with Art. 4 of Commission Implementing Regulation (EU) No. 402/2013 of 30 April 2013 on the common safety method for risk identification and assessment.

After reviewing the additional documents provided by the SE NRIC, the Executive Director of the RAEA has given an opinion that it was necessary to issue a new permit for commissioning of the requested subsystem "Energy" for the site: "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora". The opinion draws attention to the fact that the permit for commissioning of the structural subsystem "Energy" will be issued in accordance with the procedure of Art. 44a, of Ordinance No. 57 after completion of the construction and after submitting an application by the SE NRIC with all required documents attached to it under Art. 44c, para. 2 of Ordinance No. 57. The RAEA has drawn attention to the requirement of Art. 44c, para. 1 of Ordinance No. 57, namely that the application for commissioning is submitted to the RAEA within 1 year after receiving a permit for use in accordance with the Territory Planning Act (SPA).

SE "National Railway Infrastructure Company" has submitted an application to the Agency for the issuance of a permit for the commissioning of a new structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" with No. ŽI-13580/15.04.2025 with attached documents including a Permit for Use under the ZUT with No. ST-05 467/15.09.2023.

By Order No. 14-00-49/24.04.2024 of the Executive Director of RAEA, a commission was appointed to verify the submitted application with No. 10-10-46/15.04.2024 and the documents attached to it, regarding their compliance with the regulatory requirements, and to prepare a report with a proposal for issuing or refusing to issue subsystem "Energy" for the site "Electrification of the 83rd railway line

Simeonovgrad - Nova Zagora". The appointed commission found discrepancies in the application and the attached documents determined by the requirements in Ordinance No. 57 and within the period established in Art. 115d, para. 3 of the Railway Transport Act (RTA). The RAEA of the Republic of Bulgaria, with a letter No. 10-10-46/13.05.2024, has notified the SE NRIC of the findings and has been given a 120 /one hundred and twenty/ day period from receipt of the letter to submit documents to eliminate the identified irregularities and discrepancies under Application No. 10-10-46/15.04.2024.

Within the given period under Art. 115d, para. 3 of the RTA, the documents requested by the SE NRIC have not been submitted to the Agency.

In connection with the above, the Executive Director of the RAEA has issued Decision No. RO-22-6 of 30.09.2024, refusing to issue a permit for commissioning a new structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora", requested by the SE NRIC. The decision has not been appealed under the Administrative Procedure Code.

At present, the SE NRIC has not received a new application from the SE NRIC for issuing a permit for commissioning a new structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora".

In order to issue a permit for commissioning a structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" under the procedure of Art. 44a, para. 2 of Ordinance No. 57, it is necessary for SE NRIC to submit to the RAEA a new application for issuing a permit for a new structural subsystem with the attached requirements.

6. Safety recommendations

In order to improve the safety in the rail transport, the Chair of the Investigation Commission at NAMRATIB proposes to the National Regulatory Body on Safety (RAEA) the following safety recommendations adapted to SE NRIC and “Bulmarket Rail Cargo” EOOD.

- With recommendation 1, it is suggested that SE NRIC and "Bulmarket Rail Cargo" EOOD familiarize the interested personnel with the contents of the report.

- With recommendation 2, it is proposed that the SE NRIC analyse the data provided by the independent body "TINSA" Ltd. The Rail Track Measuring Laboratory EM-120 on 14.11.2023 along the section Nova Zagora – Simeonovgrad, measured the data. It is also proposed the SE NRIC to take measures to eliminate the malfunctions of the rail track (in terms of flush/twist, level and vertical deformations of the rails in the joints), which do not meet the requirements for class "C" for speed ≤ 60 km/h, or complete overhaul.

- With recommendation 3, it is proposed that SE NRIC take measures to issue a permit from "Railway Administration" EA for placing into service structural subsystem "Energy" for the site "Electrification of the 83rd railway line Simeonovgrad - Nova Zagora" in accordance with the order of art. 44a, para. 2 of Ordinance No. 57.

- With recommendation 4, it is proposed that SE NRIC take measures to conduct trainings for the management and executive staff responsible for the maintenance and repair of the 83rd railway line Simeonovgrad - Nova Zagora in order to increase their knowledge.

- With recommendation 5, it is proposed that "Bulmarket Rail Cargo" EOOD conducts additional training for locomotive management personnel (instructors and drivers) regarding the management of heavy freight and long-haul trains when running in diverse and complex sections of the infrastructure.

With reference to the requirements of art. 24, paragraph 2 of Directive (EU) 2016/798, and art. 91, paragraph 3 of Ordinance No 59 dated 5.12.2006, the member of the Management Board of NAMRATIB on 06.02.2026 provides to the “Railway Administration” EA and all the involved parties a final report that contains information on the investigation for finding the circumstances and causes that led to the realization of the accident. In the report are also formulated safety recommendations in order to improve the safety in railway transport and avoid other accidents of similar nature.

The structures to which the safety recommendations are addressed report regularly to the Deputy President of the Administrative Board of NAMRATIB on the measures taken or planned as a result from the recommendations.

Chairperson:

Dipl. Eng. Boycho Skrobanski PhD

Deputy President of the NAMRTAIB AB

Members:
1. .....(s)..... **(External expert)**
2. .....(s)..... **(External expert)**
3. .....(s)..... **(External expert)**