



REPUBLIC OF SERBIA
CENTER FOR INVESTIGATION OF ACCIDENTS IN TRANSPORT
SECTOR FOR INVESTIGATION OF ACCIDENTS IN RAILWAY TRAFFIC
Nemanjina 11, 11000 Belgrade

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ANNUAL REPORT FOR 2023



Center for Investigation of Accidents in Transport (hereinafter referred to as: CINS) is independent in its work and conducts independent accident investigations. The aim of an investigation is to identify the causes and the possibility of improving safety on the railways and to prevent accidents by issuing safety recommendations.

In accordance with the Article 33 of the Law on Investigation of Air, Railway and Waterborne Traffic Accidents (“Official Gazette of RS” No. 66/15 and 83/18) and the Article 23 of the Directive 2004/49/EC of the European Parliament and of the Council of EU (Railway Safety Directive), CINS drafted and published the Annual Report.

Annual report for 2023 consists of:

- Information on CINS
- Investigative procedure in the field of railway transport
- Investigations opened in 2023
- Investigations closed in 2023
- Issued safety recommendations
- Measures taken on the basis of the issued safety recommendations



Glossary:

RS	.....	Republic of Serbia
CINS	.....	Center for Investigation of Accidents in Transport
MGSI	.....	Ministry of Construction, Transport and Infrastructure
IŽS	.....	Serbian Railways Infrastructure
a.d.	.....	Joint-stock company
d.o.o.	.....	Ltd.
US	.....	Constitutional Court
JŽ	.....	Yugoslav Railways
ZJŽ	.....	Community of Yugoslav Railways
ŽS	.....	Serbian Railways
EMV	.....	Electro motor train
DMV	.....	Diesel motor train
DMK	.....	Diesel motor wagon
JP	.....	Public Enterprise
EPS	.....	Electrical Power Industry of Serbia
TENT	.....	Thermo Power Plant “Nikola Tesla”
EU	.....	European Union
MUP	.....	Ministry of Interior
NIS	.....	Petroleum Industry of Serbia
PU	.....	Police Administration
SS	.....	Safety - signalling
RID	The Regulation concerning the International Carriage of Dangerous Goods by Rail



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1. CINS

1.1. Legal framework

The implementation of Directive 2004/49/EC of the European Parliament and the Council in the legislation of the RS was carried out by the adoption of the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), and The Law on Railway System Interoperability (“Official Gazette of RS” No. 62/2023) and on the date of entry into force of the Law on Safety in Railway Traffic (“Official Gazette of RS” No. 41/18), that is, on June 8th, 2018 the Law on Railway Safety and Interoperability (“Official Gazette of RS” No. 104/13, 66/15 - other laws, 92/15 and 113/17 - other law) ceases to be valid, except for the provision of Article 78, paragraph 1 point 5) subpoint (1), which ceases to, be valid after three years from the date of entry into force of this Law, i.e. on June 8th, 2021.

CINS, which includes the Sector for Investigation of Accidents in Railway Traffic, is a special organization that carries out the investigation following the serious accidents on the railway system. In addition to serious accidents, CINS can investigate other accidents and incidents, which could lead to serious accidents, including technical failure of structural subsystems or interoperability factors in accordance with the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18). The Center has the discretion to decide whether to open an investigation into other accidents and incidents.

According to the Law on Safety in Railway Traffic (“Official Gazette of RS” No. 41/18), the infrastructure manager and the railway undertaking must, independently of CINS, carry out tasks on investigating the causes and consequences of accidents and incidents in railway traffic, as well as the circumstances in which they have occurred.

According to the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), CINS, Sector for Investigation of Accidents in Railway Traffic, conducts investigation independently from all parties and organizations competent for railway traffic. CINS conducts investigation following the serious accidents on the railway system with the aim of possible improvement of safety on the railway and prevention of accident.

Professional work related to investigation is independent of criminal investigations or other parallel investigations that determine responsibility or the degree of guilt.

The investigation and determining the causes of accidents does not aim to establish criminal, economic, misdemeanour, disciplinary, civil, or other liability.



1.2. Role and purpose

According to the Law on the Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of the RS” No. 66/15 and 83/18), CINS was established, as of July 2015, as a special organization whose competence is the performance of professional work related to the investigation of accidents and serious accidents in air traffic, serious accidents, other accidents and incidents in railway traffic, very serious maritime accidents, serious maritime accidents, maritime accidents, maritime incidents, serious inland navigation incidents and inland navigation incidents in waterborne traffic. CINS has the status of a legal entity, and the headquarters of CINS is in Belgrade.

Sector for Investigation of Accidents in Railway Traffic carries out tasks that are within the competence of CINS, regarding railway traffic with the aim of possible improvement of safety on the railway by issuing safety recommendations.

According to Article 35 of the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), CINS issues safety recommendations based on data analysis and the results of the conducted investigation. Recommendations are sent to the Directorate for Railways, and in case it is necessary to other authorities and organizations in the RS, as well as to interested authorities and organizations of other countries and international organizations. The Directorate for Railways takes measures to take safety recommendations into account and to act on them. The Directorate for Railways and other authorities and organizations, except for the authorities and organizations of other countries and international organizations, are obliged to take the necessary measures in order to ensure that the safety recommendations of CINS are taken into account in an appropriate manner and, depending on the case, act on them. The Directorate for Railways and other authorities and organizations, except for the authorities and organizations of other countries and international organizations, are obliged to submit at least once a year a report to CINS on the measures taken or planned to be taken based on the safety recommendations issued in the previous year, and no later than July 31st of the current year.

Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), does not apply to underground railways (metros), trams and other types of light railway.

Basic tasks of CINS, Sector for Investigation of Accidents in Railway Traffic, are:

- Investigation of serious accidents, other accidents and incidents occurring on the railways system
- Preparation of final reports on conducted specific investigations that may contain safety recommendations aiming to improve safety of railway traffic.

CINS performs other tasks stipulated by the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18).



1.3. Organization of CINS

Within CINS, the following basic internal units are established: Sector for Investigation of Accidents in Air Traffic, Sector for Investigation of Accidents in Railway Traffic and Sector for Investigation of Accidents in Waterborne Traffic. Within CINS, a specific internal unit outside the Sectors, General Affairs Department, has been established.

CINS's structure has been presented in Figure 1.3.1.

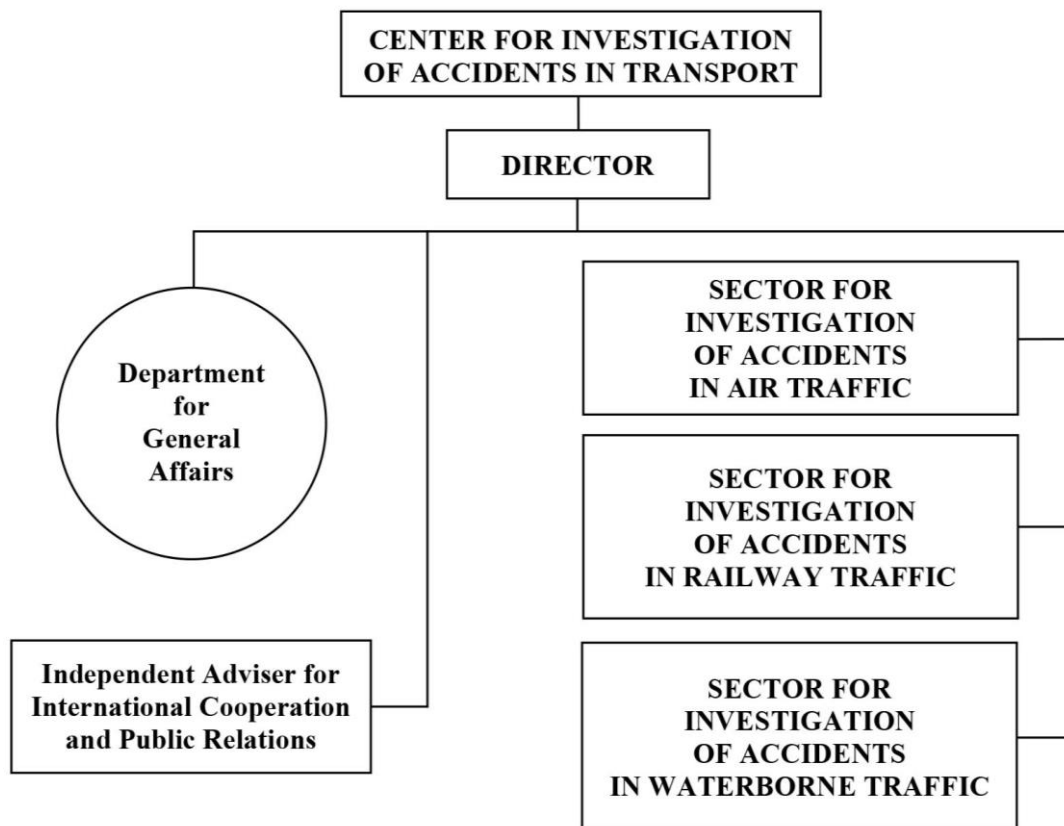


Figure 1.3.1: The structure of CINS

Sector for Investigations of Accidents in Railway Traffic has become operational since 26.06.2017. With the Rulebook on internal organization and systematization of workplaces No. 110-00-2/2022-04 of 13.12.2022, which came into force on 04.01.2023. within the Sector for Investigation of Accidents in Railway Traffic the following five work positions have been systematized: Head of the Sector for Investigation of Accidents in Railway Traffic - Main Investigator for Railway Traffic, Senior Adviser for Coordination of Investigation and Railway Accidents Analysis, Senior Adviser for Coordination of Investigation and Railway Accidents Analysis, Independent Adviser for Investigation and Railway Accidents Analysis and Independent Adviser for Investigation and Railway Accidents Analysis.



Sector for Investigation of Accidents in Railway Traffic in 2023 employed:

1. Head of the Sector for Investigation of Accidents in Railway Traffic - Main Investigator in Railway Traffic,
2. Senior Adviser for Coordination of Investigation and Railway Accidents Analysis and
3. Senior Adviser for Coordination of Investigation and Railway Accidents Analysis.

CINS, Sector for Investigations of Accidents in Railway Traffic, is independent in its work and independent of all other bodies and organisations competent for railway traffic (MGSI, the Directorate for Railways), as well as of all legal and natural persons whose interests may be in conflict with the tasks and entitlements of CINS.

1.4. Organisations competent for the railway system

Organisations competent for the railway system in RS are MGSI, the Directorate for Railways and CINS.

MGSI carries out state administration affairs related to the regulation and ensuring of the transport system. MGSI is in charge of drafting laws passed by a legislative body. The legislative body in the RS is the National Assembly. MGSI sets the legal framework by developing the railway regulations and implementing of EU legislation. MGSI also carries out supervision of internal and international transport and intermodal transport, regulation and safety of the technical and technological traffic system.

The Directorate for Railways carries out administration affairs in the field of railway determined by the Law on Railway (“Official Gazette of RS” No. 41/18 and 62/2023), Law on Railway Traffic Safety (“Official Gazette of RS” No. 41/18) and the Law on Railway System Interoperability (“Official Gazette of RS” No.62/2023). The Directorate for Railways carries out tasks of regulating the railway services market and activities in the field of regulation of safety and interoperability of railway traffic. The Directorate for Railways is competent to issue, suspend and withdraw the license for railway infrastructure management and the license for traffic, enact bylaws, participate in international cooperation in the field of railway traffic which is realized by MGSI.

CINS is a special organisation which performs state administration affairs in the field of investigation of accidents and incidents in accordance with the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18). CINS is responsible for performing professional activities related to investigation of accidents and serious incidents in air traffic; serious accidents, other accidents and incidents in railway traffic; very serious maritime accidents, serious maritime accidents, maritime accidents, maritime incidents, serious inland navigation incidents and inland navigation incidents in waterborne traffic.



2. INVESTIGATIVE PROCEDURE IN THE FIELD OF RAILWAY TRAFFIC

2.1. Accidents and incidents being investigated

According to the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), CINS conducts investigation after serious accidents on the railway system with a view of possible improvement of railway safety and the prevention of new accidents caused by the same or similar causes.

In addition to serious accidents, CINS may also investigate other accidents and incidents that could lead to serious accidents, including the technical failure of structural subsystems or interoperability constituents.

CINS has discretion to decide whether to open investigation of other accidents and incidents. The scope of investigations and the procedure of conduction of these investigations is determined by CINS.

According to the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), accidents and incidents may be:

1. Serious accident in railway traffic is a collision or derailment of the train which results in the death of at least one person or serious injury to five or more persons or causing great material damage to the railway vehicles, railway infrastructure, or the environment, as well as other similar accident which has an obvious impact on railway safety or the safety management.
2. Accident in railway traffic is undesirable or unintended sudden event or a specific sequence of such events, which has detrimental effects (collisions, derailments, an overtaking of the train, level crossing accidents, accidents with the participation of individuals caused by railway vehicles in motion, fires, etc.).
3. Incident in the railway traffic is an event that is associated with the railway transportation or shunting composition and adversely affects the safety of the traffic.

Great damage in rail transport is the damage that CINS, upon accessing the accident site, assesses in the amount of at least two million euro.

Investigation refers to a process which includes the data collection and analysis, making conclusions, including the determination of causes and depending on the case, issuing safety recommendations with the aim of prevention of serious accidents in railway traffic.

Fatal injury is injury caused to a person in a serious accident in the railway traffic, resulting in the death of that person within 30 days from the injuries inflicted during serious accident in railway traffic.

Seriously injured person is any injured person who is hospitalized for more than 24 hours due to the consequences of an accident, excluding attempted suicides.



2.2. Organisations involved in investigative process

Investigation of serious accidents, other accidents and incidents on the railway system can be performed by different organizations and business entities in accordance with their legal obligations, as follows:

- Infrastructure Manager and Railway Undertakings, pursuant to the Law on Safety in the Railway Traffic (“Official Gazette of RS”, No. 41/18) and with their safety management systems (SMS) deal with determining the causes and taking measures based on the results of investigation.

- CINS investigates serious accidents, other accidents and incidents with the aim of determining the causes and issuing safety recommendations in order to improve safety of the railway system.

- The Public Prosecutor's Office and Police investigate an accident or incident in order to determine liability for committed infringement or criminal offense.

2.3. The approach of CINS to an investigation

CINS, that is, the Sector for Investigation of Accidents in Railway Traffic carries out an investigation to determine the causes in order to issue safety recommendations in terms of preventive actions aiming to reduce the number of accidents and incidents and improve safety of the railway system. Investigations carried out by the CINS do not seek to determine liability.

CINS is on standby 24 hours, 7 days a week.

For the purpose of the investigation of any accident or incident Director of CINS forms by the Decision a Working Group led by the Main Investigator in Railway Traffic and for the members of the working group other employees of CINS i.e. the Sector for Investigation of Accidents in Railway Traffic are appointed, which participate in the affairs of the investigation of accidents and incidents, as well as other professionals outside CINS, in accordance with the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18).

Upon receiving notification of an accident or an incident on the railway system, CINS decides whether to go on the site of the accident or incident or not. At the site of the occurrence of the accident or incident, CINS will conduct an investigation and check the collected facts and procedures, undertaken by the Infrastructure Manager and Railway Undertaking (if in the investigation of the accident or incident one of them or both are involved).

The decision to launch an investigation can be made immediately after the reception of notification of accident or incident occurred or after all relevant facts necessary for making the decision to initiate the investigation of an accident or incident are collected.

After an investigation has been initiated, not later than seven days from the date of decision, CINS, Sector for Investigation of Accidents in Railway Traffic shall inform the MGSI and The European Union Agency for Railways (ERA) on initiated investigation, in accordance with the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18).



Upon completion of the investigation, CINS publishes the Final Report and safety recommendation on its website www.cins.gov.rs. Also, the reports of the Center, i.e. the Sector for Investigation of Accidents in Railway Traffic, are published on the website of the European Union Agency for Railways (ERA) https://www.era.europa.eu/domains/accident-incident/rail-accident-investigation_en. The form of the report is in accordance with the Rulebook on the content of the final report on investigations of accidents and incidents in railway traffic ("Official Gazette of RS" No. 89/15).

3. INVESTIGATIONS OPENED IN 2023

The Sector for Investigation of Accidents in Railway Traffic became operational on 26.06.2017. In 2023, one investigation was initiated.

Basic data on the investigations initiated by the Sector for Investigation of Accidents in Railway Traffic in Railway Traffic in 2023 are shown in Table 3.1.

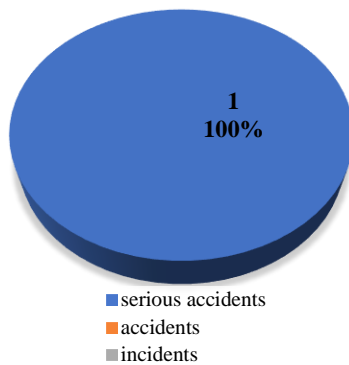
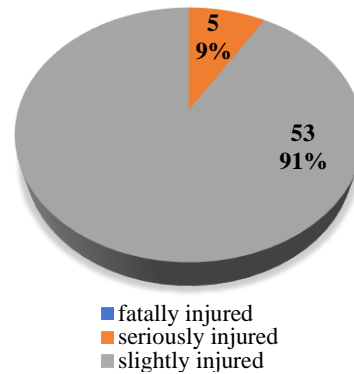
Table 3.1: Review of investigations initiated in 2023

ACCIDENT OR INCIDENT TYPE	No.	[%]
Serious accidents	1	100.0
Accidents	0	0.0
Incidents	0	0.0
TOTAL:	1	100.0

Basic data on fatally injured and injured people for investigations which Sector for Investigation of Accidents in Railway Traffic has initiated in 2023 are shown in Table 3.2.

Table 3.2: Review of fatally injured and injured people for investigations initiated in 2023

	Passengers	Railway staff	Third parties	Total
Fatally injured	-	-	-	-
Seriously injured	4	1	-	5
Slightly injured	51	2	-	53

**Figure 3.1:** Investigations initiated in 2023**Figure 3.2:** Fatally injured and injured in 2023

3.1. Collision of trains No. 25412 and 49028/73478

On the regional railway line No. 207 Novi Sad - Odžaci - Bogojevo, between the stations Ratkovo and Odžaci, while traveling in the direction from Ratkovo station towards Odžaci station, on the open track, at km 56+306, near the switching point (located at km 56+320) of the automatic level crossing at km 57+306, there occurred overtaking and collision of the trains No. 25412 (DMV 711-077/078, railway undertaking “Srbijavoz” a.d.) and the train No. 49028/73478, (locomotive 753-782 and nine S series wagons loaded with containers, railway undertaking “Transagent Operator” d.o.o.), which was standing.

The collision occurred when the front of train No. 25412 (the front part of DMV 711-078), which was moving, struck the end of train No. 49028/73478 (into the last wagon No. 33 68 4952 037-2), which was stationary due to a locomotive 753-782 failure.

Upon impact, due to the kinetic energy of train No. 25412 in motion, there was climbing of the front part of train No. 25412 (DMV 711-078) onto the rear part of the flat wagon No. 33 68 4952 037-2. After the collision, train No. 25412 continued to move for approximately 6 m, pushing ahead and deforming container CNEU 453486-3, which was loaded on the rear of flatcar No. 33 68 4952 037-2.

Except for the wheels on the first axle of the first bogie of DMV 711-078 (viewed in the direction of movement), which lifted above the tracks (approximately 30 cm from the top edge of the rail), all other wheels of the vehicles in both trains were on the rails (they did not derail).

The appearance of the serious accident site is shown in Figures 3.1.1, 3.1.2, 3.1.3, 3.1.4. and 3.1.5.



Figure 3.1.1: The appearance of the train collision



Figure 3.1.2: The appearance of the damages on the front DMV box part 711-078
and on the container CNEU 453486-3



Figure 3.1.3: The appearance of the damages on the wagon No.33 68 4952 037-2

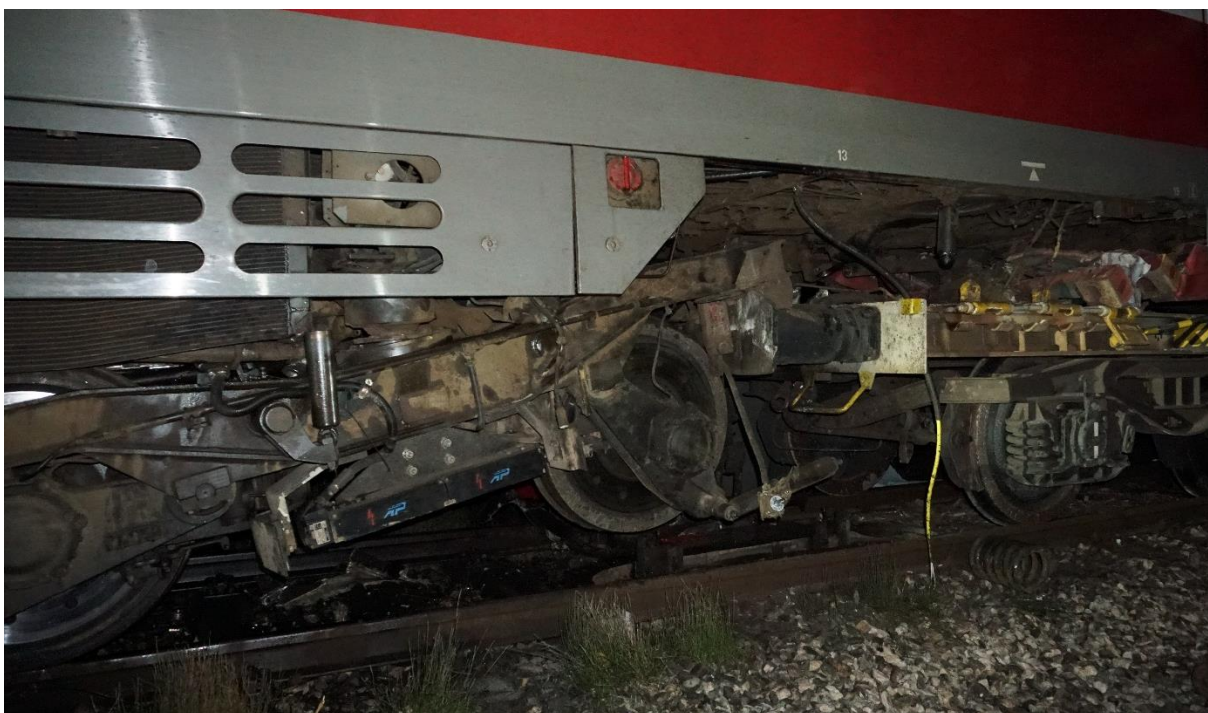


Figure 3.1.4: The appearance of the shifted bogie on DMV 711-078



Figure 3.1.5: Appearance of damages on the power unit DMV 711-078

The mitigation of the consequences of this serious accident was carried out by engaging the expertise and resources of “IZS” a.d, “Srbijavoz” a.d. and “Transagent Operator” d.o.o.

In this serious accident there were no fatally injured. The total number of injured is 58 (fifty eight) persons (passenger and railway workers of “Srbijavoz” a.d. which were in the train No. 25412), out of which 5 (five) persons were seriously injured (4 passengers and 1 railway worker), and 53 (fifty three) persons were slightly injured (51 passengers and 2 railway workers). All the injured persons were in the train No. 25412.

At the scene, personnel from the Emergency Medical Service of the Health Center Odžaci, members of the MUP RS and PS Odžaci were deployed, to aid the injured.

On the railway vehicles and the goods there exists a material damage.

Due to this serious accident, the interruption of traffic between Ratkovo and Odžaci stations lasted until 18.11.2023, at 14:30 when the railway line was reopened for train traffic.

Category:	Serious accident
Fatally injured and injured:	No fatalities, 5 (five) seriously и 53 (fifty-three) slightly injured (All the injured persons were in the train No. 25412)
Material damage:	Exists on the railway vehicles and the goods



4. INVESTIGATION REPORTS CLOSED IN 2023

4.1. Train No. 45010 derailment

4.1.1. Short description of the serious accident

On 25.12.2022. at 16:45, at km 67+244 of the main arterial line No. 106: Niš - Dimitrovgrad - state border - (Dragoman), between the crossing point Staničenje and the station Pirot, there occurred a derailment of the train No. 45010 (railway undertaking “Srbija Kargo” a.d.) A total of six wagons of the series Z loaded with ammonia (RID 268/1005, OM 4869) have derailed from the train composition.

Viewed from the locomotive 661-249, the following have derailed: 9th wagon of the series Zags No. 33 87 7813 563-6 with the right wheels of both axles of the second bogie (remained on its wheels in the track zone), 10th wagon of the series Zags No. 33 87 7813 580-0 with all the axles (turned on its side to the left, rotated with the rear end for approximately 15° to the left in relation to the longitudinal track axis, viewed in the direction of the train movement), 11th wagon of the series Zags No. 33 87 7813 586-7 with all the axles (turned on its side to the left, parallel to the track, viewed in the direction of the train movement), 12th wagon of the series Zagkks No. 33 80 7922 029-3 with all the axles (turned on its side to the left, rotated with the rear end for approximately 15° to the left in relation to the longitudinal track axis, viewed in the direction of the train movement), 13th wagon of the series Zags No. 33 80 7818 081-1 with all the axles (turned on its side to the left, rotated with the front end for approximately 15° to the left in relation to the longitudinal track axis, viewed in the direction of the train movement) and 14th wagon of the series Zags No. 33 80 7818 089-4 with the right wheels of both axles of the first bogie (remained on its wheels in the track zone).

After the derailment, train No. 45010 covered the distance another approximately 132 m, after which it stopped (the exact distance could not be determined due to damage to the track and railway vehicles).

From the overturned thirteenth wagon No. 33 80 7818 081-1, there occurred ammonia leakage.

The appearance of the serious accident site (the point of overturning of the wagons-tanks) is shown in Figures 4.1.1.1. and 4.1.1.2.



Figure 4.1.1.1: The appearance of the serious accident site (source: MUP, Emergency Situations Sector)



Figure 4.1.1.2: Appearance of the point of overturning of the wagons-tanks
(source: MUP, Emergency Situations Sector)

The appearance of the derailed wagons is shown in Figures 4.1.1.3. and 4.1.1.4.



Figure 4.1.1.3: The appearance of the overturned wagon



Figure 4.1.1.4: The appearance of the derailed ninth (up) and fourteen wagon (down) (source: “IŽS” a.d.)



Due to the occurrence of an ammonia release (leakage) (classified under RID: gas, toxic, corrosive), upon the call, the following units responded to the scene: members of the MUP RS, the PU in Pirot, members of the MUP RS, Sector for Emergency Situations, Department for Emergency Situations in Pirot, and members of the Emergency Medical Service of the Pirot Health Center.

The consequences of this serious accident were remedied by engaging the expert services and resources of "IŽS" a.d, "Srbija Kargo" a.d, "National Company Railway Infrastructure" of the Republic of Bulgaria, auto-cranes from Bulgaria, Elixir Zorka Mineral Fertilizers d.o.o. Šabac, HIP-Azotara d.o.o. Pančevo, Patenting d.o.o. Belgrade, as well as construction and forestry services by "Pixi," with assistance from firefighters and rescue services.

In this accident, there were fatally and injured persons.

The material damage to the railway infrastructure, railway vehicles, goods and property of third parties was made.

Due to this serious accident, railway traffic between the Pirot station and the Staničenje crossing point was interrupted. The interruption lasted from 25.12.2022, at 16:45, until 14.01.2023, at 19:00, when the mentioned section of the railway track was reopened for train traffic. According to telegram No. 2 of 14.01.2023, from the Pirot station, the section between the Staničenje crossing point and the Pirot station was opened for train traffic with the introduction of restricted speed running with a speed limit of $V_{max}=20$ km/h, from km 67+042 to km 67+890. Additionally, the maximum train weight was limited to 1200 t, and the transportation of ammonia wagons-tanks loaded with ammonia on the main arterial line No. 106: Niš - Dimitrovgrad - state border - (Dragoman) was prohibited, until the replacement and strengthening of the superstructure on certain sections of the track was completed.

Category:	Serious accident
Fatally injured and injured:	2 fatally injured, 9 seriously and 52 slightly injured people (all seriously and injured are third parties that were exposed to ammonia release in the atmosphere)
Material damage:	It exists on infrastructure, rolling stock and goods

In this serious accident, due to the release from the damaged wagon-tank No. 33 80 7818 081-1 (thirteenth wagon, viewed from the locomotive), there was a loss of part of the cargo (ammonia). Mass of the lost cargo amounts to 34.66 t, with a value of 52,650.00 EUR.

According to the official middle exchange rate of the National Bank of Serbia on 25.12.2022, which was 1 EUR (Euro) = 117.2892 RSD (Serbian Dinars), the total material damage to the cargo (ammonia) caused by the serious accident amounts to 6,175,276.38 dinars (RSD).

In the serious accident, railway vehicles and infrastructure were damaged. The extent of the material damage caused to the property of third parties is not known.

The structure of the incurred material damage is given as follows:



Damage to railway vehicles (wagons within the composition):	1,622,962.33	RSD
Costs of lifting the derailed wagons:	6,795,444.06	RSD
Damage to the track (super and substructure):	1,134,963.00	RSD
Costs of machinery for the repair of the track damage:	952,104.00	RSD
Labor costs for the repair of the railway track damage:	3,457,349.00	RSD
Total direct material damage:	13,962,822.39	RSD

The damage is expressed in the official currency of the RS (Dinar - RSD).

According to the official middle exchange rate of the National Bank of Serbia on 25.12.2022, which was 1 EUR (Euro) = 117.2892 RSD (Serbian Dinars), the total material damage caused to the infrastructure and railway vehicles in the serious accident amounts to 119,046.10 euros (EUR).

4.1.2. The causes of the serious accident determined by investigation

The direct and immediate cause of the serious accident was the spreading of the rails under the load's action and the entry of the inner wheel into the track in the curve. The entry occurred due to the absence or looseness of fastening equipment on multiple consecutive sleepers, decayed or cracked sleepers, in combination with the track's geometric parameters beyond the emergency intervention limit – specifically, type “C” errors (cross level, twist, and track gauge). Due to a significant excess of cross level, the vertical load on the inner (left, in the direction of movement) wheels was increased. At the same time, the change in twist between the two values above the current intervention limit further induced oscillations around the longitudinal axis, causing even higher amplitude load on the inner wheels. Combined with the lateral guiding force in the curve, the very poor condition of the fastening equipment and sleepers led to the spreading of the rail heads and the entry of the inner wheel into the track.

Maintenance of the railway track on the observed section was not conducted in accordance with the Rulebook on the Technical Conditions and Maintenance of the Superstructure of Railway Tracks (“Official Gazette of the RS” No. 39/16 and 74/16), considering the years since the last track repairs and the insufficient number of workers, machinery, and tools.

The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004), introduced an alternative measure of “speed reduction” for the case of “unsatisfactory” track condition (errors in track geometry beyond the operational limits “C”), which did not exist in earlier editions of Instruction 339 (from 1989). Additionally, a paragraph from the previous 1989 edition of Instruction 339, which envisaged taking measures before reaching the operational limits to prevent their exceeding, has been removed. The amendments and supplements to the Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the RS” No. 14/22) only include specific provisions related to the track inspection coach Sever 1435.

The Rulebook on Maintenance of Super and Substructure of the Railway Tracks (“Official Gazette of the RS”, No. 39/23, dated 12.05.2023.) also provides for the case of values appearing in the parameters of the relative geometry of the track that exceed the limit for emergency (urgent) intervention, as an alternative measure, “speed reduction”.



The Rulebook on Technical Conditions and Maintenance of the Superstructure of the Railway Track, No.: 340-201-2/2016 (“Official Gazette of the RS”, No. 39/16 and 74/16), which was in force at the time of the occurrence of a serious accident, as well as Instruction 339 (“Official Gazette of the ZJŽ”, No. 2/2001, 4/2004, and “Official Gazette of the Railways of Serbia”, No. 14/22), and the Rulebook on Maintenance of Super and Substructure of the Railway Tracks (“Official Gazette of the RS”, No. 39/23 of 12.05.2023.), do not explicitly and clearly establish operational limits for the condition of sleepers and fastening equipment, where immediate corrective measures must be taken or the track must be closed for traffic due to safety risks.

At the section of the railway between Pirot station and the Staničenje crossing point, at the time of the serious accident, no reduced or restricted speeds or restricted speed runs were implemented. However, considering the fact that the projected speed on this section of the track was 85 km/h, while the maximum allowed speed, according to the valid Timetable Booklet 9.4, is 30 km/h, it is evident that the projected speed was significantly reduced in the previous period. Based on the above, it can be stated that on the mentioned section, due to the poor condition of the track over an extended period, in accordance with The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004), the applied measure of “speed reduction” (by telegrams from “IŽS” a.d. in 2011) was applied, which, starting from the Timetable 2017/2018, was categorized as the maximum allowed speed. Please note that the measure of “speed reduction” in cases of exceeding certain track parameters (e.g., track widening), above the operational limits, is not adequate, that is, this measure cannot be used to reduce the risk of derailment, as stipulated in Instruction 339, but it is necessary to urgently remediate the tracks in order to return the parameters of the track geometry to the permitted limits.

Even though with the Safety Management System Rulebook, “IŽS” a.d. did not perform a safety risk assessment and did not take appropriate measures based on multi-year reports that indicated that the condition of the section where the serious accident occurred was not in accordance with the Rulebook on the Technical Conditions and Maintenance of the Superstructure of Railway Tracks No.:340-201-2/2016 (“Official Gazette of the RS” No. 39/16 and 74/16).

4.1.3. Additional remarks on deficiencies and shortcomings determined during investigation, but with no relevance on the conclusions on the causes

Incorrect application of the rules regarding train braking according to the Rulebook on Brakes and Braking of Trains and Railway Vehicles (“Official Gazette of RS,” No. 68, dated 07.07.2021) can, in certain circumstances, lead to harmful events, accidents, or increased accident consequences. Therefore, it is necessary to align the text in the Rulebook on Brakes and Braking of Trains and Railway Vehicles with the provisions of IRS 40421.

Via electronic mail from 13.06.2023, “Srbija Kargo” a.d. data were submitted indicating that, according to the Rulebook on Official and Protective Clothing and Footwear for Employees in the Joint Stock Company for Railway Freight Transport “Srbija Kargo” a.d. Belgrade (“Official Gazette of ŽS,” No. 56/2019), employees performing duties as train drivers and assistant train drivers in “Srbija Kargo” a.d. are provided with the following protective equipment: protective high boots, protective low shoes, a protective work coat, and protective leather gloves. Additionally, it was reported that, in accordance with Article 51. of the Law on Railway Traffic Safety (“Official Gazette of RS,” No. 41/2018), traction vehicles equipped



with equipment that can be used after accidents, if necessary, possess fire extinguishing equipment and first aid kits.

Based on the information provided, it can be concluded that in this serious accident, the train driver and assistant train driver did not have respiratory protection equipment (adequate masks), nor did they have such equipment on the locomotive, which they could have used in this case, considering the consequences of the serious accident (release of ammonia into the atmosphere).

Considering that it is common for trains to transport hazardous materials that are dangerous to human life and health (dangerous goods), there is a risk that, due to the release of such materials into the atmosphere, the lives and health of the train crew may be endangered, as was the case in this serious accident.

4.1.4. Issued safety recommendations

To the Directorate for Railways SR_01/23, SR_02/23, SR_03/23, SR_04/23, SR_05/23, SR_06/23 and SR 07/23 are issued:

SR_01/23 The Directorate for Railways is to supervise the safety certificate for managing railway infrastructure of “IŽS” a.d. due to the failure to take urgent measures to rectify type “C” errors identified by measurements with track inspection coaches according to Instruction 339, prolonged poor track condition and inadequate maintenance of the track. It is required to take measures within its jurisdiction in accordance with the Article 15 of the Law on Railway Traffic Safety (“Official Gazette of the RS“, No. 41/2018).

SR_02/23 The Directorate for Railways is to amend and supply The Rulebook on Maintenance of Super and Substructure of the Railway Tracks (“Official Gazette of the RS“, No. 39/23, dated 12.05.2023.) by removing, in Article 5, paragraph 2, point 1), the speed reduction as a measure to decrease the risk of train derailment in the case of values appearing in the parameters of the relative track geometry that exceed the limit for emergency intervention.

SR_03/23 The Directorate for Railways is to amend and supply the Article 4, subitem 5) Annex 3 of the Rulebook on Brakes and Braking of Trains and Vehicles (“Official Gazette of the RS“, No. 68, dated 07.07.2021.) in accordance with the relevant requirements of IRS 40421.

SR_04/23 “IŽS” a.d. is required to conduct a review of the reasons for the occurrence of a large number of type “C” errors detected during the measurements with track inspection coaches, according to The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004, Official Gazette of ŽS, No. 14/22), over an extended period. Based on the assessment of safety risks that have arisen as a result, they should take effective measures to rectify safety deficiencies, in accordance with the requirements of Article 5 of the Law on Railway Traffic



Safety (“Official Gazette of the RS” No. 41/2018), and its Safety Management System Manual.

SR_05/23 “IŽS“a.d. is required to amend and supply The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004, Official Gazette of ŽS, No. 14/22), which is, by Decision “IŽS“a.d. No. 4/2015-51-17 of 29.12.2015. still in application in “IŽS“a.d., in accordance with provisions of the Instruction 339 from 1989.

SR_06/23 “IŽS“a.d. is required to, considering the inadequate maintenance and condition of the track, sleepers, and fastening equipment, conduct a risk assessment for train traffic on the main arterial line No.106: Niš - Dimitrovgrad - state border - (Dragoman) and take measures to reduce the risks to an acceptable level. Based on this, they should conduct a professional assessment of the minimum necessary resources (materials, machinery, workforce) for track maintenance.

SR_07/23 “IŽS“a.d. to consider in its Rulebook on organization and systematization of tasks within the Joint Stock Company for the Management of Public Railway Infrastructure “IŽS”a.d. and to examine the possibility of predicting an appropriate number of staff in the construction sector, both for the section of the track where the accident occurred and for the entire network, in order to ensure the safe operation of railway traffic. In accordance with the appropriate number of staff, they should plan the procurement of necessary machinery and tools, all with the aim of ensuring safe railway traffic.

To the Ministry of Construction, Transport and Infrastructure the recommendations SR_08/23 and SR_09/23 are issued:

SR_08/23 The Ministry of Construction, Transport, and Infrastructure, Inspection Supervision Sector, Department for Railway Traffic Inspection, is to conduct an extraordinary inspection of the state of railway infrastructure on the main arterial line No.106: Niš - Dimitrovgrad - state border - (Dragoman), from Niš station to Pirot station, in accordance with Article 55 of the Law on Railways (“Official Gazette the RS“, No. 41/2018 and 62/2023) and take measures within its jurisdiction.

SR_09/23 The Ministry of Construction, Transport, and Infrastructure, Railways and Intermodal Transport Sector, is to consider the possibility of amending Article 51 of the Law on Railway Traffic Safety (“Official Gazette of the RS” No. 41/18), equipment and traction vehicles, to stipulate that the locomotive must also have adequate equipment for the protection of the respiratory organs - protective equipment.



To Autorité française de sécurité ferroviaire the recommendation SR_10/23 is issued:

SR_10/23 Atir-Rail SA, is to, when receiving a vehicle from a regular repair, perform additional monitoring of the condition of the valves for filling and emptying the cistern, considering that on some cisterns, only a few months after the regular repair, leaks appear on the valves.



5. SAFETY RECOMMENDATIONS AND MEASURES TAKEN

With the aim to possibly improve railway safety and prevent the occurrence of new accidents, CINS, the Sector for Investigation of Accidents in Railway Traffic, issued 10 (ten) safety recommendations in 2023. In 2022, 8 (eight) safety recommendations have been issued. In 2021, 32 (thirty-two) safety recommendations were issued, in 2020, 10 (ten) safety recommendations were issued, in 2019, 32 (thirty-two) safety recommendations were issued, in 2018, 33 (thirty-three) safety recommendations were issued and in 2017, 7 (seven) safety recommendations were issued. Out of a total of 132 (one hundred and thirty-two) safety recommendations issued by CINS in 2017, 2018, 2019, 2020, 2021, 2022 and 2023, 99 (ninety-nine) safety recommendations (75%), were issued to the Directorate for Railways, and to the other bodies and organizations 33 (thirty-three) safety recommendations (25%) were issued.

The Table 5.1. shows issued safety recommendations per years.

Table 5.1: Issued safety recommendations

Year	Directorate for Railways		Other bodies and organizations		Total	
	[No.]	[%]	[No.]	[%]	[No.]	[%]
2017	6	85.71	1	14.29	7	100.00
2018	28	84.85	5	15.15	33	100.00
2019	24	75.00	8	25.00	32	100.00
2020	7	70.00	3	30.00	10	100.00
2021	19	59.38	13	40.62	32	100.00
2022	8	100.00	-	0.00	8	100.00
2023	7	70.00	3	30.00	10	100.00
Total	99	75.00	33	25.00	132	100.00

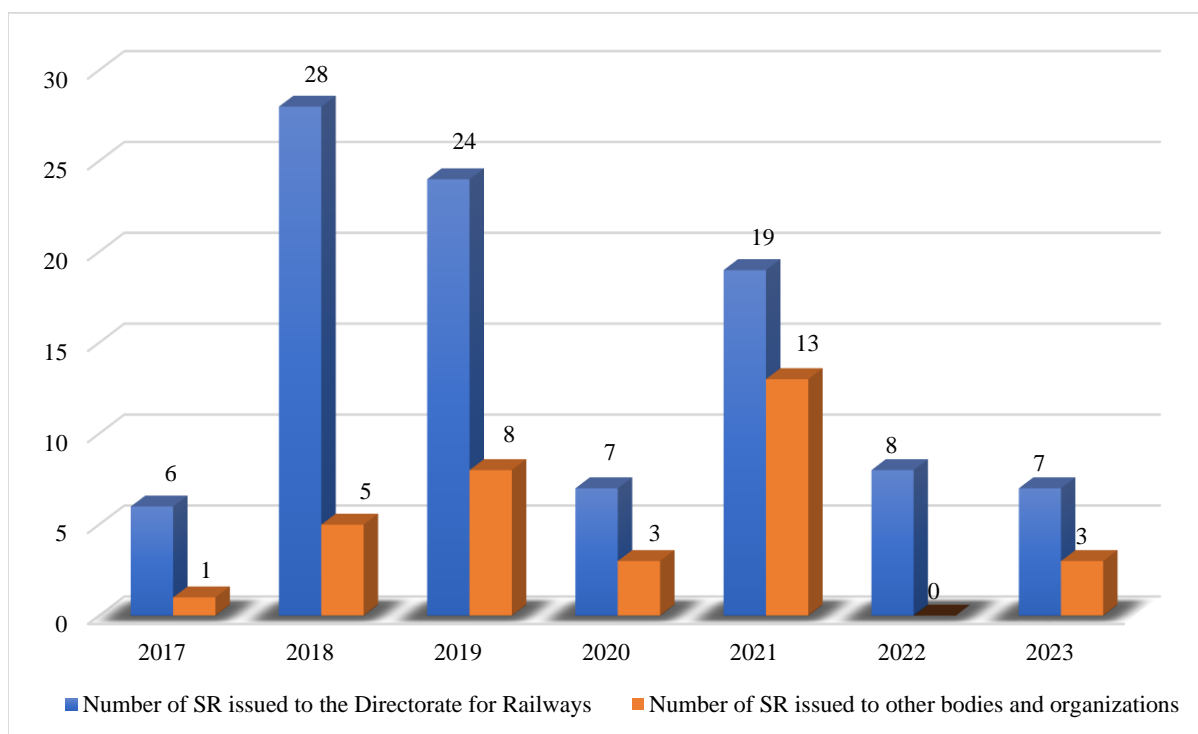


Figure 5.1: Graphic display of the number of issued safety recommendations per years

Table 5.2. shows the status of safety recommendations per years.

Table 5.2: Safety recommendations - status

Year	Accepted		Executed		Not accepted, no response has been submitted or it is not possible to determine the status from the submitted response		Total	
	[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
2017	-	-	2	28.57	5	71.43	7	100.00
2018	9	27.27	14	42.43	10	30.30	33	100.00
2019	10	31.25	9	28.12	13	40.63	32	100.00
2020	1	10.00	8	80.00	1	10.00	10	100.00
2021	14	43.75	10	31.25	8	25.00	32	100.00
2022	1	12.50	6	75.00	1	12.50	8	100.00
2023	6	60.00	2	20.00	2	20.00	10	100.00
Total	41	31.06	51	38.64	40	30.30	132	100.00

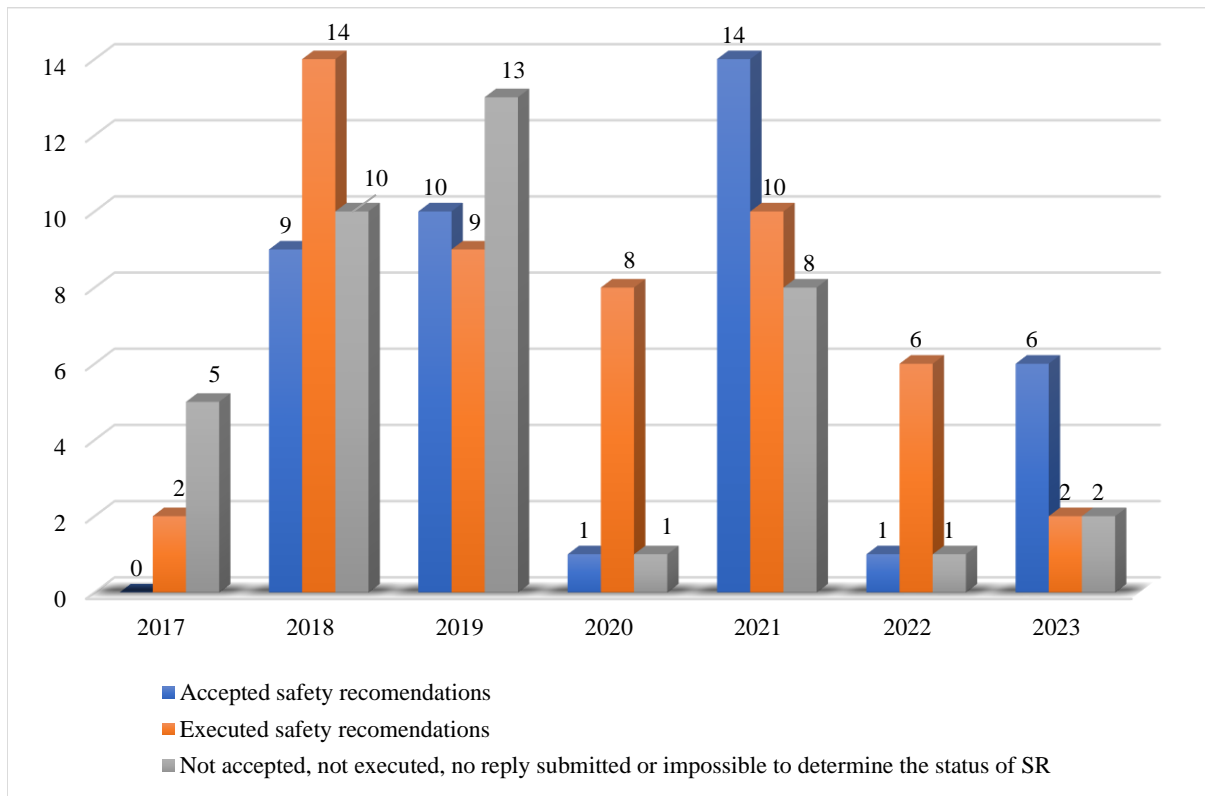


Figure 5.2: Graphic representation of the status of issued safety recommendations

Table 5.3. shows the status of issued safety recommendations issued to the Directorate for Railways per years.

Table 5.3. Issued safety recommendations to the Directorate for Railways - status

Year	Accepted		Executed		Not accepted, no response has been submitted or it is not possible to determine the status from the submitted response		Total	
	[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
2017	-	-	2	33.33	4	66.67	6	100.00
2018	8	28.57	13	46.43	7	25.00	28	100.00
2019	5	20.83	8	33.33	11	45.83	24	100.00
2020	-	-	7	100.00	-	-	7	100.00
2021	8	42.11	5	26.32	6	31.58	19	100.00
2022	1	12.50	6	75.00	1	12.50	8	100.00
2023	6	85.71	1	14.29	-	-	7	100.00
Total	28	28.27	42	42.42	29	29.29	99	100.00



The tables 5.4. and 5.5. show the status of safety recommendations issued to other bodies and organisations per years, and the Table 5.4. shows the status of safety recommendations issued to MGSI, while the Table 5.5. shows the status of issued safety recommendations to all other bodies and organisations.

Table 5.4: Issued safety recommendations to MGSI - status

Year	Accepted		Executed		Not accepted, no response has been submitted or it is not possible to determine the status from the submitted response		Total	
	[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
2017	-	-	-	-	1	100.00	1	100.00
2018	1	25.00	-	-	3	75.00	4	100.00
2019	5	83.33	1	16.67	-	-	6	100.00
2020	1	33.33	1	33.33	1	33.33	3	100.00
2021	6	50.00	5	41.67	1	8.33	12	100.00
2022	-	-	-	-	-	-	-	-
2023	-	-	1	50.00	1	50.00	2	100.00
Total	13	46.43	8	28.57	7	25.00	28	100.00

Table 5.5: Issued safety recommendations to the other bodies and organizations - status

Year	Accepted		Executed		Not accepted, no response has been submitted or it is not possible to determine the status from the submitted response		Total	
	[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
2017	-	-	-	-	-	-	-	-
2018	-	-	1	100.00	-	-	1	100.00
2019	-	-	-	-	2	100.00	2	100.00
2020	-	-	-	-	-	-	-	-
2021	-	-	-	-	1	100.00	1	100.00
2022	-	-	-	-	-	-	-	-
2023	-	-	-	-	1	100.00	1	100.00
Total	-	-	1	20.00	4	80.00	5	100.00



In accordance with Article 35 of the Law on Investigation of Accidents in Air, Railway and Waterborne Traffic (“Official Gazette of RS” No. 66/15 and 83/18), CINS issues safety recommendations based on data analysis and the results of the investigation. Recommendations are sent to the Directorate for Railways, and in the case when it is necessary, to other bodies and organizations in the RS, as well as to interested bodies and organizations of other countries and international organizations. The Directorate for Railways takes measures to take safety recommendations into account and to act upon them.

5.1. The status of safety recommendations from 2018

5.1.1. Investigation Report (ŽS-01/17) 33 No.: 340-07684/2017-006 of 01.03.2018. (Incident, decoupling of the train No. 8011 of 03.08.2017. at 07:55 on the main arterial route E 66: Belgrade Center – Pančevo Main station - Vršac – state border - (Stamora Moravita) in the area of the junction and stop Pančevački most)

SR_03/18 “Srbija Voz” a.d. should, in the submitted Instructions for the Repair of Couplings between Vehicles, which was produced within the Project for the preparation of the technical and overhaul documentation for the electric multiple unit of the series 412/416 by the Institute “Kirilo Savić” from Belgrade in 2004, align item 7 with the Working Instructions for the Control and Receiving Bodies of JŽ (“Official Gazette of ZJŽ“, No 1/03).

Status of the recommendation: The Directorate for Railways did not provide a response - a report on the measures that have been taken or are planned to be taken by July 31 of the current year, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Railway, and Waterborne Traffic (“Official Gazette” of the RS, No. 66/15 and 83/18).

The status of the safety recommendation SR_03/18 has not been modified compared to the Annual Report for 2022. Safety recommendation SR_03/18 is still in the process of implementation.

SR_05/18 “Srbija Voz” a.d. should harmonize its Instructions for the Maintenance of Traction Vehicles No.4/2016-16-4, dated 23.02.2016., with Article 34, paragraph 2 and Article 36 of the Rulebook on Rolling Stock Maintenance No. 340-382-7/2015 dated 04.12.2015. (“Official Gazette of RS”, No. 101/15), or to thoroughly reexamine the deadlines for regular repairs by taking the original technical documentation as a basis and to change them only after performing a risk evaluation and risk assessment based on information about the determined condition (especially measurement limits) during previous regular repairs, as well as to perform analyses of extraordinary repairs and unplanned works.

Status of the recommendation: Directorate for Railways submitted the Report - a Letter I-01 No. 001321663 2024 12500 001 001 340 039 02 001 of 09.04.2024, safety recommendation SR_05/18 is partially executed. New evidence has been provided that “Srbija Voz” a.d. engaged a certified body in June 2023 for the purpose of an independent assessment. New evidence has been provided that “Srbija Voz” a.d. has engaged a certified body for an independent assessment of the correct application of the risk management procedure, TOK-KONTROL



d.o.o., Novi Sad, as well as the Safety Assessment Report on the correct application of the risk management procedure for extending the deadlines for regular repairs of rolling stock and passenger cars, No. 59/37 dated September 8th, 2023, by TOK-KONTROL d.o.o., Novi Sad.

SR_06/18 “Srbija Voz” a.d. should perform a risk assessment for passenger transport in EMV of the series 412/416 where the extension of the deadlines for regular repairs was done before a previously performed risk evaluation and risk assessment based on the extension of these deadlines, as specified in paragraph 1, under 2) in Article 36 of the Rulebook on Rolling Stock Maintenance No. 340-382-7/2015 dated 04.12.2015. (“Official Gazette of RS”, No.101/15) and in paragraph 2, item 4.13. of the Rules of Procedure of the Safety Management System of “Srbija Voz” a.d. (due to the incident that occurred).

Status of the recommendation: Directorate for Railways submitted the Report - a Letter I-01 No. 001321663 2024 12500 001 001 340 039 02 001 of 09.04.2024., safety recommendation SR_06/18 is executed. New evidence has been provided that “Srbija Voz” a.d. has engaged a certified body for an independent assessment of the correct application of the risk management procedure, TOK-KONTROL d.o.o., Novi Sad, as well as the Safety Assessment Report on the correct application of the risk management procedure for passenger transport in EMV series 412/416, where the deadlines for regular repairs were extended, No. 60/37 dated September 8th, 2023, by TOK-KONTROL d.o.o., Novi Sad.

5.1.2. Investigation Report (ŽS-05/17) 33 No.: 340-00-10144/2017-20 of 18.05.2018. (Serious accident, overtaking of the train No. 4905 on the road passenger vehicle of 09.10.2017. at 20:26 on the main arterial route E 70/E 85: Belgrade - Mladenovac - Lapovo - Niš - Preševo - state border - (Tabanovce), on the level crossing, ensured with the traffic signs on the road and the necessary visibility zone, which is located on the open track between the stations Grdelica and Predejane)

SR_09/18 Ministry of Construction, Transport and Infrastructure should adjust the Rulebook on the mode of crossing the railway line and the road, pedestrian or bicycle path, a place where you can carry out the intersection and measures for ensuring safe traffic (“Official Gazette of RS” No. 89/2016) with actual performances of the road vehicles (in the manner of adjustment by some countries in the region) and the actual state of the railway infrastructure.

It is necessary to determine whether the speed of the road vehicle over the crossing which is used in these calculations by this Rulebook, and which amounts to 4 km/h is suitable for the actual performances of the rolling stock, or if this speed should be enlarged (for example, in the Republic of Slovenia the speed is 7 km/h). With the speed of 4 km/h, the large number of crossings cannot satisfy the minimal required zone of visibility that the Rulebook predicts.

Explanation for the Article 11 of the Rulebook, which is given in the Article 12, and which states:

“By securing the necessary zone of visibility from the Article 11 of this Rulebook, the participants in the road traffic are enabled with uninterrupted visibility on the railway track with both sides of the road, pedestrian or bicycle path, for noticing on time of the upcoming railway vehicles on the track so that they could stop the vehicle and stop the moving of the pedestrians or bicycles before they come to the



railway, that is, in front of the traffic sign that indicates the point where the road comes over the railway track at the railway level” would make sense only in the case that in front of the crossing there is no traffic sign II-2: “The obligation of stopping”. Situation on site confirms that the traffic sign II-2: “The obligation of stopping”, exists on all the crossings with passive signalization, which we consider absolutely necessary.

In the expression:

$$t_a = \frac{m + n + d + s}{V_p} \cdot 3,6 \quad [s]$$

In front of s should stand a sign “-”, and not the sign “+”.

Status of the recommendation: MGSI did not provide a response - a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Accidents in Air, Railway, and Waterborne Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_09/18 has not changed compared to the Annual Report for 2022. The safety recommendation SR_09/18 has been accepted.

SR_10/18 “IŽS” a.d. that given the existence of construction facilities, not even from the limit of dangerous area it is not possible to provide the necessary visibility in all directions, to consider introduction of active signalling, or to solve the problem in another way.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Accidents in Air, Railway, and Waterborne Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_10/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_10/18 is still in the process of implementation.

SR_11/18 “IŽS” a.d. to perform the expert- based risk assessment on the crossing. Having in mind that the accidents on the crossing (viewing them individually) are rare events, the risk evaluation cannot be done solely on the number of accidents that had happened on some crossings. The risk assessment should be done, as a measure of precaution, for all the crossing according to all the relevant parameters, whether there were accidents on them or not.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Accidents in Air, Railway, and Waterborne Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_11/18 has not changed compared to the Annual



Report for 2022. Safety recommendation SR_11/18 is still in the process of implementation.

SR_13/18 “IŽS” a.d. to do the act of “Programme for resolution of the level crossings” according to previously finished risk assessment, with the goal of taking certain actions to raise the level of safety in traffic.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Railway, and Waterborne Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_13/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_13/18 has been accepted (its implementation is possible only after the execution of safety recommendation SR_11/18).

5.1.3. Investigation Report (ŽS-04/17) 33 No.: 340-00-9180/2017-18 of 22.06.2018. (Accident, derailment of the pushed shunting composition of 17.09.2017. at 08:45 on the main arterial route E70/E85: (Belgrade) - Rakovica - Jajinci - Mala Krsna - Velika Plana, between the junction “K1” and station Rakovica)

SR_20/18 “IŽS” a.d. to conduct examination of the reasons why the measures have not been taken for urgent elimination of defects type “C” that were determined during the measurement with track examination coach under the Instruction on unique criteria for control of the condition of railways on the network JŽ, Instruction 339 (“Official Gazette of ZJŽ” No.2/2001 and 4/2004) and to develop coordination between sectors that determined the defect and sectors that should eliminate this defect, and under review of management in order to follow and analyse these cases. According to the evaluation of safety risks which due to this occurred, to take efficient measures for elimination of the safety flaws, and in accordance with the Article 5 of Law on safety in Railway Transport (“Official Gazette of RS” No. 41/2018) and its Safety Management System Manual.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in in Air, Railway, and Waterborne Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_20/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_20/18 is still in the process of implementation.



**5.1.4. Investigation Report (ŽS-06/17) 33 No.: 340-00-10982/2017-16 of 14.08.2018.
(Accident, derailment of the train No. 56990 of 03.11.2017. at 15:25 on the local
track Markovac - Resavica, between the station Svilajnac and Despotovac)**

SR_25/18 “IŽS” a.d. that, given the extremely poor condition of the track, makes an assessment of risk of train traffic on the local railway track Markovac - Resavica and take measures to reduce risks to an acceptable level. Based on this, to make a technical assessment of the minimum required resources (materials, machinery, labour) for track maintenance.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Railway, and Waterborne Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_25/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_25/18 is still in the process of implementation.

**5.1.5. Investigation Report (ŽS-07/17) 33 No.: 340-00-13136/2017-19 of 26.11.2018.
(Accident, derailment of the train No. 53527 of 23.12.2017. at 13:15 on the regional
line Pančevo Main Station - Zrenjanin - Kikinda - state border - (Jimbolia), in the
area of the station Novi Bečej)**

SR_29/18 “IŽS” a.d. that, due to inadequate maintenance and condition of the track, sleepers and fastening systems, conducts an assessment of risk of train traffic on the regional railway line Pančevo Main Station - Zrenjanin - Kikinda - (Jimbolia) and take measures to reduce risk to an acceptable level. Based on this, to conduct a technical assessment of the minimum required resources (material, machinery, work force) for track maintenance.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_29/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_29/18 is still in the process of implementation.

SR_30/18 “IŽS” a.d. to review the procedures and criteria for the approval of the traffic of trains with an overload and that this process is confined to the extreme and rare individual occasions, and not as a daily practice.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of



the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_30/18 has not changed compared to the Annual Report for 2022. Safety recommendation SR_30/18 is still in the process of implementation.

5.2. The status of safety recommendations from 2019

5.2.1. Investigation Report (ŽS-01/18) 33 No.: 340-00-3336/2018-10 of 06.03.2019. (Accident, fire on the train No. 2746 of 30.03.2018. at 17:50 on the regional track Crveni Krst - Zaječar - Prahovo Pristanište, between the stations Matejevac and Svrlijig)

SR_02/19 “Srbija Voz” a.d. that on the basis of quality control in the course of repair and final review of the DMK series 710, determine whether repairs were made in the required quality and scope of work, with the aim of adequate execution of the repairs in accordance with Article 8 of the Rulebook on the Maintenance of railway vehicles.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18). No new evidence has been provided regarding the implementation of the safety recommendation compared to the Annual Report for 2019. Safety recommendation SR_02/19 has not been executed.

SR_06/19 “Srbija Voz” a.d. that at the next regular repair DMK series 710, during the reconstruction of the interior applies materials in accordance with EN 45545-1 and EN 45545-2:2013+A1, that is SRPS EN 45545-1:2013 and SRPS EN 45545-2:2017.

Status of the recommendation: The Directorate for Railways has provided a report - letter I-01 No. 001321663 2024 12500 001 001 340 039 02 001 dated April 9, 2024. New evidence has been provided regarding the measures taken. Safety recommendation SR_06/19 has been implemented.

SR_07/19 Directorate for Railways to check the license for use of DMK series 710 in terms of improvement of technical solutions of the drive system and the application of appropriate materials in terms of controlling the fulfilment of conditions for issuing safety certificates for transport.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18). No new evidence has been provided regarding the implementation of the safety recommendation compared to the Annual Report for 2019. Safety recommendation SR_07/19 has not been executed.



5.2.2. Investigation Report (ŽS-04/18) No. 340-00-1/2018-2-2-45 of 29.11.2019. (Serious accident, overtaking of the train No. 7821 on the road vehicle bus of 21.12.2018. at 07:30 on the main arterial route E 70/E 85: Belgrade - Mladenovac - Lapovo - Niš - Preševo - state border - (Tabanovce), on the level crossing, secured with traffic signs on the road and the zone of necessary visibility, located in the area of the station Medurovo)

SR_24/19 Ministry of Construction, Transport and Infrastructure, that in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016), defines methodology (the manner) of determining (calculating) the elements of the zone of necessary visibility given in Annex 9 (d_{pz} - the length of stopping of the road vehicle and $s_{pžv}$ - the length of approaching of the railway vehicle).

Status of the recommendation: MGSI did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_24/19 has not changed compared to the Annual Report for 2022. Safety recommendation SR_24/19 has been accepted.

SR_25/19 Ministry of Construction, Transport and Infrastructure, that in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016), defines the procedure when there exists a necessary visibility according to the definition from the Article 2 Paragraph 1 under 12) of this Rulebook and it is not possible to determine the zone of necessary visibility. In particular, it should be borne in mind that by setting the traffic sign II-2: “Obligation of stopping”, while providing the necessary visibility, enables the safe passage of road vehicles over the crossing.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette” of the RS No. 66/15 and 83/18).

The status of safety recommendation SR_25/19 has not changed compared to the Annual Report for 2022. Safety recommendation SR_25/19 has been accepted.

SR_26/19 Ministry of Construction, Transport and Infrastructure that in the Article 14 of the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016), makes corrections in the expression:



$$t_v = \frac{m + n + d + s}{V_p} \cdot 3,6 \text{ [s]}$$

so that in front of s there is a sign “-”, and not the sign “+”.

Status of the recommendation: MGSI did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_26/19 has not changed compared to the Annual Report for 2022. Safety recommendation SR_26/19 has been accepted.

SR_27/19 Ministry of Construction, Transport and Infrastructure that in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016), harmonize the description of the position of point B given in Article 14, Article 15 and Annex 6.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

Regarding safety recommendation SR_27/19, the status has not changed compared to the Annual Report for 2022. Safety recommendation SR_27/19 has been accepted.

SR_29/19 Ministry of Construction, Transport and Infrastructure to consider the possibility that in the Law on traffic safety on the roads (“Official Gazette of RS” No. 41/2009, 53/2010, 101/2011, 32/2013 - decision US, 55/2014, 96/2015 - other law, 9/2016 - decision US, 24/2018, 41/2018, 41/2018 - other law and 87/2018) Article 153 Paragraph 2 to reformulate and harmonize with the Article 97 Paragraph 1 of the Law on safety of railway traffic (“Official Gazette of RS”, No.41/2018) in terms of more precise provisions for the installation of traffic lights.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

Considering the publication of the Law on Road Traffic Safety (“Official Gazette of the RS” No. 41/2009-3, 53/2010-12, 101/2011-270, 32/2013-22 (US), 55/2014-61, 96/2015-106 (amendment), 9/2016-178 (US), 24/2018-70, 41/2018-122, 41/2018-32 (amendment), 87/2018-26, 23/2019-3, 128/2020-3 (amendment), 76/2023-9), the CINS has determined that SR_29/19 has been implemented.



SR_30/19 “IŽS” a.d. to conduct expertly based risk assessment on level crossings. Given that the accidents on the level crossings (by reviewing every crossing individually) are rare events, it is not possible to assess risk solely on the number of accidents which occurred on the individual level crossings. Risk assessment, as a precautionary measure, should be made jointly for all level crossings in accordance with all relevant parameters, whether the accidents occurred or not.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

Regarding safety recommendation SR_30/19, the status has not changed compared to the Annual Report for 2022. The status of SR_30/19 is in execution.

SR_31/19 “IŽS” a.d. to make the act “Level Crossing Program” according to the previously done risk assessment on the level crossings with a view to undertake appropriate activities in order to raise the level of traffic safety.

Status of the recommendation: The Directorate for Railways did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

Regarding safety recommendation SR_31/19, the status has not changed compared to the Annual Report for 2022. The status of SR_31/19 is accepted (realization of SR_31/19 will be possible upon execution of the SR_30/19).

5.3. The status of safety recommendations from 2020

5.3.1. Investigation Report (ŽS-01/20) No. 340-03-1/2020-02-1-53 of 20.11.2020. (Serious accident, overtaking of the shunting composition MS-4 on the road passenger vehicle of 09.01.2020. at 02:35 on the industrial track, Oil Refinery Pančevo (“NIS” a.d. Novi Sad) on the level crossing, secured with automatic level crossing device, located in the area of the city of Pančevo, the city settlement Stara Misa)

SR_10/20 Ministry of Construction, Transport and Infrastructure to harmonize the provisions of Article 35, paragraph 1 under 2) of the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016) with Article 58, under 6. of the Rulebook 2, Traffic Rulebook (“Official Gazette of ZJŽ” No. 3/94, 4/94, 5/94, 4/96 and 6/03) and Article 124 of the Shunting Instruction 42 (“Official Gazette of ZJŽ” No. 3/80, 6/83, 3/87, 4/88, 6/91 and 2/94) regarding the manner in which the sent railway worker at the level crossing directly regulates the traffic by giving manual traffic signs to road vehicles.

Note: Article 35 Paragraph 1 under 2) of the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the point where the crossing can be



made and measures to secure the safe traffic (“Official Gazette of RS” No. 89/2016) refers to the regulations that regulate traffic safety on roads, and in these regulations the stated issue is not defined (it is defined only in cases of performing works).

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_10/20 has not changed compared to the Annual Report for 2022. Safety recommendation SR_10/20 has been accepted.

5.4. The status of safety recommendations from 2021

5.4.1. Investigation Report (ŽS-02/20) No. 340-03-1/2020-02-2-49 of 03.03.2021. (Serious accident, overtaking of the train No. 45403 on a road passenger vehicle on 25.07.2020. at 10:55 on the regional railway line 211: Ruma - Šabac - Junction Donja Borina - state border - (Zvornik Novi), at the level crossing, secured with road traffic signs and the zone of necessary visibility, located between the crossing point Štitar and the station Petlovača)

SR_03/21 Ministry of Construction, Transport and Infrastructure, in the Law on Roads (“Official Gazette of RS”, No. 41/2018 and 95/2018 - other law) in Article 68 to define (supplement) maintenance - landscaping of green areas (grass mowing, clearing shrubs and cutting of trees) in the zone of necessary visibility at the points of crossing of the railway line and the road, in accordance with Article 38, which defines the obligation to provide the zone of necessary visibility in accordance with the regulations.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_03/21 has not changed compared to the Annual Report for 2022. Safety recommendation SR_03/21 has been accepted.

SR_04/21 Ministry of Construction, Transport and Infrastructure, to define in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the place where the crossing can be made and the measures for ensuring safe traffic (“Official Gazette RS”, No. 89/2016) the methodology (method) for determining (calculating) the elements of the zone of necessary visibility given in the Annex 9 (d_{pz} – length of stopping the road vehicle and $S_{pžv}$ – length of approaching the railway vehicle).

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure



(MGSI) did not provide a response – a report on the measures that have been taken or are planned to be taken by July 31 of the current year for the Annual Report for 2023, which is in violation of paragraph 6 of Article 35 of the Law on the Investigation of Accidents in Air, Rail, and Water Transport (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_04/21 has not changed compared to the Annual Report for 2022. Safety recommendation SR_04/21 has been accepted.

SR_05/21 Ministry of Construction, Transport and Infrastructure, to define in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the place where the crossing can be made and the measures for ensuring safe traffic (“Official Gazette RS”, No. 89/2016) the procedure in the case when there is the necessary visibility according to the definition from Article 2, Paragraph 1 under 12) of this Rulebook and it is not possible to provide the zone of necessary visibility. In particular, it should be borne in mind that the installation of traffic sign II-2: “Obligation of stopping” while providing the necessary visibility, allows safe passage of road vehicles over the crossing.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not provided a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report. This is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_05/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_05/21 has been accepted.

SR_06/21 Ministry of Construction, Transport and Infrastructure, to make corrections in the expression in Article 14 of the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the place where the crossing can be made and the measures for ensuring safe traffic (“Official Gazette of RS” No. 89/2016):

$$t_v = \frac{m + n + d + s}{V_p} \cdot 3,6 \text{ [s]}$$

so that in front of s there is a sign “-”, and not the sign “+”.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_06/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_06/21 has been accepted.

SR_07/21 Ministry of Construction, Transport and Infrastructure to harmonize, in the Rulebook on the manner of crossing of the railway line and the road, pedestrian or bicycle path, the place where the crossing can be made and the measures for



ensuring safe traffic (“Official Gazette of RS” No. 89/2016), the description of the position of point B given in Article 14, Article 15 and Annex 6.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_07/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_07/21 has been accepted.

SR_08/21 Ministry of Construction, Transport and Infrastructure to consider the possibility that in the Law on Road Traffic Safety (“Official Gazette of RS” No. 41/2009, 53/2010, 101/2011, 32/2013 - decision US, 55/2014, 96/2015 - other law, 9/2016 - decision US, 24/2018, 41/2018, 41/2018 - other law and 87/2018) Article 153, Paragraph 2 reformulates and harmonizes with the Article 97, Paragraph 1 of the Law on Railway Traffic Safety (“Official Gazette of RS” No. 41/2018) in terms of more precise provisions for the installation of traffic lights.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

Considering the publication of the Law on Road Traffic Safety (“Official Gazette of the RS” No. 41/2009-3, 53/2010-12, 101/2011-270, 32/2013-22 (US), 55/2014-61, 96/2015-106 (amendment), 9/2016-178 (US), 24/2018-70, 41/2018-122, 41/2018-32 (amendment), 87/2018-26, 23/2019-3, 128/2020-3 (amendment), 76/2023-9), the CINS has determined that SR_08/21 has been implemented.

SR_09/21 IŽS”a.d. to consider a change in the level of insurance (introduction of active signallization) for the level crossing in question, or solve the problem in some other way. Due to the existence of facilities near the level crossing and the curve on the railway, the necessary visibility zone is not provided, and due to the abundant vegetation in the infrastructure belt and thus in the railway belt, the necessary visibility is not provided. It is also a fact that the level crossing in question is a crossing of a regional line and a state road of IIA rank.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_09/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_09/21 is in implementation.



SR_10/21 “IŽS”a.d. to make a professionally based risk assessment at road crossings. Bearing in mind that accidents at road crossings (observing each crossing separately) are rare events, risk assessment cannot be performed only on the basis of the number of accidents that occurred at individual road crossings. Risk assessment, as a precautionary measure, should be performed collectively for all road crossings according to all relevant parameters, regardless of whether accidents have occurred at them or not.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_10/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_10/21 is in implementation.

SR_11/21 “IŽS”a.d. to make an act “Program for solving road crossings” according to the previously done risk assessment at road crossings, in order to take appropriate activities with the aim to raise the level of traffic safety.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_11/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_11/21 is accepted (the realization of SR_11/21 is possible upon realization of the SR_10/21).

5.4.2. Investigation Report (ŽS-03/20) No. 340-00-2/2020-02-1-53 of 17.11.2021. (Accident, derailment of the train No. 45022 of 28.11.2020. at 19:27 on the main arterial line 102: Belgrade Center - Junction “G” - Rakovica - Mladenovac - Lapovo - Niš - Preševo - state border - (Tabanovce), between the stations Bagrdan and Jagodina, on the left track of the two-track railway line)

SR_13/21 “IŽS”a.d., to conduct the risk assessment of train traffic on the main arterial line 102: Belgrade Center - Junction “G”- Rakovica - Mladenovac - Lapovo - Niš - Preševo - state border - (Tabanovce), left track, from Markovac station (exclusively) km 101+057 to Jagodina station (inclusive) km 136+000, given the inadequate maintenance and condition of tracks, sleepers and fasteners and the insufficient number of executors for maintenance from the construction industry; and take measures to reduce the risk to an acceptable level.

Status of the recommendation: The Directorate for Railways has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the



2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_13/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_13/21 is in implementation.

SR_14/21 “IŽS” a.d., in the Rulebook on organization and work positions systematization of “IŽS” a.d., Belgrade, to consider the adequacy of the existing ones and consider the possibility to predict the appropriate number of executors in the construction industry both on the section of the railway on which the accident occurred and on the entire network in order to ensure the safe conduct of railway traffic. In accordance with the appropriate number of executors to plan the procurement of the necessary machinery and tools, all in order to ensure the safe conduct of railway traffic.

Status of the recommendation: The Directorate for Railways has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_14/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_14/21 is in implementation.

SR_15/21 Elixir Zorka Mineralna đubriva d.o.o. Šabac, to establish maintenance procedures with a list of instructions that must be an integral part of the maintenance file with a detailed list of scope of work in regular repairs of wagon-tanks for transportation of sulfuric acid.

Status of the recommendation: The Directorate for Railways has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

No evidence has been submitted on realization of the safety recommendation since it has been issued. Safety recommendation SR_14/21 has not been executed.

SR_16/21 Elixir Zorka Mineralna đubriva d.o.o. Šabac, to establish maintenance procedures, in accordance with the requirements of the Rulebook on maintenance of railway vehicles (“Official Gazette of RS” No. 144/2020), where the maintenance of bogies must be performed according to the manufacturer's instructions, and the procedures must be harmonized with that instruction, considering that wagons with worn inserts of the center bowl and side bearers represent a significant risk of derailment in curves and in which the documentation of the characteristics of the buffer after repair and comparison with the characteristic given by the manufacturer will be defined, i.e. for newer and reconstructed wagons in accordance with the required characteristic according to EN 15551 for the corresponding type of buffer.



Status of the recommendation: The Directorate for Railways has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

No evidence has been submitted on realization of the safety recommendation since it has been issued. Safety recommendation SR_16/21 has not been executed.

SR_17/21 Elixir Group d.o.o. Šabac, as the holder for whose needs the transport is performed, it is necessary to provide procedures for proper closing of tank lids in accordance with the manufacturer's instructions, which include: checking the cleanliness and flatness of adjacent surfaces, use of undamaged prescribed seals, closing the opening with the projected number of screws with a torque wrench with the torque prescribed by the manufacturer. If this information is not known from the manufacturer, the tightening torque must be prescribed according to the general technical standards for pressure vessels.

Status of the recommendation: The Directorate for Railways has not submitted a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

No evidence has been submitted on realization of the safety recommendation since it has been issued. Safety recommendation SR_17/21 has not been executed.

SR_18/21 Elixir Group d.o.o. Šabac, as the holder for whose needs the transport is performed, should require that staff be trained at all loading and unloading points to properly close the lids and carry it out according to the adopted procedure.

Status of the recommendation: The Directorate for Railways has not provided a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

No evidence has been provided regarding the implementation of the safety recommendation since its issuance. Safety recommendation SR_18/21 has not been executed.

SR_19/21 Elixir Group d.o.o. Šabac, as the holder of the wagons which did not have individual licenses to prescribe in its acts the verification of the existence of an individual license for use, before using the wagon and to conduct additional training of its staff on this issue.

Status of the recommendation: The Directorate for Railways has not provided a response - a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).



No evidence has been provided regarding the implementation of the safety recommendation since its issuance. Safety recommendation SR_19/21 has not been executed.

5.4.3. Investigation Report (ŽS-04/20) No. 340-03-1/2020-02-3-42 of 22.11.2021. (Serious accident, overtaking of the train No. 6431 on the road passenger vehicle of 02.12.2020. at 08:15 on the main arterial line 110: 110: Subotica - Bogojevo - state border - (Erdut), on the level crossing secured with automatic half barriers with light traffic signs and traffic signs on the road, located in the area of the settlement Bajmok)

SR_26/21 “IŽS” a.d., to revise the technical documentation and diagnostic software for the road crossing device PZZ-EA, and to consider the need for their supplementation and correction in terms of correct and clear translation into Serbian with the use of precise and professional terms. This primarily refers to the documentation for the operation and maintenance of the device, so that the content of the mentioned documentation is clear to the employees of the maintenance service.

Status of the recommendation: The Directorate for Railways has not provided a response – a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_26/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_26/21 has been accepted.

SR_28/21 “IŽS” a.d., in the Rulebook on organization and work positions systematization of “IŽS” a.d., Belgrade, to consider the adequacy of the existing ones and consider the possibility to predict the appropriate number of executors in the electro technical affairs (worker on SS devices and facilities maintenance) both on the section of the railway on which the serious accident occurred and on the entire network in order to reduce the time of starting the process of elimination of the fault to a measure that is in accordance with the Rulebook on maintenance of signalling and safety devices (“Official Gazette RS”, No. 41/18), thus minimizing the time in which SS devices are in the state of fault, all in order to ensure the safe conduct of railway traffic.

Status of the recommendation: The Directorate for Railways has not provided a response – a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_28/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_28/21 is in implementation.



SR_29/21 “IŽS” a.d., to carry out activities on obtaining a use permit issued by the Ministry of Construction, Transport and Infrastructure for level crossing at km 102+890, in accordance with the Article 158 of the Law on Planning and Construction (“Official Gazette of RS”, No. 72/2009, 81/2009 - amended, 64/2010 – US decision, 24/2011, 121/2012, 42/2013 - US decision, 50/2013 - US decision, 98/2013 - US decision, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - other law, 9/2020 and 52/2021).

Status of the recommendation: The Directorate for Railways has not provided a response – a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_29/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_29/21 has been accepted.

SR_32/21 The Ministry of Construction, Traffic and Infrastructure to harmonize the Article 2, item 11 and Annex 2 of the Rulebook on the manner of crossing the railway and road, pedestrian or bicycle path, the place where the crossing can be made and measures to ensure safe traffic (“Official Gazette of RS” No. 89/2016) with Annex 2 of the Rulebook on technical conditions for signalling-safety devices (“Official Gazette of RS”, No. 18/2016 and 89/2016) regarding the definition of the border of the dangerous zone of the road crossing, that is, the border of the free profile.

Status of the recommendation: The Ministry of Construction, Traffic and Infrastructure (MGSI) has not provided a response – a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18).

The status of safety recommendation SR_32/21 has not changed compared to the 2022 Annual Report. Safety recommendation SR_32/21 has been accepted.

5.5. The status of safety recommendations from 2022

5.5.1. Investigation Report (ŽS-02/21) No. 340-01-1/2021-02-2-42 of 01.06.2022. (Serious accident, Overtaking of the pushed shunting composition on the railway worker on 12.07.2021. at 07:43 in the area of the industrial railway JP “EPS” Branch TENT from Obrenovac, at the station Obrenovac)

SR_08/22 JP “EPS” Branch TENT from Obrenovac, to consider the possibility of a constructive solution for the installation of steps and handrails on the front sides of the wagon type Arbel of series Faboo, for safe stay of train attendants during shunting drives or to apply other measures in order to perform shunting drives with attendants in accordance with the Shunting Instruction 42 (“Official Gazette of ZJŽ” No. 3/80, 6/83, 3/87, 4/88, 6/91 and 2/94) that is, the Traffic Rulebook



(“Official Gazette of RS” No. 34/22).

Status of the recommendation: The Directorate for Railways has submitted a report – correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024, in which evidence of measures being taken was provided. Safety recommendation SR_08/22 is in the process of implementation.

5.6. The status of safety recommendations from 2023

5.6.1. Investigation Report (ŽS-01/22) No. 340-00-2/2022-02-1-120 of 12.10.2023. (Serious accident, derailment of train No. 45010. of 25.12.2022. at 16:45 on the main arterial line No. 106 Niš - Dimitrovgrad – state border - (Dragoman). between the Staničenje crossing point and the Pirot station)

SR_01/23 The Directorate for Railways is to supervise the safety certificate for managing railway infrastructure of “IŽS” a.d. due to the failure to take urgent measures to rectify type “C” errors identified by measurements with track inspection coaches according to Instruction 339, prolonged poor track condition and inadequate maintenance of the track. It is required to take measures within its jurisdiction in accordance with the Article 15 of the Law on Railway Traffic Safety (“Official Gazette of the RS”, No. 41/2018).

Status of the recommendation: The Directorate for Railways submitted a report – correspondence I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024. Safety recommendation SR_01/23 was not accepted. The Directorate for Railways also submitted a report – correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024, stating that the safety recommendation has been implemented, as the Directorate for Railways, by Decision I-01 No. 340-872/2023 dated August 15, 2023, ordered a set of measures corresponding to the safety recommendation. Upon reviewing the submitted evidence, CINS concluded that SR_01/23 has been executed.

SR_02/23 The Directorate for Railways is to amend and supply The Rulebook on Maintenance of Super and Substructure of the Railway Tracks (“Official Gazette of the RS”, No. 39/23, dated 12.5.2023.) by removing, in Article 5, paragraph 2, point 1), the speed reduction as a measure to decrease the risk of train derailment in the case of values appearing in the parameters of the relative track geometry that exceed the limit for emergency intervention.

Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_02/23 has been taken into consideration.

SR_03/23 The Directorate for Railways is to amend and supply the Article 4, subitem 5) Annex 3 of the Rulebook on Brakes and Braking of Trains and Vehicles (“Official Gazette of the RS”, No. 68, dated 7.7.2021.) in accordance with the relevant requirements of IRS 40421.



Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_03/23 has been accepted.

SR_04/23 “IŽS”a.d. is required to conduct a review of the reasons for the occurrence of a large number of type “C” errors detected during the measurements with track inspection coaches, according to The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004, Official Gazette of ŽS, No. 14/22), over an extended period. Based on the assessment of safety risks that have arisen as a result, they should take effective measures to rectify safety deficiencies, in accordance with the requirements of Article 5 of the Law on Railway Traffic Safety (“Official Gazette of the RS” No. 41/2018), and its Safety Management System Manual.

Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001321663 2024 12500 001 001 340 039 02 001 dated April 9, 2024, I-01 No 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_04/23 has been accepted.

SR_05/23 “IŽS”a.d. is required to amend and supply The Instruction on Unique Criteria for Track Condition Control on the Railways of the RS, Instruction 339 (“Official Gazette of the Railways of the ZJŽ” No. 2/2001 and 4/2004, Official Gazette of ŽS, No. 14/22), which is, by Decision “IŽS”a.d. No. 4/2015-51-17 of 29.12.2015. still in application in “IŽS”a.d., in accordance with provisions of the Instruction 339 from 1989.

Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001321663 2024 12500 001 001 340 039 02 001 dated April 9, 2024, I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_05/23 has been accepted.

SR_06/23 “IŽS”a.d. is required to, considering the inadequate maintenance and condition of the track, sleepers, and fastening equipment, conduct a risk assessment for train traffic on the main arterial line No.106: Niš - Dimitrovgrad - state border - (Dragoman) and take measures to reduce the risks to an acceptable level. Based on this, they should conduct a professional assessment of the minimum necessary resources (materials, machinery, workforce) for track maintenance.

Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001321663 2024 12500 001 001 340 039 02 001 dated April 9, 2024, I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_06/23 has been accepted.



SR_07/23 “IŽS” a.d. to consider in its Rulebook on organization and systematization of tasks within the Joint Stock Company for the Management of Public Railway Infrastructure “IŽS” a.d. and to examine the possibility of predicting an appropriate number of staff in the construction sector, both for the section of the track where the accident occurred and for the entire network, in order to ensure the safe operation of railway traffic. In accordance with the appropriate number of staff, they should plan the procurement of necessary machinery and tools, all with the aim of ensuring safe railway traffic.

Status of the recommendation: The Directorate for Railways submitted reports – correspondence I-01 No. 001321663 2024 12500 001 001 340 039 02 001 dated April 9, 2024, I-01 No. 001311129 2024 12500 001 001 340 039 02 005 dated April 16, 2024, and correspondence No. 002269838 2024 12500 001 001 051 001 01 001 dated July 25, 2024. Safety recommendation SR_07/23 has been accepted.

SR_08/23 The Ministry of Construction, Transport, and Infrastructure, Inspection Supervision Sector, Department for Railway Traffic Inspection, is to conduct an extraordinary inspection of the state of railway infrastructure on the main arterial line No.106: Niš - Dimitrovgrad - state border - (Dragoman), from Niš station to Pirot station, in accordance with Article 55 of the Law on Railways (“Official Gazette the RS”, No. 41/2018 and 62/2023) and take measures within its jurisdiction.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI), Inspection Supervision Sector, Railway Traffic Inspection Department submitted a response – report No. 001029835 2024 14810 009 006 042 002 dated April 9, 2024. Evidence was provided, specifically the Inspection Supervision Record No. 001029835 2024 14810 009 006 042 002 dated April 9, 2024, based on which it can be concluded that measures have been taken in accordance with the safety recommendation. Safety recommendation SR_08/23 has been executed.

SR_09/23 The Ministry of Construction, Transport, and Infrastructure, Railways and Intermodal Transport Sector, is to consider the possibility of amending Article 51 of the Law on Railway Traffic Safety (“Official Gazette of the RS” No. 41/18), equipment and traction vehicles, to stipulate that the locomotive must also have adequate equipment for the protection of the respiratory organs - protective equipment.

Status of the recommendation: The Ministry of Construction, Transport, and Infrastructure (MGSI) has not provided a response – a report on the measures taken or planned to be taken by July 31 of the current year for the 2023 Annual Report, which is in violation of paragraph 6 of Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18). The status of safety recommendation SR_09/23 is unknown.



SR_10/23 Atir-Rail SA, is to, when receiving a vehicle from a regular repair, perform additional monitoring of the condition of the valves for filling and emptying the cistern, considering that on some cisterns, only a few months after the regular repair, leaks appear on the valves.

Status of the recommendation: Autorité française de sécurité ferroviaire has not provided a response. According to Article 35 of the Law on Accident Investigation in Air, Rail, and Water Traffic (“Official Gazette of the RS” No. 66/15 and 83/18), authorities and organizations from other countries and international organizations are not required to submit an annual report to CINS on measures taken or planned based on issued safety recommendations in the previous year. In response to the Draft final report sent via email on October 2, 2023, by Atir-Rail SA, it was stated that safety recommendation SR_10/23 will be taken into consideration and will be implemented.