



MINISTERUL TRANSPORTURILOR ȘI INFRASTRUCTURII  
AGENȚIA DE INVESTIGARE FERROVIARĂ ROMÂNĂ - AGIFER



## ROMANIAN RAILWAY INVESTIGATION AGENCY - AGIFER -

## ANNUAL REPORT 2023



## **INTRODUCTION**

This is the annual report of the Railway Investigation Agency - AGIFER (hereinafter referred to as AGIFER) for the calendar year 2023. It fulfills the requirements of Directive 2016/798/EC of the European Parliament and of the Council, transposed into Romanian law by Emergency Ordinance No. 73/2019 *on Railway Safety*.

This reference legislation can also be found on the AGIFER website at [www.agifer.ro](http://www.agifer.ro).

## Contents

1	ABOUT .....	4
1.1	Foreword by the Director General of AGIFER .....	4
1.2	Role and purpose .....	5
1.3	General data on AGIFER .....	5
1.4	Organization .....	5
1.5	Organizational Chart.....	6
2	INVESTIGATION PROCESS .....	7
2.1	Rail events which have been investigated .....	7
2.2	Situation of open/completed investigation actions in the last 5 years.....	10
2.3	Institutions involved in the investigation (routinely or exceptionally).....	10
2.4	Diagram of the investigation process .....	11
3	INVESTIGATIONS .....	12
3.1	Overview of investigations completed in 2023 compared to 2022, identification of main trends .....	12
3.2.	Investigations completed and investigations opened in 2023 .....	12
3.3.	Research studies (or safety studies) completed or commissioned in 2022.....	25
3.4.	Summary of investigations completed and closed in 2023 .....	26
3.5	Accidents and incidents that have been investigated during the last 5 years .....	74
4	RECOMMENDATIONS .....	75
4.1.	Brief overview and analysis of safety recommendations issued in 2023.....	75
4.2.	State of implementation of safety recommendations issued in the last 5 years .....	81

## 1. ABOUT

### 1.1. Foreword by the General Manager of AGIFER

In 2023, the number of accidents and incidents open by AGIFER is 53, identical to the number of investigations opened previous year, and the number of completed investigations along this period is 56, identical to those of 2022, with the mention that the number of accidents had a decreasing tendency compared to the number of incidents which had an increasing tendency.

The year that elapsed indicated an increase of about 200% of the number of investigations open by AGIFER for accidents caused by collisions between trains or between rail cars as a result 12 people required medical care of which, after being transported to the hospital, one person died.

From these 31 accidents whose investigation was completed along the period analyzed, 1 case consisted of a collision between two freight trains, 26 were derailments and 4 fires into rolling stock (3 into locomotives and a case into diesel multiple unit). Out of the 26 derailments, in terms of causal factors, for 14 cases there were nonconformities in track condition, in particular the improper condition of the wooden sleepers (8), in 4 cases both nonconformities relating to the condition of the track and at the rolling stock, in 1 case nonconformities relating to the irregular loading of wagons, in 5 cases rolling stock failure and in 3 cases human error.

The proportion of accidents for which the investigations have revealed that the resources allocated for maintenance and investment are not enough continue to maintain high, so, in many cases the deadlines for repairs at the rolling stock and railway infrastructure are not complied with, and the specialized human resources have a negative impact on the way the activity is carried out. Also, risk assessment, management and containment require further attention.

During the period under review AGIFER continued its efforts to update the legislation on investigation, being submitted to the Ministry of Transport and Infrastructure, the draft of a new Regulation of Investigation, whose provisions to be correlated with the European legislation adopted in recent years at European level. The approval of the new Regulation would avoid the situation in which the railway system would remain without any regulation on the unitary notification and investigation of railway accidents and incidents in the event that the European Commission would impose the repeal of the current Regulation (Regulation approved by Government Decision 117/2010 - which is on the list of European norms that require cleaning up) as has happened with other regulations or fragments/articles of regulations.

Regarding the cooperation with other investigative bodies within the network set up at European level, AGIFER continued its active participation in the next working groups:

- Peer review working group in accordance with the provisions of Art.22(7) of 798/2016 Directive on Railway Safety;
- Working Group for the development of guidelines Network of Investigating Bodies Network;

AGIFER participated also in the EsREDA seminars – European Safety, Reliability and Data Association, where there are present specialists on safety investigation specialists from the air, chemical fields, etc.

The collaboration with the railway economic operators within the investigations, although the conclusions of the investigation reports are not always comfortable for them, revealing real problems that need to be very carefully kept under control, was based on the understanding of the common goal of improving rail safety, taking into account the lessons to be learned.

For this I would like to express my thanks to all the railway undertakings, infrastructure administrator/ managers and entities in charge with the maintenance, as well as their employees, which cooperated during the investigations, who have supported us in our activity.

**Director General AGIFER  
Laurențiu Cornel DUMITRU**

## 1.2. Role and purpose

### The role of the Romanian Railway Investigation Agency - AGIFER

AGIFER investigates all accidents and incidents in train running, on railway and metro networks as well as incidents which under slightly different conditions could have led to serious accidents, including technical failures of structural subsystems or interoperability constituents of the European high-speed and conventional rail system.

In accordance with the provisions of Emergency Ordinance no.73/2019 *on railway safety* and Government Decision no.117/02.03.2010 approving the Regulation on the investigation of accidents and incidents, development and improvement of railway safety on the Romanian railways and metro transportation network (hereinafter referred to as *the Investigation Regulation*), in taking the decision on the opening of an investigation, AGIFER, takes into account:

- the seriousness of the accident or incident;
- if it is part of a series of accidents or incidents relevant to the whole system;
- its impact on rail safety at Community level;
- requests from infrastructure managers, rail transport operators, the Romanian Railway Safety Authority or EU Member States.

### Aims of AGIFER

AGIFER's rail accident and incident investigation actions aim to improve rail safety and to prevent the occurrence of accidents or incidents similar to those investigated. The investigation actions, where necessary, shall, where appropriate, end result in safety recommendations, which are proposals to improve railway safety.

## 1.3. General data on AGIFER

### Staff employed at the end of 2023

In AGIFER, at the end of 2023, a total of 42 employees worked, of which:

- 1 Director-General;
- 1 Deputy Director-General;
- 1 economic director;
- 3 advisors director general;
- 5 heads of service;
- 1 auditor;
- 1 legal adviser
- 21 investigators;
- 5 experts;
- 1 technician;
- 1 referent;
- 1 economist.

### Allocated budget

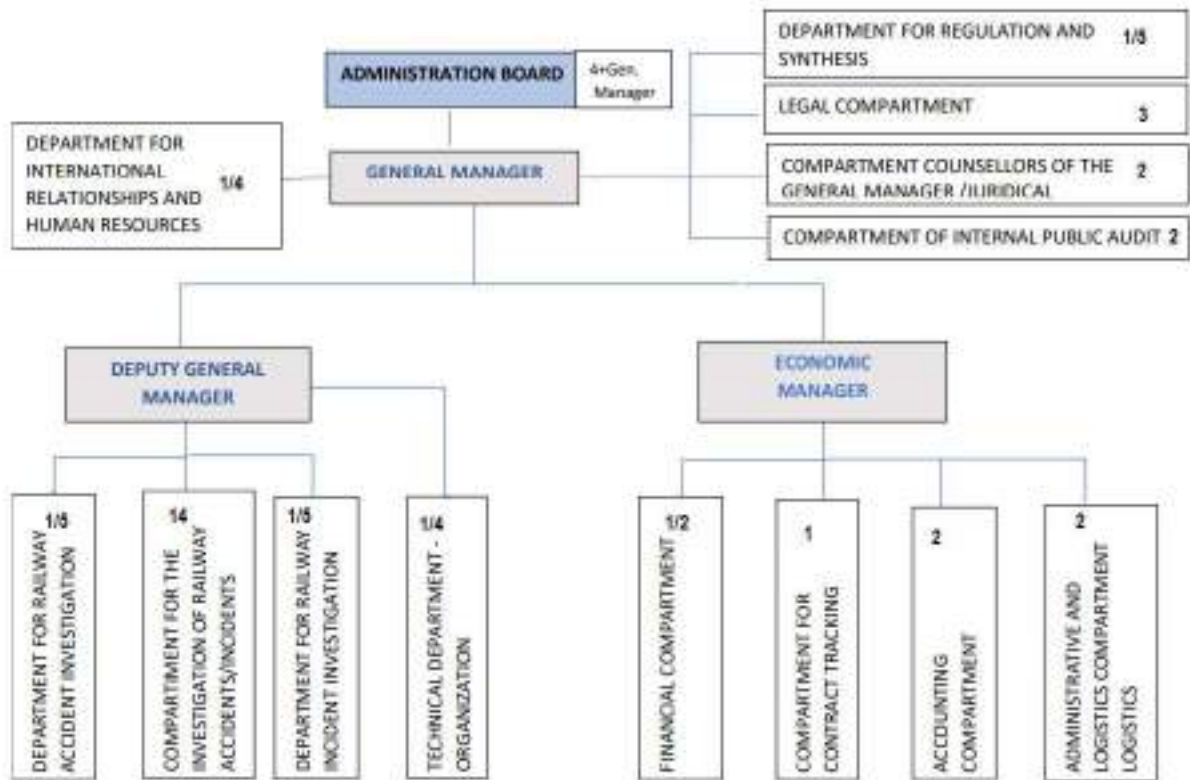
In 2023, AGIFER had a budget expenditure of 8.178.347 lei, equivalent to 1.644.021 euro (reference exchange rate on 29.12.2023 - 1 € = 4,9746 lei).

## 1.4. Organization

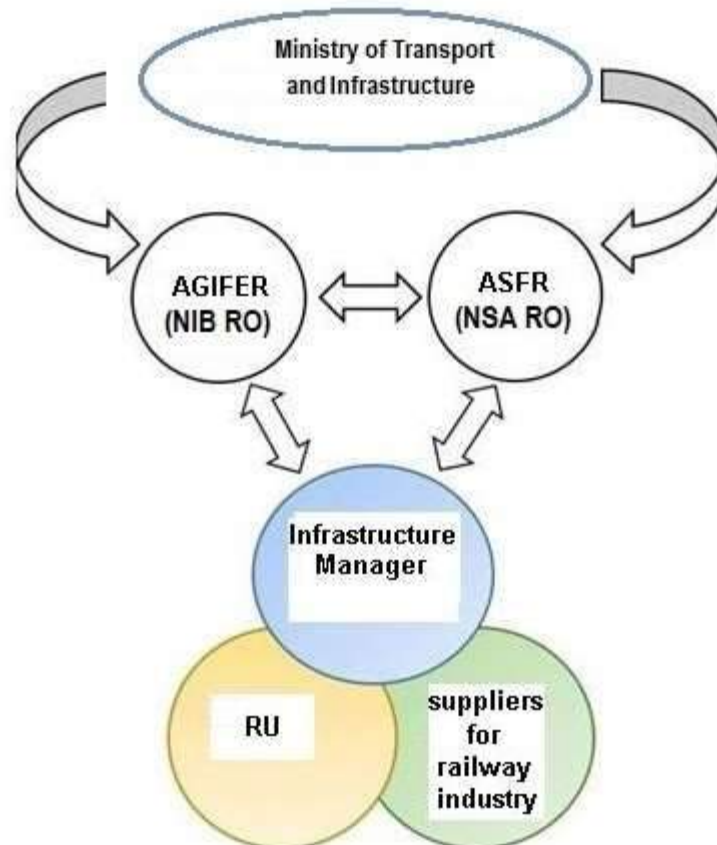
1171/11.07.2018, the organizational structure of the Romanian Railway Investigation Agency - AGIFER was approved in 2018 by Order of the Minister of Transport no.1171/11.07.2018, which is presented below:

### Romanian Railway Investigation Agency-AGIFER

Total number of employees 50  
Leading positions 9



### 1.5. Organizational chart



## 2. THE INVESTIGATION PROCESS

Investigation is a process carried out to prevent accidents and incidents, which includes gathering and analyzing information, establishing the conditions, including determining the causal, contributing and systemic factors, and where appropriate, making safety recommendations.

The investigators in charge carry out their tasks in the most efficient way and in the shortest possible time. The investigation is carried out independently of any judicial inquiry. The investigation is in no way concerned with establishing guilt or liability.

The result of the investigation of an accident or incident shall be the subject of an investigation report drawn up according to the seriousness of the accident or incident. The report shall describe the objectives of the investigation and include, where appropriate, safety recommendations.

The investigation is being conducted in as transparent a way as possible so that all parties can be heard and the results shared. The infrastructure manager, the rail transport operators involved, the Romanian Railway Safety Authority, the European Union Agency for Railways, the victims and their relatives, the owners of the damaged property, the manufacturers, the emergency services involved, the staff representatives and the users shall have the opportunity to provide relevant technical information in order to improve the quality of the investigation report. To this end, AGIFER prepares a draft report at the last stage of the investigation process and sends it to all the above-mentioned parties in order to give them the opportunity to provide relevant technical information.

The technical information provided, the views and comments made are analyzed and if they are relevant to the investigation, they will be taken into account and included in the final report. The investigation report is endorsed by the management of the Romanian Railway Investigation Agency - AGIFER for publication on its website.

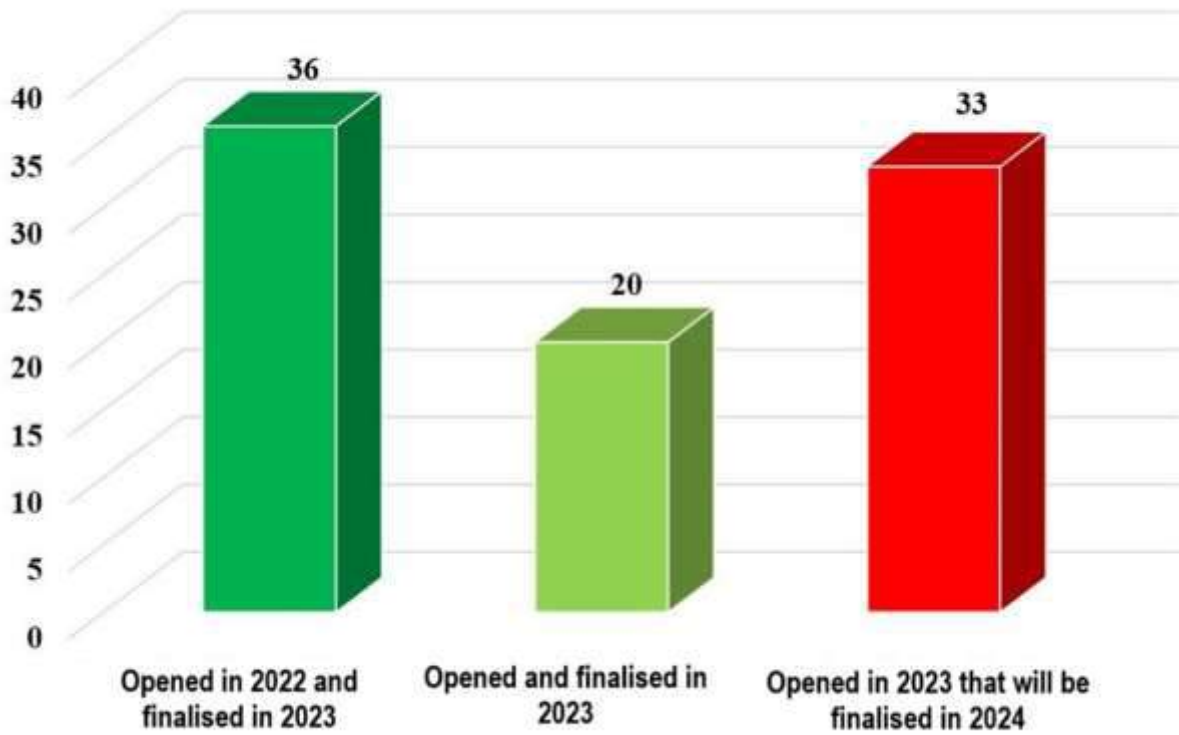
### 2.1. Rail events that have been investigated

During 2023, AGIFER investigated a total of **89** accidents/incidents, in accordance with the provisions of *Emergency Ordinance No. 73/2019* and the *Regulation for the investigation of accidents and incidents, development and improvement of railway safety on the Romanian railways and metro transportation network* approved by *GD 117/2010* - hereinafter referred to as *the Investigation Regulation*. Out of the **89** investigation actions, a total of **36** were open since 2022 and the remaining **53** were open during 2023.

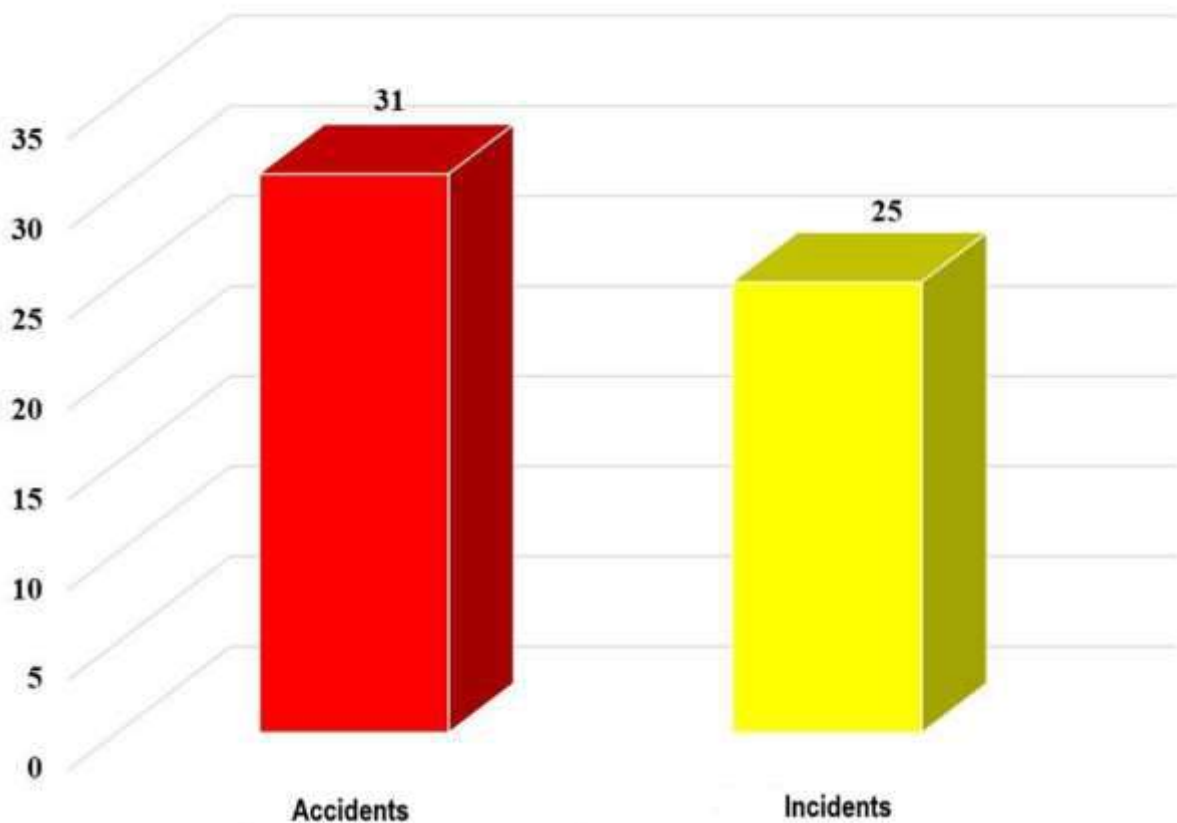
In 2023, **56** investigative actions were completed and closed, respectively:

- **31 rail accidents;**
- **25 railway incidents** classified according to the provisions of Article 8.1 group A of the *Investigation Regulation*, for which the Romanian Railway Investigation Agency ensured the investigator in charge.

### 2023 INVESTIGATIONS

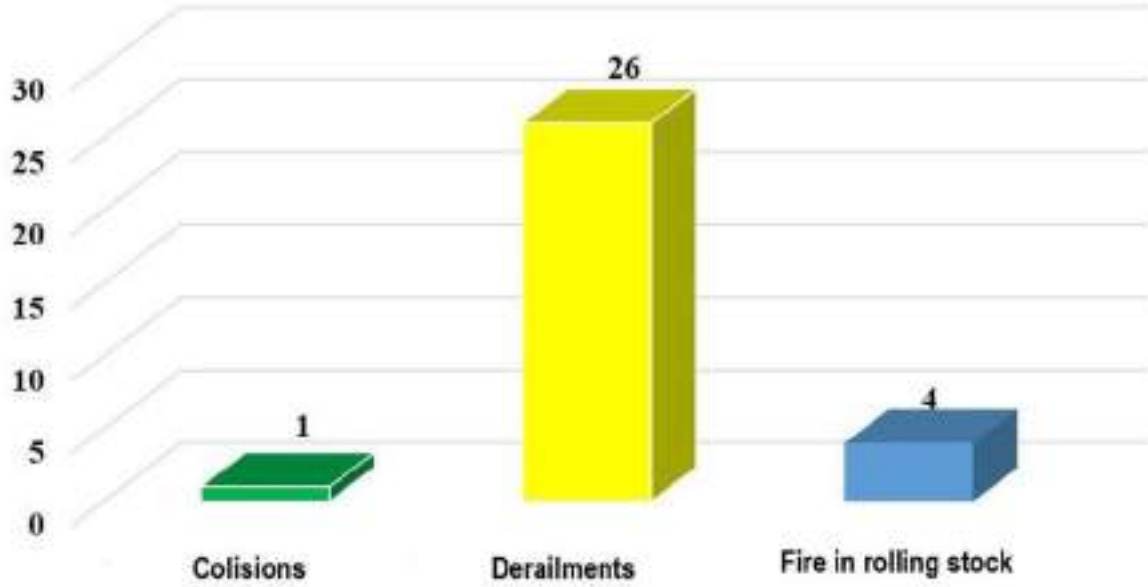


### Completed investigations in 2023

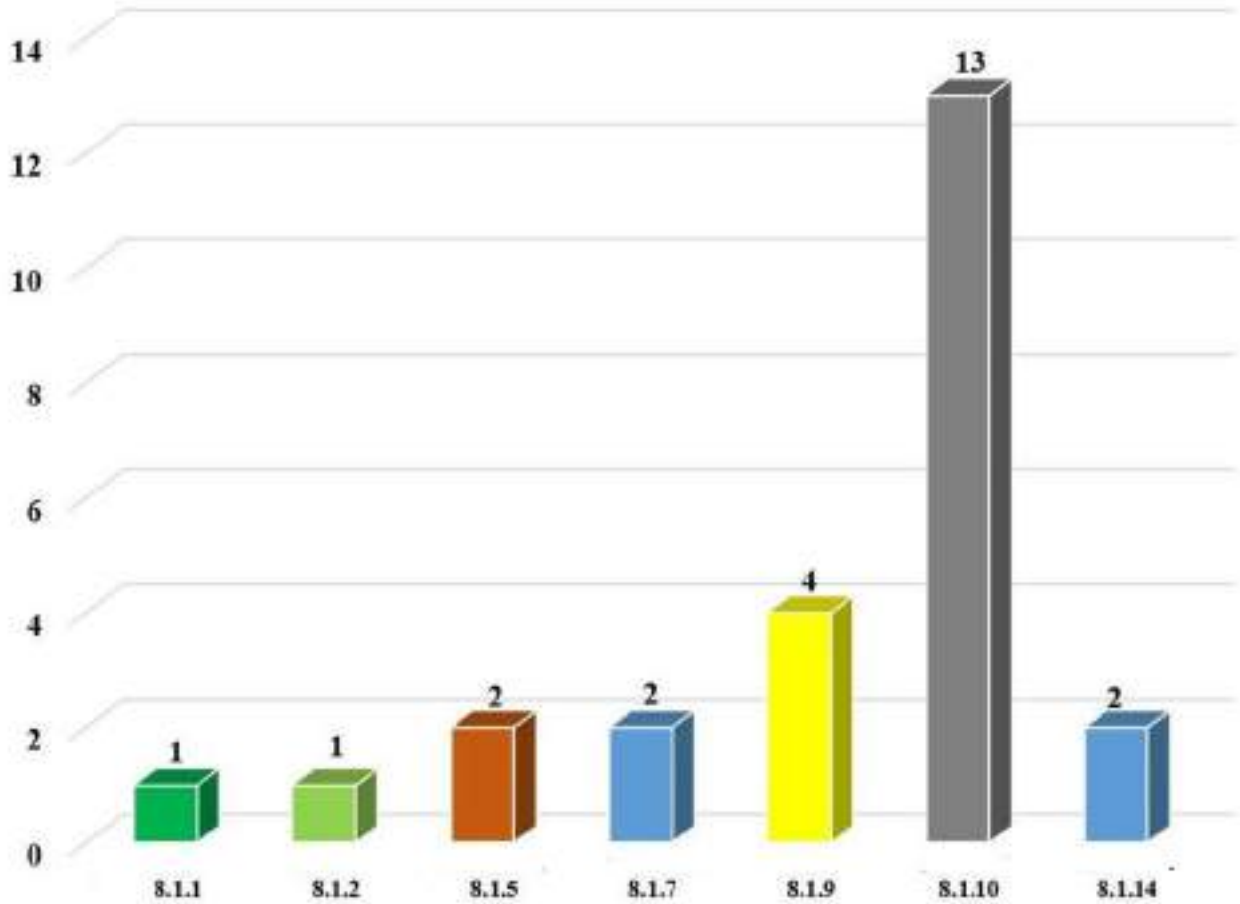




### Accident investigations completed in 2023



### Incident investigations completed in 2023



## 2.2. Situation of open/completed investigation actions in the last 5 years

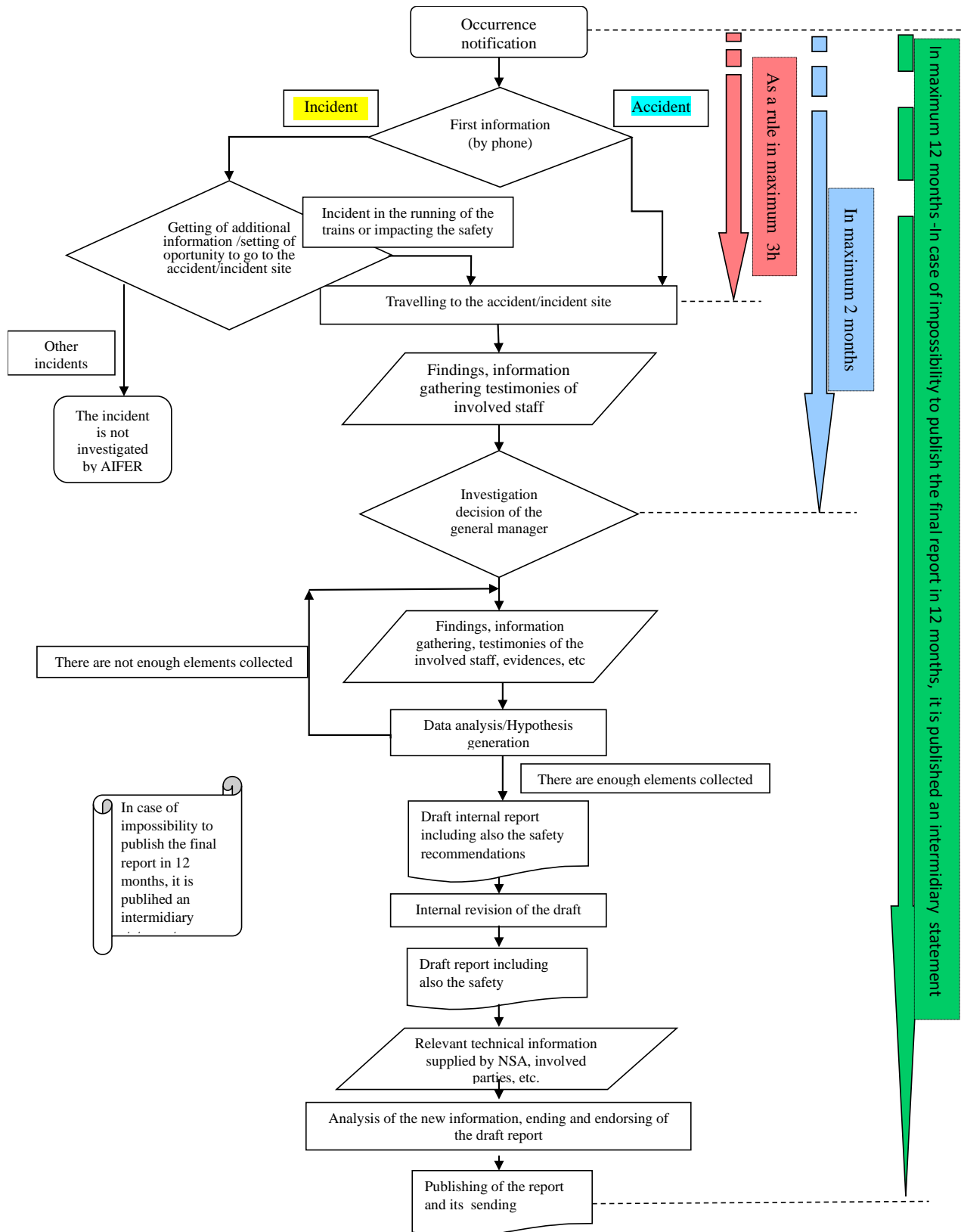
	Number of open investigations			Number of completed investigations		
	Accident	Incident	TOTAL	Accident	Incident	TOTAL
2019	45	24	<b>69</b>	32	31	<b>63</b>
2020	29	17	<b>46</b>	42	25	<b>67</b>
2021	32	25	<b>57</b>	30	24	<b>54</b>
2022	33	20	<b>53</b>	34	22	<b>56</b>
2023	27	26	<b>53</b>	31	25	<b>56</b>

## 2.3. Institutions involved in the investigation (routinely or exceptionally)

Since its establishment and up to now, during the course of the investigation, the Romanian Railway Investigation Agency - AGIFER has cooperated with the authorities responsible for the judicial investigation, as well as with other authorities with intervention duties at the scene of the accident/incident.

According to the provisions of the Emergency Ordinance no. 73/2019 on railway safety, the Romanian Railway Investigation Agency - AGIFER may, if necessary, call upon specialists from related fields to carry out investigations. During 2023, there were no cases of co-option in the railway accident investigation commissions of specialists from outside AGIFER.

## 2.4 Diagram of the investigation process



### 3. INVESTIGATIONS

#### 3.1. Overview of investigations completed in 2023 compared to 2022, identification of main trends

Type of the accidents investigated in 2023 <sup>(1)</sup>	Number of accidents	Number of victims		Damages with VAT <sup>(2)</sup> (lei)	Damages VAT <sup>(2)</sup> (€)	Trend the number of accidents compared to 2022 (Difference between number of cases and percentage)
		Dead	Seriously injured			
Trains collisions	1	-	-	9.434.040,82	1.897.243,00	0 (0%)
Trains derailments	26	-	1	3.659.605,78	737.962,79	0 (0%)
Level crossing accidents	0	-	-	-	-	0 (0%)
Fires at rolling stock	4	-	1	2.572.946,10	518.958,32	-3 (-42,86%)
<b>Total</b>	<b>31</b>	<b>0</b>	<b>2</b>	<b>15.666.592,70</b>	<b>3.154.164,11</b>	<b>-3</b> <b>(+8,82%)</b>

(1) the year of completion of the investigation was taken into account;

(2) according to the documents submitted by the parties involved by the date of completion of the investigation.

#### 3.2. Investigations completed and investigations opened in 2023

In 2023 the Romanian Railway Investigation Agency finalized and closed **56** investigation actions (of which **36** were investigations opened in 2022) and initiated the investigation procedure for a total of **53** cases. Of the **53** cases, **20** cases were completed and closed in the year under review and **33** cases are to be completed and closed in 2024.

In the table below we present the investigations and the legal basis on which they were carried out taking into account the requirements of the European Railway Safety Directive and national legislation.

#### Investigations completed in 2023

Nr. crt.	Date of occurrence	Description	Legal basis of the investigation <sup>(1)</sup>	Completion date
1	14.02.2022	In the railway county Cluj, traffic section Salva - Sighetul Marmației, <b>between railway stations Bocicoi and Valea Vișeului</b> , at km 233+100, in the running of the passenger train no.4116 (belonging to the railway operator SNTFC "CFR Călători" SA), the locomotive GM 1138 derailed from the first two axles, in the running train direction.	i	09.02.2023
2	19.02.2022	In the railway county Craiova, Caracal - Craiova traffic section (electrified double-track line), <b>in Grozăvești railway station</b> - head X, on passing of the freight train no.57553 (belonging to the rail operator SC Cargo Trans Vagon SA) over the switch no.7, the first bogie of the locomotive EA 011 derailed in the running direction.	i	17.02.2023

3	24.02.2022	In the railway county Craiova, Alunu - Băbeni traffic section (non-electrified, singletrack line), on the current line, <b>between Alunu and Berbești railway stations</b> , at km 40+283, in the running of the freight train no.60566 (belonging to the railway undertaking SNTFM "CFR Marfă" SA), three wagons within the consist of the train derailed, namely: the 10th, 15th and 16th wagon.	i	23.02.2023
4	25.02.2022	In the railway county Bucharest, Bucharest North - Videle traffic section (electrified double-track line), <b>in Bucureștii Noi railway station</b> , on the "Government" line, at km 0+280, in the running of the freight train no. 68400 (belonging to the RU SC Tehnotrans Feroviar SRL) hauled by locomotive EA 1094, occurred the derailment of the first axle of the inactive locomotive EA 725 (belonging to the RU SC Constantin Grup SRL), which was at the rear of the train.	i	23.02.2023
5	01.03.2022	In the railway county Craiova, in <b>Pârvu railway station</b> , at the stabling of the passenger train no.9035 consisting of diesel multiple unit AM 2005 (belonging to the RU SNTFC "CFR Călători" SA), on the diverging track no.2, the DMU passed the exit signal X2 on danger and run in open line Pârvu-Costești. The DMU stopped at km 119+500.	iii	23.02.2023
6	13.03.2022	In the railway county Brasov, Luduș - Măgheruș Șieu traffic section (non-interoperable section managed by RC CF Trans SRL Brasov), <b>between Sărmășel and Lechința railway stations</b> , the first bogie (in the running direction) of the trailer wagon of the diesel multiple unit AMX no.1704, which formed the passenger train no.11020 (belonging to the RU Regio Călători SRL Brasov), derailed.	i	01.03.2023
7	24.03.2022	In the railway county Cluj, Cluj Napoca - Oradea traffic section (non-electrified single track line), <b>in Ciucea railway station</b> , in the running of the freight train no.57557 (belonging to the RU SC Cargo Trans Vagon SA), two wagons loaded with grains, the 13th and 14th of the train, derailed and overturned.	i	21.03.2023
8	01.04.2022	In the railway county Craiova, Drăgotești-Turceni traffic section (electrified single track line), at the entrance <b>in Turceni railway station</b> , three wagons of the freight train no.64220 (belonging to RU SNTFM "CFR Marfă" SA), derailed, on passing over the switches no.28-38/44 (the 9th, 10th and 11th of the train composition).	i	31.03.2023
9	02.04.2022	In the railway county Craiova, Caracal-Craiova traffic section (electrified double track line), at the entrance of the freight train no.66708 (belonging to the RU SC Deutsche Bahn Cargo Romania SRL), in <b>Craiova railway station</b> , in the area of the switches no 15/21-17-25/31-29, two wagons, (the 4th and 5th of the composition), derailed.	i	28.03.2023

10	06.04.2022	In the railway county Constanța, Dorobanțu - Năvodari traffic section (non-interoperable section - managed by SC Grup Feroviar Român SA), at the entrance <b>in Nazarcea railway station</b> , on track no.2, of the freight train no.66683006 (belonging to the RU SC Grup Feroviar Român SA), in the area of the track switch no.5, the 37th wagon of the train derailed.	i	05.04.2023
11	11.04.2022	In the railway county Cluj, Cluj Napoca - Câmpia Turzii traffic section (electrified double track line), <b>in Cojocna railway station</b> , the locomotive EA no. 798-9 that hauled the train derailed by the first bogie (in the running direction) on passing over the switch no.7.	i	10.04.2023
12	13.04.2022	In the railway county Craiova, Drăgotești - Turceni traffic section (electrified single track line) at the exit from <b>Drăgotești railway station</b> , of the freight train no.64208 (belonging to RU SNTFM "CFR Marfă" SA) from the diverging track no.3, at km 40+830, the locomotive ED 050 that hauled the train derailed by all axles.	i	11.04.2023
13	07.05.2022	In the railway county Constanța, on the traffic section Țândărei - Fetești (electrified double track line), <b>in Fetești railway station</b> , the 8 <sup>th</sup> wagon of the freight train no.66704007 (belonging to the RU SC Deutsche Bahn Cargo Romania SRL), derailed by the both axle of the first bogie in the train running.	i	20.04.2023
14	24.05.2022	On the metro network of Bucharest, M2 main line, <b>between Piața Romană and Universitate stations</b> , in the running of the train no.15, route 04, consisting of electric subway train (TEM) no.1314-2314, the torsion bar and the 3 <sup>rd</sup> rail collector shoe of bogie no.2 of car MP2 from half-train no.2314, (located on the left side, in the direction of travel), hit and broke the electric equipment in the tunnel.	ii	16.05.2023
15	26.05.2022	In the railway county Timisoara, traffic section Petroșani - Simeria, on the main track II from <b>Merișor railway station</b> , the locomotive EC 076 (belonging to the RU SC Constantin Grup SRL) running solo, as freight train no. L88151, derailed and overturned.	i	25.05.2023
16	13.06.2022	In the railway county Bucharest, Bucharest North - Videle traffic section (electrified double track line), <b>in Zăvestreni railway station</b> , a fire broke out at the first wagon of the freight train no.66306 (belonging to the RU SC Grup Feroviar Român SA).	i	09.06.2023
17	22.06.2022	In the railway county Bucharest, Bucharest North - Videle traffic section (electrified double track line), line I, <b>between Zăvestreni and Videle railway stations</b> , km 48+860, in the running of passenger train no.349 (belonging to the RU SNTFC "CFR Călători" SA), a fire broke out on the locomotive EA 889 that hauled the train. The fire spread later to the first coach of the train.	i	15.06.2023

18	29.06.2022	In the railway county Iasi, Pașcani - Iasi traffic section (electrified double track line), on line I, <b>between Sirca and Podu Iloaiei railway stations</b> , in the area of km 49+350, 15 wagons of the freight train no.56317027 (belonging to the RU SC Grup Feroviar Român SA) derailed (from the 11th to the 25th), and 11 of them overturned.	i	27.06.2023
19	08.07.2022	In the railway county Craiova, in <b>Turceni railway station</b> , the 15th wagon and 16th wagon from the rear of the freight train no.64220 (belonging to RU SNTFM "CFR Marfă" SA), derailed.	i	07.07.2023
20	19.07.2022	In the railway county Cluj, Episcopia Bihor - Săcuieni Bihor traffic section, <b>between Biharia and Diosig railway stations</b> , at km 674+998, in the running of the passenger train no.6811, a fire burst on the locomotive DHCe 410, which run as dead engine (in an inactive state) in the train consist.	i	17.07.2023
21	28.07.2022	In the railway county Constanța, Năvodari - Dorobanțu non-interoperable traffic section (non-electrified single track line, (wned to IM SC Grup Feroviar Român SA), <b>between Năvodari and Nazarcea railway stations</b> , at km 22+380, the locomotive DA 1537 that hauled the freight train no.66358028 (belonging to the RU SC Grup Feroviar Român SA), derailed by the first two axles.	i	20.07.2023
22	09.08.2022	In the railway county Cluj, Cluj Napoca - Câmpia Turzii traffic section (electrified double track line), <b>in Cojocna railway station</b> , at the entry of the freight train no.57010 (belonging to the RU SC UNICOM TRANZIT SA), to the diverging track no. 2, the first bogie from the 17th wagon of the train composition (in the running direction) derailed in the area of the switch no.9.	i	31.07.2023
23	27.08.2022	In the railway county Iași, traffic section Suceava - Dornești (non-electrified single track line), at km 478+920, at the entry in <b>Dornești railway station</b> of the freight train no.57010 (belonging to RU SC Unicom Tranzit SA) a fire broke out on the locomotive DA1394, that hauled the train.	i	24.08.2023
24	29.08.2022	In the railway county Brasov, <b>in Brasov Triaj railway station</b> , the first bogie of the first locomotive no EA 903-7 from the freight train no.86191 (belonging to the RU SNTFM "CFR Marfă" SA - consisted of 2 electric locomotives) derailed in the direction of travel.	i	09.08.2023
25	08.09.2022	In the railway county Brasov, traffic section Brasov - Deda (electrified single track line), <b>between Izvoru Oltului and Izvoru Mureșului railway stations</b> , the last but one wagon of the freight train no. 56012-003 (belonging to the RU SNTFM "CFR Marfă" SA) derailed of both axles of the first bogie in the direction of travel.	i	09.08.2023

26	13.09.2022	In the railway county Cluj, Sărățel - Deda traffic section (electrified single-track line), <b>between Monor Gledin and Râpa de Jos railway stations</b> , at km 37+659, in the running of freight train no.66014 (belonging to the railway operator SNTFM "CFR Marfă" SA), two freight wagons (CSI type, the 24th and 25th in the train consist), derailed and overturned.	i	11.09.2023
27	17.09.2022	In the railway county Bucharest, passenger train R7915 was dispatched from <b>Pajura to Mogoșoia railway station</b> on the line occupied by the passenger train R7032 (both trains belong to the RU SNTFC "CFR Călători" SA).	iii	09.01.2023
28	17.09.2022	In the railway county Constanța, Năvodari - Dorobanțu non-interoperable traffic section (non-electrified single track line owned to IM - SC Grup Feroviar Român SA), <b>between Năvodari and Nazarcea railway stations</b> , at km 22+380, in the running of the freight train no.66300016 (belonging to the RU SC Grup Feroviar Român SA), the first wagon of the train derailed from both axles.	i	27.07.2023
29	20.09.2022	In the railway county Brasov, Luduș - Măgheruș Șieu traffic section (non-interoperable section managed by RC CF Trans SRL Brasov), <b>between CF Sărmășel and Luduș railway stations</b> , the third axle in the running direction of the trailer wagon of the AMX diesel multiple unit AMX No.1704 derailed.	i	12.09.2023
30	02.10.2022	In the railway county Craiova, Drăgotești - Turceni traffic section (electrified single track line), <b>in Borăscu railway station</b> , in the area of the platform no.4 located at km 23+421, at the entrance of the freight train no.64220 (belonging to the RU SNTFM "CFR Marfă" SA), 5 wagons (Fals series) loaded with coal derailed, respectively the first four and the sixth one from the locomotive.	i	28.09.2023
31	01.11.2022	In the railway county Craiova, Craiova - Filiași traffic section (double electrified track line), <b>in Răcari railway station</b> , in the running of the freight train no.64316 (belonging to the railway operator SNTFM "CFR Marfă" SA), 9 wagons loaded with coal derailed.	i	16.10.2023
32	13.11.2022	In the railway county Craiova, Băbeni - Alunu traffic section (non-electrified single track line), <b>between Popești Vâlcea and Berbești railway stations</b> , at km.19+608, in the running of the freight train no.60565 (belonging to the RU SNTFM "CFR Marfă" SA), the first two axles of the locomotive DA 913 that hauled the train derailed.	i	09.11.2023
33	18.11.2022	In the railway county București, Videle – București Nord traffic section section (electrified double track line), <b>between Grădinari and Chiajna railway stations</b> , 18 track inductors were hit by the inductor of locomotive EA 194, which hauled the passenger	iii	08.06.2023



		train no.9016 (belonging to the passenger RU SNTFC "CFR Călători" SA).		
34	23.11.2022	In the railway county Iași, <b>in Roman railway station</b> , the indicator board of the freight wagon no.31537957147-6 from the composition of train no.5600023 (belonging to the RU SNTFM "CFR Marfa" SA) detached from the fastening supports on the wagon and hit the power supply cases of the 500Hz and 1000/2000Hz inductors of the PrX distant signal of Roman rail station.	iii	31.01.2023
35	02.07.2022	In the railway county Bucharest, <b>between Florești Prahova and Buda railway stations</b> , in the running of the freight train no.66005 (belonging to the RU SNTFM "CFR Marfă" SA), the maximum speed set for the train category was exceeded.	iii	06.02.2023
36	01.12.2022	In the railway county Galați, Buzău - Mărășești traffic section (electrified double track line), <b>between CF Gugești and Sihlea railway stations</b> , on the track II, at km 180+800, there was a collision between the freight train no.57402 (belonging to RU Tim Rail Cargo SRL) and freight train no.66706 (belonging RU SC Deutsche Bahn Cargo Romania SRL).	i	28.11.2023
37	29.12.2022	In the railway county Timișoara, Lugoj – Timișoara Nord track section (electrified single track line), <b>in Timisoara Est railway station</b> , in the running of the freight train no.66644-028 (belonging to the RU SC Grup Feroviar Român SA) over the track switch no.45, the first three axles of the 13th wagon from the train consist derailed.	i	18.12.2023
38	21.02.2023	In the railway county Craiova, <b>in Ișalnița railway station</b> , the passenger train no.1823 (belonging to RU SNTFC "CFR Călători" SA), was received on track II which was closed for traffic.	iii	06.07.2023
39	04.03.2023	In the railway county Constanța, Dorobanțu - Palas traffic section (electrified double track line), <b>between CF Basarabi and Valu lui Traian railway stations</b> , the track inductor of the 500Hz, of the BL 11 line block signal was hit by the inductor of the locomotive EB 207 which hauled the freight train no.87067004 (belonging to the RU SC Grup Feroviar Român SA).	iii	06.04.2023
40	06.03.2023	In the railway county Constanța, <b>in Palas railway station</b> , the XP I signal light was hit by parts of a freight wagon from the composition of train no.67110005 (belonging to DB Cargo Romania SRL).	iii	03.05.2023
41	15.03.2023	In the railway county Cluj, <b>between Surduc Sălaj and Băbuțeni railway stations</b> , track inductors were hit by a piece detached from the locomotive DA 92530620630-9, which hauled the passenger train nr.4020 (belonging to the RU SNTFC "CFR Călători" SA).	iii	20.06.2023

42	31.03.2023	In the railway county Bucharest, <b>between Blejoi and Făget Teleajen railway stations</b> , the maximum speed allowed by the track was exceeded, by the passenger train Regio no.10257 (belonging to the rail RU SC Transferoviar Călători SRL).	iii	15.05.2023
43	28.03.2023	In the railway county Cluj, <b>between Oradea Vest and Ciumeghiu railway stations</b> , the freight train no.66612028 (belonging to the RU SC Grup Feroviar Român SA), exceeded the maximum speed set in the route book.	iii	17.07.2023
44	23.04.2023	In the railway county Galați, Buzău – Ploiești traffic section (electrified double track line), <b>between Buzău and Ulmeni railway stations</b> , two track inductors were hit by the right side inductor guard (in the running direction), of the locomotive EA 122, which hauled the passenger train no.1654 (belonging to the RU SNTFC "CFR Călători" SA).	iii	28.06.2023
45	26.04.2023	In the railway county Bucharest, <b>in Videle railway station</b> , the freight train no.58208/026 (belonging to the RU SC Vest Trans Rail SRL) was dispatched in the wrong direction (in the direction of CF Ciolpani railway station instead of CF Rădulești railway station).	iii	10.08.2023
46	01.05.2023	In the railway county Brasov, <b>between CF Dumbrăvioara and Târgu Mureș Nord railway stations</b> , the open door of the last carriage of the passenger train no.4511 (belonging to the RU SNTFC "CFR Călători" SA) hit a machinery that entered in the track clearance.	iii	19.06.2023
47	03.05.2023	In the railway county Cluj, <b>in Dej Călători railway station</b> , the train passenger train no.1831 was dispatched in a wrong direction than the planned one, with the attack of the switch that gives access to that direction (towards the station CF Jibou instead of the station Dej Triaj railway station).	iii	19.06.2023
48	06.06.2023	In the railway county București, in <b>Pajura</b> railway station, the second group of doors on the right side (in the running direction) of wagon no.88535488460-7, part of freight train no.67410 006 (belonging to the RU UNICOM TRANZIT SA), was opened and the roof of the building of the canton no.6 was hit.	iii	11.07.2023
49	20.06.2023	In the railway county Cluj, <b>between Războieni and Călărași Turda railway stations</b> , 6 track inductors were hit by a piece of from the locomotive EA 194, which hauled the passenger train no.3091 (belonging to the RU SNTFC "CFR Călători" SA).	iii	31.07.2023
50	31.07.2023	In the railway county Craiova, <b>in Craiova railway station CF</b> , the Y entry signal of the station, which gave the indication " <i>STOP without exceeding the signal</i> ", was passed on danger by passenger train no.1992, hauled by locomotive EA no.048 (belonging to the RU SNTFC „CFR Călători" SA).	iii	06.11.2023

51	18.08.2023	In the railway county Brasov, in <b>Dumbrăveni railway station</b> , the brake beam of the wagon no.31533560179-7 of the freight train no.66030 (belonging to the RU SNTFM "CFR Marfă" SA) hit the station's platform no.11.	iii	22.11.2023
52	23.08.2023	In the railway county Brasov, in <b>Copșa Mica railway station</b> , the YS entry signal of the station, which had the indication " <i>STOP without exceeding the signal</i> ", was passed by the passenger train no.10515 (belonging to the RU SC Interregional Călători SRL).	iii	16.10.2023
53	20.09.2023	In the railway county București, traffic section Videle - Roșiori, on the distance <b>Videle - R1 Videle</b> , the maximum speed allowed for the category of train established in the timetable was exceeded by passenger train no.9911 hauled by locomotive EA 364 (belonging to the RU SNTFC "CFR Călători" SA).	iii	18.12.2023
54	03.10.2023	In the railway county Cluj, between <b>Boju and Valea Florilor railway stations</b> , at km 467+200, a rail fragment within the gauge of the line was hit by the isolated locomotive LEMA 019, which formed the train no. L89150 (belonging to the RU LTE-RAIL ROMÂNIA SRL).	iii	06.11.2023
55	08.10.2023	In the railway county Constanta, in <b>Palas railway station</b> , the lower gear case of the locomotive DA 1645, which ran as freight train no.89337008 (belonging to the RU SC Via Terra Spedition SRL), hit the track switch no.66 of the station.	iii	21.11.2023
56	31.10.2023	In the railway county Galati, <b>Mărășești – Adjud traffic section</b> , an open double door (on the right side in the running direction), from the wagon no.85535310095-8, (the tenth in the in the train no.69152 - belonging to the RU SC LTE Rail Romania SRL) hit parts of signaling and electric traction equipment	iii	11.12.2023

- (1) **Legal basis of the investigation:** i= Under the Safety Directive, ii= Under national legal basis (covering possible areas excluded by art.2, paragraph 2 of the Safety Directive), iii= Optional - other criteria (national rules/regulations not referred to in the Safety Directive).

#### Investigations opened in 2023 completed in 2024 or to be completed

Nr. crt.	Date of occurrence	Description	Base legal investigation <sup>(1)</sup>	Completion date
1	07.01.2023	In the railway county Cluj, Războieni - Cluj Napoca traffic section (electrified double track line, in Câmpia Turzii railway station), the freight wagon no.31537982021-2, from the train no.56004 (belonging to the RU SNTFM "CFR Marfă" SA), derailed by both axles of the second bogie, in the running direction.	i	04.01.2024

2	26.01.2023	In the railway county Bucharest, Bucure;ti Nord - Videle traffic section (electrified double track line), in Bucureștii Noi railway station, the locomotive EAno.038, of the freight train no.57704 (belonging to the RU SC CER-FERSPED SA), derailed from the first axle, in the running direction.	i	23.01.2024
3	22.02.2023	In the railway county Cluj, Jibou - Șarmășag traffic section (non-electrified single track line.), between Zalău Nord and Mirșid railway stations, at km 98+400, the passenger train Regio no.4363 (belonging to the RU SNTFC "CFR Călători" SA), the diesel multiple unit ADH 1416 derailed from the second to last bogie (axles 9 and 10 in the direction of travel).	i	19.02.2024
4	28.02.2023	In the railway county Brasov, Brasov - Sighisoara traffic section (electrified double track line), between Apața and Augustin railway stations, on the track II, at km 211+400, the 8th wagon of the freight train no.67815 (belonging to the RU SC CER-FERSPED SA), derailed by the third axle, in the direction of travel.	i	07.02.2024
5	13.03.2023	In the railway county Craiova, Roșiori Nord - Caracal traffic section (electrified double track line.), at the entry in Roșiori Nord railway station (end Y), the passenger train no.1822 collided with the freight train no.50514 (belonging to RU SC Deutsche Bahn Cargo Romania SRL).	i	11.03.2024
6	17.03.2023	In the railway county Brasov, Brasov - Sighisoara traffic section (electrified double track line), between CF Beia and Cața railway stations, on the track II, at km 262+879, the 10th wagon (the second to last of the train) of freight train no.66358 (belonging to the RU SNTFM "CFR Marfă" SA) derailed.	i	06.03.2024
7	25.03.2023	In the railway county Galați, in Galați railway station, during the shunting of the locomotive EC 91530430128-5 (belonging to the RU SNTFC "CFR Călători" SA), on the track no.4 occupied by the passenger wagon no.50532616090-8, in order to form the passenger train Regio 7576, the passenger wagon was violently hit by this locomotive, resulting in the death of a person.	i	ongoing investigation
8	28.03.2023	In the railway county Craiova, Băbeni - Alunu traffic section (non-electrified single track line), between Berbești and Popești Vâlcea railway stations, at km 21+030, in the running of the freight train no.60566 (belonging to the RU SNTFM "CFR Marfă" SA), the first axle of the locomotive DA 1129 derailed, in the running direction.	i	26.03.2024
9	18.04.2023	In the railway county Timisoara, Sânnicolau Mare - Cenad traffic section (non-interoperable traffic section managed by IM SC RC-CF Trans SRL	i	03.04.2024

		Brasov), between Sânnicolau Mare and Cenad railway stations, at km.68+513, the first axles of the first unit from diesel multiple unit AMX 556 and the first axle of the second unit (trailer), which formed passenger train No. 11187 (belonging to the RU SC Regio Călători SRL), derailed.		
10	17.05.2023	In the railway county București, Rădulești - Giurgiu Nord traffic section, between Toporu and Chiriacu railway stations (non-electrified single line), at km 31+173.5, the locomotive DA 1692, running as freight train no. 79562 (belonging to RU SC UNITED RAILWAYS SRL) collided with the locomotive DA 1566 (running as freight train no. 88342 -belonging to the RU SC Rail Cargo CARRIER - Romania SRL).	i	16.05.2024
11	08.06.2023	In the railway county Brasov, Brasov - Copșa Mica traffic section (electrified double track line), in Sighisoara railway station, the freight train no. 66691-007 (belonging to RU SC Grup Feroviar Român SA) that had set the route on the track 5 in the railway station, exceeded the exit signal X5 (which was the on danger), forced the switch no. 26, and occupied the entry route of the train no. 57700-005 (owned to RU SC CER Fersped SA).	iii	23.05.2024
12	01.08.2023	In the railway county Craiova, Roșiori - Videle traffic section (electrified double track line), between Roșiori Nord and Atârnați railway stations, the railroad excavator type FS T 3500 Colmar, running as train no.96212 (belonging to the IM CNCF "CFR" SA derailed in open line, at km.97+350).	i	ongoing investigation
13	05.08.2023	In the railway county Brasov, Vânători - Copșa Mică traffic section (electrified double track line), in Dumbrăveni railway station, in the running of the freight train no.58808 (belonging to the RU SC Rail Force SRL), a fire broke out at the locomotive BB 528 hauling the train.	i	ongoing investigation
14	09.08.2023	In the railway county Galati, Galati Brateș – Siderurgical Plant - Cătușa, line 706M, in Cătușa railway station, in the running of the freight train no.77546 (belonging to the RU SC Unicom Tranzit SA), first 2 freight wagons of broad gauge of the train derailed.	i	ongoing investigation
15	23.08.2023	In the railway county Brasov, Blaj - Praid traffic section (non-electrified single track line), between Târnăveni Vest and Jidvei railway stations, at km.23 +400, in the running of the passenger train Regio no.11316 (belonging to the RU SC Regio Călători SRL), consisting of diesel multiple units AMX no.527 and AMX no.525, a fire broke out on the AMX no.525.	i	ongoing investigation

16	01.09.2023	In the railway county Cluj, section Oradea - Salonta (non-electrified single track line), between Leş Bihor and Oradea Vest railway stations, at km 108 + 200, in the running of passenger train Regio no.3111 (belonging to the RU SNTFC "CFR Călători" SA), a fire broke out at the first unit (no.9553978-1008-1) of diesel multiple unit and the fire spread up to the second unit (no.9553978-1009-9).	i	ongoing investigation
17	08.09.2023	In the railway county Iasi, in Vereşti railway station, the passenger train no.1752 hauled by the locomotive EA 598 (belonging to the RU SNTFC "CFR Călători" SA) passed on danger the exit signal Y2 of the station.	iii	ongoing investigation
18	10.09.2023	In the railway county Constanţa, Constanţa Mărfuri - Capu Midia traffic section (non-interoperable section, managed by SC Grup Feroviar Român SA - single non-electrified track line.), in Capu Midia railway station, at km.0 + 160, in the running of the freight train no.67055010 (belonging to the RU SC Grup Feroviar Român SA), the locomotive DA 216, that hauled the train, derailed from the first two axles.	i	ongoing investigation
19	17.09.2023	In the railway county Craiova, Filiaşi - Craiova traffic section (electrified double track line), in Cernele railway station, the locomotive LEMA 063 (belonging to the RU SC Vest Trans Rail SRL), which was parked on line no.11, ran away and engaged in open line.	iii	18.03.2024
20	03.10.2023	In the railway county Brasov, Brasov - Sighisoara traffic section (electrified double track line), at km.223+139.5, track I, between Augustin and Racoş railway stations, in the running of the freight train no.66633 (belonging to the RU SC Grup Feroviar Român SA), the 23rd wagon of the train consist derailed from all the axles.	i	ongoing investigation
21	24.10.2023	In the railway county Craiova, Costeşti - Roşiori Nord traffic section, (non-electrified single track line), between Costeşti and Miroşi railway stations, at km 132+830, in the running of the freight train no. 66764 (belonging to the RU SC Grup Feroviar Român SA), both axles of the first bogie of the wagon no.33539339897-9 derailed.	i	ongoing investigation
22	04.11.2023	In the railway county Timisoara, section Periam - Aradu Nou (non-interoperable section managed by SC RC-CF Trans SRL Brasov - single non-electrified line), between CF Periam and Zădăreni stations, at km.15 + 400, in the running of the passenger train Regio no.11160 (belonging to the RU SC Regio Călători SRL), a fire broke out in the diesel multiple unit AMX no.95539970533 - 9, that composed the train.	i	ongoing investigation

23	05.11.2023	In the railway county Craiova, Drăgotești - Turceni section (electrified single track line), between Drăgotești and Borăscu railway stations, at km 28+480, in the running of the freight train no.65004 (belonging to the RU SNTFM "CFR Marfă" SA), the first 8 wagons, Fals series - loaded with coal, derailed, two of them overturning.	i	ongoing investigation
24	14.11.2023	In the railway county Timisoara, Timisoara - Arad traffic section (electrified single track line), at the exit of Aradu Nou railway station, on the track no 3, at km 51+654, in the running of the freight train no.66653013 (belonging to the RU SC Grup Feroviar Român SA), 6 tank wagons loaded with diesel oil (from the 3rd to the 8th in the train composition) derailed.	i	ongoing investigation
25	27.11.2023	In the railway county Iași, Lețcani - Dorohoi traffic section (non-electrified single track line, , managed by SC RC-CF TRANS Brasov SRL), between the stations Trușești and Todireni railway stations, km 77+326, in the running of the freight train no. 66952-027 (belonging to the RU SC Grup Feroviar Român SA), the 11th wagon of the train derailed by both axles of the first bogie, in the direction of travel.	i	ongoing investigation
26	28.11.2023	In the railway county Brasov, Siculeni - Deda traffic section (electrified single track line), between Voșlăbeni and Izvoru Mureșului railway stations, km 137+011, in the running of the freight train no.66394 (belonging to the RU SNTFM "CFR Marfă" SA), the first axle (in the running direction) of the locomotive EA 146. which hauled the train, derailed.	i	ongoing investigation
27	01.12.2023	In the railway county Constanța, in Capu Midia railway station (managed by SC Grup Feroviar Român SA), at km.32 + 250, three wagons (28th, 29th and 30th wagon) of the freight train no.66602-030 (belonging to the RU- SC Grup Feroviar Român SA) derailed.	i	ongoing investigation
28	04.12.2023	In the railway county Bucharest, Ploiești - Brașov traffic section (electrified double track line), in Azuga railway station, in the running of the passenger train no.1742 (belonging to the RU operator SNTFC "CFR Călători" SA), the active pantograph of the locomotive EA 583 that hauled the train broke, which in its fall broke a window of the first carriage of the train and slightly injured three people who were subsequently transported to hospital.	iii	ongoing investigation
29	09.12.2023	In the railway country Craiova, Videle - Roșiori Nord traffic section (electrified double track line), in Gălăteni railway station, the freight train no.68202 (belonging to the RU SC Vest Trans Rail SRL) with the locomotive EA 079, which was	iii	ongoing investigation

		parked on track no.5, run away in the direction of Olteni railway station, passed on the fouling mark, forced the railway switch no.14 and stopped over the switch no.10.		
30	13.12.2023	In the railway county Cluj, Dej - Beclean pe Someș traffic section (electrified double track line), at the entrance of the freight train no.661004 (belonging to the RU SNTFM "CFR Marfă" SA), at the entrance in Beclean railway station, at the line 6 in the station CF Beclean pe Someș, km 24+232, 5 wagons of the train derailed.	<b>i</b>	ongoing investigation
31	22.12.2023	In the railway county Bucuresti, Bucuresti Nord - Videle traffic section (electrified double track line), in the area of the track switch no.5 at the X end of the railway station Zăvestreni, in the running of the passenger train Regio no.9304 (belonging to the RU SNTFC "CFR Călători" SA), the hauling locomotive EA 767, derailed by the axle no.6 (first in the running direction).	<b>i</b>	ongoing investigation
32	28.12.2023	In the railway county Galati, in Faurei railway station, the terminal boxes of the 500 Hz (km 172+490) and 1000/2000 Hz (km 172+240) inductors of the YFII signal were hit by the safety straps of the three wagons of the freight train no.66050 (belonging to the railway operator SNTFM "CFR Marfă" SA).	<b>iii</b>	13.02.2024
33	28.12.2023	In the railway county Galati, in Urleasca railway station, the 500 Hz inductor of the Y2 signal was hit by the safety straps of binding and securing the goods from two wagons of the freight train no.66928 (belonging to the RU CER Fersped SA).	<b>iii</b>	13.02.2024

- (1) **Legal basis of the investigation:** **i**= Under the Safety Directive, **ii**= Under national legal basis (covering possible areas excluded by Art. 2, paragraph 2 of the Safety Directive), **iii**= Optional - other criteria (national rules/regulations not referred to in the Safety Directive).



### 3.3. Research studies (or safety studies) completed or commissioned in 2023

#### Studies commissioned in 2022 and completed in 2023

Date orders	Study Name (type of framing, location)	Base legal investigation <sup>(1)</sup>	Date Complementar y
10.10.2022	Technical Note No.C.G5REP170123 accompanied by the laboratory analysis of the torsion bar of bogie No.2 of wagon MP2 of semitrailer No.2314 (CAF). Expert's report carried out as part of the investigation into the incident that occurred on 24.05.2022, at 08:42, on the Bucharest metro network, M2 line, between Piața Romană and Universitate metro stations, during the running of metro train no. 15, route 04, consisting of electric metro train (TEM) no.1314-2314, an incident which consisted in the breaking of the torsion bar and the third rail contact shoe located on the left side, in the direction of travel that hit the electric equipment in the tunnel.	iii	17.01.2023

<sup>(1)</sup> **Legal basis of the investigation:** i= Under the Safety Directive, ii= Under national legal basis (covering possible areas excluded by Art. 2, paragraph 2 of the Safety Directive), iii= Optional - other criteria (national rules/regulations not referred to in the Safety Directive).

#### Research studies (or safety studies) completed or commissioned in 2023

Order date	Study Name (type of framing, location)	Base legal investigation <sup>(1)</sup>	Date Complementar y
-	-	-	-

#### Studies commissioned in 2023 completed in 2024

Order date	Study Name (type of framing, location)	Base legal investigation <sup>(1)</sup>	Date Complementar y
-	-	-	-

<sup>(1)</sup> **Legal basis of the investigation:** i= Under the Safety Directive, ii= Under national legal basis (covering possible areas excluded by Art. 2, paragraph 2 of the Safety Directive), iii= Optional - other criteria (national rules/regulations not referred to in the Safety Directive).

### 3.4. Summary of investigations completed and closed in 2023

During 2023 a total of **56** investigative actions were completed and closed, of which 36 were opened in 2022 and the remaining 20 were opened during 2023.

Below is a summary of the **56** investigation reports finalized and closed during 2023.

**3.4.1.** The railway accident occurred on 14.02.2022, In the railway county Cluj, Salva - Sighetul Marmăției section, between the stations Bocicoi and Valea Vișeului railway stations, at km 233+100, in the running of the passenger train no.4116 (belonging to the RU SNTFC "CFR Călători" SA), by derailment of the locomotive GM 1138, from the first two axles, in the running direction of the train.

The investigation report was finalized on 09.02.2023.

#### Causal factor

The existence of advanced wear on the locomotive HH springs which, combined with track geometry defects, led to the derailment, stability limit being exceeded.

The exceeding of the derailment stability limit was caused by increases in lateral dynamic forces and dynamic load transfers on the right-hand wheel of the locomotive leading axle, which resulted in the climbing of the rail by the wheel flange.

The dynamic forces/transfers mentioned, were components that acted in combination, so that if any one of them had been eliminated, the accident would have been prevented.

#### Contributory factors

No contributing factors were identified.

#### Systemic factors

- lack of monitoring of the technical parameters of the HH springs in the time between planned repairs;
- failure to carry out periodic repair work and failure to carry out the work necessary to eliminate the dangerous point in order to maintain the geometry of the track within the permitted tolerances.

#### Measures taken since the accident/incident occurred

After the accident, the wooden sleepers were replaced, cross level was rectified and vertical bolts were tightened.

At the same time, SRCF Cluj has drawn up a plan of measures to control the risks by:

- carrying out additional inspections in the locomotive cab of the trains, on the Bocicoi-Valea Vișeului distance in order to keep the track in the area under observation, checking the condition of the slope located between the County Road and the railroad as well as the condition of the markers placed on the art works in the area to monitor the evolution;
- to carry out surveys and sampling to determine the existence of the upstream slope sliding plane located between the CF and DJ Bocicoi - Lunca la Tisa, in order to determine its stabilization works, given the cracks that appeared both on the unforested area and near the edge of the Bocicoi-Valea Vișeului county road in the area between the two railway culverts;
- redrawing of the set of curves with  $R=320/200/460/200/200/240m$  between km. 232+900-233+500, between Bocicoi and Valea Vișeului railway stations, in order to remove the speed restriction of 15 km/h, introduced on 14.02.2022 after the railway accident, to provide the necessary crushed stone for the works and to complete the ballast prism;
- establishing the works necessary to make the existing works of art in the area safe and to restore their degraded elements.

In June 2022, Cluj Lines Division, through the Track Diagnosis Laboratory, carried out the necessary measurements for the redraw of the curve grouping - line 422, between km 232+885 / km 233+440. On June 15, 2022, tamping, track lining and filling ballast with heavy track machines were carried out on the above-mentioned area.

#### Safety recommendations

With regard to railway infrastructure, given that AGIFER has issued safety recommendations aimed at identifying the risks generated by the existence of defects in track geometry due to inadequate wooden sleepers, the non-execution of periodic repair works, and ASFR (NSA) communicated during

June 2022 (after the occurrence of this railway accident) that the measures taken as a consequence of the recommendations issued are still being implemented and will be verified during the surveillance actions organized and carried out in accordance with the *OMT No. 650/1998* and *Regulation (EU) 761/2018*, the investigating committee does not consider it necessary to issue safety recommendations in this respect. We note that in the absence of safety recommendations, based on the observations made by the investigation committee following the non-compliances found, the CNCF may order the safety measures it deems necessary in order to control the risk of derailment.

On locomotive GM 1138, the investigating committee identified that worn HH springs were to be adjusted, matched or replaced during planned overhauls, i.e. every 6 years. It was also identified that there was no provision for periodic measuring, adjusting and/or mating of HH springs during planned overhauls, as it is not prescribed in ST 13 that this should be done periodically during planned overhauls. The occurrence of advanced wear of HH springs which may cause derailments 5 years after new fitting between two scheduled overhauls leads to the conclusion that more frequent checking, adjustment and/or mating of these springs may be necessary, i.e. during scheduled overhauls revisions and not only during scheduled overhauls repairs - every 6 years.

The checks revealed that there have been no previous investigations of derailments caused by this type of suspension on EGM type locomotives equipped with HH springs, from which lessons can be drawn for the future. Locomotive GM 1138 was within the normal period of operation, during which the designer of this type of suspension did not foresee any checks of the HH spring length or other adjustment and/or mating operations. In these circumstances, it was not reasonably practicable for SNTFC to detect, as soon as reasonably practicable, instances of non-compliance with operational requirements prior to or during the operation of the asset, including applying restrictions of use, if necessary, to ensure that the asset was maintained in a safe operating condition.

In view of the findings and conclusions of the above-mentioned investigating committee, in order to improve rail safety and prevent similar occurrences, AGIFER issues the following safety recommendation:

**Safety recommendation 414/1**

The Romanian Railway Safety Authority - ASFR will request SNTFC to assess the danger posed by the modification of the technical parameters of the HH springs, in the time interval between planned repairs, compared to the regulated tolerances and to establish effective measures to control the risks induced by it.

**3.4.2.** The railway accident occurred on 19.02.2022, in the railway county Craiova, Caracal - Craiova section (electrified double track line), in Grozăvești railway station - head X, on the track switch No.7, in the running of the freight train No.57553 (belonging to the RU SC Cargo Trans Vagon SA), by derailment of the first bogie, in the running direction, of the locomotive EA 011.

The investigation report was finalized on 17.02.2023.

**Causal factor**

The increase of the ratio between the lateral force and the load acting on the leading wheel, thus exceeding the derailment stability limit, due to the combination of two conditions, namely the non-even distribution of the loads on the wheels of the locomotive axle No. 6 by introducing additions exceeding the maximum permissible limit on the Metalastik type springs and the technical condition of the track switch No. 7.

**Contribution factor**

No contributing factors were identified.

**Systemic factors**

- Inadequate resources, material and human, in relation to what is necessary to properly maintain the line and keep the track geometry within the permitted tolerances.
- Ineffective management of the risk associated with the danger of the infrastructure manager's overstepping of the permissible tolerances of the track geometry.
- Deficient identification and assessment by the locomotive keeper of the risks arising from railway operations, i.e. failure to identify the risk of derailment due to the danger posed by the change over time in the characteristics of the Metalastik springs.

- Ineffective management by SC Cargo Trans Vagon of the risks posed by the danger of not withdrawing from service and using locomotives to haul freight trains after the regulated time norm for carrying out the planned repair.

#### **Measures taken since the accident**

After the railway accident, 9 normal wooden sleepers and 13 special wooden sleepers were replaced on the track turnout No. 7 and 2 concrete sleepers T26 were replaced on the direct line II.

After the train accident and the measurements of the electric locomotive LEMA 011 was sent to SC SOFTRONIC SRL for the planned RR type repair.

#### **Safety recommendations**

In the course of the investigation, it was found that the locomotive involved in the accident had an uneven load on the wheels of the first axle in the running direction. In the identification of the risks associated with railway operations carried out by the locomotive keeper for the risk of derailment, it was not identified that this risk could be caused by the loss of the mechanical strength required to support the weight of the locomotive of the Metalastik type spring, which would imply an irregular distribution of the loads on the wheels of one axle.

In view of the findings and conclusions of the aforementioned investigating committee, in order to improve rail safety and prevent similar events, AGIFER considers it appropriate to address the following safety recommendations to the ASFR:

#### **Safety Recommendation 415-1/1**

The Romanian Railway Safety Authority - ASFR will ask the RU SC Cargo Trans Vagon SA to assess the danger posed by the modification over time of the characteristics of the Metalastik springs...

**3.4.3.** The railway accident occurred on 24.02.2022, in the area of activity of the Craiova CF Regional Branch, Alunu - Băbeni section (non-electrified single track line), in the running line, between Alunu and Berbești railway stations, at km 40+283, in the running of freight train no. 60566 (belonging to the RU SNTFM "CFR Marfă" SA), by derailment of three wagons of the train consist, namely: the 10th, 15th and 16th wagon.

The investigation report was finalized on 23.02.2023.

#### **Causal factor**

The existence on the track, at the site of the rail accident, of a group of unsuitable wooden sleepers, which could no longer ensure the proper fastening of the rails and keeping of the track gauge within the tolerances allowed by the regulatory framework, with the effect of exceeding the maximum permissible limit of the track gauge in service, thus leading to loss of the rails' capacity of guiding and loading under the dynamic action of the rolling stock.

#### **Contribution factors**

- Exceeding the deadlines, laid down by the applicable legislation, for carrying out periodic repair work on the line in the area where the accident occurred, thus maintaining a high degree of clogging of the broken stone prism with vegetation and coal dust, which led to premature degradation (rotting) of the wooden sleepers.
- Exceeding the maximum permissible axle load on the 10th wagon in the train and the three wagons in front of it.

#### **Systemic factors**

- Allocation of insufficient material and human resources to carry out periodic repair (maintenance) work on the track within the prescribed deadlines in order to maintain its geometry within the permitted tolerances.
- Weaknesses in the identification and assessment of the risks generated by own rail operations by the entity in charge of track superstructure maintenance in relation to the risk of 'derailment of rail vehicles'.
- SNTFM's inadequate performance of the action to identify and assess the risk of an accident/incident arising from the movement of loaded wagons in trains with a maximum permissible axle load exceeding the maximum permissible axle load.

#### **Safety recommendations**

During the investigation it was found that 11 wagons in the train, including the first derailed wagon and three others positioned immediately ahead of it, had their axle load exceeded. The measures established by SNTFM 'CFR Marfă SA to control the risks generated by the state of loading of the wagons were not sufficient to control them. In view of the findings and conclusions of the aforementioned investigating committee, in order to improve railway safety and prevent similar events, AGIFER considers it appropriate to address the following safety recommendations to ASFR: **Safety Recommendation 416-1-1/1**

The Romanian Railway Safety Authority - ASFR will request RU SNTFM "CFR Marfă" SA to reassess the risks generated by the taking over of wagons after their loading from economic operators (consignors), in order to eliminate the cases of wagons being introduced into the composition of freight trains without complying with the specific regulations regarding the maximum permissible axle load.

**3.4.4.** The accident that occurred on 25.02.2022, within the area of activity of the București Regional CF Branch, București Nord - Videle section (electrified double track line), in Bucurestii Noi railway station, on the "Government" line, at km 0+280, in the running of freight the train no. 68400 (belonging to the RU SC Tehnotrans Feroviar SRL) hauled by locomotive EA 1094, by derailing from the first axle of the inactive locomotive EA 725 (belonging to the rail RU SC Constantin Grup SRL), which was at the rear of the train.

The investigation report was finalized on 23.02.2023.

#### **Causal factor**

Exceeding the derailment stability limit, due to maintaining track geometry outside the tolerances allowed in service, resulting in the leading wheel of the first bogie of locomotive EA 725 climbing on the outside rail of the curve.

#### **Contributory factors**

- Carrying out the technical revision of the track with unauthorized personnel, which decreased the efficiency of this activity.
- Ineffective monitoring of the evolution of the of the track defects recorded with measuring trolley, which favored their worsening.

#### **Systemic factors**

- Ineffective management of the risks associated with the hazards associated with exceeding permissible crosslevel tolerances on a curved area of track;
- Providing an inadequate volume of resources, material and human, in relation to what is necessary to ensure proper maintenance of the line and to maintain the track geometry within the permitted tolerances.

#### **Measures taken since the incident**

After the railroad accident, on the connecting line between switches 6C and 30 ("Government" line), between 25÷ 28.02.2022, 22 normal wooden sleepers were replaced, the broken stone prism was completed from km 0+260 to km 0+290 and the crosslevel was ensured by manual tamping.

#### **Additional comments**

During the investigation of this accident, the commission, analyzing the documents provided by the involved parties, found that the duration of the service performed by the locomotive staff who performed service on locomotive EA 1094, the titular locomotive that hauled the freight train no.68400, was 7 h 33 minutes, from the time of taking over the service from Constanța Port railway station until the accident occurred, contrary to the provisions of MT Order no.256 of March 29, 2013. The commission also found that the duration of the service performed by the locomotive staff who performed service on locomotive EA 725 (back engine) hauling of freight train no.68400, was 10h 33min from the time of taking over the service from Constanța Port railway station until the accident occurred, contrary to the provisions of MT Order no.256 of March 29, 2013.

#### **Safety recommendations**

The railway accident occurred on 25.02.2022, while passing through the Bucurestii Noi railway station, on the connecting line between the 6C and 30 ("Government line"), at km 0+280, was caused by the inadequate technical condition of the railway infrastructure.

It was found during the investigation that the inadequate technical condition of the track was caused by inadequate maintenance, which was not carried out in accordance with the provisions of the practice codes (reference documents associated with the procedures of the SMS of IM).

By applying its own SMS procedures, in their integrity, as well as the provisions of the practice codes, which are part of the SMS, the IM should have kept the technical parameters of the track geometry within the tolerances required by railway safety and thus could have avoided the occurrence of the rail accident.

Taking into account the railway events of a similar nature that took place in the period 2015÷2020 in the area of activity of SRCF Bucharest, presented in Chapter 4.e, "Previous accidents or incidents of a similar nature" and taking into account the fact that recommendations have been issued in this regard, the commission considers that it is no longer necessary to issue other recommendations of a similar nature.

**3.4.5.** The railway incident occurred on 01.03.2022, in the railway county Craiova, in Pârnu railway station at the stabling of passenger train nr.9035, consisting of diesel multiple unit AM 2005 (belonging to the RU SNTFC "CFR Călători" SA), on diverging track no.2, by running away of diesel multiple unit towards the running line Pârnu-Costești, passing the exit signal X2 on danger. The DMU stopped at km 119+500.

The investigation report was finalized on 23.02.2023.

#### **Direct cause, contributing factors**

The cause of the incident was human error in making incorrect decisions regarding the handling of some components of the brake installation resulting in the air supply to the brake cylinders being cut off, making braking impossible and the running away of the of the DMU in the open line.

#### **Contributing factors**

- The malfunction of the braking system, which did not allow the vehicle to move;
- Non-instructional and unregulated tampering with some components of the brake installation (unscrewing the threaded plugs of the air reservoirs 109/1 and 109/2 of the control valves 106/1 and 106/2 respectively and manipulating the valves P32/1, P32/2, P32/4 and P32/5 in the "closed" position);
- Starting to move the vehicle after the request for assistance (after which the driver gave up), with a failure in the braking systems which did not allow it to move without assistance.

#### **Underlying causes**

- art.41-(5) of the Instructions for the activity of locomotive crews in railway transportation no.201/2007, regarding the occurrence of faults in the current line, where the specific regulations in force for the remedy of faults and the request for help shall be observed;
- art.143-(3) of the Instructions for the activity of locomotive crews in railway transport no.201/2007, regarding the repairs that can be carried out only in accordance with the technical guides/guidelines in force for the type of railway vehicle in service and only in compliance with the specific rules of work protection and fire protection;
- art.150-(1) of the Instructions for the activity of locomotive crews in railway transport no.201/2007, regarding the fact that when the train cannot continue its journey on the current line, it cannot be returned to the dispatching station, the driver having to ask for help locomotive from the neighboring stations;
- art.84-(12), of the *Regulation on hauling and braking no.006/2005*, regarding the case of failure of the locomotive's automatic brake, where the locomotive (DMU) continues to run only with the assistance locomotive.

#### **Primary causes**

No primary causes have been identified.

#### **Measures taken since the accident**

SNTFC "CFR Călători" SA through the General Traffic Safety Inspectorate drew up a plan of measures no.2022 where it was ordered to seal in the "Open" position the air supply valves P32/1, P32/2, P32/4 and P32/5 of the brake cylinders of the engine bogies TDG1, TDG2 and the Jakobs

carrier bogie as well as to introduce at periodical training staff an additional topic on how to proceed in such cases.

#### **Safety recommendations**

As a result of the measures taken by the management of the passenger RU SNTFC "CFR Călători" SA, after the incident, it is no longer necessary to issue safety recommendations.

**3.4.6.** The railway accident that occurred on 13.03.2022, in the railway county Brasov, Luduş - Măgheruş Şieu traffic section (non-interoperable section managed by RC CF Trans SRL Brasov), between Sărmăşel and Lechinţa railway stations, by derailment of the first bogie, in the running direction of the trailer wagon of the DMU -AMX no.1704 forming passenger train 11020 (belonging to the RU Regio Călători SRL Braşov).

The investigation report was finalized on 01.03.2023.

#### **Causal factor**

Exceeding the derailment stability limit due to inadequate track condition caused by maintaining track geometry outside the tolerances allowed in service.

#### **Contributory factors**

- Failure to timely identify deficiencies in the track superstructure as a result of failure to carry out track inspection by traffic safety personnel within the timeframes and in the order specified in the codes of practice.
- Failure in the last 6 years prior to the accident to carry out measurements with a track gauge wagon.

#### **Systemic factors**

- Inadequate material and human resources in relation to what is necessary to maintain t the track geometry within the permitted tolerances.
- Weaknesses in the identification and assessment of the risks generated by own rail operations by the entity in charge of track superstructure maintenance in relation to the risk of 'derailment of rail vehicles'.

#### **Safety recommendations**

Reasons for absence of safety recommendations

During the investigation, it was found that both the factors that caused the accident and those that increased the likelihood of its occurrence were deviations from the codes of practice (relating to carrying out regular repairs, providing the necessary material and human resources) and to the control of operational and organizational risks associated with railway operations in relation to the application of the SMS by the infrastructure manager, which is an obligation once the Safety Authorization has been obtained.

These deviations were also found during the investigation of the accident on 28.11.2021 and were included in the findings made during the monitoring of the activity of RC CF carried out by NSA, as a result of which RCCF committed to take certain measures. Given that the date on which the accident occurred is prior to the date on which these measures should have been put in place the Investigation Committee considers that it is not necessary to issue any recommendations in this case.

**3.4.7.** The railway accident occurred on 24.03.2022, In the railway country Cluj, Cluj Napoca - Oradea traffic section (non-electrified single line), in the station CF Ciucea, in the movement of freight train no.57557 (belonging to the rail freight operator SC Cargo Trans Vagon SA), by derailment and overturning of two wagons loaded with cereals, the 13th and 14th of the train. The investigation report was finalized on 21.03.2023.

#### **Causal factor**

The increase in the track gauge value above the maximum permissible operating gauge value in the area where the railway accident occurred as a result of the existence of inappropriate wooden beams (bundles of beams) in the track, which did not allow the tightening of the tie bolts for fastening the metal plates, together with the failure to ensure the embedding of the wooden beams supporting the track against the stone masonry.

### **Contributory factors**

- Handing over/taking over and placing wagons with exceeded maximum axle load into the train composition;
- Incorrect rectification of faults recorded during measurements with the path measuring trolley.

### **Systemic factors**

- Non-identification by RU CARGO TRANS VAGON, of the hazard of hauling the train with one or more wagons in which the cargo does not comply with the Loading Directives;
- Failure of the entity responsible for the maintenance of the track superstructure to identify the hazard and keep under control the risks arising from the non-replacement of inadequate rails in the ash channel and failure to rectify, within the deadlines laid down by the regulations in force, the defects detected during the inspection of the lines with the track measuring trolley.

### **Measures taken since the accident**

Line 5 in Hm Ciucea remained closed after the accident. The Regional Railway Traffic Safety Review Board of Cluj carried out an action to identify and assess the risk factors related to the hazards associated with exceeding specific tolerances on the track gauge within the ash channels, and the proposed measure was to close the railway traffic over the ash channels or to dismantle them.

### **Safety recommendations**

With regard to the hazards resulting from exceeding the specific tolerances of the track gauge within the ash channels, SRCF Cluj carried out, after the accident, an action to identify and assess the risk factors associated with these hazards. Following the risk analysis, the proposed measure was the closure of rail traffic over the ash channels or their dismantling. Since SRCF Cluj has taken the necessary steps in this direction, the Investigation Committee considers that it is no longer appropriate to issue a Safety Recommendation in this respect.

As regards the loading of wagons, the investigating committee found that SC CARGO TRANS VAGON SA did not identify the danger posed by the train being guided by one or more wagons in which the goods do not comply with the loading provisions of the *Loading Directives*, after they have been loaded by the economic operators (consignors) with which SC CARGO TRANS VAGON SA has concluded contracts and/or agreements for rail transport.

In view of the findings and conclusions of the above-mentioned investigating committee, in order to improve rail safety and prevent similar occurrences, AGIFER issues the following safety recommendation:

#### **Safety recommendation 419/1**

The Romanian NSA - ASFR will request SC CARGO TRANS VAGON SA to assess the danger posed by the train being guided with one or more wagons in which the goods do not comply with the *loading directives*, after loading them by the economic operators (consignors) with which SC CARGO TRANS VAGON SA CTV has concluded contracts and/or rail transport agreements" and to establish effective measures to control the risks induced by it.

**3.4.8.** The railway accident occurred on 01.04.2022, in the railway county Craiova, Drăgotesti-Turceni railway section (electrified single track line.), at the entrance of freight train no.64220 (belonging to the RU SNTFM "CFR Marfă" SA), in Turceni railway station, over diagonal no.28-38/44, by derailment of three wagons, the 9th, 10th and 11th of the train composition.

The investigation report was completed on 31.03.2023.

### **Causal factor**

The existence on the track at the accident site of a group of unsuitable normal wooden sleepers (which could no longer ensure the proper fastening of the rails and the keep of the track gauge within the tolerances allowed by the regulatory framework), resulting in the exceeding of the maximum permissible track gauge, thus leading to the loss of the rails capacity of guiding and loading under the dynamic action of the rolling stock.

### **Contributory factors**



The high degree of clogging of the crushed stone prism with coal dust, excess moisture (water drainage being hindered by the coal dust clogging) which caused premature rotting of the wooden sleepers.

#### **Systemic factors**

- Allocation of insufficient material and human resources to carry out periodic repair (maintenance) work on the track within the prescribed deadlines in order to maintain its geometry within the permitted tolerances.
- Deficient identification and assessment of the risks associated with own railway operations carried out by the ECM of track superstructure in relation to the risk of 'derailment of railway vehicles'.

#### **Safety recommendations**

Preamble Safety Recommendation 420/1

During the investigative action, it was found that the identification and assessment of the risks associated with own railway operations carried out by the entity in charge of maintenance of track superstructure in relation to the risk of 'derailment of railway vehicles' was inadequate. For this reason the risk could not be kept under control.

Taking into account this fact and the fact that in the period prior to the accident, on the Drăgotești - Turceni section, due to the maintenance of inadequate wooden sleepers on the track, several accidents / derailments occurred, in order to improve railway safety and prevent similar events, AGIFER considers it appropriate to address the following safety recommendations to ASFR:

#### **Safety Recommendation 420/1**

The Romanian NSA - ASFR will ensure that CNCF "CFR" SA, in its capacity as public railway infrastructure manager, will reassess the risk of "Derailment of railway vehicles" generated by "*Keeping inadequate sleepers on the track*" and will establish concrete measures for managing the risks associated with this hazard.

**3.4.9.** The railway accident occurred on 02.04.2022, in the railway county Craiova, Caracal-Craiova traffic section (electrified double track line), at the entrance of the freight train no.66708 (belonging to the RU SC Deutsche Bahn Cargo Romania SRL), in Craiova railway station, in the area of the switches 15/21-17-25/31-29, by derailment of two wagons, the 4th and 5th of the train consist. The investigation report was finalized on 28.03.2023.

#### **Causal factor**

Failure (locking) of the slack adjuster of the first bogie, in the forward direction, of wagon no. 31842780080-6, the 4th bogie of freight train No. 66708, which resulted in the wheels of this bogie remaining braked after the automatic brakes had been released.

#### **Contributory factors:**

Freight train 66708 had 36 wagons loaded after wagon 31842780080-6, which was empty.

#### **Systemic factor**

Failure by the RU, SC Deutsche Bahn Cargo Romania SRL, to assess the risks associated with the danger posed by the failure of the brake installation of a freight wagon.

#### **Safety recommendations**

The investigation of this train accident revealed that it occurred when the brake system of wagon 31842780080-6, the 4th wagon of freight train 66708, failed.

Preamble safety recommendation no.421/1

The investigation revealed that the RU DBCR did not identify and did not assess the risks associated with the hazard posed by the failure of the brake installation of a freight wagon.

In view of the findings and conclusions of the aforementioned investigating committee, in order to improve rail safety and prevent similar events, AGIFER considers it appropriate to address the following safety recommendations to ASFR:

#### **Safety recommendation 421/1**

The Romanian NSA - ASFR will ask the RU SC Deutsche Bahn Cargo Romania SRL to assess the danger posed by the failure of the brake installation of a freight wagon, establishing effective measures to control the risks induced by it.

**3.4.10.** The railway accident occurred on 06.04.2022, within the area of activity of Constanța Regional Branch, Dorobanțu – Năvodari traffic section (non-interoperable section - managed by SC Grup Feroviar Român SA), at the entrance of the freight train no.66683006 (belonging to RU SC Grup Feroviar Român SA), on the track no.2 of Nazarcea railway station, in the area of the switch no.5, by derailment of the 37th wagon of the train from all the axles.

The investigation report was finalized on 05.04.2023.

**Causal factor**

Operating of the switch no.5 without on-site verification of the passage of freight train No.66660006.

**Contributory factors**

Partial roll-by examination of freight train no.66683006.

Non-itinerary stop of the freight train 66683006 after passing the entry signal X of the railway station Nazarcea and routing on the track no.2.

Failure to check in the field the route of freight train 66683006.

Keeping the signaling, centralization and block (SCB) equipments in a state of disturbance for long periods.

**Systemic factor**

Ineffective management of the risk associated with the danger of train running when signaling, centralization and block (SCB) equipment are disturbed for a long time.

**Measures taken since the accident**

The CED installation of Nazarcea station has been completely rehabilitated since 05.12.2022.

**Safety recommendations**

The accident occurred as a result of the identified factors that led to the operation of the switch on train passing, as a result of the failure to perform the tasks set out in the work instructions and PTE sheets, namely: non-itinerary stopping of the train, lack of on-site verification of its stabling and operating of the switch no.5 by the station master without checking in the field the route he wanted to perform, in conditions of SCB disturbance s.

During the investigation, it was found that both the factors that caused the accident and those that increased the likelihood of its occurrence were deviations from the codes of practice (relating to train running when SCB are in disturbance conditions) and the codes of practice for controlling the operational and organizational risks associated with railway operations in relation to the application of the SMS by the infrastructure manager, which is an obligation when obtaining the Safety Authorization.

The Investigating Commission found that GFR together with CNCF identified the problems with the installations at the CF Nazarcea station. GFR did not effectively manage the risks generated by the failure to carry out maintenance of the installations and to remedy them within the instructed deadlines, in order to be able to order follow-up measures to reduce these risks.

**Safety recommendation 422/1**

ASFR will ensure that SC Grup Feroviar Român SA will complete the list "Risk assessment - provisions of R EU 2018/762; R EU 402/2013; R EU 1078/2012" associated with the danger generated by the maintenance of signaling, centralization and block (SCB) installations in a state of disturbance for a long period of time and will establish monitoring measures to control these risks.

**3.4.11.** The railway accident that occurred on the 11<sup>th</sup> of April 2022, in the running of passenger train Regio no.3087, the, in the railway country Cluj, track section Cluj Napoca - Câmpia Turzii (electrified double track - line), in the railway station Cojocna, over the track switch no.7, the first bogie of the hauling locomotive with registration number 91 53 0 477 798-9 derailed in the running direction.

The investigation report was finalized on 10.04.2023.

**Causal factor**

Existence within the track, at the accident site, an area with constructive parts of the track superstructure damaged, it leading to the hit and overclimbing of the checkrail next to the crossing on" diverging track" of the switch no.7 from the railway station Cojocna, by the right wheels of the

first bogie, in the running direction, from the locomotive EA 798, wheels running on the rail corresponding to the inner one of the curves (the running rail on switch" diverging section"). It happened following the dynamic increase of the gauge value, it being generated by the improper condition of the special wooden sleepers and running of the right wheels to the track interior, outside the channel between the rail and checkrail.

#### **Systemic factor**

Lack of periodical repairs and non-provision with sufficient material resources, in relation to the necessary one, for the performance of line maintenance and keeping of track between the tolerances accepted.

#### **Measures taken after the accident**

After the accident, the wooden sleepers from the switches no.5 and 7 were replaced and there was performed mechanic packing of sleepers with Plasser 4S machine.

#### **Safety Recommendations**

Motivation of safety recommendations lack

Considering that the factors causing the accident are deviations from the codes of practice and for keeping under control the risks associated to the railway operations in connection to the application of SMS by CNCF, that is obligation for each economic operator carrying out railway transports given at the granting of Safety Authorization, the investigation commission does not consider necessary to issue safety recommendations.

We mention that, even safety recommendations are missing, upon the remarks of investigation commission, following the nonconformities found, CNCF can take safety measures, considered necessary, for keeping under control the derailment risk.

**3.4.12.** The railway accident that occurred on the 13<sup>th</sup> of April 2022, in the railway county Craiova, track section Drăgotești - Turceni (electrified single-track line), from the diverging track track 3, between the exit signal and the entry signal situated against the running direction, of the railway station Drăgotești, at km 40+830, all axles of the locomotive ED 050 (that hauling the train-got by the freight RU SNTFM „CFR Marfă”) SA derailed. The investigation report was completed on 11.04.2023.

#### **Causal factor**

Existence within the track, at the accident site, an area with the gradient of the track twist over the maximum value accepted for the traffic and of some counter-cants of the outer rail over the tolerances accepted in operation, it leading to the exceeding of the derailment stability limit.

#### **Contributing factor**

Ineffective monitoring of the development of the failures recorded with the trolley for the track measuring, it favoring their deterioration.

#### **Systemic factors**

- provision with insufficient human resources, against the necessary ones, to perform the suitable maintenance of line and keeping of track geometry between the tolerances accepted;
- ineffective management of the risk associated to the danger of exceeding the tolerances accepted for the track geometry by the infrastructure administrator.

#### **Safety Recommendations**

The railway accident happened on the 13<sup>th</sup> April 2022, when the train left the railway station Drăgotești, from the deflecting section 3, between the exit signal and the entry signal situated against the running direction, of the railway station Drăgotești, from the railway station Borăscu, on the direct line II, 40+830, was generated by the improper technical condition of the railway infrastructure.

During the investigation, there was found that the improper technical condition of the track was generated by the unsuitable maintenance, that was not carried out in accordance with the provisions of the practice codes (reference documents associated to the procedures of SMS, got by the infrastructure administrator).

Applying the own procedures of the safety management system, completely, as well as the provisions of the practice codes, part of SMS, the infrastructure administrator should have been able to keep the

technical parameters of the track geometry between the limits of tolerances imposed by railway safety and, in a such way, it should have been able to avoid the accident occurrence.

Preamble of recommendation no.424/1

The investigation commission found that the infrastructure administrator did not assess the risks generated by the non-provision of the line sections with an enough number of employees for the performance of proper maintenance of the line and keeping of track geometry between the tolerances accepted.

Considering the findings and conclusions of the investigation commission above mentioned, for the prevention of accidents that could happen in conditions similar to those presented in this report, AGIFER issues the next safety recommendation:

**Recommendation no.424/1**

Romanian Railway Safety Authority – ASFR shall take care that CNCF „CFR” SA re-assesses the risks generated by the non-provision of the line sections with an enough number of employees for the performance of proper maintenance of the line and keeping of track geometry between the tolerances accepted and it establishes measures for keeping these risks under control.

**3.4.13.** The railway accident occurred on the 7th of May 2022, in the railway county Constanța, track section Țândărei - Fetești (electrified double track- line), in the railway station Fetești, in the running of freight train no.66704007 (got by RU SC Deutsche Bahn Cargo Romania SRL), 8th wagon of the train derailed at both axles of first bogie, in the running direction. The investigation report was completed on 20.04.2023.

**Possible causal factor**

Uneven loading of the wagon no.83536658178-2 in relation to its longitudinal axis, following of it the ratio between the guiding force and the load acting on the guiding wheel (4L) increase over the derailment stability limit.

**Contributing factors**

None.

**Systemic factors**

None.

**Motivation of safety recommendations lack**

In case of the accident happened on the 7<sup>th</sup> May 2022, at about 09:00 o'clock, in the railway station Fetești, on track I Movila – Fetești, end X of the railway station Fetești, about km 87+580, in the running of freight train no.66704007 by the derailment of both axles of first bogie, in the running direction, from the wagon no.83536658178-2, the investigation commission concluded that there are reasonable premises in order to consider that, it is possible that the irregular loading in relation to the longitudinal axis of the wagon, lead to the wagon derailment.

In 2021 there were 3 similar railway events (mentioned within the investigation report at *chapter 4.e*) involving wagons loaded with the same type of good (slag), by the same economic agent (SC Liberty Steel Galați SA), being in the composition of some trains got by the same railway undertaking (SC Deutsche Bahn Cargo România SRL).

Following the investigation of those 3 (three) events (presented within *chapter 4.e*), the investigation commissions established that the loading of the wagons involved (irregular loading) led to those events.

Considering those above mentioned and taking into account that, upon completion of the investigation of the accident happened on 1<sup>st</sup> August 2021, on the industrial branch, got by ROMCIM SA București – Working Point Medgidia, a safety recommendation was issued, for which Romanian Railway Safety Authority informed that it is in implementation process, the investigation commission considers that it is not necessary to issue a new recommendation in this respect.

**3.4.14.** On the 24th of May 2022, on the metro network from București, main line M2, between the metro stations Piața Romană and Universitate, in the running of metro train no.15, path 04, consisting in the electric metro train (TEM) no.1314-2314, the torsion bar and the 3rd rail collector

shoe on the left side (in the running direction), from the bogie no.2 of the wagon MP2 of the semi-train no.2314, broke, and they hit the tunnel electrical and signaling equipment.

The investigation report was completed on 16.05.2023.

### **Causal factor**

Breakage of the torsion bar from bogie no.2 of wagon MP2 of semi-train no.2314, the breakage being generated by the wrong application of the blasting with metallic shots, during the manufacturing of that bar.

### **Measures taken after the incident**

- Following the incident, CAF began an action for ultrasonic control, along which it checked the torsion bars from the bogies of all trains supplied to METROREX (both from the first group - TEM with no. 1301-2031 to 1316-2316, and those from the second group – TEM no. from 1317-2317 to 1324-2324). This action was run between June – July 2022. Over that action, during the controls, on the 7th July 2022 there was identified a torsion bar at the train TEM no.1309-2309, wagon M2309, bogie 2 (no. M-69), bar with series number 114, left side) considered by the inspector for non-destructive control out of line, following the specific procedures, and so rejected. On the same date, the respective bar was taken out from the train and replaced with a new one. Excepting that case, there were not identified other torsion bar with flaw echo;
- Considering the quality problems resulted from the blasting with metallic shots of the torsion bars, CAF proposed METROREX the replacement of the torsion bars equipping the trains from the first group (TEM no. from 1301-2301 to 1316-2316), that were not replaced up to now with torsion bar from the new supplier. Following that proposal METROREX notified its agreement on the replacement of the bars proposed by CAF.

### **Motivation of safety recommendations lack**

The incident happened on the 24<sup>th</sup> May 2022, on the metro network from București, main line M2, between Piața Romană and Universitate metro stations, was caused by the breakage of the torsion bar from bogie no.2 of wagon MP2 al semi-train no.2314.

In order to establish the conditions where the incident happened, as well as to determine the causes that led to that breakage, AGIFER asked CAF to perform a technical expertise / laboratory analysis on the torsion bar involved. Following this expertise there was found that the breakage of the torsion bar was generated by the wrong application of the blasting with metallic shots, during the manufacturing of that rod. Before the incident above mentioned, in the running of the metro train type BM3-CAF there were other 4 more similar cases (breakage of the torsion bar, part of the roll unit).

After the first case, CAF performed an expertise on the broken bar, following it there was established that "the breakage of the torsion bar happened because of a quality problem appeared during the blasting with metallic shots, that process being wrong performed".

During the same period of time there was performed a non-destructive control action (an ultrasonic one) on the torsion bars of the trains type BM3-CAF, in order to detect the incipient cracks. Following that action, there were detected 7 bars that were taken out from the vehicle because of the presence of indications of surface failures. Those rods were sent to CAF laboratory in order to determine the nature of the indications detected. According to the tests performed there was established that the quality problem above mentioned affected just three groups.

Following the laboratory tests performed, CAF undertook to replace completely all the torsion bars existing in the affected groups, 49 pieces, action that was ended over 2020. We underline that, the broken bar into the investigated incident was not part of the affected groups.

Also in December 2018, CAF run an action for ultrasonic control, along which it checked all the torsion bars from the bogie of the last 8 trains type BM3-CAF, supplied to METROREX (trains no.1317-2317 ÷ 1324-2324). Following the controls there were no more identified failures at the bars controlled. We underline that, along that over the control action, on the 4<sup>th</sup> December 2018, also the torsion bar in the last by one incident was controlled (happened on the 29<sup>th</sup> March 2021).

Following the last but one incident, CAF took measures for the replacement of the torsion bar equipping the last 8 trains supplied by METROREX, in running, that were replaced following the first 3 incidents. So, between February – October 2022, CAF replaced the torsion bars that were not replaced following the previous incidents.

Because, following the expertise of the torsion bar rod involved in the last incident, the result consisted in the same causes of the breakage (wrong application of the blasting with metallic shots, during the manufacturing of those rods), CAF notified AGIFER about the proposal made to METROREX to replace all the torque rods equipping the first group of trains (TEM no. from 1301-2301 to 1316-2316), that were not replaced up to know with bars from the new supplier. Following that proposal, METROREX notified its agreement regarding the replacements of bars, proposed by CAF.

Considering the measures for the replacement of the torsion bars rods, that are part of the groups with quality problems, proposed by the manufacturer of the train and accepted METROREX, AGIFER considers that it is not necessary to issue safety recommendations.

**3.4.15.** The railway accident occurred on the 26<sup>th</sup> of May 2022, track section Petroșani - Simeria (electrified double-track line), on the direct line of Merișor railway station, km 61+046, in the running of freight train no. L88151 (light locomotive got by the railway undertaking SC Constantin Grup SRL), the locomotive EC 91 53 043 0076-6 derailed and overturned. The investigation report was completed on 25.05.2023.

#### **Causal factor**

Over-speeding more than 2,5 times, of the maximum accepted speed on the line, by the locomotive EC 076 during its running on a left curve, in the running direction, following the improper working of the braking systems, generated by the loosening and detachment of the pipe for air supply of the brake cylinder no.4 and locomotive running with the control valve KE insulated, it leading to the increase of the lateral dynamic forces, so exceeding the derailment stability limit and leaving of the rail by the locomotive wheels.

#### **Measures taken after the accident**

During the investigation, the RU BEU, after the accident, through the decision no.600 from the 8<sup>th</sup> August 2022, took the next measures:

- there were taken measures for re-analysis with the staff interested the provisions of art.79 from Regulation for Hauling and Braking no.006 from 2005, of art.9 and Annex 7 from Instructions for the activity of locomotive no.201 from 2007;
- it was disposed the sealing of the cut-out cocks of the distributors KE at the locomotives equipped with those types of air distributors.

Also, RU SC Constantin Grup SRL identified a new risk, stipulated at position 42 in the register of risks: "Appearance of technical failures at the rolling stock, following the hidden wears at the parts, due to a long periods of use, between two deadline inspections".

#### **Motivation of safety recommendations lack**

Considering the measures taken during the investigation by the RU SC Constantin Grup SRL, measures presented into chapter 5.b, the investigation commission considers unnecessary to issue any other recommendation.

**3.4.16.** The railway accident that occurred on the 13<sup>th</sup> of June 2022, in the railway county București, track section București Nord - Videle (electrified double-track line), in Zăvestreni railway station, during the visual inspection of the train, the movements inspector on duty observed fire at the upper part of the first wagon of the freight train no.66306 (got by RU SC Grup Feroviar Român SA). The investigation report was completed on 09.06.2023.

#### **Causal factor**

Improper fastening of the screws for fixing the cover of the loading domes of the wagon no.82537942512-7, that condition allowed the release of the gas vapors in that area and afterwards their ignition.

#### **Contributing factors**

The special weather conditions that favored the occurrence of some local electric discharges at the support insulators type C, the local electric discharges generating some sparks that led to the ignition of the gas vapors released at the cover of loading dome from the upper part of first train wagon.

### **Systemic factor**

Lack, into the document concluded between the railway undertaking and the loader, of provisions regarding the control of the systems for locking/ensuring the units and subunits situated on the upper part of the tank wagons.

### **Safety recommendations**

The accident happened on 13<sup>th</sup> June 2022, in the railway county București, track section București - Videle (electrified double-track line), in the railway station Zăvestreni, in the running of freight train no.66306, had like cause the improper fastening of the screws for fixing the cover of the loading dome from the wagon no.82537942512-7, it allowing the release of gas vapors in that area.

During the investigation, there was found at the cover of the loading dome that the screw for fixing and sealing, on the right side, in the running direction, fell from the fixing „ear” outside the dome cover and the other screws and fly nuts were unfastened, their unfastening for the dome opening was made by hand, being easy to manipulate.

Preamble of the recommendation no.428-1

During the investigation there was found that, although between the railway undertaking and the economic agent, that loaded the wagons of the train involved, there are procedures that regulate the delivery-reception of the empty/loaded wagons, from technical and commercial point of view, they do not contain any provisions which set up how to control the systems for fastening/ensuring the units and subunits situated on the upper side of the tank wagons.

From the analysis of the documents submitted by SC ROMPETROL RAFINARE SA, into the paper no.2752/30.05.2023 (by that paper there was sent the view on the Draft of the Investigation Report), there was found the existence of some problems between the ones and the documents that regulate the organization of the reception for transport of wagons after their loading, submitted to the investigation commission by the railway undertaking GFR.

Considering the findings and conclusions of the investigation commission, above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address Romanian NSA – ASFR the next safety recommendation:

### **Recommendation no. 428-1**

Romanian Railway Safety Authority – ASFR shall take care that SC GRUP FERROVIAR ROMÂN SA, like railway undertaking and the economic agent, that loaded the wagons of the train involved, shall revise the procedures that regulate the delivery-reception of the empty/loaded wagons, from technical and commercial point of view, so they stipulate also how to control the systems for fastening/ensuring of the units and subunits situated on the upper side of the tank wagons.

**3.4.17.** The railway accident occurred on 22<sup>nd</sup> June 2022, in the railway county București, track section București Nord - Videle (electrified double-track line), on track I between the railway stations Zăvestreni and Videle, km 48+860, in the running of passenger train no.349 (got by the railway undertaking SNTFC „CFR Călători” SA), a fire burst into the hauling locomotive EA 889, that afterwards extended at the first train car.

The investigation report was completed on 15.06.2023.

### **Causal factor**

Appearance of an electric arc between the floor of the locomotive EA 889 and the electric cables that connect the batteries and the equipment block S7, following the deterioration of their insulation.

### **Contributing factor**

non-performance of planned repairs type RG at the locomotive EA 889, upon the stipulated times/km, repairs consisting in the replacement of all locomotive electric cables, and it keeping in operation, after exceeding the norm of time and km for the performance of planned repairs, repairs that had to ensure the necessary potential for safety, comfortable and security railway transports.

### **Systemic factors:**

- ineffectiveness of the process for monitoring the measures set up for keeping under control the risks corresponding to the danger” lack of compliance with the cycle of inspections and repairs at the rolling stock”;

- lack, within the operational procedure” Planning of inspections and repairs at the locomotives, multiple-units and electric train set got by SNTFC „CFR Călători” SA - PO-0-8.1-15, of some provisions regarding the way to withdraw the locomotives/multiple units/electric train sets when they reach the norm of time/km, as well as non-appointment of staff responsible for the performance of that activity.

#### **Measures taken after the accident**

According to the papers no.1/2416/05,05,2023 and no.DT5/1/109/08.03.2023, during the investigation of the accident happened on the 22<sup>nd</sup> June 2022, in the running of passenger train no.349, SNTFC „CFR Călători” SA disposed the next relevant measures:

- during the first lifting on jacks of the locomotives, irrespective of the cause that imposed it, one makes the cleaning of the bogies surfaces (including its parts) by cleaning, until the complete removal of the dust and oil/diesel fuel deposits, cleaning and checking by removing the electric connections from the from the connecting boxes of the electric traction engines, cleaning and inspection of force cables situated under the body of the motorized rolling stock and into the body, cables of the diesel engines of the multiple units/locomotives, checking and restoring, if case, of the electrical resistance of the insulation of force and command cable, or, when required, the replacement of unsuitable cables, removal of the oil/fuel losses, cleaning of dirty areas inside the motorized rolling stock;
- drafting a plan of measures that include also the inspection of cables for DC power supply of block S7 (cable with positive electric potential) at the crossing area of the locomotive floor (control of the isolation and removal of the nonconformities).

#### **Motivation of safety recommendations lack**

Considering that during the investigation, SNTFC „CFR Călători” took measures for preventing in the future similar accidents, as well as that the safety recommendation no.385/2, issued for the railway incident happened on 1<sup>st</sup> June 2021, at 19:35 o'clock, in the railway county Craiova, in the railway station Golești, in the running of passenger train Interregio nr.1897, regarding the revision of the operational procedure „Planning inspections and repairs at locomotives/multiple units and electric train sets got SNTFC „CFR Călători” SA” - PO-0-8.1-15, is in implementation process, the investigation commission considers that it is unnecessary to issue another safety recommendation.

**3.4.18.** The railway accident occurred on 29<sup>th</sup> of June 2022, in the railway county Iasi, track section Pașcani - Iași (electrified double-track line), on track I between the railway stations Sârca and Podu Iloaiei, in the running freight train no.56317027 (got by RU SC Grup Feroviar Român SA), 15 wagons of the train derailed (from 11<sup>th</sup> one to the 25<sup>th</sup> one), 11 ones overturned.

The investigation report was completed on 27.06.2023.

#### **Causal factor**

Existence within the constant-radius curve, before the derailment site, a track section with lateral displacement, that led to the lateral movement of the unit rail-sleepers to outside the curve, appeared following the increase the rail temperature, it generating, under the action of the dynamic forces, the exceeding of the derailment stability limit, finally getting a cross distortion with a length of 16,3 m and the maximum versine value of the track deflection of 92 mm, measured at the distortion wave.

#### **Contributing factor**

Exceeding with up to 16 km/h (about 25%) of the maximum speed established in the working timetable for the train category (the freight trains consisting in transposed wagons CSI).

#### **Systemic factors**

- lack of overhauls for putting the parts of the tracks in accordance with the parameters designed for the line, in order to ensure the safety traffic, with the established speeds and tonnages.
- ineffective management of the risk associated to the danger of loss the welded track stability, realized by the infrastructure manager.

#### **Additional remarks**

During the investigation, the investigation commission found that:

- the wagons involved in the accident had some deficiencies, that are presented at chapter 3.a.4;
- the activity for ensuring the competences necessary, reported to the type CSI transposed wagons,



for the staff that performed the next services: technical checking of the wagons both during their reception at border, and during the performance of technical inspections of the trains having in their composition these wagons on Romanian network, had deficiencies.

### **Safety recommendations**

Preamble of recommendation no.1

Regarding the performance of periodical repairs with complete screening of ballast, carried out on that track section, the investigation commission found out as follows:

From the documents sent by Line Division Iași – Section SRLU regarding the performance of periodical repairs - RPc (between 22<sup>nd</sup> March 2022- 5<sup>th</sup> May 2022 with complete closing of line and daily closing between 6<sup>th</sup> May 2022 – 10<sup>th</sup> August 2022), it appears that all the works of the technological process (complete mechanical screening of ballast, intermediary packings of sleepers, packings of sleepers I, II and III) were performed without previous stress relief from the rails, as it is stipulated in the *Instruction no. 302 for the performance of line overhauls*, edition 1986, at chapter II, letter C, point 3: „For the welded track, over the high temperatures, that is with rail temperatures over the temperature for final fixing, during the performance of some operations and up to the line stabilization, it must take measures for previous stress relief of the rails”.

It is stipulated that, although the works afferent to the technological process RPc were performed over the times with rail temperature close to the fixing temperature (works during the night or in the first part of the day), missing a stabilization tonnage or some works for dynamic stabilization of the track, the broken stone bed not being compact, it could not ensure a proper resistance that opposes the axial forces of compression under the action of daily variations of the temperatures.

Also, after the performance of screening III and a traffic of 300.000 gross tonnage, in order to put the rails between the limits of temperatures for final fixing accepted for the welded track, it was necessary the stress relief of the rails and uniformity of efforts, according to the *Instruction no. 302 for the performance of line overhauls*, edition 1986, chapter II, letter C, point 10.

Missing the stress reliefs and uniformity of efforts, made after the performance of all the works that can destabilize the broken stone bed (row replacement of sleepers, complete screening, technological packing of sleepers, etc.) and after achieving its compacting (in accordance with I 341 „*Instruction for the composition, maintenance and surveillance of welded track - 1980*” Art.8), it is possible to get track distortions under the action of temperature variations.

Considering the findings and conclusions of the investigation commission above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address ASFR the next safety recommendation:

#### **Safety recommendation no.1/430**

Romanian Railway Safety Authority - ASFR shall ensure that the infrastructure manager CNCF „CFR” SA re-assesses the risks associated to the danger generated by the lack of stress reliefs and uniformity of the efforts, after the performance of complete screening and technological packing of sleepers (permanent closing of the line) and after its compaction.

Preamble of recommendation no.2

The investigation commission found the existence of some deficiencies in the organization of the activity for ensuring the competences necessary for the staff that performed the next services: technical checking of the wagons type CSI transposed, both during their reception in border, and during the performance of technical inspections at the trains having in their composition these wagons on Romanian network.

Even if the deficiencies above mentioned did not influence the occurrence of the event, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address ASFR the next safety recommendation:

#### **Safety recommendation no.2/430**

ASFR shall take care that the railway undertaking Grup Feroviar Român SA re-assesses how the training ensures the competences necessary for the staff in charge with: technical checking of the wagons type CSI transposed, both during their reception in border, and during the performance of technical inspections at the trains having in their composition these wagons on Romanian network.

**3.4.19.** The railway accident occurred on 8<sup>th</sup> of July 2022, in the railway county Craiova, when the freight train no.64220 (got by RU SNTFM "CFR Marfă" SA) entered the railway station Turceni, 2 wagons series Fals, from the rear of the train, loaded with coal, respectively the 15th and 16th ones, derailed.

The investigation report was completed on 07.07.2023.

#### **Causal factor**

Existence within the track, at the accident site, under the closure rails of switch no. 32 from the railway station Turceni, a group of improper special wooden consecutive sleepers, whose technical condition could no longer ensure a safety fastening of the metallic plates. It led to the exceeding of the maximum limit accepted for the track gauge in operation, so generating the loss of the support and guiding capacity of the closure rails from the diverging track of the switch, under the dynamic action of rolling stock.

#### **Contributing factor**

Performance of inspections and controls without recording all the deficiencies, without setting corresponding measures and deadlines for fixing, it leading to the keeping within the track a group of improper special wooden sleepers.

#### **Systemic factors**

- provision with an inadequate material and human resources, against the necessary ones, for the performance of suitable maintenance of line and keeping of track geometry between the tolerances accepted;
- ineffective management of the risk associated to the danger of exceeding the tolerances accepted for the track geometry, performed by the infrastructure administrator.

#### **Safety recommendations**

Motivation of lack the safety recommendations

The railway accident happened on 8<sup>th</sup> July 2022, on the reception route of the freight train no.64220 on line no.6 from the railway station Turceni, on switch no.32, was the cause of the improper technical condition of the railway infrastructure.

During the investigation, there was found out that the improper technical condition of the track was generated by the unsuitable maintenance, that was not carried in accordance with the provisions of the practice codes (reference/associated documents of the procedures from the SMS of the infrastructure administrator).

Taking into account that the for the similar accident happened on 1<sup>st</sup> April 2022 in the railway station Turceni, on cross-over no.28-38/44 a safety recommendation was issued, the investigation commission considers that it is no more necessary to issue other similar recommendations.

We mention that, just missing safety recommendations, upon the remarks of the investigation commission, following the nonconformities found out, CNCF can dispose safety measures considered necessary, in order to keep under control, the derailment risk.

**3.4.20.** The railway accident occurred on 19<sup>th</sup> July 2022, track section Episcopia Bihor – Săcuieni Bihor (not-electrified single-track line), between Biharia and Diosig railway stations, km 674+998, in the running of passenger train no.6811 (got by the railway undertaking SNTFC „CFR Călători” SA), a fire burst into the locomotive DHCe 410, a dead one in the train composition.

The investigation report was completed on 17.07.2023.

#### **Causal factors**

The fire was generated by the ignition of diesel leaked from the locomotive tank, through a whole, generated the most likely by the hit of the tank with a hard object (that could not be identified) being in the structure clearance.

#### **Additional remarks**

Following the inspections performed, it was resulted that the locomotive DHCe 410 exceeded the deadline for planned repairs type RR, starting with 15<sup>th</sup> October 2013.

## Safety Recommendations

The investigation commission identified that, in SNTFC activity there was before a similar case involving a locomotive type LDH modernized, in which a fire burst, it being generated by the ignition of the diesel fuel leaked from the tank damaged, along the route, by a hard object not-identified, followed by the explosion of diesel fuel vapors from the tank. In this case, similar to the investigated accident, the locomotive crew was sprayed on clothes with diesel fuel leaked from the tank, during the intervention for fire extinguishing, because that crew did not realize soon enough that the tank was broken and there were diesel leakages. Considering the repeatability of those cases, in order to minimize in the future, the consequences of fires and to decrease the risks of injury by burning, generated to the operation staff by the ignition of the diesel leaked from the diesel tank damaged during the running at the locomotives type LDH, in accordance with the provisions of art.26, paragraph (2) from the Emergency Government Ordinance no.73/2019, the investigation commission issues the next recommendation:

### Safety recommendation no. 432/1

Romanian Railway Safety Authority - ASFR shall take care that the railway undertaking SNTFC „CFR Călători” SA analyses the risks associated to the danger of injury by burning generated to the operation staff, following the situations of leakages from diesel tank (including following the damage along the route at the diesel tanks of the locomotives type LDH).

**3.4.21.** The railway accident occurred on the 28<sup>th</sup> of July 2022 , in the railway county Constanța, non-interoperable track section Năvodari - Dorobanțu, railway infrastructure manager SC Grup Feroviar Român SA, between the railway stations Năvodari and Nazarcea, not-electrified single-track line, km 22+380, in the running of freight train no.66358028, got by railway undertaking SC Grup Feroviar Român SA, the first two axles of hauling locomotive DA 1537 derailed. The investigation report was completed on 20.07.2023.

### Causal factor

Existence within the track, at the accident site, a group of improper consecutive wooden sleepers, whose technical condition led, finally, to the increase of the gauge and of the cross level of the track over the limits accepted in operation, under the dynamic action of the rolling stock.

### Contributing factor

Lack of repairs and maintenances of track according to the practice codes, it leading to keeping within the track a group of improper wooden sleepers.

### Systemic factors

- inappropriate monitoring of the maintenance provider (regarding the performance of track repairs and maintenances) by SC GRUP FEROVIIAR ROMÂN SA, like non-interoperable railway infrastructure manager;
- keeping within the track, for a long time, the speed restrictions;
- infringement of the provisions from the own procedures with direct implications in the guarantee by the infrastructure manager of the fact that the maintenance of the infrastructure is safely supplied and that meets with the specific needs of the track section where the derailment happened.

### Measures taken after the accident

The provider of maintenance asked the infrastructure manager to supply the materials for the speed restriction removal at km 18+000 - 25+800.

According to the EU requirements and practice codes, there was written down the „*Convention for keeping under control the interface risks*” annex at the contract for service provision between the infrastructure manager and the services provider.

### Safety recommendations

*Motivation of lack of safety recommendations*

The railway accident happened on 28<sup>th</sup> July 2022, non-interoperable track section Năvodari - Dorobanțu, railway infrastructure manager SC Grup Feroviar Român SA, between the railway stations Năvodari and Nazarcea, not-electrified single-track line, km 22+380, in the running of freight train no.66358028, was generated by the improper technical condition of the railway infrastructure, respectively **exceeding the accepted cross level tolerances**. Considering the similar railway events happened into the railway county Craiova, presented at Chapter 4.e „*Previous similar accidents or incidents*” and taking into account that the similar accident happened on 4<sup>th</sup> June 2020, between PC2 Capu Midia and PC1 Capu Midia, in the running of freight train no.89158, consisting in the derailment of four wagons of the train, a recommendation was issued in this respect, the investigation commission considers that it is no more necessary to issue another similar safety recommendation. One underlines that, even if the safety recommendation is missing, upon the remarks of the investigation commission, following the non-conformities found out, SC GRUP FEROVIIAR ROMÂN SA can dispose safety measures considered necessary for keeping under control the derailment risk.

**3.4.22.** The railway accident occurred on the 9<sup>th</sup> of August 2022, in the railway county Cluj, track section Cluj Napoca - Câmpia Turzii (electrified double - track line), in Cojocna railway station, along the entry route to the ”diverging track” 2, of freight train no.57010 (got by railway undertaking SC UNICOM TRANZIT SA), on switch no.9, the first bogie of 17<sup>th</sup> wagon of the train, matriculation number 88537980230-3, derailed in the running direction. The investigation report was completed on 31.07.2023.

#### **Causal factor**

Loosening of the tyre from wheel no.7, followed by turning and cross movement of it on the wheel rim, it leading to the change of the distance between the inner faces of the wheels tyres (gauge) of the wheelset corresponding to the wheels 7÷8 from the wagon no.88537980230-3 and its derailment. Loosening of the tyre happened following the decrease, over the time, of the fastening forces between the wheel tyre and wheel center, because the thermic and mechanic strengths appeared in the operation of the wheelset, followed by the detachment of the assembly resulted from the fretting between the wheel tyre and wheel center.

#### **Contributing factors**

- non-identification of the loosened tyre at wheel no.7 of the wagon no.88537980230-3, during the performance of technical inspections at the train no.57010, in the composition of which it was, between 5th-9th August 2022.
- the thickness of the tyre in the plane of running thread, close to the limit accepted in operation.

#### **Systemic factor**

Non-identification of the risks generated by the situations where, within the works performed during the technical inspections at the own trains, there are not identify the failures that can endanger the railway safety.

#### **Additional remarks**

##### *Railway Undertaking*

During the investigation, there were the next additional remarks regarding some deficiencies and gaps, with relevance for the accident contributing factors:

- in the railway station Câmpina, at the train no.57010, on 7<sup>th</sup> August 2022, it was not made the transit technical inspection, according to the program drawn up by the railway undertaking, only the brake test and the train visual inspection. So, the train exceeded the maximum accepted distance in running (350 km) for the freight trains between two consecutive inspections.

##### *Infrastructure manager*

During the investigation there were the next *additional remarks* regarding some deficiencies and gaps, in the activity of infrastructure manager. The non-conformities found at the track superstructure, that in slightly different conditions could have led to accidents, are critical factors, but considering the derailment dynamic and the findings at the rolling stock they did not influence the accident occurrence.

From the findings on the technical condition of the track superstructure, the measurements made soon after the accident and the documents submitted by the infrastructure manager, the result is:

- it was not ensured the protection quota of the built-up crossing from switch no.9 in the railway station Cojocna (the distance between the contact lateral surface of the built-up crossing and the lateral surface, from the rail, of the check rail, on the diverging track of the switch) on the diverging route;
- there were not performed periodical repairs in order do the corresponding maintenance of the lines and switches, for keeping the track geometry between the tolerances accepted, in the conditions of provision with insufficient material resources for these activities.

#### **Safety recommendation**

Following the analysis of the documents submitted by railway undertaking UNICOM TRANZIT (REGISTER of RISKS no.3651/25.08.2021, code F: POSF 03 – 02) it was found that, within the actions for the identification and assessment of risks, there were not identify the risks generated by the situations where, within the works performed during the technical inspections at the own trains, there are not identified the failures that can endanger the railway safety. According to point 1.5.1 from the Register of Risks, it is identified the risk” Lack of technical inspection at trains during their composition, in transit and at the arrival”, without being identified the risk when the technical examiner carries out the technical inspection, but he did not identify a failure (ex. loosened tyre) that can generate a railway accident.

Considering findings and conclusions of investigation commission, above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address Romanian Railway Safety Authority – ASFR the next safety recommendation, without excluding the extension of the recommendation also at other railway undertakings:

#### **Safety recommendation no.434/1**

The railway undertaking SC UNICOM TRANZIT SA shall identify and re-assess the risks associated to the danger that during the works performed within the technical inspections at the own trains, the failures that can endanger the railway safety not be identified.

**3.4.23.** The railway accident occurred on the 27th of August 2022 , in the railway county Iași, track section Suceava – Dornești (not-electrified single-track line, managed by CNCF ”CFR” SA), km 478+920, on the route for the entrance of freight train no.57010 (got by RU SC Unicom Tranzit SA) in the railway station Dornești, a fire burst in the banking locomotive of the train DA1394. The investigation report was completed on 24.08.2023.

#### **Causal factor**

Penetration of the insulation of the conductors from the command cables and appearance of short-circuit between the wires of these cables in the area of the water pump of the locomotive DA1394, the cables being degraded due to the age.

#### **Contributing factors**

- keeping in operation the locomotive DA1394 with old command cables, having the isolation degraded, it not being replaced at the last two planned repairs and being 14 years old, at least.
- improper cleaning condition of the cables hose, that had water, diesel and oil cumulations.

#### **Systemic factors:**

- non-identification of any danger regarding the keeping in operation the locomotives with the cables or other sub-parts having the isolation degraded due to the age;
- non-identification of any danger regarding the keeping in operation the locomotives with an improper cleaning condition at the locomotive cables hoses;
- lack of a provision in the technical specification code: ERIV – L IV-06.2b „Planned repairs type RR, RG at the diesel-electric locomotives of 2100 HP” regarding the obligation to replace the power/command cables during the overhauls, at least.

#### **Safety recommendations**

Considering the causal, contributing and systemic factors identified during the investigation, in order to prevent future similar accidents or incidents, in accordance with the provisions of art.26, paragraph (2) of Emergency Government Decision no.73/2019 for railway safety, the investigation commission issues the next recommendations:

Preamble of the recommendation no.435/1

The fire at the locomotive DA 1394 burst because the locomotive was used in operation with insulation of the cables degraded due to the age, the cables was 14 years old, at least, it generating a short circuit at the locomotive command cables, in the cables hose, close to the water pump.

Considering that during the investigation it was found that the railway undertaking SC Unicom Tranzit SA did not identify any danger represented by "Keeping in operation the locomotives with the cables or other sub-parts having the lifetime exceeded", for the prevention of accidents similar to those presented in this report, the investigation commission issues the next safety recommendation:

**Safety recommendation no.435/1**

Romanian Railway Safety Authority – ASFR shall ask the railway undertaking SC Unicom Tranzit SA, to assess the risks associated to the danger "Keeping in operation of the locomotives with the cables or other sub-parts having the lifetime exceeded", and to dispose effective measures for keeping it under control.

Preamble of the recommendation no.435/2

The fire at the locomotive DA 1394 burst because the locomotive was used in operation with an improper cleaning condition, finding the presence in the cables horse water, diesel and oil cumulations, so increasing the probability to appear a short circuit, and following the appearance of the short circuit at the command cables to be generated the ignition of these wastes and the spreading of the fire.

Considering that during the investigation it was found that the railway undertaking SC Unicom Tranzit SA did not identify any danger represented by "Keeping in operation the locomotives with an improper cleaning condition at the cables hoses", for the prevention of accidents similar to those presented in this report, the investigation commission issues the next safety recommendation:

**Safety recommendation no.435/2**

Romanian Railway Safety Authority – ASFR shall ask the railway undertaking SC Unicom Tranzit SA, to assess the risks associated to the danger "Keeping in operation the locomotives with an improper cleaning condition at the cables hoses", and to dispose effective measures to keep it under control.

It is mentioned that, although the safety recommendations issued are for the activity of the railway undertaking SC Unicom Tranzit SA (it being analysed during the investigation of the accident), these recommendations are not restricting, they could be extended to other railway undertaking too, at which NSA finds similar lacks during the surveillances.

**3.4.24.** The railway accident occurred on the 29<sup>th</sup> of August 2022, in the railway county Brasov, in Brasov Triaj railway station, in the running of freight train no.86191 ( got by RU SNTFM "CFR Marfă" SA), the first bogie of hauling locomotive derailed in the running direction. The investigation report was completed on 09.08.2023.

**Causal factor**

Inobservance of the conditions for stabling the train no.86191 in the station and acceptance to pass from the running system to shunting without meeting with the conditions stipulated by the regulations in force.

**Contributing factors** – No.

**Systemic factors** - No.

**Safety recommendations**

Motivation of safety recommendations missing

The actions that consisted the causal factor are deviations from the practice codes and for keeping under control the risks associated to the railway operations, regarding the application of Safety Management System – SMS by the economic operators involved, that is obligation for each economic operator that carry out railway transports, at getting the Safety Authorisation or Single Safety

Certificate. Considering this issue, the investigation commission does no more consider necessary to issue safety recommendations.

It is mentioned that, just missing safety recommendations, upon the findings of the investigation commission, CNCF and SNTFM can dispose safety measures considered necessary, for keeping under control the accident risk, following the inobservance of the conditions for parking a train in the railway station.

**3.4.25.** The railway accident occurred on the 8<sup>th</sup> of September 2022, in the railway county Brasov, track section Brasov - Deda (electrified single - track line), between Izvoru Oltului and Izvoru Mureşului railway stations , both axles of the the first bogie derailed from the last but one wagon of the freight train no.56012-003 ( got by RU SNTFM "CFR Marfă" SA).

The investigation report was completed on 09.08.2023.

#### **Causal factor**

The technical condition of the wagon, the diagonally allowances to the side bearers under the limit.

#### **Systemic factor**

Improper keeping of the competences afferent to the job of technical examiner.

#### **Additional remarks**

During the investigation, there were the next additional remarks on some deficiencies and gaps, without relevance for the causal, contributing or systemic factors of the accident:

- the technical inspection when the wagon entered Romanian railway network, and the last transit technical inspection, before the accident, were carried out by a single technical examiner and not by a gang of two such examiners.
- at the bolster bowl of the derailed bogie the lubrication missed, the middle piece and the bolster bowl having rust and traces of dry friction.

#### **Safety recommendation**

Safety recommendation associated to the accident occurrence

Preamble of safety recommendation no.437/1

During the investigation, it was found that RU SNTFM did not ensure the training of the technical examiner, according to the provisions of the Agreement about "Regulation for the use of the wagons in international traffic"- PGV, that was imposing some technical conditions for running, for the type of wagons composing the trains that were object of transport contract.

#### **Safety recommendation no.437/1**

Romanian Railway Safety Authority – ASFR shall ask SNTFM to improve the program for keeping the competences for the job technical examiner, in order to ensure that the executive staff shall get the competences necessary for the performance of the inspections for all types of wagons inspected.

Safety recommendation associated to the additional remarks

Preamble of the safety recommendation no.437/2

During the investigation, there was found that the technical inspection when the wagon entered on Romanian railway network and the last technical inspection in transit, before the accident, they were carried out by a single technical examiner and not by a gang of two technical examiners. It can lead to the nonidentification, during the inspections, o some failures at the wagons inspected, failures that had to be identified according to the specific legislation.

#### **Safety recommendation no.437/2**

Romanian Railway Safety Authority – ASFR shall ask SNTFM, being able to extend the request to other railway undertaking, the performance of an analysis of the operational risks generated by the performance of the technical inspections by a single technical examiner, in order to be sure that these can be controlled

**3.4.26.** The railway accident occurred on the 13<sup>th</sup> of September 2022, in the railway county Cluj, track section Sărăţel - Deda (electrified single- track line), between Monor Gledin and Râpa de Jos railway stations, at km 37+659, in the running of freight train no.66014 (got by SNTFM "CFR Marfă" SA), two wagons (CSI type), the 24<sup>th</sup> and 25<sup>th</sup> ones, derailed and then overturned.

The investigation report was completed on 11.09.2023.

### **Causal factor**

Exceeding of the derailment stability limit, through the load transfer of the right wheel from the second axle of the wagon no.58513011, in the running direction, and the increase of the lateral force (guiding one) on this wheel, that ran on the exterior rail of the curve, following the existence of next nonconformities at the track superstructure and at the axle derailed:

- existence, at the accident site, an area with a value of distortion (measured using the ruler of 1m, put symmetrically against the joint gap from the exterior rail of the curve - point 0) over the accepted tolerances;
- exceeding of the tolerances accepted for the difference between the values of close versines;
- existence an excessive cant of the curve;
- exceeding of the upper accepted limit of the distance between the exterior faces of the wheel's flanges at the wagon axle.

### **Contributing factors**

- Acceptance in traffic, by SNTFM „CFR Marfă” SA, the wagon no.5851311 with a failure that was not allowing its running on Romanian railways (distance between the exterior faces of the wheels flanges of an axle over the accepted value).
- Wrong performance of periodical repairs with complete cleaning of the track bed and keeping in operation a railway superstructure whose shape and sizes did not comply with the shape and sizes of the track bed stipulated in the practice codes, for this reason the chocked track bed did not ensure the water draining, the track resilience and the stability of the unit rail-sleeper.

### **Systemic factors**

- Lack of the Agreement regarding” Regulation for the use of the wagons in international traffic” (PGV) that entered into force on 1st January 2009, with further amendments on 13th January 2022, of the limits accepted for the flange-to-flange gauge.
- Deficiencies of RU SNTFM „CFR Marfă” SA in the identification of the dangers, that were generated into the railway operations performed by the contract partner.
- Non ensuring by CNCFR „CFR” SA the staff with safety traffic responsibilities (inspectors of track and dangerous points, maintenance gang foremen).

### **Measures taken after the accident**

- Following the accident SNTFM re-assessed SMS risks regarding the delivery-reception of wagons at the borders, according to the Sheet for the risks assessment SMS Code F PO 5-1. edition/revision 2/1, number of copies 4, through which at point 8 Technical inspection of each wagon it was re-assessed the risk ”non-identification of all failures that can endanger the traffic safety on Romanian railway network”.
- The Regional Inspectorate for Railway Traffic Safety Cluj performed an identification and assessment of the risk factors regarding the associated dangers in case of exceeding the tolerances specific to the gauge and cross level of the track and the responsibilities of the own staff regarding their control, respectively how to deal the nonconformities found out then.

Following these actions, the next measures were established:

- performance of additional inspections, weekly, in the driving cab of the trains locomotive, between Monor Gledin – Deda, for keeping under observation the line and identification of the deficiencies that appear following the heavy rain;
- rhythmic provision and with the necessary quantities, considering their census;
- digging and taking of probes in order to establish the consistency of the track bed in the area, so to determine the stabilisation works necessary to be performed, as well as the analysis of the opportunity to work out the documentation necessary to re-introduce the area into „the evidence of dangerous points”, until the performance of the works necessary to be made;
- inventory made by the commission consisted in representatives of Department of Art Works and Tunnels, head of Districts of Art Works and Lines, of all dangerous points taken from the evidence



of the dangerous points of the last 5 years, analyzing: the failures found during the measuring with the testing and recording car, during the interventions made in these areas over this period of time and their re-introducing into "the evidence of the dangerous points" in order to monitor them, if the situation requires it.

On 21<sup>st</sup> September 2022, the track section between the railway stations Monor Gledin and Râpa de Jos, between km 37+162÷38+607, was introduced into the evidence of dangerous points.

#### **Additional remarks**

Along the investigation, there were the next *additional remarks* on some deficiencies in the track maintenance:

- Non removal, according to the regulated deadlines, the failures registered following the control of the track geometry, during the measurements made with the testing and recording car;
- The program for inspection and control in districts, according to the Instruction no.305/1997, worked out by Track Section L8 Bistrița for 2022, does not comply with art.2 Sheet no.12 Duties of the head of maintenance section, Instruction no.305/1997 for the establishment of deadlines and order for the performance of track inspections, that stipulates that the program for the detailed inspection of the track has to be set up so, together with the deputy head of track section, to ensure over two months the inspection of hole maintenance section;
- Since April 2020, Track Section Bistrița, has no engineer authorized and appointed for the welded track, this activity being performed by the deputy head of track section starting with 6th January 2021;
- Over the works periodical repairs performed with heavy track machines with complete cleaning from 2021, the deputy head of track section was appointed to manage the site works like engineer responsible with the works performance, as well as engineer responsible for the welded track, responsible for works for track stress relief;
- Through the paper no.43/F/2/4/18.03.2021, Line Division Cluj disposed that the inspections with the electronic trolley for track measurement PT-12-01, at the gauge, cross level and versine, shall replace the provisions of art.8 Sheet no.4 from „Instruction no.305 regarding the setting of the deadlines and order for the performance of the track inspections”, only the measurement of vertical and lateral wears of the rails going to be made manually. The measurement of the vertical and lateral wears of the rails was not performed in 2022;
- The primary documents specific to the maintenance (sheets of working timetable) are worked out by the district head. In the sheets of the working timetable, part II, there are not recorded the values of the temperatures in the rail; the gauge, level crossing and versine measurements at the beginning and end of the work;
- Following the lack of authorized staff, there are not observed the deadlines and order for the performance of track inspections, according to the provisions of Instruction no.305/1997.

#### **Safety recommendations**

Preamble of safety recommendation no.438/1

Considering the findings of investigation commission about the existence in the present PGV of two similar requirements at point 2.1.6, paragraphs 2 and 3 regarding "*Distance between the interior faces of the tyres from the wheels sets or of the parts that stand for tyres at the cast wheels*", and lack of the requirement regarding "*Distance between the exterior faces of the wheels gauges from an axle measured between two points situated at 10 mm outside the wheels threads close to the upper level of the rails*", as well as that with reference to the wagon derailed, it did not meet with the last mentioned requirement, for the improvement of railway safety and prevention of some similar events, AGIFER considers timely to address Romanian NSA – ASFR the next safety recommendation:

#### **Safety recommendation no.438/1**

Romanian NSA – ASFR shall take care that the railway undertaking SNTFM „CFR Marfă” SA proposes to Railways Cooperation Organization - OCCF to re-introduce into the Agreement about "Regulation for the use of the wagons in international traffic" (PGV), of the conditions to be complied with, regarding the distance between the exterior faces of the wheels gauges (flange to

flange gauge) from an axle, measured between two points situated at 10 mm outside the wheels threads close to the upper level of the rails.

Preamble of safety recommendation no.438/2

The railway undertaking SNTFM „CFR Marfă” SA did not identify the possibility that the risk of accident on Romanian railway network be generated by the improper preparation for running of the wagons got by the contract partner (in this case Ukrainian railways UZ, using improper parts at the wagons transposition on the bogies with gauge of 1435 mm in the border railway station from Ukraine), with failures that cannot be found at the delivery-reception of the wagons into the border stations (failures hidden or parts that are not checked at the delivery-reception of the wagons in the border stations). Therefore, it was not established this requirement in contract or other document and neither it performed controls in Ukrainian border station, where the transposition is made. For the improvement of railway safety and prevention of similar events, AGIFER considers timely to address ASFR the next safety recommendation:

**Safety recommendation no.438/2**

Romanian Railway Safety Authority – ASFR shall take care that the railway undertaking SNTFM „CFR Marfă” SA assesses the risks associated to the danger represented by the equipping with improper parts of the wagons, by the contract partners, with which they perform successive transport, parts that are not inspected at the delivery-reception of the wagons in the border stations.

**3.4.27.** The railway incident occurred on the 17<sup>th</sup> of September 2022, in the railway county București, by dispatching the passenger train R7915, from Pajura railway station to Mogoșoaia railway station, on the line occupied by the passenger train R7032 (both got by SNTFC "CFR Călători" SA).

The investigation report was completed on 09.01.2023.

**Direct cause**

The direct cause of the incident was the human error produced in the activity of train control by the movement inspector of Pajura railway station, who traveled and dispatched train R7915 on the distance Pajura - Mogoșoaia, which was already occupied by train R7032.

**Contributing factors**

- suppressing the stopping of train R7915 in Pajura railway station, without the notification of the traffic operator and the movement inspector of railway station Mogoșoaia regarding the routing of train R7915 to Mogoșoaia railway station;
- transmission by the movement inspector in Pajura railway station of the command to close the barrier for train R7915 after handling signal X1 in free position;
- failure of the Y IV exit light signal in Mogoșoaia railway station;
- failure to carry out the operations laid down in the instructions (in the event of failure of the exit light) for change the running train system to “train order operation”;
- ignoring by the movement inspector from Pajura railway station of the information received from the barrier guard from Cabin No. 8, regarding the already existing written order for train R7032.

**Underlying causes**

Failure to comply with certain provisions of the codes of practice as follows:

- art.120 and art.254 (10) (10) of the Regulation for train circulation no.005/2005, which specifies that the removal of stops and the establishment of train passing siding is based on the provision of the traffic operator;
- art.208 of the Regulation for train movement no.005/2005, which states that in order to dispatch a train, the movement inspector must give the order to close the barrier before executing the exit route of the train;
- art.79 para. (3) of the signaling Regulation no.004, which specifies that in case of failure of the exit light signal, the traffic movement system shall change to “train order operation”;
- art.23 para. (8) of the Regulation for train circulation no.005/2005, which specifies that the movement inspector of the dispatcher is obliged to record in the RRLISC the defects found that

endangers the safety of the movement and immediately notify the maintenance staff, the station manager and the traffic operator;

- art.190 para. (2) of the Train Running Regulation no.005/2005, which specifies that, in case of a change of running system, the movement inspectors are obliged to check if the current line between the two neighboring stations is free, specifying each of them in writing, by an exchange of telegrams carried out on the circuit of the traffic operator and in his presence.

#### **Primary causes**

None.

#### **Measures that were taken during the investigation**

Following the rail incident, CNCF "CFR" SA has taken the following measures in order to avoid future incidents/accidents with similar causes:

- At the request of Bucharest Railway Branch, NSA approved the suspension of the authorizations to handle the SCB installations in Mogoșoaia and Pajura railway stations for the three movement inspectors involved in the railway incident, starting with 07.10.2022.
- The three movement inspectors involved in the rail incident have been moved to the position of outside movement inspector.
- The rail incident was analyzed with own employees during the third quarter 2022 Traffic Safety Analysis.
- It was agreed that the first theoretical training session will discuss the rail incident by causes, case study and role play.

#### **Safety recommendations**

Taking into account the measures communicated by CNCF "CFR" SA, measures that were taken during the course of the investigation activity, the investigation commission does not consider it necessary to issue a safety recommendation.

**3.4.28.** The railway accident occurred on 17th of September 2022, in the railway county Constanța, non-interoperable track-section Năvodari - Dorobanțu, not-electrified single-track section, railway infrastructure manager SC Grup Feroviar Român SA, between Năvodari and Nazarcea, railway stations km 22+380, in the running of freight train no.66300016, (got by the railway undertaking SC Grup Feroviar Român SA), the first wagon after the locomotive derailed by both axles.

The investigation report was completed on 27.07.2023.

#### **Causal factor**

Existence within the track, at the accident site, a group of improper consecutive wooden sleepers, whose technical condition led finally to the increase of the track gauge and cross level over the limits accepted in operation, under the dynamic action of rolling stock.

#### **Contributing factor**

Lack of track repairs and maintenance, according to the practice codes, it led to keeping within the track a group of improper wooden sleepers.

#### **Systemic factors**

- improper monitoring of the provider (regarding the performance of track repairs and maintenance) by the infrastructure manager;
- keeping within the track, for a long time, the speed restrictions;
- infringement of provisions of the own procedures, with direct implications in the infrastructure manager guarantee that the track maintenance is made safely, and it meets with the specific needs of the track section where the derailment happened.

#### **Measures taken after the accident**

The provider of maintenance asked the infrastructure manager to supply the materials necessary for the removal of speed restriction from km 18+000 - 25+800, between the railway stations Năvodari and Nazarcea.

It was drawing up „*Convention for keeping under control the interface risks*” enclosed to the service contract between the infrastructure manager and service provider, made in accordance with EU requirements and practice codes.

### **Safety recommendations**

The railway accident happened on 17<sup>th</sup> September 2022, in the railway county Constanța, non-interoperable track - section Năvodari - Dorobanțu, between the railway stations Năvodari and Nazarcea, km 22+380, in the running of freight train no.66300016, got by the railway undertaking SC Grup Feroviar Român SA, was generated by the derailment of both axles from first bogie of wagon no.33537850290-0, this wagon being the first one after the locomotive.

During the investigation, it was found that the technical condition of track superstructure influenced the accident occurrence.

Preamble of recommendation no. 439/1

During the investigation it was found that, the railway undertaking GFR SA identified the dangers generated by the infringement of planned inspections and repairs and the staff allocated for the maintenance was insufficient. By outsourcing the infrastructure inspection, repair and maintenance, the company had to implement the changes made at the safety management system, to manage those changes and to examine again the safety risks. Also, it was found that there is concluded a service contract and minutes for the track handling, where there are not established the duties and responsibilities of parties.

Considering the findings and conclusions of investigation commission above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address Romanian Railway Safety Authority – ASFR the next safety recommendations:

### **Recommendation no. 439/1**

Romanian Railway Safety Authority – ASFR shall assure that, GRUP FERVIAR ROMÂN SA, like infrastructure manager, re-assesses own prevention measures for keeping under control and reducing the risks associated to the performance of inspection, repair and maintenance works/services at the lines with third parties.

**3.4.29.** The railway accident occurred on the 20<sup>th</sup> of September 2022, in the railway county Brasov, track section Luduș – Măgheruș Șieu (not-electrified single-track line), non-interoperable track section managed by SC RC CF Trans SRL Brașov, between Sărmășel and Luduș, railway stations the third axle of the trailer, being in the composition of multiple unit AMX 1704, derailed in the running direction.

The investigation report was completed on 12.09.2029.

### **Causal factor**

Exceeding the derailment stability limit, following the improper condition of the track, generated by keeping of the track geometry out the tolerances accepted in operation.

### **Contributing factors**

- Non-identification in time of the deficiencies at the track superstructure, following the lack of track inspections performed by the staff with duties in the traffic safety, according to the deadlines and the order specified in practice codes.
- Lack, within the last 6 years, the measurements with the testing and recording car, respectively lack within the last 3 years the measurements with the track trolley.

### **Systemic factors**

- Provision with insufficient material and human resources, reporting to the necessary ones, for the performance of track maintenance and keeping the track geometry between the accepted tolerances.
- Deficiencies in the identification and assessment of risks generated by the own railway operations, carried by the entity in charge with the maintenance of the track superstructure, regarding the risk „derailment of railway vehicles”.
- Improper performance of track condition monitoring.

### **Additional remarks**

Over the investigation there were the next additional remarks on deficiencies and gaps, without relevance for the causal, contributing or systemic factors of the accident:

It was not possible to measure the vertical and horizontal wears of the rails because the Lines District Lechința, in charge with track superstructure maintenance at the accident site, did not got a caliper for the measurement of the rail's wears.

### **Safety recommendations missing**

#### *Motivation of safety recommendations missing*

Over the investigation, it was found that both the factor causing the accident, and those increasing its occurrence possibility were deviations from the practice codes (regarding the performance of periodical repairs, provision with necessary material and human resources) and keeping under control the operational and organizational a risks associated to the railway operations, in connection with the application of SMS by the infrastructure manager, that is obligation given at the Safety Authorization granting.

These deviations were identified also over the investigation of two previous accidents happened into the same lines district. Romanian Railway Safety Authority - ASFR performed surveillances and disposed sufficient measures, that are in implementation process, for this reason the investigation commission considers that it is not necessary to issue any safety recommendation for this case.

**3.4.30.** The railway accident occurred on the 2nd of October 2022, in the railway county Craiova, track section Drăgotești - Turceni (electrified single-track line), in Borăscu railway station, on switch no.4, km 23+421, where, five wagons series Fals, loaded with coal, respectively first 4 ones and the 6<sup>th</sup> one after the locomotive, derailed.

The investigation report was completed on 28.09.2023.

### **Causal factor**

Operation of switch no.4 (with the insulated switch track section 2-4 occupied), from plus (+) to minus (-), when the first wagon of the freight train no.64220 ran on it.

### **Contributing factor**

Keeping the interlocking system (SCB) out of service for a long time.

### **Systemic factor**

Ineffective management of the risk associated to the danger of trains running with the installation out of service, for a long time.

### **Safety recommendation**

The accident happened following the identified factors, that led to the operation of the switch under the train, given that the trains running was made in failure conditions.

During the investigation, there was found that the factor causing the accident and those increasing the occurrence possibility, were deviations from the practice codes (regarding the trains running in failure conditions) and keeping under control the operational and organizational risks associated to the railway operations in connection with the application of SMS by the infrastructure manager, that is obligation at the granting of the Safety Authorization.

The investigation commission found that the infrastructure administrator did not effectively manage the risks generated by keeping the interlocking system in failure conditions for a long time, by not fixing of the failures according to the instruction deadlines, in order to be able to dispose monitoring measures for the decrease of these risks.

Preamble of recommendation no.441/1

Working in failure conditions of the installation CED-CR2, from the railway station Borăscu, for a long time, materialized in the fact that the insulated sections included into a running route were occupied on the control panel, clear on site, did not allow the electric locking of the running routes, so being removed a safety barrier man-machine.

Considering the findings and conclusions of the investigation commission, above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address Romanian Railway Safety Authority – ASFR the next safety recommendation:

### **Safety recommendation no.441/1**

Romanian Railway Safety Authority - ASFR shall take care that the public railway infrastructure administrator CNCF „CFR” SA re-analyses and fills in "Risks Register - 2022" of Installations Division Craiova – r 0-6,1-01, Ed.3, revision 0 and, if case, of other railway counties, the risk associated to the danger generated by keeping the interlocking system (SCB) in failure conditions for a long time and it sets monitoring measures for keeping these risks under control.

**3.4.31.** The railway accident occurred on the 1<sup>st</sup> of November 2022, in the railway county Craiova – Filiași, track section Craiova – Filiași (electrified double track -line), in Răcari railway station, in the running of freight train no.64316 (got by RU SNTFM "CFR Marfă" SA), when 9 wagons loaded with coal derailed.

The investigation report was completed on 16.10.2023.

#### **Causal factors**

Abnormal working of the air distributor valve from the wagon no.81536654349-5, the 24<sup>th</sup> one in the train composition, led to the blocking of air removal from the brake cylinder and, implicitly, to the stop of the brake shoes releasing on the wheels of that wagon.

#### **Contributing factor**

Lack, within the technical inspection at the composition of the train involved, of the operations of blowing the dust separators from the first 3 train wagons with the automatic brake and, also, of the general air pipe on groups of 5÷10 wagons.

#### **Systemic factor**

Lack of an assessment of the risks associated to the dangers generated by the lack, within the technical inspection at the composition, of the operations of blowing the general air pipe on groups of 5÷10 wagons.

#### **Safety recommendation**

The railway accident, happened on 1<sup>st</sup> November 2022, in the railway station Răcari, was caused by the abnormal working of the air distributor from the wagon no.81536654349-5, it led to the blocking of air removal from the brake cylinder and implicitly to the stop of brake shoes releasing on the wheels of that wagon.

During the investigation, there was found that, within the technical inspection at the composition, into the station for the routing of train involved (Motru Est), the staff of railway undertaking did not blow the dust separators from the first 3 wagons with automatic brake, in front of the train, the general air pipe for groups of 5÷10 wagons, operations compulsory stipulated into the practice code (Instructions no.250/2005).

Preamble of recommendation nr.442/1

The investigation commission found that the railway undertaking did not assess the risks associated to the dangers generated by the lack, within the technical inspection at composition, the operation of blowing the general air pipe for the groups of 5÷10 wagons.

Considering the findings and conclusions of the investigation commission above mentioned, for the improvement of railway safety and prevention of similar events, AGIFER considers timely to address Romanian Railway Safety Authority – ASFR the next safety recommendation:

### **Safety recommendation no.442/1**

Romanian Railway Safety Authority – ASFR shall ask the railway undertaking SNTFM „CFR Marfă” SA to assess the risks associated to the dangers generated by the lack, within the technical inspection at composition, the operation of blowing the general air pipe for the groups of 5÷10 wagons and to dispose effective safety measures for keeping them under control.

**3.4.32.** The railway accident occurred on the 13<sup>th</sup> of November 2022, in the railway county Craiova, track section Băbeni - Alunu (non-electrified single – track line), between Popești and Berbești railway stations, km 19+608, in the running of freight train no.60565 (got by RU SNTFM "CFR Marfă" SA), when the first two axles of the first bogie of the heading locomotive DA 913, derailed in the running direction.

The investigation report was completed on 09.11.2023.

#### **Causal factor**

Existence within the track, of a section within the constant-radius curve, before the accident site, an area with the twist gradient exceeding the maximum value accepted for traffic, it led to the exceeding of the derailment stability limit.

#### **Contributing factors**

Exceeding of deadlines, stipulated by the applicable legislation, for the performance of periodical repairs at the lines at the accident site.

#### **Systemic factors**

- provision with improper material and human resources, against the necessary ones, for the performance of suitable maintenance of the line and keeping the track geometry between the accepted tolerances;
- ineffective management of the risk associated to the danger of exceeding the tolerances accepted for the track geometry.

#### **Motivation of the safety recommendations missing**

The railway accident happened on 13<sup>th</sup> November 2022, in the running of the freight train no.60565 on a curve within the running line 204, between the railway stations Popești and Berbești, km 19+608, was caused by the improper technical condition of the infrastructure.

During the investigation it was found that the improper technical condition of the track was generated by the unsuitable maintenance, that was not made in accordance with the provisions of the practice codes (reference/associated documents of the procedures from the SMS of the infrastructure administrator), considering the improper material and human resources, against the necessary ones. Considering the similar railway events happened in the railway county Craiova, presented into Chapter - 4.e. "Previous similar accidents or incidents" and taking into account that the similar accident happened on 13<sup>th</sup> April 2022, in the railway station Drăgotești on direct line II, km 40+830, a safety recommendation was issued, it being in implementation process, the investigation commission considers unnecessary to issue other similar recommendations.

We underline that, just if safety recommendations are missing, upon the remarks done by the investigation commission, following the nonconformities found, CNCF can dispose safety measures considered necessary for keeping under control the derailment risk.

**3.4.33.** The railway incident occurred on 18.11.2022, in the railway county București, Videle – București track section, (electrified double-track line), between Grădinari and Chiajna railway stations, by hitting 18 track inductors by the inductor of locomotive EA 194 that hauled the passenger train no.9016 (belonging to the RU SNTFC "CFR Călători" SA).

The investigation report was finalized on 08.06.2023.

#### **Direct cause and contributing factors**

The direct cause of this rail incident was the entry of the axle guard - inductor assembly from the Cabin II, (the rear one in the direction of travel), into the clearance for railway installation elements.

#### **Contributing factors**

Faulty fastening of the axle guard from the cabin II, outer side, its screw being screwed only 2-3 thread turns.

#### **Underlying causes**

They have not been identified.

#### **Primary causes**

They have not been identified.

#### **Safety recommendations**

No safety recommendations were identified.

**3.4.34.** The railway incident occurred on 23.11.2022, in the railway county Iași, in Roman railway station, by detachment of the indicator board of the freight wagon no.31537957147-6 of the composition of the train no.5600023 (belonging to RU SNTFM "CFR Marfa" SA), from the fastening

supports on the wagon and damage to the power supply case of the 500Hz and 1000/2000Hz inductors of the PrX distant signal of Roman railway station.

The investigation report was completed on 31.01.2023.

#### **Direct cause**

The direct cause of the incident was the detachment and buckling outside the wagon of the indicator board of wagon no.31537957147-6, which was part of freight train no.5600023, which led to the hitting and damage of two power supply cases of the 500 Hz and 1000/2000 Hz inductors of the PrX signal PrX of Roman railway station.

#### **Contributing factors**

- Failure to identify broken fixing points of the indicator board during technical inspections on the train, at train composition and in transit;
- Failure to properly perform welding operations during planned repair (RP) or maintenance repair (RC/DA) at maintenance centers certified for the maintenance function.

#### **Underlying causes**

- non-identification of broken fixing points of the indicator board during technical inspections carried out on the train, at composition and in transit;
- Failure to properly perform welding during planned repair (RP) or maintenance repair (RC/DA) at maintenance centers certified for the maintenance function.

#### **Primary causes**

They have not been identified.

#### **Measures that have been taken**

Following the rail incident, the RU SNTFM "CFR Marfă" SA, has taken the following measures in order to avoid future incidents/accidents with similar causes:

- the act no. V1.1/893/2022 was reanalyzed with its own employees, which stipulated that during technical inspections (composition, transit, arrival) the technical inspectors of wagons should pay more attention to the way the indicator boards are fastened;
- Act no. V1.1/893/2022 also orders the mandatory checking of the fastening of the indicator boards when introducing SNTFM "CFR Marfă" SA wagons to the repair lines/areas of the IRV Working Point for the repair of accidental defects;
- During the investigation SNTFM "CFR Marfă" SA through the Safety Department, SSM Territorial developed an informative note no. SCT 6/332/28.11.2022, for briefing the staff.

#### **Safety recommendations**

Taking into account the way the incident occurred and the measures taken by SNTFM "CFR Marfă" SA, the investigation commission did not consider it necessary to issue safety recommendations.

**3.4.35.** The railway incident occurred on 02.07.2022, in the railway county Bucuresti, between Florești Prahova and Buda railway stations, in the running of the freight train no.66005 (belonging to the RU SNTFM "CFR Marfă" SA), by exceeding the maximum speed set for the train category.

The investigation report was finalized on 06.02.2023.

#### **Direct cause**

The direct cause of the incident was human error in the process of driving the locomotive, manifested by not carefully controlling the train's running speed and taking braking measures too late, while the train was running on a sloping track profile with a gradient of between 10.15 ‰ and 10.48 ‰.

#### **Contributing factors**

They have not been identified.

#### **Underlying causes**

The underlying cause of the incident was the failure to comply with the provisions of the *Instructions for the Activity of Locomotive Crews in Rail Transportation No 201, Art. 125 para. (1)* concerning strict observance of the running speeds in the route book.

#### **Primary causes**

They have not been identified.



### **Primary causes**

They have not been identified.

### **Safety recommendations:**

No safety recommendations were identified.

**3.4.36.** The railway accident occurred on the 1<sup>st</sup> of December 2022, on the track section Buzău - Mărășești (electrified double-track line), between Gugești and Sihlea railway stations, track II, km 180+800, where the freight train no.57402 (got by the railway undertaking SC Tim Rail Cargo SRL) could not brake and run away in the back and the rear wagons collided with the locomotive and the first freight wagons of the freight train no.66706 (got by the RU SC Deutsche Bahn Cargo România SRL).

The investigation report was completed on 28.11.2023.

### **Causal factor**

Release of the hand brakes (that should have kept the train immobile) of the wagons and starting the train movement towards the railway station Gugești (running back), following the decision error of the crew from the train no.57402, given that the train having no braking capacity, following the air exhaust from the braking installation.

### **Contributing factor**

Physical and mental condition of the crew from the freight train no.57402, affected by stress and fatigue cumulated following the frequent exceeding of the maximum continuous duty accepted for the locomotive, lack of corresponding rest at home or outside of it, infringement of daily working time and of daily rest, as well as keeping for a long time on duty.

### **Systemic factors**

- lack of concrete provisions within General Procedure – Maximum continuous duty for the locomotive Code: PG-20 Ed:2 that establish tasks and duties for real time monitoring of the locomotive crew activity and avoiding the infringement of provisions from Order of Minister of Transports no.256/2013;
- lack of concrete provisions within Operational Procedure – Making of railway running process Code: PO-01 Ed:3 that establish tasks and duties for real time monitoring of the locomotive crew activity and avoiding the infringement of provisions from Law 53/2003 – Labour Code;
- existence of some deficiencies into the activity of identification and assessment of risk factors from Railway running process.

### **Measures taken after the accident**

Following the accident, SC Tim Rail Cargo SRL disposed the next measures:

- starting with 24<sup>th</sup> February 2023, one worked out a „Monitoring Plan – Railway Safety” for 2023, where there are as objectives:
  - prevention of exceeding of maximum continuous duty accepted for the locomotive;
  - finding of unacceptable nonconformities in the railway safety activity.
- General Procedure – Maximum continuous duty accepted for the locomotive Code: PG-20 Ed:2 approved on 24th February 2021 and in force when the accident happened was revised and entered in force starting with 19th January 2023. According to this procedure, within Chapter 5.6 there were introduced many provisions for the establishment of some barriers that prevent the infringement of Minister of Transports Order 256/2013;
- The register of risks was filled in with the next measures, in order to cover the risk collision between trains or collisions between trains and other railway vehicles, in running or stopped, derailments in running:
  - monthly checking, made by Head of the Traffic Controller Department, of the documents on which is based the staff managing, according to PO-01, Making Railway Traffic Process, respectively F-02, Register for staff control and Register for the evidence of rests;
  - working out of a monthly information by Operation Compartment for Traffic Manager regarding the compliance with Minister of Transports’ Order 256/2013, if case;
  - using of computer application „Staff managing” by traffic controllers and drivers.

### Additional remarks

During the investigation there were identified many nonconformities, without relevance for the causes and factors, that led to the accident occurrence, as follows:

- after the stop of freight train no.57402, on 1st December 2022, at 08:21:07 o'clock on the insulated track section, between the railway stations Gugești and Sihlea, the driver did not ask for helping mean and did not take measures for keeping stopped the train, against the provisions of Regulation for hauling and braking no.006/2005, approved by Order of Minister of Transports, Constructions and Tourism no.1815/2005, Sections 10th, art.80, 11th art.81, 14th art.84, and of Order of Minister of Transports and Infrastructure no.1684/2012 for driving and calling the direct freight train, in one driver system, art.3 from the ANNEX;
- the train manager of freight train no.57402, on 1st December 2022, after the train stop on running line at 08.32:52 o'clock, ensured the keeping stopped of it by the application of hand brakes only at three wagons from the total of 20 ones, against the provisions from the form „Note for the allocation of hand brakes”;
- driving and calling the freight train no.57402, on 1st December 2022, were made without ensuring the presence of train manager in the driving cab of the locomotive (it being present in the rear driving cab), against the provisions of Order no.1684/2012 for driving and calling freight trains, one driver system, art.3 and of the General Procedure – Driving and calling the direct freight trains in one-driver system Code: PG-19, pct.5.2.2.3 got by SC Tim Rail Cargo SRL.

### Safety recommendation

Considering the causal, contributing and systemic factors identified during the investigation, as well as the measures already taken after the accident occurrence, for the prevention of similar accidents or incidents in the future, in accordance with the provisions of art.26, paragraph (2) from Emergency Government Ordinance no.73/2019 for railway safety, the investigation commission considers timely to issue the next safety recommendations:

Preamble of safety recommendation no.444/1

During the investigation, the result was that the regulations for the length of maximum accepted duty for the locomotive, of the rest at home or outside of it, as well as of the daily working time and daily rest were not met with.

Safety recommendation no.444/1

Romanian Railway Safety Authority – ASFR shall ask the railway undertaking SC Tim Rail Cargo SRL to revise the Operational Procedure – *Making the railway traffic process* Code: PO-01 Ed:3 in order to establish concrete tasks and duties for real time effective monitoring of the locomotive crew activity and meeting with the provisions from Law 53/2003 – Labour Code.

Preamble of safety recommendation no.444/2

During the investigation there was found that into the Annexes, worked in accordance with the provisions from the procedure PG-14, there are not identified and assessed the risk factors represented by:

- infringement of the instruction provisions by the train's crews;
- infringement of the regulation framework regarding the length of rest at home and outside it;
- infringement of regulation framework regarding the length of daily working time and daily rest.

### Safety recommendation no.444/2

Romanian Railway Safety Authority – ASFR shall ask the railway undertaking SC Tim Rail Cargo SRL to make again the identification and assessment of risks corresponding to *Railway Traffic Process*.

We underline that the issued safety recommendations are not restrictive, they could be extended also at other railway undertakings at which Romanian Railway Safety Authority – ASFR finds similar gaps during the surveillance.

**3.4.37.** The railway accident occurred on 28<sup>th</sup> December 2021, in the railway county Timisoara, track section Lugoj - Timisoara Nord (electrified single-track line), in Timisoara Est railway station, from the railway switch no.45, in the running of freight train no.66644-028 (got by

RU SC Grup Feroviar Român SA), when the first three axles of the 13th wagon in the train composition, derailed.

The investigation report was completed on 18.12.2023.

### **Causal factor**

The railway accident happened by climbing of the rail gauge face of the curved point by the flange of guiding wheel from the wagon no.83536654463-2, that is the 13<sup>th</sup> one in the composition of the train (the wheel no.2 on the left side in the running direction), following the exceeding of the derailment stability limit, happened, the most probably, following the increase of the guiding force and decrease of the load acting on that wheel. It was possible following the exceeding of the variation accepted for the gauge, at most 2 mm/m and of the tolerances accepted in operation for the gauge on a track section before the accident site, on the track length between railway turnouts no.35 and 45 and on the switch of the turnout no.45, as well as following the exceeding of the tolerances accepted for the cross level at the turnout, it leading to the increase of the hunting oscillations of the axles, increasing the contact forces wheel-rail and decreasing the loads acting on the right wheels.

### **Contributing factor**

The value of front-to-front gauge from the wheelset no.2, of 1411,5 mm, close to the lower limit accepted in operation (1410 mm), it leading to the increase of the hunting oscillations of the axles, respectively the increase of the angle of attack between the wheel no.2 and the curved switch balde.

### **Systemic factors**

Deficiencies in the identification and assessment of the risks generated by the own railway operations run out by the infrastructure administrator, regarding the associated risk of railway vehicles derailment.

Provision with insufficient material and human resources, against the necessary one, for the performance of the corresponding maintenance of the line and keeping the track geometry between the accepted tolerances.

### **Measures taken after the accident**

One replaced the switch with joint points, afferent to the turnout no. 45, provided with point machine type EM-2, with a switch with flexible blades provided with point machine type EM-5–2010 R.

### **Safety recommendation**

Preamble of the recommendation no.445/1

The investigation commission found that the infrastructure administrator did not make an analysis regarding the assessment of the derailment risk identified in „Evidence of safety dangers – railway rack”, associated to the danger „exceeding of tolerances accepted for the track geometry”.

Considering the findings and conclusions of the investigation commission above mentioned, for the prevention of similar accident to those presented in this report, AGIFER issues the next safety recommendations:

Recommendation no.445/1

Romanian Railway Safety Authority– ASFR shall take care that the CN „CFR” SA railway county Timișoara assesses the risk associated to the danger of exceeding the tolerances accepted for the track geometry and it establishes viable safety measures for keeping under control those risks.

**3.4.38.** The railway incident occurred on 21.02.2023, in Craiova railway county, in Ișalnița railway station, in the running of passenger train no.1823 (belonging to the RU SNTFC "CFR Călători" SA), by receiving it on the line II which was closed for traffic.

The investigation report was completed on 06.07.2023.

### **Direct cause**

The direct cause of the rail incident was the wrong operation of the reception route for passenger train no.1823 on the closed line II, generated by human error caused by the activity of the personnel in charge for operation the SCB installation in Ișalnița railway station.

### **Contributing factors**

- Failure to signaling the closed line with red stop discs or signaling devices (which were intended to prohibit movement on line II) and/or blocking of access switches in position to avoid the area

where work was being carried out;

- Failure to provide signalization of the places where work is to be carried out (on the direct lines in the station) by placing, during the execution of the work, of white boards with three horizontal blue stripes on both sides of the work area;
- Lack of measures to highlight the closed line with caps and boards with the inscription "closed line" affixed to the installation buttons;
- Trains running and shunting without respecting the conditions imposed by the closure of line II;
- The use of faulty RER stations for communication between station movement employees.

### **Underlying causes**

Failure to comply with certain provisions of the codes of practice as follows:

- 004, Chapter VI, Section VI-2. signaling of portions of the line closed for traffic, Section 1 and Section 8, mobile signals for signaling portions of the line closed - art.104 and 115;
- Failure to comply with the provisions of Article 325 of the "Regulation for the running of trains and shunting of railway vehicles" no.005/2005, regarding the covering of tracks on the control panel and in the field;
- Failure to comply with the provisions of the Instructions for speed restrictions, line closures and overhead line disconnecting - No. 317, Article 110.

### **Primary causes**

They have not been identified.

### **Measures taken since the accident**

Following the incident that occurred in Işalnița railway station, CN CFR SA Craiova railway county through the Traffic Safety Service took the following measures:

- Supervision of the works carried out in the planned period for closures of lines in the station, in order to detect and correct wrong working practices; During practical on-the-job training, the training will focus on the way of working during the execution of the traffic routes when L and/or SCB works are performed in the station in order to detect and correct wrong working habits. Deadline: permanent; Responsible: Station master and station masters with training assignments;
- Checking, during hierarchical/ spot/survey/ background checks, of how the on-duty staff has taken action to cover the working point, in case of line closures in the station/ current line; Deadline: permanent; Responsible: Station Master and PC/ PAC.

### **Safety recommendations**

Taking into account of the measures communicated by CNCF "CFR" SA, measures that were taken during the course of the investigation activity, the investigation committee does not consider it necessary to issue a safety recommendation.

**3.4.39.** The railway incident occurred on 04.03.2022, on Constanța railway county, Dorobanțu - Palas section (electrified double track line), between Basarabi and Valu lui Traian railway stations, by hitting the 500 Hz inductor of the BL 11 line block signal by the inductor of locomotive EB 207 which hauled the freight train no.87067004 (belonging to RU SC Grup Feroviar Român SA). The investigation report was completed on 06.04.2023.

### **Direct cause**

The direct cause of the rail incident was the entry of the inductor of the EB 207 locomotive EB 207's post no.1 into the clearance gauge of the track, resulting in hitting the 500 Hz track inductor of the BL 11 signal located between CF Basarabi and Valu lui Traian stations.

### **Contributing factors**

Fastening the EB 207 locomotive inductor at post #1 with only 2 of the 8 bolts fastening to the two brackets.

### **Underlying causes**

Failure to comply with the provisions of chap.II, Art.III, art.44(3) letter a and art.46(7) of the "Instructions for the activity of locomotive crews in railway transportation" no.201 of 2006, in the sense that during the intermediate and on-road inspections, on locomotive EB 207, the non-compliant way of fastening the inductor of the cab no.1 of the supports was not identified, it being fastened with only 2 of the 8 fastening screws.

**Primary causes**

They have not been identified.

**Measures taken since the accident**

They have not been identified.

**Safety recommendations**

No safety recommendations were identified.

**3.4.40.** The railway incident occurred on 06.03.2023, in railway county Constanța, in Palas railway station, when a freight wagon of train no.67110005 (belonging to RU DB Cargo Romania SRL) hit the XP I signal light.

The investigation report was finalized on 03.05.2023.

**Direct cause**

The direct cause of the incident was the accidental opening of the second pair of side doors on the left side of wagon 31535928078-3, in the direction of train running, which led to the XP I signal light in Palas railway station.

**Contributing factors**

The failure to secure the second pair of side doors of wagon No 31535928078-3, when the train was running, due to a deformation at the top of the central drive shaft of the doors, which made it difficult to close and secure them properly.

**Underlying causes**

They have not been identified.

**Primary causes**

They have not been identified.

**Measures taken since the accident**

SC 230/30.03.2023, "Educational material on the analysis of traffic safety related to the activity of the first quarter of 2023" SC DB Cargo Romania staff was processed regarding the incident occurred in the movement of freight train no.67110005 on 06.03.2023.

**Safety recommendations**

No safety recommendations were identified.

**3.4.41.** The railway incident occurred on 15.03.2023, in the railway county Cluj, between Surduc Sălaj and Băbuțeni railway stations, by hitting some elements of railway installations (inductors) by a piece detached from the locomotive DA 92530620630-9, which was in the consist of passenger train no.4020 (belonging to RU SNTFC "CFR Călători" SA).

The investigation report was completed on 20.06.2023.

**Direct cause**

The direct cause of the railway incident was the breakage, rotation and entry into the gauge for railway installation elements of the pendulum arms of axles 4 and 5 on the right side of the DA 630 locomotive, respectively on the left side in the direction of travel of the train.

**Contributing factors**

Cracking of the pendulum arm due to material fatigue, which led to the failure of it.

**Underlying causes**

Keeping locomotive DA 630 in service without carrying out planned repairs within the prescribed time limit.

**Primary causes**

Failure to learn from similar incidents and lack of permanent measures to fit safety collars on pendulum arm.

**Measures taken since the accident**

During the course of the investigation, SNTFC "CFR Călători" SA has learned from the incidents that occurred previously and has ordered by act RGSC1/5/404/27.04.2023 with permanent application term, measures to check and install safety collars on the pendulum bridles, to prevent similar incidents in the future.

**Additional comments**

After the occurrence of the railway incident that occurred in the railway county Galati in the movement of the passenger train IR no. 1962/1962-1 on 06/07.08.2015, SNTFC took measures during 2015 to install safety collars on the pendulum arms to prevent the arms from rotating and entering in the clearance gauge in case of breakage.



**Image** - safety collar applied on pendulum arm (model)



**Image** - safety collar applied on pendulum arm (model)

The measures to fit safety collars were only ordered in 2015 for the first overhaul of DA locomotives, but were not extended for subsequent overhauls, so the measures were not applicable after that. The consequence of this was that on locomotive DA 630, only 4 of the 8 pendulum arms of the locomotive were fitted with safety collars.

**Safety recommendations**

The incident was due to causes and factors arising from deviations from the codes of practice. In the course of the investigative action, it emerged that the pendulum arm that caused the incident does not belong to the category of *safety-critical components*, thus not requiring RU and ERI to perform special monitoring and management of maintenance information on these pendulum arms. In this Report, it has been highlighted under *Additional Observations*, that SNTFC took measures during 2015 to install safety collars on the pendulum bridles to prevent the arms from rotating and entering the clearance gauge in the event of breakage of the arms. However, the measures taken were only limited to the period 2015 and were not applied thereafter. Subsequent to 2015, SNTFC did not learn from published investigation reports of similar incidents to apply appropriate risk prevention measures.

During the course of the investigation, SNTFC applied organizational measures to install safety collars on the pendulum bridles to prevent similar incidents in the future.

In these circumstances, the investigating committee considers that there is no need to issue safety recommendations.

**3.4.42.** The railway incident occurred on 31.03.2023, on Bucuresti railway county, between Blejoi and Făget Teleajen railway stations, by exceeding the maximum speed allowed by the railway

track, in the running of the passenger train Regio no.10257 (belonging to the RU SC Transferoviar Călători SRL).

The investigation report was completed on 15.05.2023.

**Direct cause**

The direct cause of the incident was human error in the process of driving the DMU, manifested by failure to pay attention to the signs placed on the track, which signaled a permanent speed limit and taking the necessary braking measures with delay.

**Contributing factors**

They have not been identified.

**Underlying causes**

The underlying cause of the incident was the failure to comply with the provisions of the Instructions for the activity of locomotive crews in railway transportation no.201, art.125 paragraph (3) and (4) concerning the careful observation and observance of the indications of signals and indicators on the track and adjusting the train speed so that it is lower than the speed ordered.

**Primary causes**

They have not been identified.

**Measures taken since the accident**

Following the occurrence of the railway incident, CNCF "CFR" SA has taken the following measures in order to avoid future incidents/accidents with similar causes:

- the relocation of permanent speed signs from 500 m to 1000 m in both directions to provide a braking path for freight trains;
- Installed inductors, tuned to 2000 Hz frequency, in front of the permanent speed indicator 30/1000 in both directions;

Following the occurrence of the rail incident, SC Transferoviar Călători SRL has taken the following measures in order to avoid similar incidents/accidents in the future:

- All staff was informed about the railway incident in the Traffic Safety Analysis.
- It was decided that during the first theoretical training session the rail incident will be discussed by causes, case study and role play. On this occasion, the provisions of Article 125 of the Instructions for the work of locomotive crews in railway transportation 201/2007 will be reworked.

**Safety recommendations**

In view of the measures communicated by SC Transferoviar Călători SRL and CNCF "CFR" SA, which were taken during the course of the investigation, the Investigation Committee does not consider it necessary to issue a safety recommendation.

**3.4.43.** The railway incident occurred on 28.03.2023, in the railway county Cluj, between the Oradea Vest and Ciumeghiu railway stations, in the running of the freight train no.66612028 (belonging to the RU SC Grup Feroviar Român SA), by exceeding the maximum speed set in the route book.

The investigation report was completed on 17.07.2023.

**Direct cause**

The direct cause of the incident was human error in the process of driving the locomotive, manifested by not carefully controlling the train's speed.

**Contributing factors**

They have not been identified.

**Underlying causes**

The underlying cause of the incident was the failure to comply with the provisions of the *Instructions for the Activity of Locomotive Crews in Rail Transportation no.201, art.125 para. (1)* concerning strict observance of the running speeds in the route book.

**Primary causes**

They have not been identified.

**Safety recommendations**

No safety recommendations were identified.

**3.4.44.** The railway incident occurred on 23.04.2023, in the railway county Galați, on the Buzău - Ploiești section (electrified double track line), between Buzău and Ulmeni railway stations by hitting two track inductors by the locomotive inductor guard on the right side, in the direction of travel, of the locomotive EA 122 that hauled the passenger train no.1654 (belonging to the railway operator SNTFC "CFR Călători" SA).

The investigation report was completed on 28.06.2023.

**Direct cause**

The direct cause was the entry of the locomotive's inductor and its guards, on the right-hand side of the direction of travel, into the "gauge for railway installation elements". This was possible as a result of the breakage of the fastening bolts of the connecting bar of the axle no.1 at the front, in the running train direction, and its tilting at an angle of 30° to the normal position of attachment to the bogie frame.

**Contributing factors**

Appearance and development over time of a crack in the material of one of the two attachment bolts of connecting bar due to the loads transmitted by the bogie frame.

**Underlying causes**

Non-compliance with the provisions of the railway normative "Railway vehicles. Types of planned overhaul and repair. Time standards or mileage standards for carrying out planned overhauls and repairs" relating to keeping the locomotive in service with exceeded time and mileage standards.

**Primary causes:**

No primary causes have been identified.

**Safety recommendations**

No safety recommendations were identified.

**3.4.45.** The railway incident occurred on 23.04.2023, on Bucuresti railway county, in Videle railway station by dispatching on a wrong route of the freight train no.58208/026 (belonging to RU SC Vest Trans Rail SRL), in Ciolpani railway station direction instead Rădulești railway station direction.

The investigation report was completed on 10.08.2023.

**Direct cause**

The direct cause of the railway incident was the human error that occurred in the process of driving the train by executing the exit route for freight train 58208/026, in the direction of Roșiori instead of Giurgiu Nord.

**Contributing factors**

- superficial verification by the local movement inspector of the traffic operator order regarding the running of freight train no.58208/026;
- the lack of communication between the movement inspector and the staff who drove locomotive EA 006 regarding the conditions of passage through Videle railway station of freight train no.58208;
- failure of the locomotive staff to check the direction indicator of the route marker light XIV when the train was passing on line IV at the station CF Videle, which had the indication („R") - direction Roșiori, and failure to take measures to stop the train in the station;
- lack of communication between traffic operator on Videle section and the local movement inspector from Videle railway station regarding the movement of freight train no.58208/026;
- failure to notify the speed restrictions on Videle - Giurgiu Nord route, by the traffic operator, of the Complex.

**Underlying causes**

- failure to comply with the provisions of Article 208 letter f) of the "Regulation for the running of trains and shunting of railway vehicles" no.005/2005, regarding the obligation to check on the monitor the correct execution of the route, namely whether it corresponds to the train, line and direction ordered;
- failure to comply with the provisions of Article 136 (1) and (2) of the "Instructions for the activity



of locomotive crews in rail transport" No 201/2007, regarding the communications to be made upon entering a station with the movement inspector on duty at that station.

- failure to comply with the provisions of Art.125 (3) and 127 (1) letter a), Art.127 (2) of the "Instructions for the activity of locomotive crews in railway transportation" no.201/2007, regarding the obligation to carefully observe and respect the indications of signals and indicators on the way and to take the necessary measures as a result of the observations made;
- non-compliance with the provisions of point 5.2.4 of the PO SMS 0-8.5-19 "Operational Procedure for the Management of Train Running by the Train Operator" and art. 254 (12) of the "Regulation for the Running of Trains and Shunting of Railway Vehicles" no.005/2005, regarding the fact that the train operator did not take into account the specific regulations in force;
- failure to comply with telegram TG 14 of 06.12.2023 on the approval of speed restrictions valid from 11.12.2022.

#### **Primary causes**

They have not been identified.

#### **Additional comments**

This is not the case.

#### **Measures that have been taken**

Following the rail incident, SRCF Bucuresti has taken the following measures in order to avoid future incidents/accidents with similar causes:

- in the case of the running of additional trains, the approved daily timetable shall set conditions for the trains (in the same direction with additional trains) already included in the booklet running;
- the orders of the traffic operator, transmitted at 00:00, 06:00, 12:00, 18:00, shall specify the additional trains remaining outstanding from the previous programs;
- the arrangements made by the traffic operator, in the case of additional trains, shall include the time of departure from the marshalling station and the estimated time of arrival/departure at the border between the traffic areas;
- the traffic operator will follow, in real time, based on data provided by the movement inspector, the traffic operator on neighboring area, and via the IRIS workstation, the train movement in order to take operational decisions; In all cases where the movement inspector has doubts about the train movement, he will request information on direction and conditions of movement only from the traffic operator;
- in case of running delayed additional freight trains leading to overlapping with running additional freight trains of the same number from different daily schedules, the movement inspectors that are serving stations with more than one direction of running shall request information from the traffic operator in order to clearly establish the schedule of which the running additional train is part, to identify the direction of running and the running conditions of the train;
- movement inspectors in stations with more than one running direction shall not execute a passing command in the installation until they have contacted the driver via the station in order to identify the running conditions and the running direction of the train.

#### **Safety recommendations**

In view of the measures communicated by SRCF Bucuresti, measures that were taken during the course of the investigation activity, the investigation committee does not consider it necessary to issue a safety recommendation.

**3.4.46.** The railway incident occurred on 01.05.2023, on Brasov railway county, between Dumbrăvioara Târgu Mureș Nord railway stations by hitting by the open door of the last carriage of the passenger train no.4511 (belonging to the railway operator SNTFC "CFR Călători" SA), a working machine in the "free passage" clearance.

The investigation report was completed on 19.06.2023.

#### **Direct cause**

The direct cause of the incident was a machine carrying out repair work (road infrastructure rehabilitation) on a national road in the safety zone of the railroad, which entered the train's "clearance".

#### **Contributing factors**

They have not been identified.

#### **Underlying causes**

**The underlying cause** of the incident was the failure to comply with certain provisions of the specific instructions and legislation in force, respectively:

- Regulation No 002/2001, Article 26 (1), and
- Instruction on norms and tolerances for the construction and maintenance of standard-gauge railroads, no.314/1989, art.12 respectively Sheet 1, on the prohibition of any materials or objects stored along the current line or in stations from entering the clearance gauge.

#### **Primary causes**

They have not been identified.

#### **Additional comments**

The following additional observations were made during the course of the investigative action concerning some deficiencies and shortcomings, not relevant to the causal, contributory or systemic factors of the accident:

- In wagons of the type involved in the accident, the side access doors can open while running as they are very old. This leads to higher fuel consumption for towing the train.
- Tg. Mureș, as owner of the national road and beneficiary of the repair works carried out and with the machinery involved, did not provide the investigating committee with a copy of the document requesting the meeting of a joint committee with the representatives of the Brașov Railway Branch, in order to establish the working conditions in the safety/protection zone of the railway where the above-mentioned works were to be carried out. This was mandatory, in accordance with the provisions of GEO no.12/1998, art.29 (5), namely "works may be carried out in the protection zone of the public railway infrastructure with the approval of the railway infrastructure manager" and with the provisions of RET 002, art.11, namely "works to be carried out in the safety and protection zone of the railway can only be carried out on the basis of the authorization for carrying out works, issued only by the State authority for railway transport".

From the document submitted by the City Hall of Tg. Mureș, it emerged that it considered that the works carried out on the road in question were asphalt layer replacement works, which did not require a building permit and which "by their nature, cannot cause landslides, landslides, do not affect soil stability and do not alter the water table". It was also stated that, in the City Hall's view, it was not necessary to convene a committee meeting with CFR representatives, because "these works were carried out on an existing road, without any modification".

**3.4.47.** The railway incident occurred on 03.05.2023, in the railway county Cluj, in Dej Călători railway station, by dispatching the train IR nr.1831 in a different direction than the planned one, by attacking the switch that gives access to that direction of travel, towards Jibou railway station instead Dej Triaj railway station.

The investigation report was completed on 19.06.2023.

#### **Direct cause**

The direct cause of the rail incident was the human error caused by the execution of the exit route for the IR train no.1831 in a different direction (towards Jibou instead of Dej Triaj).

#### **Contributing factors**

1. Lack of attention of the MOVEMENT INSPECTOR device, which did not check on the luminoschema if the route performed corresponds to the IR train no.1831;
2. Lack of attention by the locomotive engineer who failed to follow the X3 exit signal light direction indicator when the train departed.

#### **Underlying causes**

- Failure to comply with the provisions of Article 208, paragraph (2), letter f of the "Regulation for

the movement of trains and shunting of railway vehicles" No.005/2005.

- Failure to comply with the provisions of Article 119, paragraph 3 of the "Instructions for the activity of locomotive crews in railway transportation" no.201/2007.

#### **Primary causes**

They have not been identified.

#### **Additional comments**

Following the incident that occurred in the CF Dej Călători station, by sending and departing in a different direction than the planned one, the train IR no.1831, belonging to SNTFC „CFR Călători” SA, attacking the switch that gives access to that direction of travel, the movement of trains between the CF Dej Calatori - Dej Triaj - Cășeu stations was blocked. Without having preserved the actual situation at the place where the railway incident occurred, the movement inspector in charge ordered and organized the return of the train to the station CF Dej Călători, in order to resume the train traffic between the stations CF Dej Calatori - Dej Triaj -Cășeu, without requesting the approval of the investigation commission for the train to be restabled.

#### **Safety recommendations**

No safety recommendations were identified.

**3.4.48.** The railway incident occurred on 06.06.2023, on Bucuresti railway county, Pajura railway station, when the second group of doors, on the right side of the right direction of running, of wagon no.88535488460-7, part of freight train no.67410 006 (belonging to the RU UNICOM TRANZIT SA) opened and hit the roof of the building of the signal box no.6. The investigation report was completed on 11.07.2023.

#### **Direct cause**

The direct cause of the incident was the opening of the second set of doors on the right-hand side of wagon 88535488460-7 during the journey, as the locking system of this set of doors did not ensure that they closed properly.

#### **Contributing factors**

- 100% old breakage of the 100% old weld of the fastening bracket at the bottom of the door group latch shaft;
- deformation of the door group latch spindle.

#### **Underlying causes**

Failure to identify faults in the locking system of the door group when carrying out the technical overhaul of the train. ("Instructions for the technical overhaul and maintenance of wagons in service, no.250 approved by MTCT Order no.1817/2005 - table no.7, point 3,4").

#### **Primary causes**

They have not been identified.

#### **Measures that have been taken**

Following the occurrence of the rail incident, Unicom Tranzit SA, has taken the following measures in order to avoid future incidents/accidents with similar causes:

- An action plan has been issued (no.2207/14.06.2023), and this case will be an additional training topic at the staff school meetings to be held in August 2023.
- It was ordered that during the technical inspections (composition, transit, arrival) the technical inspectors of wagons should pay particular attention to the way in which the door locking and securing systems are checked.

#### **Safety recommendations**

No safety advice was necessary.

**3.4.49.** The railway incident occurred on 20.06.2023, on Cluj railway county, between Războieni and Călărași Turda railway stations, when a piece of a locomotive EA 194, which was in the hauling of the passenger train no.3091 (belonging to the RU SNTFC "CFR Călători" SA), hit 6 track inductors.

The investigation report was completed on 31.07.2023.

### **Direct cause**

The direct cause of the railway incident was the breakage of the upper vertical hydraulic damper fixing bolt on the right-hand side axle 6 of locomotive EA 194, followed by the 180° rotation of the vertical hydraulic damper and its entry into the clearance for railway installation elements.

### **Contributing factors**

Fatigue of the upper fastening bolt material resulting from the oscillatory bending stresses arising from the damping process of the oscillations produced during running due to irregularities in the track.

### **Underlying causes**

They have not been identified.

### **Primary causes**

They have not been identified.

### **Safety recommendations**

No safety recommendations have been issued.

**3.4.50.** The railway incident occurred on 31.07.2023, on the railway county Craiova, in Craiova railway station, by passing on danger of the Y signal of the railway station, by the passenger train no.1992, hauled by locomotive EA 048 (belonging to the RU SNTFC „CFR Călători” SA). The investigation report was completed on 06.11.2023.

### **Direct cause**

The direct cause of the railway incident was the human error produced in the train driving activity by the locomotive driver who misinterpreted the color of the light unit displayed towards the train at the Y entry signal of the CF Craiova station, which had the indication "STOP without passing the signal!", which led to passing on danger of it.

### **Contributing factors**

They have not been identified.

### **Underlying causes**

Failure to comply with certain provisions of the instructions and regulations in force, respectively:

- 201/2007, art.127 (1), lit.a - regarding the careful following of the indications of fixed and mobile signals and signs placed in accordance with the specific regulations in force.
- 002/2001, art.59 (4) - regarding the prohibition to overpass a signal ordering to stop or to exceed the speed ordered by the signal.
- 004/2006, art.161 (2) - concerning the respect of the indication of the landmark of the entry, exit, route and branch light signals, which indicates that the respective light signal, if it orders the train to stop, cannot be passed by the train except under the conditions established by the respective regulation.
- 004/2006, art.93(1) - regarding the driver's obligation to stop in front of the illuminated signals that do not display any indication, unlit traffic lights at night, signals that give contradictory indications, signals that give dubious indications, as well as non-regulatory signals that order to stop.

### **Primary causes**

They have not been identified.

### **Additional comments**

The following additional observations were made in the course of the investigative action concerning some deficiencies and shortcomings, not relevant to the direct cause of the incident:

Freight train no. 66670, belonging to the rail transport operator SC Grup Feroviar Român SA, which ran in front of passenger train no. 1992 (at the automatic line block sector), did not respect the conditions for stabling a train in the station (art.100-1,2 of the Instructions no.201/2007), stopping in the area of the switches, in Craiova railway station, in front of the movement inspector office, where the locomotive staff was changed.

### **Safety recommendations**

No safety advice was necessary.

**3.4.51.** The railway incident occurred on 18.08.2023, in Brasov railway county, in Dumbrăveni railway station, by hitting of the switch no.11, by the brake beam detached from the wagon no.31533560179-7 of the freight train no.66030 (belonging to the RU SNTFM "CFR Marfă" SA).

The investigation report was completed on 22.11.2023.

**Direct cause**

The direct cause of the incident was the breakage of the split pin, followed by the fall of the safety clip, which led to the fall of the knuckle pin of the brake hanger of the brake block holder the and, finally, to the hit of the elements of the switch no. 11 by the brake beam of the wagon.

**Contributing factors**

- dispatching of the wagon involved in the incident, under warranty with the automatic brake defective and isolated from the station CF Constanța Ferry Boat on 14.08.2023;
- Non withdrawal from circulation of the wagon involved in the Cluj Napoca East CF Cluj Napoca station on 16.08.2023.

**Underlying causes**

They have not been identified.

**Primary causes**

They have not been identified.

**Additional comments**

During the investigative action the following findings were made concerning some deficiencies and shortcomings, not relevant to the conclusions on the causes of the incident:

- The locomotive crews who drove the locomotive hauling the train performed two automatic brake continuity tests, without having a brakeman's test gauge to check the air pressure at the train's rear, contrary to the provisions of Instruction no.250, art.62 and hammered to check the tightness of the wheel brake shoes on the running surfaces, contrary to the provisions of Instruction no.250, art.63 (3).
- In the running of train no.66076 on 15.08.2023, a suspicious noise in a car of the train was reported late.

**Safety recommendations**

No safety advice was necessary.

**3.4.52.** The railway incident occurred on 23.08.2023, in the railway county Brasov, in Copșa Mica railway station, by YS entry signal passing on danger by passenger train no.10515 (belonging to the RU SC Interregional Călători SRL).

The investigation report was completed on 16.10.2023.

**Direct cause**

The direct cause of the incident was the human error that occurred in the process of driving of the diesel multiple unit that formed the train no.10515, manifested by not carefully following the indication of the signal at the entrance of the station CF Copșa Mica and taking late braking measures in order to comply with the posted indication, respectively to stop before it.

**Contributing factors**

They have not been identified.

**Underlying causes**

Failure to comply with certain provisions of the regulations in force, namely:

- 201/2007, art.127 (1), lit.a - regarding the careful following of the indications of fixed and mobile signals and signs placed in accordance with the specific regulations in force.
- 002/2001, art.59 (4) - regarding the prohibition to overpass a signal ordering to stop or to exceed the speed ordered by the signal.
- 004/2006, art.161 (2) - concerning the respect of the indication of the landmark of the entry, exit, route and branch light signals, which indicates that the respective light signal, if it orders the train to

stop, cannot be passed by the train except under the conditions established by the respective regulation.

- 006/2005, art.72 (2) - relating to the fact that in train running, any braking must be done in good time and with an appropriate pressure decrease so that the train is slowed down or stopped before or at the set place.

**Primary causes**

They have not been identified.

**Additional comments**

The following additional observations were made during the course of the investigative action concerning some deficiencies and shortcomings, not relevant to the direct cause of the incident: the YS the home signal of Copșa Mica CF railway station was not visible from a distance of 400 m, as it should have been according to RET 002, but only from a distance of about 65÷75 m, due to the large vegetation growing near the railway line.

**Measures taken during the investigation**

- After the start of the investigative action SC Interregional Călători SRL has transmitted that it has decided to take the following measures:
  - inclusion in the training plan for October as an additional topic, case processing and a case study on how the incident occurred;
  - to carry out an analysis of the implementation and effectiveness of the monitoring (control) actions carried out by the staff of the rail operator;
  - inclusion in the register of risks associated with rail operations of the danger of a signal being exceeded, to be assessed by the assessment board.
- Starting from 25.09.2023, on the distance Șeica Mare - Copșa Mica, vegetation clearing works with third parties started.

**Safety recommendations**

No safety advice was necessary.

**3.4.53.** The railway incident occurred on 20.09.2023, on Bucuresti railway county, Videle - Roșiori traffic section, on the distance Videle - R1 Videle, by exceeding the maximum speed allowed for the category of train established in the time-table by passenger train no.9911 hauled by locomotive EA 364 (belonging to RU SNTFC "CFR Călători" SA). The investigation report was completed on 18.12.2023.

**Direct cause**

The direct cause of the incident was human error in the process of driving the locomotive, manifested by not carefully controlling the train's speed.

**Contributing factors**

They have not been identified.

**Underlying causes**

Failure to comply with the provisions of the *Instructions for the activity of locomotive crews in rail transport no. 201, Art. 125 para. (1)* concerning strict observance of the running speeds in the route book.

**Primary causes**

They have not been identified.

**Safety recommendations**

No safety recommendations were identified.

**3.4.54.** The railway incident occurred on 03.10.2023, on Cluj railway county, between Boju and Valea Florilor railway stations, at km 467+200, by hitting a piece of rail within the gauge of the line by the locomotive LEMA 019 running solo, which formed the train no. L89150 (belonging to the RU LTE-RAIL ROMÂNIA SRL). The investigation report was completed on 06.11.2023.

### **Direct cause**

The direct cause of the incident was the entering into the clearance gauge of a dismantled piece of rail from track II, which was being handled for storage when train no. L89150 was passing on track I.

### **Contributing factor**

Improper handling of the piece of rail removed from track II next to the running track I in order to store it between track I and track II.

### **Underlying causes**

Failure to comply with certain provisions of the instructions in force, namely:

- 002/2001, art.26 (1) and the Instruction of rules and tolerances for the construction and maintenance of standard gauge track, no.314/1989, art.12 respectively Sheet 1 regarding the prohibition of entering the clearance gauge of any materials or objects stored along the current track or in stations.
- Non-compliance with the Prescriptions on the execution of the moving service, L, SCB, IFTE, telecommunications work during the performance of "Quick Wins" type works by the Association Drum Asphalt Ltd - ZUE Spolka Akyjna concerning the recording by the authorized representative of the contractor in the RRLISC of Hm the beginning and end of daily activities in the railway area and was not present at the supervision of the works carried out.

### **Primary causes**

They have not been identified.

### **Safety recommendations**

No safety advice was necessary.

**3.4.55.** The railway incident occurred on 08.10.2023, on the railway county Constanta, in the Palas railway station, by hitting the switch No.66 of the station, by the lower part of the gear case of the locomotive DA 1645 that ran as freight train No.89337008 (belonging to the RU SC Via Terra Spedition SRL).

The investigation report was completed on 21.11.2023.

### **Direct cause**

The direct cause of the railway incident was the detachment of the end of the lower part of the gear case from axle no.5 of locomotive DA 1645, due to the loosening of the fastening bolts and its entry into the clearance for railway installation elements, which resulted in the hitting of the bolt of the locking system of the curved point on the left (in the running of train) of the track switch no.66 from Palas railway station.

### **Contributing factors**

Not securing with split pins the nuts of the bolts of the of the gear case from axle No. 5 of the locomotive DA 1645.

Not securing with safety anchors the lower gear case from axle No. 5 on locomotive DA 1645.

Failure to respect the planned revision cycle PTAE type overhauls carried out on station lines and not in specialized workshops.

### **Underlying causes**

Failure to comply with the provisions of Article 30(2) of the "Instructions for the work of locomotive crews in rail transport" No 201 of 2006, in the sense that "*Locomotives shall be placed at least once every seven days in a traction unit that can ensure the performance of all technical operations provided for in these instructions and in the specific regulations in force*".

Failure to comply with the provisions of Article 209 (2) of the "Railway Technical Operating Regulation" No 002 in the sense that the locomotive DA 1645 had to be "*permanently maintained in working order, so as to ensure the operating parameters set out in specific regulations for the safety of train movement*".

Failure to comply with the provisions of Article 230 of the "Regulation on Railway Technical Operation" No 002 in the sense that "*Technical overhauls, maintenance and repairs performed on railway vehicles must be carried out in units authorized by the National Railway Authority. These*

units must have technically approved technical overhaul, maintenance and repair services for railway vehicles and use special technologies, stands and devices authorized or attested according to the normative acts in force."

Non-compliance with the provisions of the Railway Rulebook "Railway vehicles. Types of planned overhaul and repair. Time or mileage rules for carrying out planned overhauls and repairs", approved by Order of the Minister of Transport and Infrastructure No 315/2011, as subsequently amended and supplemented, for the purposes of compliance with the cycle of scheduled technical overhauls.

Failure to comply with the provisions of Annex 1, art3.1 lit.A and B of the technical specification code ST-16-2015 in the sense that not all the operations provided for in the nomenclature of works for the PTAE revision were performed.

**Primary causes**

They have not been identified.

**Measures that have been taken**

Following the occurrence of this incident, Via Terra Spedition SRL has drawn up the action plan no.1106/14.11.2023, which provides:

Description of observation / non-compliance	Corrective action measure	Term	Responsible
1. Receipt of repair services for motor rolling stock	According to the Working Instructions IL-7.1-03, art.5.4 <b>Acceptance of services of repair of rolling stock</b> , a permanent technical representative will be appointed as a Locomotive Revisor at VTS - PL C-ța to ensure the final acceptance of the works performed on locomotives - RAD or Technical Revision.	01.12.2023	Zonal Director VTS - PL C-ța
2. Not following the service and repair cycle	The <b>Railway Standard Railway Vehicles. Types of planned overhaul and repair. Time or mileage rules for planned overhauls and repairs</b> - NF 67-006:2011 with all specialized technical staff (who ensure the record keeping and scheduling of locomotives for overhaul) regarding the obligation to comply with the cycle of planned overhauls and repairs	10.12.2023	Instructor T
3. Failure to comply with the Instructions for the work of locomotive crews in railway transportation - no.201 of 2006	All locomotive crews have been re-trained with the <b>Instructions for the work of locomotive crews in railway transportation - no.201 of 2006</b>	10.12.2023	Instructor T
4. The job description for T-Dispatcher is incomplete	The job description for T-Dispatcher has been completed with the responsibility to ensure that locomotives are brought into the VTT workshop equipped with a pit for technical overhaul and repairs	01.12.2023	Head of PL VTS C-ța

**Safety recommendations**

In the case of the railway incident occurred on 08.10.2023 in the running of freight train no.89337008 it was found that the hitting of the switch no.66 from Palas railway station, was due to the entry into



the clearance of the lower part of the gear case of the locomotive DA 1645, belonging to the RU SC Via Terra Spedition SRL, component that had to be overhauled during the intermediate overhaul type PTAE in a workshop equipped with an overhaul pit.

Given that SC Via Terra Spedition SRL has drawn up a plan of measures eliminating the non-conformities that led to this incident, the Investigation Commission does not consider it necessary to issue safety recommendations.

**3.4.56.** The railway incident occurred on 31.10.2023, on Galati railway county, between Mărășești and Adjud railway station, by hitting elements belonging to the interlocking and electric overhead line, by an open double door, located on the right side in the running direction, from wagon no.85535310095-8, the 10<sup>th</sup> in the freight train no.69152 (belonging to the RU SC LTE Rail Romania SRL).

The investigation report was completed on 11.12.2023.

#### **Direct cause**

The direct cause of the incident was the opening of the second double side door, located on the right side in the direction of travel (driver's side), of wagon No. 85535310095-8, the 10th safety door of freight train No. 96152, while the locking system did not ensure that it closed properly.

#### **Contributing factors**

- The deformed condition of the side doors and the main closing spindle which resulted in the doors being closed and secured in a tensioned condition at the bottom only, the top being unsecured.
- Failure to secure the central locking pin operating handle due to the deformed condition of the securing bracket.

#### **Underlying causes**

Failure to identify the defects in the double door closing system, during the technical overhaul of freight train no.69152 on 31.10.2023, which included wagon no.85535310095-8. ("Instructions on technical overhaul and maintenance of wagons in service, no.250 approved by MTCT Order no.1817/2005 - Table no.7, item 3,4").

#### **Primary causes**

They have not been identified.

#### **Safety recommendations**

No safety recommendations were identified.

### 3.5 Accidents and incidents that have been investigated during the last 5 years Rail investigations 2019-2023:

Accidents investigated <sup>(1)</sup>		2019	2020	2021	2022	2023	TOTAL
Accident (Art.19, 1 + 2)	Train collisions	-	2	1	1	1	5
	Train collisions with obstacles	-	-	-	-	-	-
	Train derailments	27	31	22	25	26	131
	Level crossing accidents	1	-	-	-	-	1
	Accident to persons caused by rolling stock in motion	-	-	-	-	-	-
	Rolling stock fires	4	9	7	8	4	32
	Accidents involving dangerous goods	-	-	-	-	-	-
Other accidents (Art.21.6)	Train collisions	-	-	-	-	-	-
	Train collisions with obstacles	-	-	-	-	-	-
	Train derailments	-	-	-	-	-	-
	Level crossing accidents	-	-	-	-	-	-
	Accident to persons caused by rolling stock in motion	-	-	-	-	-	-
	Rolling stock fires	-	-	-	-	-	-
	Accidents involving dangerous goods	-	-	-	-	-	-
Incident	31	25	24	22	25	127	
<b>TOTAL</b>	<b>63</b>	<b>67</b>	<b>54</b>	<b>56</b>	<b>56</b>	<b>296</b>	

<sup>(1)</sup> the year of completion of the investigation was taken into account;

## 4 RECOMMENDATIONS

### 4.1. Brief overview and analysis of safety recommendations issued in 2023

Through the recommendations issued, AGIFER aimed to improve rail safety and prevent accidents/incidents.

Nr. crt.	Train/ rolling stock involved		Railway event details			Report completed date	Event classification		
	Train No	Train type	Occurrence site	Occurrence date	Time				
1.	4116	passenger	Bocicoi- Vişeuului Valley	14.02.2022	16:40	09.02.2023	<b>accident</b>	diesel- electric locomotive derailment	
		On Cluj railway county, between Bocicoi and Valea Vişeuului railway stations, the locomotive GM 1138 derailed by the first two axles, in the running direction.							
		recommendations issued	1	414/1. The Romanian Railway Safety Authority - ASFR will request to RU SNTFC to assess the danger posed by the modification of the technical parameters of the HH springs, in the time during planned repairs, compared to the regulated tolerances and to establish effective measures to control the risks induced by it.					
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the response formulated no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.414/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they are under implementation.					
2.	5755 3	freight train	Grozăveşti	19.02.2022	01:38	17.02.2023	<b>accident</b>	electric locomotive derailment	
		On Craiova railway county, in Grozăveşti railway station, the first bogie of the locomotive EA 011 derailed in the running direction.							
		Recommendation issued	1	415/1. The Romanian Railway Safety Authority - ASFR will ask to RU Cargo Trans Vagon SA to assess the danger posed by the modification over time of the characteristics of Metalastik springs.					
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the answer formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.415/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.					
3.	6056 6	freight train	Alunu- Berbeşti	24.02.2022	08:35	23.02.2023	<b>accident</b>	derailment of 3 freight wagons	
		On Craiova railway county, between Alunu and Berbeşti railway station, 3 wagons of the train consist derailed, (the 10th, 15th and 16th wagon).							
		recommendation issued	1	416/1. The Romanian Railway Safety Authority - ASFR will request to RU SNTFM "CFR Marfă" SA to reassess the risks generated by the taking over of wagons after their loading from economic operators (consignors), in order to eliminate the cases of introducing wagons into the composition of freight trains without observing the specific regulations regarding the maximum permissible axle load.					
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the response formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.416/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.					

4.	5755 7	freight train	Ciucea	24.03.2022	18:56	21.03.2023	<b>accident</b>	derailment of 2 freight wagons	
		Two wagons loaded with cereals, the 13th and the 14th wagon of the train, derailed and overturned in Ciucea railway station on Cluj railway county.							
		recommendations issued	1	419/1. The Romanian Railway Safety Authority - ASFR will request SC CARGO TRANS VAGON SA to assess the danger posed by the train with one or more wagons in which the goods do not comply with the loading directives, after loading them by the economic operators (consignors) with which SC CARGO TRANS VAGON SA CTV has concluded contracts and / or rail transport agreements" and to establish effective measures to control the risks induced by it.					
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, by the answer formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.419/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.					
5.	6670 8	freight train	Craiova	02.04.2022	18:15	28.03.2023	<b>accident</b>	derailment of 2 freight wagons	
		In Craiova railway county, in Craiova railway station, the 4th and 5th wagon of the train consist derailed.							
		recommendations issued	1	421/1. The Romanian Railway Safety Authority - ASFR will request to RU SC Deutsche Bahn Cargo Romania SRL to assess the danger posed by the failure of the brake installation of a freight wagon, establishing effective measures to control the risks induced by it.					
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, by the answer formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.421/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.					
6.	6422 0	cargo	Turceni	01.04.2022	23:55	31.03.2023	<b>accident</b>	derailment of 3 freight wagons	
		In Craiova railway county, in Turceni railway station, three wagons, the 9th, 10th and 11th of the train consist derailed.							
		recommendations issued	1	420/1. The Romanian Railway Safety Authority - ASFR will ensure that CNCF "CFR" SA, in its capacity as public railway infrastructure manager, will reassess the risk "Derailment of railway vehicles" generated by "Keeping inadequate sleepers on the track" and will establish concrete measures for managing the risks associated with this hazard.					
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, through the response formulated no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.414/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been partially implemented.					
7.	6668 3-006	cargo	Nazarcea	06.04.2022	18:20	05.04.2023	<b>accident</b>	derailment of a freight wagon	
		In Constanța railway county, in Nazarcea railway station the wagon no.33807966612-3 (the 37th of the train), derailed from all the axles.							

		recommendations issued	1	422/1. The Romanian Railway Safety Authority - ASFR will ensure that RU SC Grup Feroviar Feroviar Român SA will complete the list "Risk assessment - provisions of R EU 2018/762; R EU 402/2013; R EU 1078/2012" associated with the danger generated by the maintenance of signaling, centralization and block (SCB) installations in a state of disturbance for a long period of time and will establish monitoring measures to control these risks.				
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the answer formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.422/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.				
		freight train	Drăgotești	13.04.2022	05:24	11.04.2023	accident	diesel-electric locomotive derailment
		In Craiova railway county, in Drăgotești railway station, the locomotive ED 050 that hauled the train derailed from all the axles.						
8.	6420 8	recommendation issued	1	424/1. The Romanian Railway Safety Authority - ASFR will ensure that IM CNCF "CFR" SA will assess the risks generated by the failure to ensure, at the level of the line sections, a sufficient number of employees to perform adequate maintenance of the track and maintain the track geometry within the tolerances allowed and will establish measures to control these risks.				
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the answer formulated no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.424/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.				
		freight train	Zăvestreni	13.06.2022	17:57	09.06.2023	accident	fire in a freight wagon
		In Bucuresti railway county, in Zavestreni railway station, a fire broke out in the first wagon of the train.						
9.	6630 6	recommendations issued	1	428/1. The Romanian Railway Safety Authority - ASFR will ensure that RUSC GRUP FERROVIAR ROMÂNĂ SA, in its capacity as RU and the economic agent who loaded the wagons from the train involved will review the procedures regulating the technical and commercial handover-receipt of empty/loaded wagons, so that they also establish the way of checking the closing/securing systems of the assemblies and sub-assemblies on the upper part of the tank wagons.				
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the response formulated no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.428/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they are under implementation.				
		cargo	Sirca-Podu Iloaiei	29.06.2022	17:20	27.06.2023	accident	15 freight wagons derailed
		In Iasi railway county, between Sîrca and Podu Iloaiei railway stations, 15 wagons of the train (from 11th to the 25th) derailed, 11 of them overturning.						
10.	5631 7-027	recommendations issued	2	430/1. The Romanian Railway Safety Authority - ASFR will ensure that IM - CNCF "CFR" SA will reassess the risks associated with the danger generated by the failure to carry out the works of re-dimensioning and uniformization of efforts, after the works of full bucking and technological bucking (in permanent line closures) have been carried out and after its compaction has been performed.				

			<p><b>430/2.</b> The Romanian Railway Safety Authority - ASFR will ensure that the railway transport operator Grup Feroviar Român SA will re-evaluate the way in which the training process ensures the necessary competences for the personnel performing the following services: technical inspection of CSI type wagons transported during the pick-up of the wagons at the border and during the technical inspections of the trains in which these wagons run on Romanian territory.</p>						
		recommendations being implemented (open)	2	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the response formulated in act no.2010/14/05.03.2024, communicated, regarding the safety recommendations no.430/1 and 430/2 issued following the investigation of this railway accident, that they have been analyzed, the measures to be taken have been identified and they are under implementation.					
11.	6811	passenger	Biharia-Diosig	19.07.2022	17:00	17.07.2023	accident	diesel locomotive fire	
		In Cluj railway county, between Biharia and Diosig railway stations a fire broke out at the locomotive DHCe 410, which was in an inactive state in the train consist, .							
		recommendations issued	1	<p><b>432/1.</b> The Romanian Railway Safety Authority - ASFR will ensure that the RU SNTFC "CFR Călători" SA, will carry out an analysis of the risks associated with the danger of burn injuries to operating personnel as a result of situations in which leaks from the diesel tank occur (including due to damage during the journey, the diesel tanks of locomotives type LDH).</p>					
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the answer formulated in act no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.432/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.					
12.	6630 0-016	freight train	Năvodari-Nazarcea	17.09.2022	12:28	27.07.2023	accident	freight wagon derailment	
		In Constanța railway county, between Năvodari and Nazarcea railway stations, both axles of the first bogie of the wagon nr.33537850290-0 derailed.							
		recommendations issued	1	<p><b>439/1.</b> The Romanian Railway Safety Authority - ASFR will ensure that IM SC GRUP FERVIAR ROMÂN SA, will reassess its own preventive measures to control and reduce the risks associated with the performance of works/services of overhaul, repair and maintenance of railway tracks with third parties.</p>					
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, through the response formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.439/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they are under implementation.					
13.	5701 0	freight train	Cojocna	09.08.2022	08:49	31.07.2023	accident	freight wagon derailment	
		In Cluj railway county, in Cojocna railway station, the first bogie of the 17th wagon of the composition derailed.							
		recommendations issued	1	<p><b>434/1.</b> The Romanian Railway Safety Authority - ASFR shall ensure that the RU SC UNICOM TRANZIT SA will identify and assess the risks associated with the danger that during the works carried out during the technical inspections of its trains, defects that may jeopardize railway safety are not detected.</p>					
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, through the response formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.434/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been partially implemented.					

14.	5601 2-003	freight train	Izvoru Oltului-Izvoru Mureşului	08.09.2022	18:50	09.08.2023	accident	freight wagon derailment	
		In Brasov railway county, between Izvoru Oltului-Izvoru Muresului railway stations, the both axles of the first bogie in the train running direction from the wagon no.58536368, the second to last in the train composition derailed.							
		recommendations issued	2	437/1. The Railway Safety Authority - ASFR will request the RU to improve the maintenance of competence program for the technical inspector to ensure that the executive staff will have the necessary skills to perform the technical revision for all types of wagons.					
				437/2. The Romanian Railway Safety Authority - ASFR will request RU SNTFM, and may extend the request to the other RUs, to carry out an analysis of the operational risks generated by the performance of technical revision by a single technical inspector, to ensure that they can be kept under control.					
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the answer formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.437/1 issued following the investigation of this railway accident, that it is under analysis.					
recommendation implemented (closed)	1	The Romanian Railway Safety Authority, through the answer formulated, no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.437/2 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.							
15.	5701 0	freight train	Dorneşti	27.08.2022	20:25	24.08.2023	accident	diesel locomotive fire	
		In railway county Iaşi, in Dorneşti railway station a fire broke out, at the locomotive DA1394.							
		recommendation issued	2	435/1. The Romanian Railway Safety Authority - ASFR will request to the RU SC Unicom Tranzit SA to assess the risks associated with the hazard "Keeping in service locomotives with wiring harness or other subassemblies with an exceeded service life" and to take effective measures to control it.					
				435/2. The Romanian Railway Safety Authority - ASFR will request RU SC Unicom Tranzit SA to assess the risks associated with the hazard "Keeping locomotives in operation with inadequate cleanliness in the area of cable ducts" and to take effective measures to control it.					
recommendations implemented (closed)	2	The Romanian Railway Safety Authority, by the answer formulated, no. 2010/14/05.03.2024, communicated, regarding the safety recommendations no.435/1 and 435/2 issued following the investigation of this railway accident, that they have been analyzed, the measures to be taken have been identified and they have been implemented.							
16.	6601 4	freight train	Monor Gledin-Râpa de Jos	13.09.2022	13:45	11.09.2023	accident	derailment of 2 freight wagons	
		In Cluj railway county, between Monor Gledin-Râpa de Jos railway stations, two freight wagons (CSI type), the 24th and the 25th in the train, derailed and overturned.							
		recommendation issued	2	438/1. The Romanian Railway Safety Authority - ASFR will ensure that the RU SNTFM "CFR Marfă" SA will propose to the Organization for Cooperation of Railways - OCCF to reintroduce in the Agreement on the "Rules for the use of freight wagons in international traffic" (PGV) the conditions must be observed regarding the flange gauge of an axle measured between two points located 10 mm outside the tape circles of the wheels in the vicinity of the upper level of the rails.					

				<b>438/2.</b> The Romanian Railway Safety Authority - ASFR will ensure that the RU SNTFM "CFR Marfă" SA, will assess the risks associated with the danger posed by the equipping of wagons with inadequate components by the contract partners with which it performs successive transportation, components that are not checked at the delivery-receipt of the wagons at border stations.				
		recommendations under implementation (open)	2	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the answer formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendations no.438/1 and 438/2 issued following the investigation of this railway accident, that they are under analysis.				
17.	6422 0	freight train	Borăscu	02.10.2022	01:50	28.09.2023	accident	derailment of 5 freight wagons
		In Craiova railway county, in Borăscu railway station, five wagons loaded with coal (Fals series) derailed, respectively the first four and the 6th from the locomotive.						
		recommendations issued	1	<b>441/1.</b> The Romanian Railway Safety Authority - ASFR will ensure that the Public IM CNCF "CFR" SA will re-analyze and complete the "Risk Register - 2022" of the Craiova Installations Division - r 0-6,1-01, Ed.3, Rev.0 and, if applicable, of the other Regional Branches, with the risk associated with the hazard generated by keeping the signaling, centralization and block (SCB) installations in a state of disturbance for a long period of time and will establish monitoring measures to keep these risks under control.				
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the response formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.441/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they are under implementation.				
18.	6431 6	freight train	Răcari	01.11.2022	07:26	16.10.2023	accident	9 freight wagons derailed
		In Craiova railway county in Răcari railway station, 9 wagons loaded with coal derailed.						
		recommendations issued	1	<b>442/1.</b> The Romanian Railway Safety Authority - ASFR will ask the RU SNTFM "CFR Marfă" SA to carry out the risk assessment of the dangers associated with the failure to perform, during the technical inspection of the train composition, the blowing operations of the general air brake pipe on groups of 5÷10 wagons and to have effective safety measures to control them.				
		recommendation implemented (closed)	1	The Romanian Railway Safety Authority, by the answer formulated, no. 2010/14/05.03.2024, communicated, regarding the safety recommendation no.442/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they have been implemented.				
19.	5740 2	freight train	Gugești-Sihlea	01.12.2022	09:41	28.11.2023	accident	collision between 2 freight trains
		In Galati railway county, between Gugești and Sihlea railway stations, there was a collision between freight train no.57402 and freight train no.66706.						
		recommendations issued	2	<b>444/1.</b> The Romanian Railway Safety Authority - ASFR will request the RU SC Tim Rail Cargo SRL to revise the Operational Procedure - Carrying out the process of rail traffic movement Code: PO-01 Ed:3 in order to establish concrete tasks and duties to ensure an efficient and real-time monitoring of the train staff activity and compliance with the provisions of Law 53/2003 - Labor Code.				
				<b>444/2.</b> The Romanian Railway Safety Authority - ASFR will request the RU SC Tim Rail Cargo SRL to redo the process of identification and risk assessment corresponding to the Rail Traffic Process.				



		recommendations implemented (closed)	2	The Romanian Railway Safety Authority, through the answer formulated, no. 2010/14/05.03.2024, communicated, regarding the safety recommendations no.441/1 and 441/2 issued following the investigation of this railway accident, that they have been analyzed, the measures to be taken have been identified and they have been implemented.				
20.	6664 4-028	freight train	Timisoara East	29.12.2022	17:25	18.12.2023	accident	derailment of a freight wagon
		In Timisoara railway county, in Timisoara Est railway station, , the first three axles of the freight wagon no.83536654463-2 (Fals type), the 13th of the train, derailed.						
		recommendations issued	1	445/1. The Romanian Railway Safety Authority - ASFR, will ensure that SRCF Timisoara will assess the risk associated with the danger of exceeding the tolerances allowed for track geometry and will establish viable safety measures to control these risks.				
		recommendation under implementation (open)	1	2010/14/05.03.2024, the Romanian Railway Safety Authority, by the response formulated, no.2010/14/05.03.2024, communicated, regarding the safety recommendation no.441/1 issued following the investigation of this railway accident, that it has been analyzed, the measures to be taken have been identified and they are under implementation.				

4.2. State of implementation of safety recommendations issued in the last 5 years

Investigations completed in the year	Number of recommendations issued	Number of recommendations implemented	Number of recommendations being implemented	Number of recommendations where ASFR has communicated that they will not be implemented	Number of unanswered recommendations
2019	60	26	17	8	9
2020	111	63	39	9	0
2021	52	44	4	3	1
2022	31	26	5	0	0
<b>2023</b>	<b>25</b>	<b>13</b>	<b>12</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>279</b>	<b>172</b>	<b>77</b>	<b>20</b>	<b>10</b>

**General Manager**  
**Laurențiu Cornel DUMITRU**

**Deputy General Manager**  
**Mircea NICOLESCU**

**Head of Accident Investigation Department**  
**Mitu-Costel AFANASE**