



MINISTERUL TRANSPORTURILOR,
INFRASTRUCTURII SI COMUNICATIILOR
AGENȚIA DE INVESTIGARE FERROVIARĂ ROMÂNĂ - AGIFER



ROMANIAN RAILWAY INVESTIGATION AGENCY - AGIFER - ANNUAL REPORT 2019



INTRODUCTION

This is the Annual Report of Romanian Railway Investigation Agency - AGIFER (hereinafter referred to as AGIFER) for 2019. It is in accordance with the *Regulation for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and metro safety*, approved through the Government Decision no. 117/2010 and meets with the requirement of the Directive 2016/798/EC of European Parliament and Council, transposed into Romanian legislation through the Emergency Ordinance no.73/2019 *for the railway safety*.

This reference legislation is uploaded also on AGIFER site www.agifer.ro

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1. PRESENTATION

1.1. Foreword of AGIFER General Manager

The year 2019 is similar to the last years regarding the decrease of the railway safety, registering an increase of accidents with 60% more than the average of the last 4 years, respectively 45 accidents from which a serious one, this year being registered also 24 incidents. All these accidents and incidents have in the causal chain, more or less, direct implication of the human factor. The causes pertaining to the human factor varied from a failure analysis of the risks that lead to the improper prioritisation of the investments and repairs, deficiencies of some sequences of the work load or violations of norms and regulations. The assessment way of the risks and the low level of responsibility for the traffic safety represent the latent causes that can generate anytime new railway events.

It shows once more that the lack of repairs, investments, so necessary for the railway infrastructure and rolling stock, cumulated with the lack of control and training that favoured the appearance of human errors amongst the railway staff, can only lead to a degradation of the railway safety. Another concern is the attitude amongst of the railway safety staff, as well as amongst the decision makers, consisting in the lack of responsibility in this respect (railway safety), so important for the railway transport. It is confirmed by the increase of the number of railway events, whose cause is the human error.

Considering these situation, the challenges to which AGIFER staff faced were serious, with the same staff being performed a higher number of investigations (especially railway accidents).

The most part of the investigations carried out in 2019 were for derailments of the railway vehicles from the composition of trains in running, but neither the locomotive fire were missed, as well as a case of a collision between a train and a car at a level crossing.

In 2019 AGIFER completed the investigation of the serious accident happened on the 12th August 2018, in the railway county Craiova, running line I, between Malu Mare - Banu Mărăcine railway stations, on the viaduct Cârcea, in the running of the freight train no.80315. In the investigation report have been determined the causes and the factors that led to the occurrence of this serious accident and the safety recommendations issued.

I mention that in 2019, AGIFER open an investigation of a serious accident happened on the 18th December 2019, in the railway county București, in Ploiești Triaj railway station, on the line 6A, end Y, in the running of the freight train no.30558-1 and of the passenger train no.5008, consisting in the head-on collision of the hauling locomotives of the trains, generating the injuring of many persons and material damages.

In 2019 60 safety recommendations were issued and the high number of railway accidents/incidents happened afterwards shows the implementation way of these ones .

In 2019 AGIFER continued the cooperation with other European NIBs, sharing good practices and participating in the meetings of the groups of experts organized by European Commission, through the General Directorate for Mobility and Transport, for the implementation of the Technical Pillar of the Railway Package IV, meetings of the working groups organized by European Union Agency for Railways – ERA (common meetings with NSAs and NIB plenary meetings; Development of a training programme in the field of human and organization factors, etc) and meetings of working group within the Peer review programme.

On the 4th September 2020, AGIFER turned 5 years old, years of professionalism, responsibility and integrity in its activity, getting in a such way a well-deserved and respected place in Romanian railway system.

On this occasion, I wish to thank to AGIFER employees, public companies and authorities with which we cooperated, European Union Agency for Railways and European NIBs partners.

I strongly believe in the reestablishment of Romanian railway system, so it be able to meet with the requirements of European railway system, it will be possible with AGIFER contribution.

I strongly believe in the quality and responsibility of railway human factor, that further carry the tasks and prestige of railway work, beautiful and traditional work, responsibilities and satisfactions, work in which strong characters crystallize.

General Manager
Phd. Vasile BELIBOU

1.2. Role and purpose

Role of Romanian Railway Investigation Agency-AGIFER

AGIFER role is to carry out investigations of the accidents/incidents and to analyze and study the causes and circumstances that led to their occurrence. AGIFER can also perform other tasks established through Government Decision for the investigation of other events than the railway accidents and incidents.

According to the provisions of the Safety Directive, of Law no.55/2006 on the railway safety, amended by the Emergency Ordinance no. 73/2019 and of the Government Decision no.117/02.03.2010 for the approval of the Regulations for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and metro safety (hereinafter referred to as *Investigation Regulation*), in making the decision for opening an investigation, AGIFER takes into account:

- seriousness of the accident or incident;
- if it is part of a series of accidents or incidents relevant for whole system;
- its impact on the community railway safety;
- requests of the infrastructure administrators, railway undertakings, Romanian Railway Safety Authority or of other member states of European Union

AGIFER does not investigate:

- railway incidents that are not relevant for the railway transport system;
- level crossing collisions between the running trains and road vehicles, that are not generating by the non-closing of the barrier or the malfunction of the signalling equipment;
- hits of the persons by the running railway vehicles;
- suicides;

For any of these above-mentioned cases, an investigation can be started, taking into account those presented in the previous paragraph.

AGIFER purpose

Through the investigations of the accidents and incidents, AGIFER aims the improvement of the railway safety and prevention of some accidents and incidents similar to those investigated.

The investigations, if necessary, have as final result safety recommendations, that are AGIFER proposal for the improvement of the railway safety.

1.3. General data about AGIFER

Employees at the end of 2019

At the end of 2019, AGIFER had 47 employees, that is:

- 1 general manager;
- 1 deputy general manager;
- 1 economic director;
- 3 advisers of the general manager;
- 5 heads of departments;
- 1 head of office
- 25 investigators;
- 1 auditor;

- 6 experts
- 1 technician
- 1 referent
- 1 economist

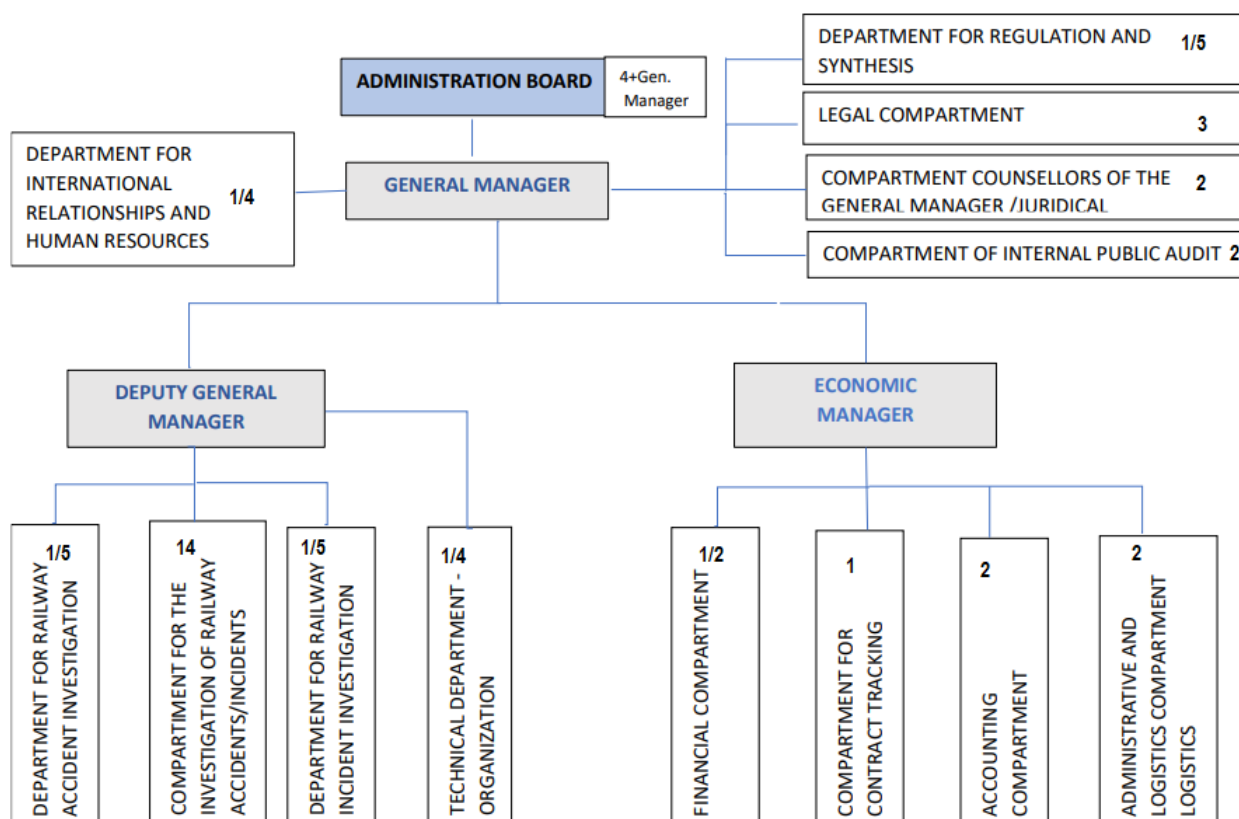
Budget

For its activity in 2019, AGIFER had a budget of 5.862.604 lei, that is 1.234.232 EUR (considering an exchange rate 1 € = 4,75 lei).

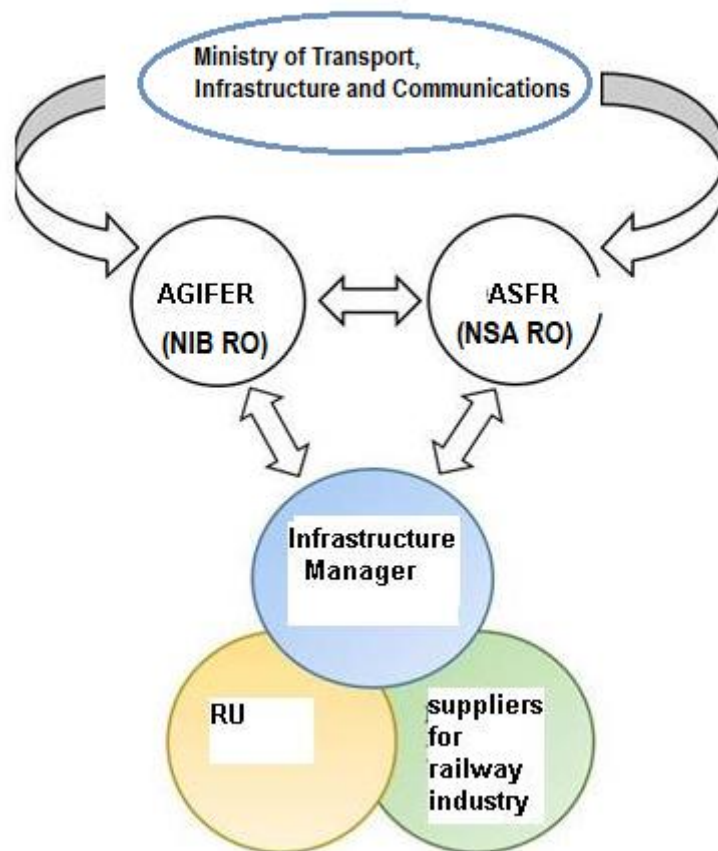
1.4. Structure

In 2018, through the Order of Minister of Transports no.1171/11.07.2018 the organization chart of Romanian Railway Investigation Agency – AGIFER was approved, it being presented below:

Total number of employees 50
Leading positions 9



1.5. Organization diagram



2. INVESTIGATION PROCESS

The investigation aims the prevention of the accidents and incidents and includes the collection and analysis of the information, establishment of the conditions, including the determination of the causes and, if case, the issuing of some safety recommendations.

The investigation is, from legal point of view, an administrative act, allowing the investigators in charge to fulfil their tasks as efficiently as possible and as soon as possible. The investigation is independent of any legal inquiry. The investigation does not aim in any way the establishment of the level of blame or the responsibility.

The result of an accident or incident investigation is the object of the investigation report, worked out according to the seriousness of the accident or incident.

The report presents the investigation objectives and includes, if case, safety recommendations.

Before drafting the investigation report (the final investigation report) one works out a draft report, that, according to the provisions of the Law 55/2006, amended by the Emergency Ordinance no. 73/2019, it is submitted to the infrastructure administrator/manager, involved railway undertakings, Romanian Railway Safety Authority, victims and their relatives, owners of the damaged goods, manufacturers, involved emergency services and the representatives of the staff and the users, in order to inform them about the investigation and its course and to give them the possibility to present their opinions on the investigation and to express their comments on the information of the draft report.

If the opinions and comments on the draft report are relevant for the investigation, they will be taken into account in the working out of the final report.

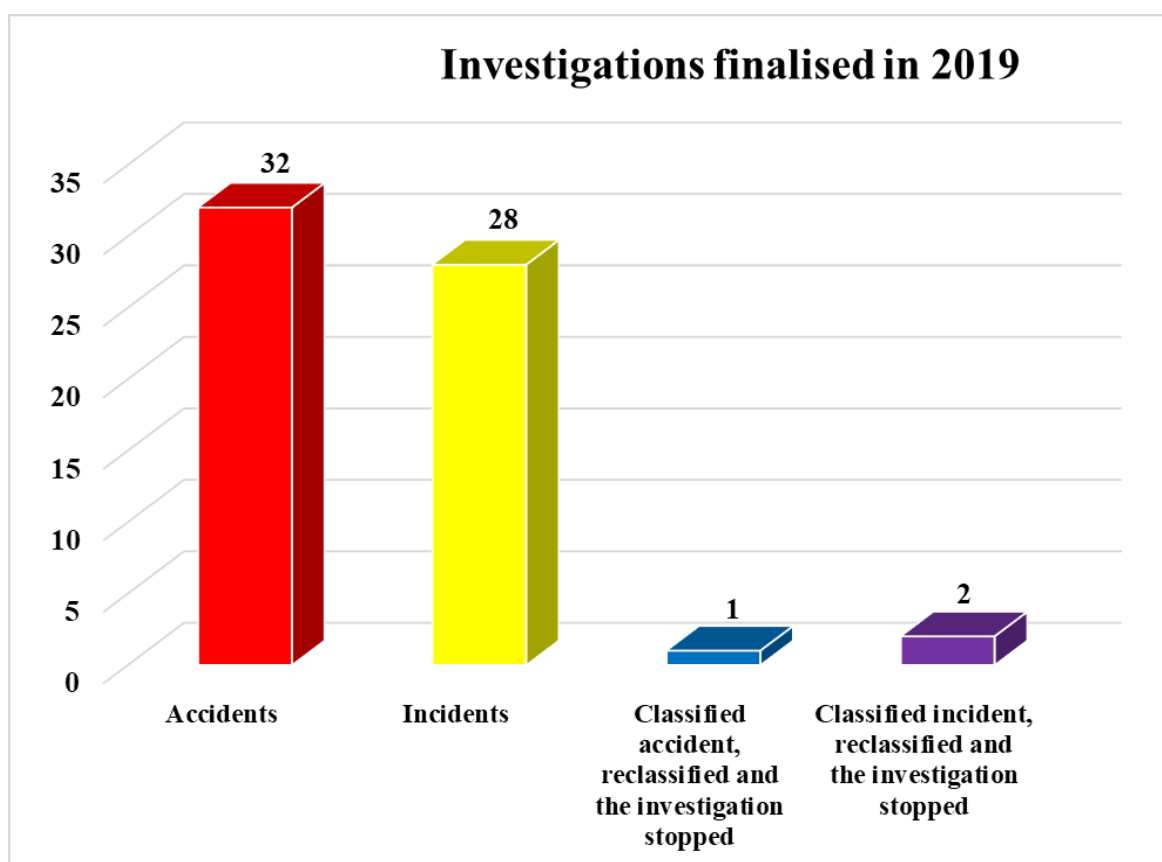
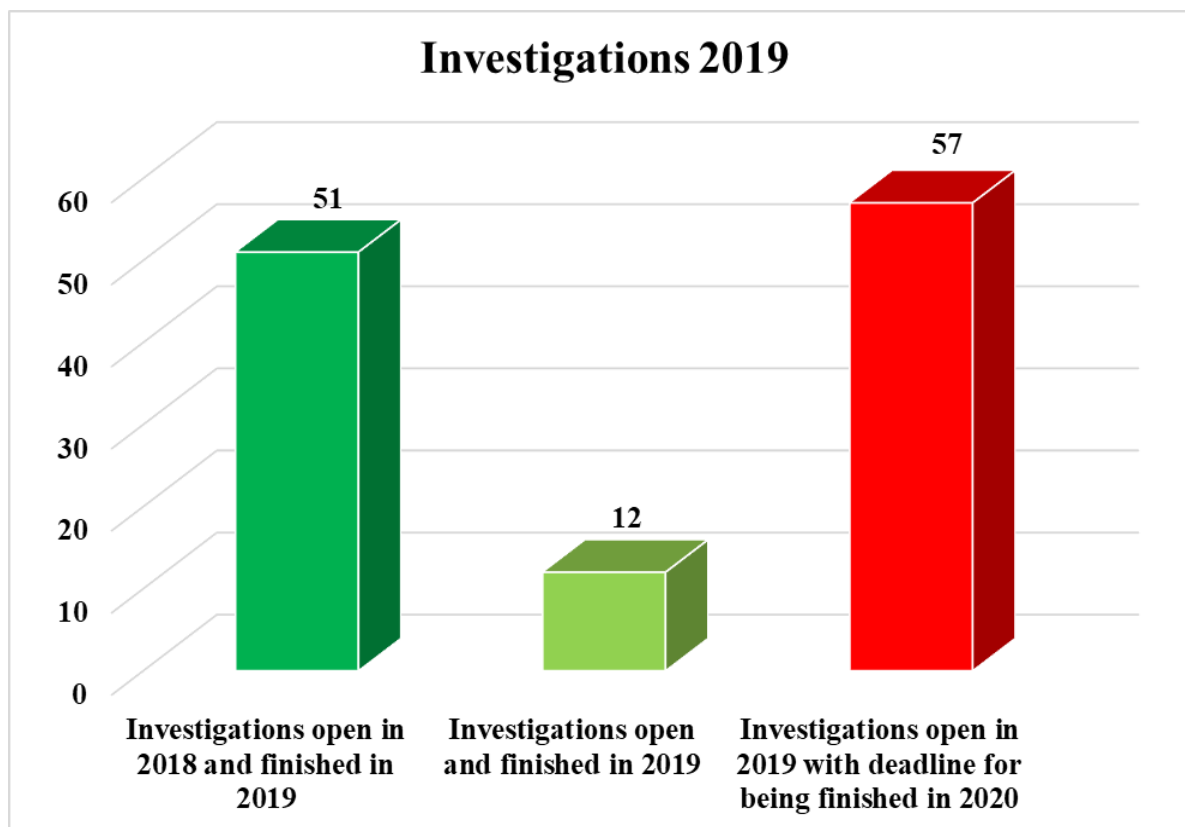
The final form of the investigation report is submitted to the management of Romanian Railway Investigation Agency - AGIFER for the endorsement and publishing on its site

2.1. Occurrences investigated

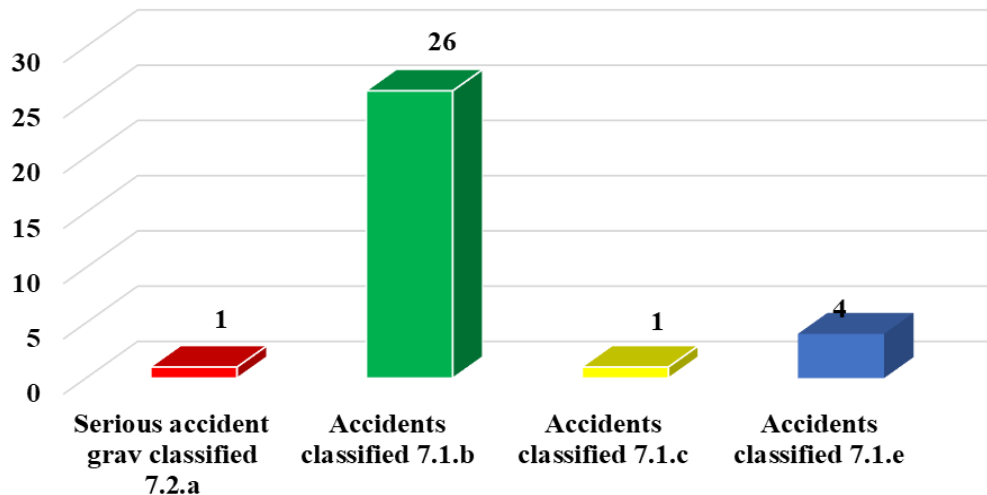
In 2019, AGIFER staff investigated **120** accidents/incidents, according to the provisions of *Law no.55/2006 for the railway safety*, amended by the *Emergency Ordinance no. 73/2019* and of the *Regulation for the investigation of accidents and incidents, for the development and improvement of Romanian railway and metro safety*, approved by the *Government Decision 117/2010* – hereinafter referred to as *Investigation Regulation*. From those **120** investigations, **51** were opened in 2018, and the other ones of **69** were opened in 2019.

In 2019, one also finished and closed **63** investigations, respectively:

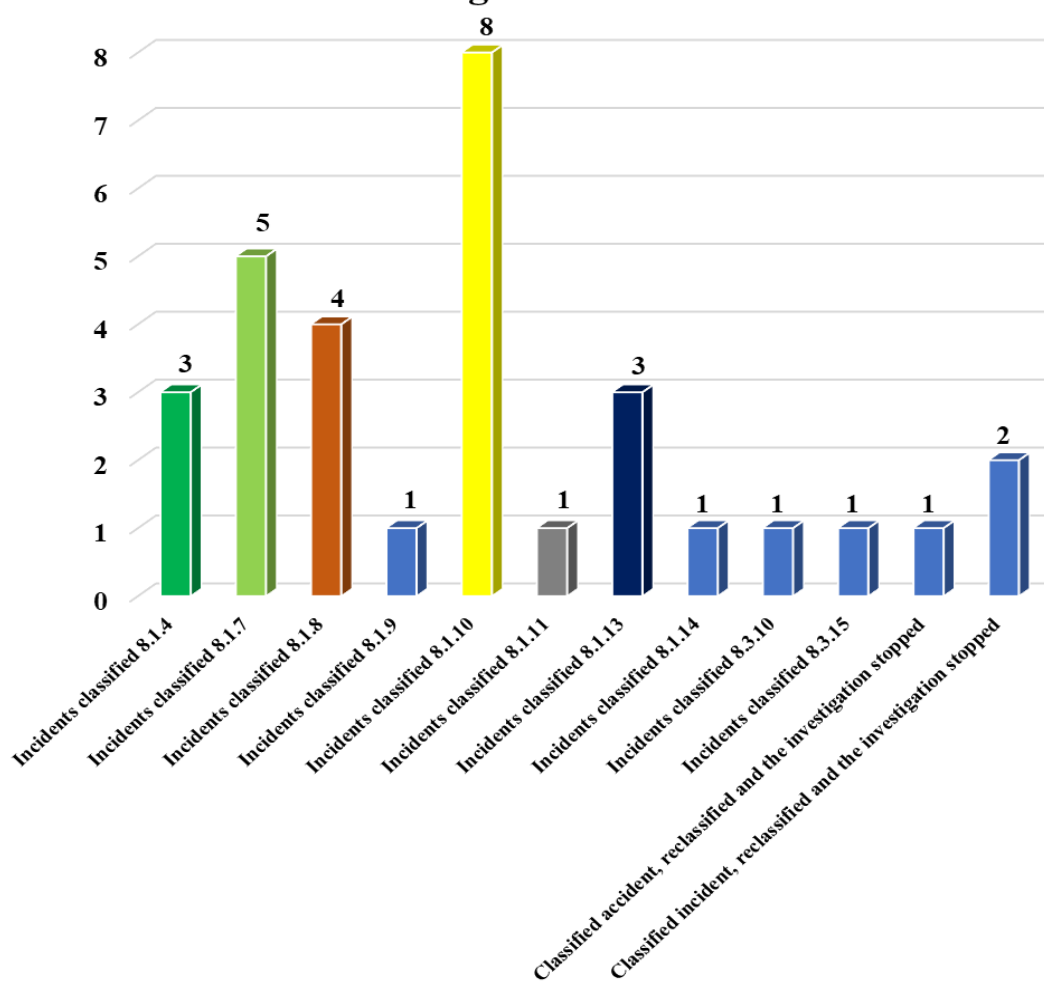
- **32 railway accidents, from which one serious accident;**
- **31 railway incidents, from which:**
 - one case classified initially according to the provisions of art. 7.1, letter b) from the *Investigation Regulation*, for which Romanian Railway Investigation Agency appointed an investigation commission, that, following the investigation, considers that it can not be classified as railway accident according to the provisions of the *Investigation Regulation*;
 - 25 cases classified according to the provisions of art.8.1 group A from the *Investigation Regulation*, for which Romanian Railway Investigation Agency ensured the investigator in charge
 - 1 case classified according to the provisions of art.8.2 group B from the *Investigation Regulation*, for which AGIFER General Manager decided to start investigation and appointed the members of the investigation commission, that, following the investigation, considered that it could not be classified as railway incident according to the provisions of the *Investigation Regulation*;
 - 3 cases classified according to the provisions of art.8.3 group C from the *Investigation Regulations*, for which AGIFER General Manager decided to start investigation and he appointed the members of the investigation commission. One of these 3 cases was re-classified, following the investigation, according to the provisions of art. 8.1, group A of *Investigation Regulation*;
 - 1 case classified according to the provisions of art. 9 from the *Investigation Regulation*, for which AGIFER General Manager decided to start an investigation and appointed the members of the investigation commission.



Accident investigations finalised in 2019



Incident investigations finalised in 2019



2.2. Situation of the investigations open/completed in the last 5 years

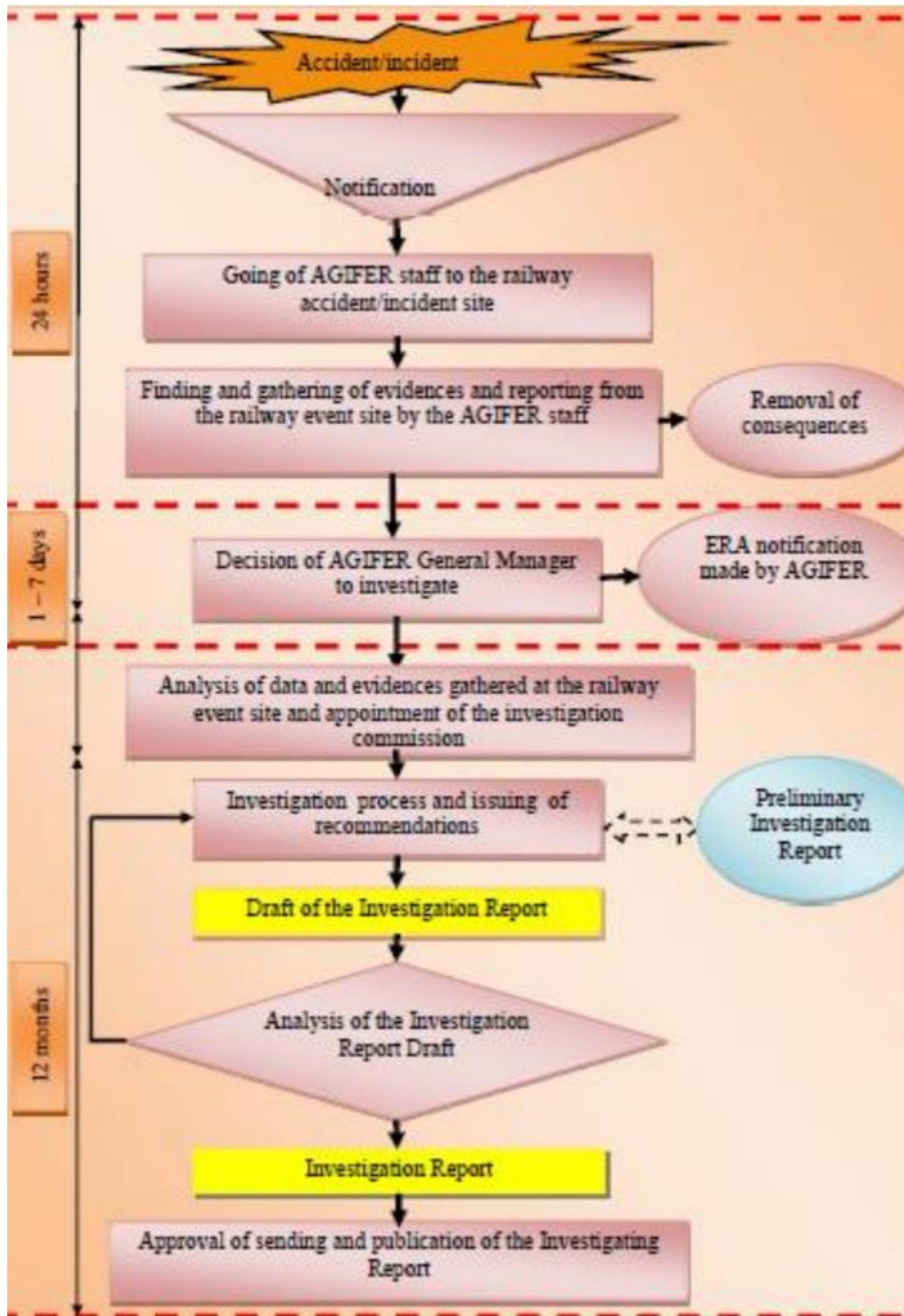
	Number of the investigations open			Number of the investigations completed		
	Accidents	Incidents	TOTAL	Accidents	Incidents	TOTAL
2015	23	29	52	21	27	48
2016	29	17	46	23	14	37
2017	28	13	41	31	17	48
2018	32	26	58	25	12	37
2019	45	24	69	32	31	63

2.3. Institutions involved in the investigation (currently or exceptionally)

From its setting up until now, during the investigations, Romanian Railway Investigation Agency - AGIFER cooperated with the authorities in charge with the legal inquiry, as well as with other authorities with responsibilities of intervention at the accident/incident site.

According to the provisions of the Law no. 55/2006 concerning the railway safety, amended by the Emergency Ordinance no.73/2019, in the investigations, Romanian Railway Investigating Agency – AGIFER can use, if necessary, specialists from related fields. During 2019 there was no case of appointment of specialists outside AGIFER within the commissions for the investigation of the railway accidents

2.4. Diagram of the investigation process



3. INVESTIGATIONS

3.1. Overview of the investigations completed in 2019 as against to 2018, identification of the main trends

Type of the accidents investigated in 2019 ⁽¹⁾	Number of accidents	Number of victims		Damages (lei)	Damages (€)	Tendency of the accident number, as against to 2018 (difference between the number of cases and percentage)
		Deaths	Seriously injured			
Trains collisions	0	-	-	-	-	-0 (0%)
Trains derailments	27	-	-	21.688.181,65	4.602.944,86	+5 (+23%)
Road vehicles hit at the level crossings	1	-	1	10319,7	6099,31	+1 (+100%)
Fires in the rolling stock	4	-	-	803.148,80	169.437,23 €	+1 (33%)
Total	32	-	1	22.501.650,15	4.778.481,40 €	+7 (+28%)

⁽¹⁾ one took into account the year of the investigation completion

3.2. Investigations completed and started in 2019

In 2019 Romanian Railway Investigation Agency (AGIFER) completed and closed 63 investigations (from which 51 were investigations open in 2018) and started the investigation in 57 cases for which the investigations open in 2019 are going to finished in 2020.

In the table below there are presented the investigations and their legal basis, considering the requirements of European Directive for the railway safety and of the national legislation

Investigations completed in 2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
1	15.01.2018	In the railway county Iași, track section Suceava - Dărmănești (electrified double-track line), in Suceava railway station , the both pantographs of the locomotive EC126, hauling the passenger train Regio nr.5454 (got by the railway undertaking SNTFC „CFR Călători” SA) broke and the contact line disconnected. Through further disposal, the investigation was expended to another two similar cases, happened in the same railway county, in the running of the trains got by the same railway undertaking, given the repeatability, as follows: - between Molid and Frasin railway stations,	i	14.01.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		km.49+500, the pantograph no. 2 from the locomotive EA305, hauling the passenger train IR no.1654 and some brackets for the overhead contact line support broke; - in Pojorâta railway station , the pantograph of the locomotive EA078, hauling the passenger train IR no.1766 broke and the contact line afferent to the lines 2 – 4 was affected.		
2	01.02.2018	In the railway county Craiova, on the running single-track line, between Valea Albă and Drobeta Turnu Severin Mărfur railway stations i, 5 wagons of the freight train no.80592-1, got by the railway undertaking SC Grup Feroviar Român, derailed (one of them overturned).	i	30.01.2019
3	13.02.2018	In the railway county București, track section București Sud-Berceni (electrified single-track line), between București Sud-Berceni railway stations , km 37+489, in the running of the freight train no.86102 (got by the railway freight undertaking SNTFM „CFR Marfă” SA), the second bogie of the 14th wagon (the last but one of the train) derailed in the running direction	i	12.02.2019
4	05.03.2018	In the railway county Brașov, in Sfântu Gheorghe railway station , in the running of the freight train no.99866 (got by the railway undertaking SC Rail Force SRL), the second bogie of the hauling locomotive and the first bogie of the first wagon of the train derailed, in the running direction.	i	04.03.2019
5	15.03.2018	In the railway county Cluj, track section Sighetu Marmăției – Salva, nonelectrified single-track line, in Dealul Ștefăniței railway station , in the running of the freight train no.42564, got by the railway undertaking SNTFM „CFR Marfă” SA, the first bogie of a wagon, loaded with wooden material, being the 27th of the train, derailed.	i	12.03.2019
6	18.03.2018	In the railway county Constanța, non-interoperable track section Palas – Năvodari, between Palas and Constanța Mărfuri railway stations , nonelectrified double-track line, km 1+175, in the running of the freight train no.89965 (got by the railway undertaking Tehnotrans Feroviar SA), the last two wagons of the train derailed, the last one overturned.	i	11.03.2019
7	20.03.2018	In the railway county Craiova, track section Turceni – Drăgotești (electrified line), in Turceni railway station , km.14+300, in the running of the freight train no.23633, got by the railway	i	12.03.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		undertaking SNTFM „CFR Marfă” SA, two wagons derailed (the 4th and the 5th ones)		
8	30.03.2018	In the railway county Timișoara, in Domașnea Cornea railway station , the power supply box from the switch no.3/9 was hit by the locomotive EA 637, that hauled the passenger train no.1692 (got by SNTFC CFR Călători SA).	iii	28.03.2019
9	02.04.2018	In the railway county București, in Videle railway station , in the running of the freight train no.21716-1, got by the railway undertaking SNTFM „CFR Marfă” SA, all the axles of the locomotive EA 875 and the first bogie of the first wagon derailed, on the switch no.21.	i	01.04.2019
10	04.04.2018	In the railway county Brașov, track section Brașov-Sighișoara (electrified double-track line), between Racoș and Rupea railway stations , track I , km 232+960, in the running of the freight train no. 80311 (got by the railway undertaking SC Grup Feroviar Român SA), the bogie no. 1 from the 33rd wagon of the train derailed in the running direction.	i	02.04.2019
11	08.04.2018	In the railway county Craiova, on the running line Vârciorova - Gura Văii , km.366+100, the plough of the locomotive of the passenger train regio no.9508 (got by SNTFC „CFR Călători” SA) hit a cable hoist come from the wagons for the car transport, being in the track gauge.	iii	27.03.2019
12	16.04.2018	In the railway county Craiova, in Târgu Jiu railway station , the locomotive EC 057 (got by SNTFC „CFR Călători” SA), stopped on the line II, ran away, passing by the route signal YIIP in stop position, it being on “red” position.	iii	23.03.2019
13	19.04.2018	In the railway county Timișoara, in Păuliș railway station , the locomotive of the freight train no. 90966, got by the railway undertaking SC RailForce SRL, passed the entry signal X in the stop position, followed by the forcing open of the first switch, met along the route.	iii	28.03.2019
14	25.04.2018	In the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station , group A, when the freight train no. 42695-2 (got by the railway undertaking SNTFM „CFR Marfă” SA) passed over the switch no.15A, the first bogie of the wagon no. 31530670031-3 (the 5th one after the locomotive), derailed in the train running direction.	i	05.04.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
15	20.04.2018	In the railway county Galați, in Săhăteni railway station , the first door of the 4th wagon from the locomotive, of the freight train no. 50436, train got by the railway undertaking SC UNICOM TRANZIT SA., hit the pole SBC 45.	iii	07.03.2019
16	26.04.2018	In the railway county Timișoara, in Aradul Nou railway station , the passenger train no..16172, got by the railway undertaking SC „Regio Călători” SRL, passed the entry signal XZ in stop position.	iii	18.04.2019
17	04.05.2018	In the activity area of TMB „METROREX” SA București, track section Berceni–Pipera M2 (electrified double-track line), between the subway stations Piața Romană Pipera , a part detached from the train TEM 1317-2317 hit the infrastructure elements.	iii	04.04.2019
18	08.05.2018	In the railway county Timișoara, in the running of the freight train no.80432-1, got by the railway freight undertaking GRUP FERROVIAR ROMÂN SA, when it entered the line 8 of Simeria railway station , the second bogie from the 20th wagon, in the running direction, and the first bogie of 21st wagon derailed	i	06.05.2019
19	23.05.2018	In the railway county Constanța, in Valu lui Traian railway station , in the running of the freight train no.80506-1, the first axle of the 9th wagon derailed in the running direction.	i	15.05.2019
20	24.05.2018	In the railway county Brașov, in Predeal railway station , during the shunting of a set of 9 wagons with the locomotive EA 386, got by the railway freight undertaking SC Unicom Tranzit SA, these vehicles ran away from the line no.2 of the railway station Predeal and entered the track II of the railway station Azuga.	i	20.05.2019
21	05.06.2018	In the railway county Brașov, track section Bartolomeu - Zărnești (nonelectrified single-track line), managed by the railway infrastructure manager SC RC-CF TRANS SRL Brașov, km.9+800, between Bartolomeu and Cristian railway stations , a fire burst into the diesel multiple unit AMX no.557 , that had been operating as passenger train no. 16331, got by the railway undertaking SC Regio Călători SRL Brașov.	i	30.05.2019
22	06.06.2018	In the railway county Cluj, track section Dej Călători - Beclean pe Someș, electrified double-track line, in Dej Triaj railway station , Group A, when the freight train no. 41722, got by the railway undertaking SNTFM „CFR Marfă” SA	i	04.06.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		passed over the first joint of the switch no.21A,the second bogie of the 28th wagon of the train derailed.		
23	14.06.2018	In the railway county Craiova, at the entry in Craiova railway station , in the running of the freight train no.60524, got by the railway freight undertaking SC TIM RAIL CARGO SRL, a wagon loaded derailed, being the 15th one of the train.	i	13.06.2019
24	20.06.2018	In the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station , Group A, when the freight train no. 42695 (got by the railway undertaking SNTFM „CFR Marfă” SA), hauled by the locomotive DA 970, passed over the switch no.15A, the first bogie of the wagon no.31530670031-3 (the 3rd wagon after the locomotive) derailed in the running direction.	i	06.06.2019
25	23.06.2018	In the railway county Craiova, track section Filiași – Târgu Jiu, in Turceni railway station , when, , on the stabling of the freight train no. 23642 (got by the railway undertaking SNTFM „CFR Marfă” SA), three wagons derailed.	i	13.06.2019
26	30.06.2018	In the railway county Craiova, in Roșiori Nord railway station , four wagons of the freight train no.60250 (got by the railway undertaking SC LTE -Rail România SRL), derailed over the switch no.16 of the railway station.	i	27.06.2019
27	16.07.2018	In the railway county Craiova, in the railway station Drobeta Turnu Severin, the freight train no. 89306, got by the railway undertaking SC GRUP FERROVIAR ROMÂN SA, began to run from the line no.7 on a route established for the freight train no.89300, parked on the line no.8, followed by the forcing open of the switch no.277.	iii	23.03.2019
28	23.07.2018	In the activity of SC TMB „METROREX” SA București, track section Berceni–Pipera M2 (electrified double-track line), in Aviatorilor metro station , a part detached from the train TEM 1320 hit the infrastructure elements.	iii	04.04.2019
29	05.08.2018	In the railway county Cluj, in Aleșd railway station , when the freight train no. 32101 was dispatched (train got by the railway undertaking SNTFM „CFR Marfă” SA), all axles of the first wagon and the axles of the first bogie of the second wagon derailed over the switch no. 46.	i	18.06.2019
30	09.08.2018	In the railway county Cluj, track section Sărățel - Deda (electrified single-track line), between	i	05.08.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		Monor Gledin and Deda railway stations , in the running of the freight train no.80609-2, got by the railway freight undertaking Grup Feroviar Român SA, it exceeded the speed accepted by the line, imposed by the speed restrictions existing between those two stations.		
31	12.08.2018	In the railway county Craiova, track section Caracal-Craiova, on the running line, track I, between Malu Mare - Banu Mărăcine railway stations , on the viaduct Cârcea from km 200+306, in the running of the freight train no.80315 (got by the railway freight undertaking SC GRUP FEROVIA ROMÂN SA), the hauling locomotive series BB 25200 no.208 and the first 10 wagons of the train derailed, generating the fall of the metallic bridge deck of the first viaduct span and 7 wagons (the wagons from the 2nd to the 8th from the locomotive).	i	08.08.2019
32	25.08.2018	In the railway county București, track section Ploiești Sud – Buzău (electrified double-track line), between Ploiești Est and Valea Călugărească railway stations , a fire burst into the locomotive EA 833, hauling the freight train no.83355, got by the railway undertaking SNTFM „CFR Marfă” SA	i	20.08.2019
33	09.09.2018	In the railway county Iași, track section Tecuci – Iași (nonelectrified line), in Bârlad railway station , the passenger train IR no.1661, got by the railway undertaking SNTFC „CFR Călători” SA, did not stop in the station in front of the platform and passed the exit signal X II in stop position, it having the position „ <i>Stop without passing the signal in stop position</i> ”.	i	04.09.2019
34	11.09.2018	In the railway county Timișoara, in Glogovăț railway station , in the running of the freight train no.46841-2, got by the railway undertaking Deutsche Bahn Cargo România, the switch no. 1 was forced open.	i	14.08.2019
35	21.09.2018	In the railway county București, track section Chitila-Chiajna (electrified double-track line), km 1+200, between Chitila and Industrial Branch Rudeni railway stations , in the running of the freight no.30610-1, got by the railway undertaking SC Deutsche Bahn Cargo România SRL, the first axle of the locomotive EA 2002 and the wagon no.31804726021-7 (first after the locomotive) derailed.	i	12.09.2019
36	27.09.2018	In the railway county Cluj, track section Dej	i	25.09.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station , on the entry route to the track 7A, in the area of switch no. 37, in the running of the freight train no. 42695, got by the railway undertaking SNTFM „CFR Marfă” SA, the first bogie of an empty wagon, the 13th one of the train, derailed .		
37	01.10.2018	In the railway county Craiova, in Mihăiești railway station , end X, the exit route of the passenger train no. 9006, got by the railway undertaking SNTFC ”CFR Călători” SA, to the railway station Măldăeni, was wrong set.	i	14.08.2019
38	04.10.2018	In the railway county Craiova, in Ploșoru railway station , the exit route of the passenger train Regio no.2855, got by the railway undertaking SNTFC ”CFR Călători” SA, to the railway station Rovinari, was wrong set.	i	14.08.2019
39	07.11.2018	In the railway county Craiova, in Roșiori Nord railway station , a wagon of the passenger train no. 1597 (got by the railway undertaking SNTFC ”CFR Călători” SA) derailed on the switch no. 31 of the station.	i	04.11.2019
40	12.11.2018	In the railway county Timișoara, in Bănița railway station , the freight train no.30562 (got by the railway freight undertaking SC Deutsche Bahn Cargo România SRL), hauled by locomotive EA – 1077 passed the exit light signal YIII in stop position, having red position, forcing open the switch no. 1A.	iii	12.11.2019
41	11.11.2018	In the railway county Timișoara, interoperable track section Deva - Radna, electrified double-track line, on the track II, between Ilteu and Zam railway stations , km 528+560, in the running of the freight train no.70926, got by the railway undertaking MMV Rail România, the first bogie, in the train running direction, (axles 3 and 4) from the wagon no.31817853504-7 derailed, following the fall of 4 brake shoes and their keys.	i	18.06.2019
42	16.11.2018	In the railway county Brașov, track section Brașov - Sighișoara (electrified double-track line), km 267+154, between Beia and Mureni railway stations , on the track I, in the running of the breakdown train no.38321 , got by the public railway infrastructure administrator CNCF „CFR” SA, the first two axles of the bogie no. 1 from the crane EDK 1000/1 of 125 t, first bogie in the running direction, derailed.	i	04.11.2019
43	18.11.2018	In the railway county Brașov, track section Deda –	i	14.11.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		Războieni (nonelectrified single-track line) km.268+900, between Dumbrăvioara and Târgu Mureș Nord railway stations, in the running of the passenger train Regio no.4511, got by the railway passenger undertaking SNTFC „CFR Călători” SA, a fire burst into the hauling locomotive, type diesel electric no.92 53 0 620759-6.		
44	23.11.2018	In the railway county Iași, track section Suceava – Bacău, track II, between Itești and Bacău railway stations , km 309+627, in the running of the freight train no. 61716, got by the railway freight undertaking SNTFM „CFR Marfă” SA, the first bogie of the 34th wagon of the train derailed	i	21.11.2019
45	30.11.2018	In the railway county Constanța, track section București Nord – Ciulnița (electrified double-track line), in Dragoș Vodă railway station , between km 95+680 and km 95+750, the brake-rod adjuster type RL2-350 from the axle no 4 of the locomotive EA 122, being in the composition of the passenger train no.1583, got by the railway undertaking SNTFC „CFR Călători” SA, hit components of the switches no.1, 7 and 13.	iii	03.10.2019
46	05.12.2018	In the railway county Timișoara, in Glogovăț railway station , the exit route for the passenger train no.2028 (got by the railway undertaking SNTFC „CFR Călători” SA) was wrong set.	iii	19.11.2019
47	11.12.2018	In the railway county Galați, in Vădeni railway station , when the passenger train no. 1573, got by the railway undertaking SNTFC „CFR Călători” SA, was received upon calling signal to the line 4, it was routed to the line 5 occupied by the train no.1772, got by the same railway undertaking.	i	24.09.2019
48	18.12.2018	In the railway county Timișoara, between Utvinișu Nou and Sântana railway stations , at the passing over the level crossing provided with manually operated barrier, from km.12+547, in the running of the freight train no.L79706 (got by the railway undertaking SC Grup Feroviar Român SA), a minibus was surprised and damaged, the driver of the minibus being injured.	i	06.07.2019
49	22.12.2018	In the railway county Timișoara, running line Grădinari Caraș – Berzovia, nonelectrified single-track line, between Doclin and Tirol railway stations , km.13+325, in the running of the freight train no.69498S, got by the railway undertaking SC Tim Rail Cargo SRL, the last 4 wagons of the train derailed.	i	22.02.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
50	23.12.2018	In the railway county Timișoara, track section Livezeni - Subcetate, track I, between the railway stations Băiești and Subcetate , km 34+993, in the running of the passenger train no.1821, got by the railway passenger undertaking SNTFC „CFR Călători” SA, the last 3 cars of the train derailed.	i	13.11.2019
51	26.12.2018	In the railway county Cluj, between Râpa de Jos and Monor Gledin railway stations , km 36+727, in the running of the freight train no.44505, got by the railway undertaking SNTFM „CFR Marfă” SA, the first axle of the locomotive EA 563 derailed in the train running direction.	i	19.12.2019
52	29.12.2018	In the railway county Constanța, in Fetești railway station , in the running of the freight train no.87937, got by the railway freight undertaking SNTFM „CFR Marfă” SA, consisting in the locomotive EA 125 and the locomotive EC 816 (dead one), during its running on the entry route from Movila to the line 1 of the railway station, when it passed over the switch no. 99 set on diverging track (right deviation), the first axle of the first bogie from the locomotive EA 816 derailed in the running direction.	i	05.12.2019
53	04.01.2019	In the railway county Craiova, in Vlădueni railway station , the freight train no.51703 (got by the railway undertaking SNTFM „CFR Marfă” SA) passed by the shunting limit signal from the direct line II and forced open the switch no.4.	iii	12.12.2019
54	10.01.2019	In the railway county Constanța, track section București Nord – Constanța (electrified double-track line), in Cernavodă Pod railway station , on the direct line IV, a fire burst into the locomotive DA 727, hauling the freight train no.80680, got by the railway freight undertaking SC Grup Feroviar Român SA.	i	13.12.2019
55	08.01.2019	In the railway county Timișoara, track section Caransebeș-Lugoj (electrified single-track line), in Lugoj railway station , at the level crossing from km 517+580, in the running of the passenger train no.1699 (got by the railway passenger undertaking SC SNTFC „CFR Călători” SA), the interlocking systems were operated irregularly, that can affect the railway safety.	i	05.12.2019
56	22.01.2019	In the railway county Timișoara, noninteroperable track section Berzovia – Reșița Nord (managed by RC - CF TRANS SRL), nonelectrified single-track line, in Vasiova railway station , in the running of the freight train no.69492 (got by the railway	iii	12.12.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
		undertaking SC Tim Rail Cargo SRL), the shunting limit signal from the direct line no.III was passed by and the switch no. 5 was forced.		
57	27.01.2019	In the railway county Braşov, track section Luduş – Măgheruş Şieu, line 420 (noninteroperable, nonelectrified single-track line), km 7+ 977, Luduş and Sărmăşel railway stations , in the running of the passenger train R 16300, got by the railway passenger undertaking SC REGIO CĂLĂTORI SRL Braşov, the 3rd bogie of the diesel multiple unit type AMX 1704 derailed in the running direction.	i	27.08.2019
58	03.02.2019	In the railway county Craiova , track section Filiaşi – Târgu Jiu (electrified double-track line), in Târgu Jiu railway station, the electric locomotive EC 053, got by SNTFC „CFR Călători” SA, stopped, coupled at the train and brake on the line no.II at the set of cars of the passenger train no.2092, started to run and passed the light signal YIIP in stop position with about 100 m, the signal having the position „a light unit red to the train– Stop without passing the signal in stop position!”, forcing open the switch no.41.	iii	12.12.2019
59	29.03.2019	In the activity of SC TMB „METROREX” S.A. Bucureşti, main line IV , in the metro stations Gara de Nord 2 and Basarab 2 , in the running of the metro train consisting in REM type IVA 034-072-130, the signals X1N from Gara de Nord 2 station and X1B from Basarab station 2 were passed in stop position, having the position a light red position meaning ”stop without passing the signal in stop position”.	iii	20.05.2019
60	05.04.2019	In the railway county Craiova, track section Strehaia – Drobeta Turnu Severin, electrified single-track line, in Drobeta Turnu Severin railway station , the freight train no. 60502, got by the railway undertaking SC TIM RAIL CARGO SRL, started to move from the line no.7, on a route set for the line 8, it leading to the forcing of the switch no.27.	iii	14.08.2019
61	16.05.2019	In the railway county Iaşi, in Holboca railway station , in the running of the train no.L79767, got by SC Grup Feroviar Roman SA, having order to pass on the direct line III, route made into the section block, with the entry and exit signals on free „Green”, the switch no. 4 was forced open, it being on site on „minus”, giving access to the diverging track II,.	i	23.10.2019

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of completion
62	24.06.2019	In the railway county Iași, in the running of the passenger train no.5731 (got by the railway undertaking SNTFC „CFR Călători” SA), the four axles of the locomotive EC 078 derailed, on the running line Dărmănești – Cacica , at the level crossing from km.4+925, this level crossing being covered with a thick level of alluviums brought on the access way following the heavy rains.	i	24.09.2019
63	08.08.2019	In the railway county Constanța, track section Fetești - Constanța (electrified double-track line), in Dorobanțu railway station , in the running of the train no.80528, got by the railway undertaking SC Grup Feroviar Român SA, the track inductor of 100/2000 Hz afferent to the signal X3, was hit by the axle journal tie bar from the axle journal no.6 of the wagon no.87537960759-6, the 16th one of the train.	iii	18.09.2019

(1) **Legal basis of the investigation:** i= According to the Safety Directive, ii= Upon the national legal basis (that covers the possible areas excluded by the art.2, paragraph 2 of the Safety Directive), iii= Optional – other criteria (National norms/regulations, to which the Safety Directive does not refer).

Investigations open in 2019 that have to be completed in 2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
1	19.01.2019	In the railway county Cluj, between Jibou and Mirșid railway stations , nonelectrified single-track line, the diesel multiple unit ADH no.1420, being in the composition of the passenger train no.4456, derailed.	i	16.01.2020
2	26.01.2019	In the activity of SC TMB „METROREX” SA București, in the underground Depot Berceni during the shunting of the rake of vehicles, consisting in the electric train TEM no.1322-2322 (being in operation) and its hauling locomotive LDH no .92 53 0 86-0100-7, from the over ground depot DSB to the underground one la DsB, during its movement by banking from the metro station Dimitrie Leonida to the underground depot DsB, the speed of the rake of vehicles raised uncontrolled, it leading to hard hit of the stop buffer from the line no.8, by the unit of the electric metro train S.TEM no.1322, followed by its derailment and the injury of a REM driver.	iii	23.01.2020
3	31.01.2019	In the railway county Cluj, on the running single-track line between Valea Vișeuului Leordina	i	22.01.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		railway stations , rocks from a rocky slope fell, it leading to the damage of the hauling locomotive, of the inactive locomotive and the derailment of the first two wagons of the train.		
4	01.02.2019	In the railway county Iași, on the running line I between Mircești and Muncel railway stations , in the running of the passenger train Regio no.5421 (got by the railway undertaking SNTFC „CFR Călători” SA), the right inductor from the hauling locomotive DA 1272 hit the impedance bond from the signal BL17, km.367 ⁺⁸⁵⁰ .	iii	29.01.2020
5	05.02.2019	In the railway county, track section between the railway stations Orșova – Caransebeș (electrified single-track line), in Toplet railway station , at km 398+710, on the line 3, on the route of the freight train no. 80676-1, got by the freight railway undertaking SC Grup Feroviar Român SA, the both axles of the second bogie from the wagon no. 31537912336-9 (the 7th from the train composition), derailed.	i	04.02.2020
6	10.02.2019	In the railway county Cluj, track section Sărățel-Deda (electrified single-track line), between Sărățel and Mărișelu railway stations , km 5+709, in the running of the passenger train Regio no.13642, got by the railway undertaking SNTFC „CFR Călători” SA, two axles (the 5th and the 6th ones, in the running direction) of the diesel multiple unit ADH nr.1421 derailed.	i	06.02.2020
7	02.03.2019	In the railway county Brașov, track section Brașov – Sighișoara (electrified double-track line), between Augustin and Racoș railway stations km 228+463, track I, in the running of the passenger train Regio no. 3501 (got by the railway undertaking SNTFC „CFR Călători” SA) all the axles of the first bogie from the locomotive EA 014, derailed, in the running direction of the locomotive (bogie no. 2).	i	02.03.2020
8	02.03.2019	In the railway county Timișoara, track section Radna - Ilia (electrified double-track line), in Săvârșin railway station , when the passenger train IR nr.74-1 (got by the railway undertaking SNTFC „CFR Călători” SA) was dispatched from the diverging track 1 to Vărădia, on the track I, the first axle of the first bogie from the locomotive EA 689 derailed in the running direction, and the wheels of the axles 2 and 3 of the same bogie climbed the check rail of the switch no.18 from the end Y of the railway station, km.546+200.	i	28.02.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
9	01.03.2019	In the railway county Iași, track section Dărmănești – Cacica (electrified single-track line), in Cacica railway station , an inductor of the locomotive EA 156, hauling the passenger train Regio no. 5739, got by the railway undertaking SNTFC „CFR Călători” SA, entered the structure clearance for the railway installations.	iii	20.02.2020
10	23.02.2019	In the railway county Cluj, distance Valea Vișeuului – Leordina , from km 2+980 to km 4+250, in the running of the passenger train no.4650, got by SNTFC „CFR Călători” SA, the maximum speed of 20 km/h established for the track section in the Sheet for the notification of the restrictions Cluj, decade 21 – 28 February 2019, was exceeded.	i	19.02.2020
11	08.03.2019	In the railway county Cluj, track section Salva – Vișeu de Jos (non-electrified single-track line), in Coșbuc railway station , km 10+700, in the running of the passenger train Regio no.4136 (got by the railway undertaking SNTFC „CFR Călători” SA), the first axle of the second bogie of the car no.50537131042-4 derailed.	i	05.03.2020
12	14.03.2019	In the railway county Timișoara, track section Ilia - Radna (electrified double-track line), in Zam railway station , end X, cross-over S9-S5, km.526+750, in the running of the freight train no.30684, got by the railway undertaking SC Deutsche Bahn Cargo Romania SRL, the first axle from 5 wagons type Hbbills, loaded with paper rolls, derailed in the running direction (the 10th, the 11th, the 13th, the 14th and the 17th ones in the composition of the train).	i	05.03.2020
13	23.03.2019	In the railway county Brașov, track section Brașov - Sighișoara (electrified double-track line), between Bod and Feldioara railway stations , on the track I, km 188+190, the last bogie of the wagon no.31812743581-2, the last but one of the freight train no.20285, got by the railway undertaking Rail Cargo Carrier – România SRL, derailed.	i	16.03.2020
14	29.03.2019	In the railway county Brașov, track section Brașov - Predeal (electrified double-track line), in Dârste railway station , end Y, cross over 4-8, the first bogie of the locomotive EA 268, hauling the passenger train no. 12392, got by the railway undertaking SNTFC „CFR Călători” SA, derailed in the running direction.	i	23.03.2020
15	06.04.2019	In the railway county Brașov, noninteroperable	i	03.04.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		track section Luduș - Măgheruș Șieu, (nonelectrified single-track line managed by SC RC-CF TRANS SRL Brașov), in Sângeorgiu Nou railway station , km.72+700, a fire burst into the diesel multiple unit AMX 1602, that composed the passenger train Regio no.16013 (got by the railway undertaking Regio Călători SRL Brașov).		
16	15.04.2019	In the railway county Craiova, in Pitești railway station , track section Craiova – Pitești, the entry route for the passenger train no.1894 (got by the railway undertaking SNTFC „CFR Călători” SA) was wrong set, on the line II, without meeting with the provisions of the specific regulations.	iii	09.04.2020
17	16.04.2019	In the railway county Timișoara, track section Ilia-Radna (electrified double-track line), in Milova railway station , on the direct line III, the exit signal X III was passed in stop position by the train no.70940-1 (got by the railway undertaking SC MMV Rail România), without meeting with the provisions of the specific regulations.	iii	09.04.2020
18	20.04.2019	In the railway county Constanța, track section Palas – Cap Midia (noninteroperable track section managed by SC Grup Feroviar Român SA), nonelectrified single-track line, between Năvodari and Constanța Mărfuri railway stations , km.17+600, the second bogie of the 4th wagon of the freight train no.89970, got by the railway undertaking SC Tehnotrans Feroviar SRL, derailed.	i	15.01.2020
19	21.04.2019	In the railway county Timișoara, track section Reșița Nord – Berzovia (noninteroperable track section managed by SC RC-CF TRANS SRL Brașov), nonelectrified single-track line, between Reșița Nord and Vasiova railway stations , km.57+400, all the axles of the last 2 wagons of the freight train no.69492-1, got by the railway undertaking SC Tim Rail Cargo SRL, derailed.	i	13.04.2020
20	28.04.2019	In the railway county Craiova, in Craiova railway station , the locomotive EA 028 (got by the railway undertaking SC „DB Schenker Rail” SRL), ran away from the line 9, passing the signal Y9 in stop position and forcing open the centralized switch nr.62.	iii	22.04.2020
21	07.05.2019	In the railway county Brașov, track section Brașov – Teiuș (electrified double-track line), in Valea Lungă railway station , a fire burst into the inactive locomotive DA 698, being in the composition of the freight train no.33901, got by	i	05.05.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		the railway undertaking SNTFM “CFR Marfă” SA.		
22	13.05.2019	In the railway county București, track section București – Ploiești (electrified double-track line), in Chitila railway station , when the freight train no.80964, got by the railway undertaking SC Tehnotrans Feroviar SRL, was stabled, the second bogie of the wagon no.84539305630-2, being the 14th one in the train composition, derailed in the running direction.	i	12.05.2020
23	26.05.2019	In the railway county Timișoara, track section Ilia – Radna (electrified double-track line), in Milova railway station , on the switch no.6, the last axle (in the running direction) of the locomotive EC, hauling the passenger train no.2046, got by the railway undertaking SNTFC „CFR Călători” SA, derailed.	i	14.04.2020
24	01.06.2019	In the railway county Timișoara, track section Reșița Nord – Berzovia (noninteroperable track section managed by SC RC-CF TRANS SRL), nonelectrified single-track line, between Reșița Nord and Vasiova railway stations , km 53+700, in the running of the passenger train Regio no.16104 (got by the railway undertaking SC Regio Călători SRL), consisting in the multiple units AMX 572-7 and AMX 546-1, the third bogie of the multiple unit AMX 572-7 derailed in the running direction.	i	28.05.2020
25	07.06.2019	In the railway county București, track section București Nord - Videle (electrified double-track line), in Bucureștii Noi railway station , government line, km 0+270, in the running of the freight train no.23052-1 (got by the railway undertaking SNTFM „CFR Marfă” SA), the second bogie of the wagon no.815366538305 (the 7th one from the locomotive) and the first axle of the wagon no.815366523125 (the 8th one from the locomotive) derailed in the running direction.	i	27.05.2020
26	23.06.2019	In the railway county Timișoara, track section Orșova - Lugoj, in Iablanița railway station , when the freight train no. 46481B-2 (got by the railway undertaking SC Deutsche Bahn Cargo Romania SRL), was stabled on the diverging track 1, the first axle of the second bogie from the 19th wagon, in the running direction, and one wheel of the second bogie from the 23rd wagon derailed.	i	17.06.2020
27	29.06.2019	In the railway county București, in București	i	26.06.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		Triaj railway station , on the switch no.23, the first axle from the locomotive EA 062, hauling the freight train no.83216-1 (got by the railway undertaking SNTFM „CFR Marfă” SA), derailed in the running direction.		
28	29.06.2019	In the railway county Timișoara, track section Orșova - Caransebeș, in Mehadia railway station , when the freight train no.50826 (got by the railway undertaking SC Express Forwarding SRL) was stabled on the diverging track 2, all axles of the hauling locomotive EA 080-4, the first bogie of the inactive locomotive DA 899-4, the first axle from the second bogie of the first wagon derailed in the running direction.	i	25.06.2020
29	30.06.2019	In the railway county Constanța, noninteroperable track section Palas – Năvodari, got by SC Grup Feroviar Român SA, km.1+175, between Palas and Constanța Mărfuri railway stations , in the running of the freight train no.89573, got by the railway undertaking SC Grup Feroviar Român SA, the first bogie from the hauling locomotive DA 1513 derailed in the running direction.	i	29.06.2020
30	08.07.2019	In the railway county Craiova, track section Videle – Roșiori (electrified double-track line), between Vârtoapele and Olteni railway stations , km 76+100, in the running of the freight train no.20919-2, hauled with the locomotive EC 121 (got by the railway undertaking SC Cargo Trans Vagon SA), it overtook and seriously hit the freight train no. 34393-2 (got by the railway undertaking SC Constantin Grup SRL), stopped at the entry signal Y of the Olteni railway station, leading to the derailment of three wagons of the freight train no.20919-2.	i	30.06.2020
31	09.07.2019	In the railway county Craiova, track section Roșiori Nord – Videle (electrified double-track line), between Olteni and Rădoiești railway stations , the speed restriction of 30 km/h, between km.76+650 and km.76+550, was not met by the train no.15931-1, running on the 9th July 2019 (got by the railway undertaking SC „SOFTTRANS” SRL).	iii	07.07.2020
32	31.07.2019	In the railway county Craiova, track section Roșiori de Vede - Zimnicea (nonelectrified single-track line), between Plosca and Alexandria railway stations , km 217+250, a fire burst at the bogie 2, from the locomotive DA 637, hauling the passenger train Regio no.9371 (got by the railway	i	30.07.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		undertaking SNTFC „CFR Călători” SA).		
33	07.08.2019	In the railway county București, track section Ploiești Vest-Câmpina, in Buda railway station , a fire burst into the chamber of the compressors of the locomotive EA 088, hauling the passenger train IR no.1636 (got by the railway undertaking SNTFC „CFR Călători” SA).	i	04.08.2020
34	14.08.2019	In the railway county Brașov, track section Brașov - Sighișoara (electrified double-track line), Bod the railway station , switch no.14, the first axle of the locomotive EA 1093, haling the freight train no.90920 (got by the railway undertaking SC Rail Force SRL Brașov), derailed.	i	04.08.2020
35	14.08.2019	In the railway county Constanța, on the track I, between Constanța Port B – Palas railway stations (electrified double-track line), km 2+000, a fire burst into the locomotive EA 047, hauling the freight train no.50792 (got by the railway undertaking SC EXPRESS FORWARDING SRL).	i	12.08.2020
36	19.08.2019	In the railway county Iași, during the shunting by hauling, from the industrial branch EGGER România of Dornești railway station , of a rake of wagons consisting in 25 wagons series Rils, loaded with OSB (got by the railway undertaking SNTFM „CFR Marfă” SA), the first bogie of the locomotive DA 1054 derailed on the railway bridge from km.0+522, and the first four wagons of the train derailed (in the running direction: both bogies of the first three wagons, the second one reclined at 45 grade, and one bogie from the fourth wagon).	iii	18.08.2020
37	27.08.2019	In the railway county Constanța, noninteroperable track section Palas – Năvodari, got by SC Grup Feroviar Român SA, km.1+175,5, between Palas and Constanța Mărfuri railway stations , in the running of the freight train no.89847 got by the railway undertaking SC Tehnotrans Feroviar SRL, consisting in the hauling locomotive DA 1647 and the inactive locomotive DA 1657, the axle no. 6 of the locomotive DA 1647 derailed in the running direction.	i	18.08.2020
38	30.08.2019	In the railway county Timișoara, track section Strehaia - Caransebeș, in Iablanța railway station , end Y, when the freight train no. 59426 (got by the railway undertaking SC UNICOM TRANZIT SA), hauled with the locomotive EA 089, entered the line 3, the first axle of the	i	28.08.2020

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		locomotive derailed, affecting the structure clearance of the direct line II, end Y.		
39	08.09.2019	In the railway county Craiova, track section Roşiori Nord - Videle, between Rădoieşti and Atârnaţi railway stations , at the level crossing equipped with automatic half-barriers - type BAT, km.90+610, in the running of the freight train no.20272-1, hauled by the locomotive ES 110, got by the railway undertaking Rail Cargo Carrier Romania SRL, a concrete slab of the level crossing was hit by the locomotive plough.	iii	06.08.2020
40	15.09.2019	In the railway county Braşov, track section Braşov - Sighişoara (electrified double-track line), in Bod railway station , switch no.14, the first bogie of the locomotive EA 386, hauling the freight train no.50418 (got by the railway undertaking SC Unicom Tranzit SA) derailed in the running direction.	i	Investigation in process
41	17.09.2019	In the railway county Bucureşti, in the running of the freight train no.93618-1, on track I running line Bucureşti - Vârteju , a fire burst into the hauling locomotive DA 1108 (got by the railway undertaking SNTFM „CFR Marfă” SA).	i	06.08.2020
42	22.09.2019	In the railway county Constanţa, noninteroperable track section Palas – Năvodari, got by SC Grup Feroviar Român SA, km.1+180, between Palas and Constanţa Mărfuri railway stations , in the running of the freight train no.89972 (got by the railway undertaking SC Tehnotrans Feroviar SRL), both bogies of the 31st wagon of the train derailed.	i	06.08.2020
43	25.09.2019	In the railway county Cluj, track section Războieni - Apahida (electrified double-track line), between Călăraşi Turda and Câmpia Turzii railway stations , track I, km.445+294, two electrical cables from the impedance bond were hit by a part detached from its fastening support from the locomotive of the train no.1838-1 (got by the railway undertaking SNTFC „CFR Călători” SA).	iii	24.08.2020
44	27.09.2019	In the railway county Cluj, track I between Oşorhei and Oradea Est railway stations -, km.645+000-651+300, the covers of the 13 track inductors were damaged by the suspension fork broken from the locomotive DA 926 of the train 83256 C (got by SNTFM CFR Marfă SA).	iii	24.08.2020
45	30.09.2019	In the railway county Craiova, running single-track line between Valea Albă and Drobeta	i	Investigation in process

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		Turnu Severin Marfuri railway stations , km.350+962, in the running of the freight train no.33321-2, got by the railway freight undertaking SNTFM „CFR Marfă” SA, consisting in 41 wagons type G, loaded with plastic bottles with mineral water, the 10th wagon from the locomotive derailed and overturned and both axles of the 11th and 12th wagons from the locomotive derailed.		
46	07.10.2019	In the railway county Braşov, track section Braşov - Sighişoara (electrified double-track line), in Sighişoara railway station , on the line no.5, the first axle of the locomotive EA 024 (got by the railway undertaking SC LTE – Rail România SRL) derailed, it running as a inactive one within the freight train no.50436 (got by the railway undertaking SC Unicom Tranzit SA).	i	Investigation in process
47	15.10.2019	In the railway county Craiova, track section Roşiori Nord - Caracal (electrified double-track line), between Roşiori Nord and Măldăeni railway stations , km.101+750, on the track II, the first bogie of the second wagon of the freight train no.23052-1 (got by the railway undertaking SNTFM „CFR Marfă” SA) derailed.	i	Investigation in process
48	17.10.2019	In the railway county Cluj, between Cluj-Napoca and Baci railway stations , km.503+070, on the track I, a fire burst into the locomotive DHC 561 hauling the passenger train no.144-1 (got by the railway undertaking SNTFC „CFR Călători” SA).	i	Investigation in process
49	27.10.2019	In the railway county Craiova, track section Craiova – Filiaşi (electrified double-track line), in Işalniţa railway station , on the diverging track 5, km 261+880, a fire burst into the locomotive EA 010, hauling the freight train no.50402 (got by the railway undertaking UNICOM TRANZIT SA).	i	Investigation in process
50	05.11.2019	In the railway county Craiova, track section Drobeta Turnu Severin - Strehaia, electrified single-track line, between Balota and Valea Albă railway stations , km.348+150, in the running of the freight train no.80352-1, got by the railway undertaking SC Grup Feroviar Român SA, the first bogie from the 24th wagon of the train derailed in the running direction.	i	Investigation in process
51	09.11.2019	In the railway county Craiova, in the railway station Caracal , the short control bar, of a control linear and the traction bar afferent to the point motor no.24 were damaged by the gear case of the locomotive DA 913, hauling the freight train no.	iii	Investigation in process

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
		23060-1 (got by SNTFM CFR Marfă SA).		
52	19.11.2019	In the railway county Timișoara, track section Radna - Ilia (electrified double-track line), in Bârzava railway station , on the switch no.7, in the running of the passenger train IR no.74-1 (got by the railway undertaking SNTFC „CFR Călători” SA), the first axle of the hauling locomotive EA 551 derailed in the running direction.	i	Investigation in process
53	26.11.2019	In the railway county Craiova, track section Roșiori Nord - Caracal (electrified double-track line), between Măldăeni and Mihăiești railway stations , on the track I, km.109+200, in the running of the passenger train IR no.1825 (got by the railway undertaking SNTFC „CFR Călători” SA), hauled by the locomotive EA 784, a fire burst into two wagons of the train (the 4th and the 5th ones),	i	Investigation in process
54	18.12.2019	In the railway county București, in Ploiești Triaj, railway station on the line 6A, end Y (electrified line), in the area of switches no.62-76/84 (direct line from the cross-over 62-76/84-70/64-86), in the running of the freight train no.30558-1 (got by the railway undertaking DEUTSCHE BAHN CARGO ROMANIA SRL) and of the passenger train no.5008 (got by the railway undertaking SNTFC „CFR Călători” SA), there was a collision between the hauling locomotives of the trains.	i	Investigation in process
55	20.12.2019	In the railway county Craiova, track section Drăgotești- Borăscu-Turceni, electrified single-track line, in the running of the freight train no.23644, got by the railway undertaking SNTFM „CFR Marfă” SA, when it left Drăgotești railway station , on the switch no.15, three wagons of the train derailed (both axles of the second bogie at the 20th wagon, all axles of the 21st one and both axles of the 22nd one derailed in the running direction).	i	Investigation in process
56	20.12.2019	In the railway county Craiova, track section Craiova - Drobeta Turnu Severin, electrified single-track line, in the running of the freight train no.93818 (got by the railway undertaking SNTFM „CFR Marfă” SA), between Drobeta Turnu Severin Mărfuri and Valea Albă railway stations , km 352+000, the both axles of the second bogie of the 9th wagon derailed in the running direction.	i	Investigation in process

No	Date of occurrence	Presentation	Legal basis of the investigation ⁽¹⁾	Date of finishing
57	22.12.2019	In the railway county Braşov, in Vinţu de Jos railway station , 5 wagons loaded ran away from the line no.9 (got by CER FERSPED SA), the switches no12 and no.14 being forced open	iii	Investigation in process

(1) **Legal basis of the investigation:** i= According to the Safety Directive, ii= Upon the national legal basis (that covers the possible areas excluded by the art.2, paragraph 2 of the Safety Directive), iii= Optional – other criteria (National norms/regulations, to which the Safety Directive does not refer).

3.3. Researches (or safety surveys) completed or ordered in 2019

Surveys ordered in 2018 and completed in 2019

Order date	Study name (classification type, localization)	Legal basis of the investigation ⁽¹⁾	Complementary data
24.07.2018	Report for the anti-running bar broken - METROUL Bucureşti - COD: C.G5REP010718, edition D, drafted by CAF Spain following the incidents happened on the 4th May 2018 and 23rd July 2018, in the activity of SC TMB „METROREX” SA Bucureşti.	iii	Completed 15.01.2019

(1) **Legal basis of the investigation:** i= According to the Safety Directive, ii= Upon the national legal basis (that covers the possible areas excluded by the art.2, paragraph 2 of the Safety Directive), iii= Optional – other criteria (National norms/regulations, to which the Safety Directive does not refer).

Surveys ordered in 2019 and completed in 2019

Order date	Study name (classification type, localization)	Legal basis of the investigation ⁽¹⁾	Complementary data
-	-	-	-

Surveys ordered in 2019 rested in working process

Order date	Study name (classification type, localization)	Legal basis of the investigation ⁽¹⁾	Complementary data
30.07.2019	Technical expertise of the rail found broken at the accident site occurred on the 23rd March 2019, in the railway county Braşov, track section Braşov – Sighişoara, line 300 (electrified double-track one), between the railway stations Bod and Feldioara, on the track I, km 188+190, in the running of the freight train no.20285, got by the railway undertaking SC Rail Cargo Carrier România, consisting in the derailment of the second bogie of the wagon no.31812743581-2, in the running direction.	i	Completed 07.02.2020

(1) **Legal basis of the investigation:** i= According to the Safety Directive, ii= Upon the national legal basis (that covers the possible areas excluded by the art.2, paragraph 2 of the Safety Directive), iii= Optional – other criteria (National norms/regulations, to which the Safety Directive does not refer).

3.4. Summary of the investigations completed and closed in 2019

In 2019 one completed and closed **63** investigations from which 51 were open in 2018, the rest of 12 being open in 2019.

Bellow, it is presented a synthetic situation of those 63 investigation reports completed and closed during 2019.

3.4.1. The railway incident happened on the 15th January 2018, at 05:05 o'clock, in the railway county Iaşi, track section Suceava - Dărmăneşti (electrified double-track line), in Suceava railway station, consisted in the breakage of both pantographs of the locomotive EC126, hauling the passenger train Regio nr.5454 (got by the railway undertaking SNTFC „CFR Călători” SA) and the accidental decoupling of the contact line.

By further disposal, the investigation was extended to other two similar cases, happened in the same railway county, in the running of two trains got by the same railway undertaking, for repeatability, as follows:

- between the railway stations Molid and Frasin, km.40+500, the pantograph no. 2 from the locomotive EA305, hauling the passenger train IR no.1654, and some brackets for the support of the contact line broke;
- in the railway station Pojorâta, the pantograph of the locomotive EA078, hauling the passenger train IR no.1766 broke and affected the contact line afferent to the lines 2 - 4.

The investigation report was completed on the 14th October 2019

Direct causes, contributing factors

Direct cause of the railway incident (EC126 from the passenger train R no.5454) was the detachment and lifting non-ordered of the pantograph from the driving cab B, a non-working one, and at its impact with the contact line generated changes of its geometry, it having consequences on the pantograph from the driving cab A which was working;

Contributing factors:

- breakage (sectioning) of the traction insulator of the cylinder for the operation of the non-working pantograph;

- old cracks existing in the insulator body, especially in the breakage section.

Underlying causes

Taking into account the schedule of the works at the pantographs and insulators from the Technical Specification code 3ST 5 – 2004, drafted by SC RL Braşov, one could identify the cracks existing at the traction insulator of the cylinder for the operation of the pantograph. The investigation commission considers that the works for the view of the exterior surface of the insulators during the inspection type Pth3 (and the next ones) and for the cleaning of the exterior surface of the insulators during the inspections type RT (and the next ones) were not performed and implicitly checked through:

- non-meeting completely of the content of the works, compulsory to be performed during the inspections type Pth3, RT and the next ones, stipulated in the Technical Specification code ST 5 – 2004, chapter 5 Work schedule, at the electric part point 2. Pantographs and insulators, page 9;

Root causes: none.

Safety recommendations

Taking into account the stipulations from the Chapter C.6.3. Analysis and conclusions on the incident occurrence, part concerning the failures at the locomotives EA305 and EA078 in the running of the passenger trains IR no.1654 and no.1766 from the night 16/17.01.2018, AGIFER recommends ASFR be sure that:

- 1) the product „pantograph type EP3” classified like railway critical product at the risk class 1B, whose failure generates the serious interruptions in the railway operation, if it will be used in the endowment of the locomotives that will be submitted to the modernization through repairs type RG or RK, be submitted to the technical homologation, upon on a reference technical documentation;
- 2) the railway public infrastructure manager CNCF „CFR” S.A. shall make an inventory of the electrified track sections on which the locomotives provided with the this pantographs EP3 can be accepted and shall notify this information to all interested factors.

3.4.2. The railway accident happened on the 1st February 2018, at 05:20 o'clock, in the railway county Craiova, on the running line between Valea Albă and Drobeta Turnu Severin railway stations, consisted in the derailment of 5 wagons of the freight train no. 80592-1, got by the railway freight undertaking SC GRUP FERROVIAR ROMÂN SA (GFR).

The investigation report was completed on the 30th January 2019.

Direct causes, contributing factors

The direct cause of the accident was the fall between the rails, within a curve with right deviation, in the train running direction, of the right wheel (wheel no.8) from the guiding axle of the wagon no. 83537951253-5, the 16th one of the freight train no.80592-1. It happened because, the composition of the track superstructure was unsuitable, allowing the radial movement of the ensemble rail-metallic plate on the wooden sleepers, leading to the increase of the gauge value over the tolerance limits accepted in operation.

Contributing factors:

- keeping in operation, at the derailment site (km 349+819), of some normal wooden sleepers whose technical condition imposed their replacement;
- non-supplying of the normal wooden sleepers, necessary for the performance of the infrastructure maintenance, in the track section for the track maintenance, in order to assure the train running in safety conditions.

Underlying causes

- violation of the provisions from art.14 of the *Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989*, concerning the tolerances accepted for the prescribed track gauge.

- violation of the provisions from the *Instruction for the use of testing and recording cars no.329/1995* concerning:
 - art.6.5 – drafting of the specifications containing the notes with the failures recorded following the measuring of the line, including for the lines with running speed of 30 km/h or less.
 - art.6.7 – schedule of the removal of the failures recorded by the testing and recording car;
- compliance with the deadlines for the failure removal.

Root causes

- non-application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life time of the lines in maintenance process”, part of the safety management system of the public infrastructure manager CNCF „CFR” SA, concerning the performance of the maintenance and periodical repairs at the lines.
- non-recording as danger of the failures from the track geometry identified following the checking of the track geometry with motorised car type TMC.
- non-recording as dangers of the failures level 3 and 4 identified following the checking of the track geometry with the testing and recording car, including for the areas with speed restrictions.

Safety recommendations

With reference to the accident happened on the 10th February 2018, in the running of the freight train no.80592-1, consisting in the derailment of the 16th wagon and the involving in the derailment of the next 4 wagons, one found that the derailment was generated by the unsuitable condition of some parts of the superstructure, affecting the track geometry.

Keeping in operation of a line with many parts out of service, following of:

- lack of human and material resources in accordance with the requirements generated by the technical conditions that the railway infrastructure has to meet with so the railway traffic be in normal safety conditions;
- long term postponement of the track maintenance, periodical repair/renewal;
- establishment of measures for the control of the railway accident/incident risks, through the obligation to the meet with the provisions of the practice codes, but without having the resources that allow the meeting with them.

they are points for improvement for the management, for their solving it is necessary the involvement of the public infrastructure manager.

In the process for the identification of the dangers and the assessment of the associated risks one found out that in the Register for the evidence of the own dangers, non-removal of the track failures level 3 and 4, recorded following the checking of the lines with the testing and recording car, is not registered like danger. Also, in the same register, the non-removal of the track geometry failures, identified following the checking of the line with the motorised car type TMC, is not registered like danger.

Taking into account the non-conformities about: technical condition of the railway infrastructure at the accident site, and those stipulated in the chapter. C.6.4. „Deficiencies and lacks found during the investigation, but without relevance for the conclusions on the derailment causes”, as well as the points for improvement, identified in the safety management system, Romanian Railway Investigation Agency-AGIFER addresses Romanian Railway Safety Authority-ASFR the next safety recommendation:

- 1) Analysis through surveillances of how CNCF „CFR” SA, like public infrastructure manager, ensures the conditions so the safety measures which it proposed for keeping under control the dangers and the associated risks, concerning the performance of the public infrastructure maintenance, be applicable.

Also, Romanian Railway Investigation Agency-AGIFER alerts the public infrastructure manager, about its obligation to do, as soon as possible, the re-assessment of the safety

measures , that were proposed in „Register for the evidence of the own dangers of CNCF CFR SA” concerning the infrastructure maintenance, so these can be completely applicable .
If these alerts are not taken into account, there will be an increase of the accident number on the railway network, the effect is already present.

3.4.3. The railway accident happened on the 13th February 2018, at about 13:45 o'clock, in the running of the freight train no.86102, got by the railway freight undertaking SNTFM „CFR Marfă” SA, in the railway county București, track section București Sud – Jilava, between București Sud and Berceni railway stations, km 37+489, consisted in the derailment of the second bogie of the wagon no.31535482244-9 (being the 14th one of the train).
The investigation report was completed on the 12th February 2019.

Direct causes, contributing factors

Direct cause of the accident was the climbing of the rail gauge by the guiding wheel from the wagon no. 31535482244-9 (situated on the right side in the train running direction), following the increase of the ratio between the guiding force and the load acting on this wheel, so exceeding the derailment stability limit.

The increase of the ratio between the guiding force and the load acting on the guiding wheel happened following the serious load transfer of the right wheel from the leading axle and the increase of the lateral force (guiding one) on this wheel.

Contributing factors:

Unsuitable technical condition of the track generated by the failures at the transversal level of the track in curve.

Underlying causes

- violation of the provisions of art.7.A.1. from „Instruction of norms and tolerances for the construction and maintenance of the track for lines with standard gauge no.314/1989”, concerning the values of the tolerances of the prescribed transversal level of a rail against the another one , in a straight line and in curve;
- violation of the provisions of art.7.A.4. concerning the keeping between the tolerances of the canting of the track twisting gradient;
- violation of the provisions of art.7.B.1. concerning the tolerances of the track plan position;
- violation of the provisions from point 4.1. from Chapter 4 „Norms of manpower and material consumption”, and „Instruction for the line maintenance no.300/1982” concerning the provision with the norm of manpower for the current manual maintenance.

Root causes

The root cause of the accident was the non-application of the provisions from the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life time of the lines in maintenance process”, part of the safety management system of CNCF „CFR” SA, concerning the sizing of the staff from the Line District no.5 Titan, with reference the works.

Additional remarks

On the distance between the km.37+395 and the km 38+000 the train speed increased from 15 km/h to 23 km/h, being infringed the speed restriction of 15km/h stipulated in the Bulletin for the Speed Restriction Notification BAR București, decade 11-20 February 2018.

At km.37+489, where the derailment happened, according to the data recorded by the locomotive equipment IVMS, the train speed was 16 km/h. This speed, taking into account that the that the measuring accuracy of the equipment IVMS from the locomotive DHC 419 that is of 3 km/h, cannot be interpreted like exceeding the speed restriction of 15 km/h.

Safety Recommendations

The railway accident happened on the track section București Sud – Jilava, on a curve, that were not in the record of the unit responsible with the infrastructure maintenance for this track section, and that had the cant of the exterior rail under that of the interior rail of the curve. At the derailment site, the value of the transversal level of the track, measured statically was -92 mm.

The derailment of the wagon of the freight train no.86102 happened following the unsuitable maintenance of the railway infrastructure.

During the investigation, it was found that the track superstructure maintenance was not made in accordance with the provisions of the practice codes (reference/associated documents of the procedures of the safety management system of CNCF „CFR” SA).

Non provision with the resources for the maintenance of the railway infrastructure in accordance with the requirements established by the railway system for the operation of the infrastructure in normal safety conditions, leads to the operation of the system in emergency mode, and the increase of the number of the derailments from one year to another.

Through the system for the risk management, the public infrastructure administrator drafted measures for keeping under control the derailment risks:

- compliance with the provisions from the practice codes concerning the removal of the track failures, at the deadlines established by these;
- performance of the works for the periodical repair of the track in accordance with the provisions of the practice codes and of the procedures from the SMS.

Non application by the public infrastructure administrator of the measures drafted by himself for keeping under control the risks associated to the derailments hazards, corroborated with the keeping in the operation of a railway infrastructure, whose geometry is unsuitable, created the conditions favourable for the derailment hazard.

Taking into account the factor that contributed to the accident occurrence, it being based on the underlying causes that are deviations from the practice codes, the investigation commission does not consider necessary to issue safety recommendations. However, the investigation commission alerts the infrastructure administrator CNCF „CFR” SA with reference to the need to perform, as soon as possible, some actions for the checking of the track geometry, for:

- the identification of the areas where, the values of the geometry elements of the line route in operation are not between the values of the tolerances for operation, accepted by the practice codes and the tracking of the safety measure application, that it established in the Record of the own hazards, for keeping under control the risks associated to the hazards identified and registered in this record;
- identification of the areas where the geometry of the track in operation does not meet with the designed route geometry and the performance of a risk analysis for these situations.

3.4.4. The railway accident happened in the running of the freight train no.99866, got by the railway undertaking SC Rail Force SRL Brașov, on the 5th March 2018, at about 18:15 o'clock, in the railway county Brasov, in Sfântu Gheorghe railway station, consisted in the derailment of the second bogie of the hauling locomotive and of the first bogie of the first wagon of the train. The investigation report was completed on the 4th March 2019.

Direct causes, contributing factors

The direct cause of the accident was the fall between the rails of the left wheels, the first two axles of the first wagon of the train no.99866 from the inner rail of the curve. It happened following the increase of the gauge value over the maximum accepted value, because the lateral displacement of the rail under the action of the dynamic forces transmitted to the track by the rolling stock in movement.

Contributing factors:

- keeping within the track of some unsuitable sleepers that were not ensuring the fastening of the rails and maintaining of the gauge between the tolerances of the accepted tolerances;
- the value of the exterior rail cant over the theoretical value of the cant;
- use of the line section between the switch no.2, end-one, and the entry signal YB (the accident site), for the shunting of some locomotives whose tonnage was not allowed on this area.

Underlying causes

Underlying causes of the accident was the violation of some provisions from the instructions and regulations in force:

- art.25, paragraphs (2) and (4) from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”, concerning the failures that impose the replacement of the wooden sleepers and not allowing within the track of the unsuitable sleepers;
- art.1, paragraph 14.1.c from „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989, concerning the fact that the gauge deviations, in operation, has to be uniformly connected with a change at most 2 mm/m;
- paper of Line Direction no.12/1/575/25.08.2008, concerning the prohibition of the running of the diesel-electric locomotives 060-DA on the line 318, between Sfântu Gheorghe – Brețcu railway stations, text mentioned in the working timetable of the freight trains in the railway county Brașov, valid from the 10th December 2017, for the years 2017/2018;
- part I, Chapter II, Section 6th, Art.26-29 from „Regulations for the train running and shunting of the railway vehicles”, concerning the control of the technical condition of the switches, lines and of the equipments for the traffic safety.

Root causes

None

Safety recommendations

None.

3.4.5. The railway accident happened on the 15th March 2018, at about 19:05 o'clock, in the railway county Cluj, track section Sighetu Marmăției – Salva, non-electrified single-track line, in Dealu Ștefăniței railway station, in the running of the freight train no.42564, got by the railway undertaking SNTFM „CFR Marfă” SA, consisted in the derailment of the first bogie of a wagon loaded with timber, being the 27th one of the train.

The investigation report was completed on the 12th March 2019.

Direct causes, contributing factors

The direct cause of the accident is the left wheels of the first bogie from the wagon no. 31535493968-0 , the 27th one of the train, in its running direction, hit and climbed over the check-rail of the built-up common crossing (left side in the running direction) of the switch no.7 from Dealu Ștefăniței railway station, the wheels that was running on the inner rail of the curve (the connection rail of the curved stock rail).

It happened following the increase, in dynamic conditions, of the gauge value, generated by the unsuitable condition of the wooden sleepers and favoured by the unsuitable technical condition of the wagon.

Contributing factors:

- unsuitable technical condition of the special wooden sleepers, that were not allowing the fastening of the coach screws for fixing the metallic plates and prevention of their movement along the sleepers, favouring in a such way the increase of the gauge value

over the maximum accepted value, under the action of the dynamic forces sent to the rails by the rolling stock wheels;

- fixing of the metallic parts on the sleepers, through the unsuitable fastening system;
- those two failures found out at the derailed bogie of the wagon no.315355493968-0 (the existing distortion at the stock of the upper centre casting, at the bolts for the fastening of the centre casting between the wheels no. 5, 7 and 8 and the serious wear of the polyamide plates) it leading to the difficult turn of this bogie under the wagon and implicitly, at higher guiding forces (horizontal ones) applied by the guiding wheel (wheel no.8) on the curved point of the switch no.7.

Underlying causes

- violation of the provisions of art.25, alin.(1), paragraphs (2) and (4) from the „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”, concerning the failures that impose the replacement of the wooden sleepers and the non-keeping of the unsuitable sleepers within the switches;
- violation of the technical specification for the switch type 40 system Vogege tg. 1/10, concerning the type and sizes of the parts used for the fastening of the metallic parts on the sleepers;
- violation of the provisions from the pct.4.1. of Chapter 4 „Norms of manpower and material consumption”, of „Instruction for the line maintenance no.300/1982” concerning the provision with the norm of manpower for the usual manual work maintenance.

Root causes

- non-application of all provisions from the operational procedures code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for whole life cycle of the lines in the maintenance process” (including the annexes), part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA, concerning:
 - coordination of the maintenance and periodical repairs of the lines;
 - provision of the materials and of the workforce necessary for the performance of the periodical maintenance and usual repair.
- non-identification like danger and non-keeping under control of the risks of operation of the unsuitable sleepers within the switches.
- non-identification like danger and non-keeping under control of the risks of the use of an unsuitable fastening system, for the fastening of the metallic parts on the sleepers at the switches;
- lack in the Instructions no.250/2005 – national norm for setting up of the way of technical inspection and maintenance of the wagons in operation – of some provisions concerning the case the wagons provided with bogies with coil spring side bearer, the body of the lower side bearer from both sides of the bogie comes in contact with the upper side of the bogie frame. It indicates that there are distortions at the wagon, or there are some wears at the centre casting, that lead to higher friction forces, making difficult the turn of the bogie under the wagon body.

These provisions missing, the above mentioned situation is not considered a failure, it is not checked in the wagon operation, during the performance of the technical inspections, and the wagons in a such situation are not withdrawn from traffic, for additional checking and establishment of the repairs necessary for the removal of the causes generating this failure.

- non-compliance by CNCFR „CFR”SA with all the requirements Q3 from the Regulations 1169/2010, missing some procedures and learning activities, design and application of some corrective or preventive measures, following the occurrence of an accident or incident.
- during the monitoring process, the indicators are defined properly, and for the mentioned indicators, those 5 activities specific to the monitoring process, regulated through the art. 3 (2) of the REGULATIONS (UE) NO.1078/ 2012, were not run.

Safety recommendations

The derailment of the wagon no.31535493968-0 of the freight train no.42564 (got by the railway undertaking SNTFM „CFR Marfă” SA), happened following the unsuitable maintenance of the railway infrastructure.

It was generated by the keeping within the switches the unsuitable special wooden sleepers, the use of an unsuitable fastening system of the metallic plates on sleepers, improper one and favoured by the unsuitable technical condition of the wagon (distortion existing at the stock of the upper centre casting at the fastening bolts of the centre casting between the wheels no. 5, 7 and 8 and by the serious wear of the polyamid plates from the same bogie).

During the investigation, the commission found out that the manager of the infrastructure administrator, at central and regional level, did not identify the solutions in order to dispose consequently, viable measures for supplying, sufficient quantities of materials necessary for the replacement of those ones unsuitable kept in operation, as well as for the provision of the workforce for the performance of the maintenance and periodical repair of the switches.

So, if the public railway infrastructure administrator should have completely applied the SMS procedures, as well as the provisions of the practice codes, part of the SMS, he had been able to prevent the accident occurrence.

Also, the investigation commission found out that, missing from the Instructions no.250/2005 of some provisions for the situation in which the wagons provided with bogies with coil spring side bearers, the body of the lower side bearers on both sides of the bogie come in contact the upper side of the bogie frame, be established like failure, made that during the performance of the technical inspections, the position of these side bearers not be checked, and the wagons in this situation not be identified and withdrawn from traffic, for additional checking and the schedule of the repairs necessary for the removal of the causes leading to this failure.

Taking into the issues presented, in order to reduce the risks of some similar railway accidents, the investigation commission recommends Romanian Railway Safety Authority – ASFR:

- 1) To ask public railway infrastructure administrator the revision of the part of safety management system regarding the monitoring and learning, following the occurrence of an accident or incident, as well as the revision of „Own register of dangers”.
- 2) To analyse the opportunity the change of the Instructions no.250/2005 – national norm for setting up of the way of technical inspection and maintenance of the wagons in operation, that is the introduction of some provisions concerning the case the wagons provided with bogies with coil springs side bearers, the body of the lower side bearers from both sides of the bogie comes in contact with the upper side of the bogie frame, it be established like failure and the wagons having a such failure be withdrawn from traffic for additional checking and schedule of repairs necessary for the removal of the causes leading to this failure.

3.4.6. The railway accident happened on the 18th March 2018, at 07:20 o'clock, in the railway county Constanța, non-interoperable track section Palas – Năvodari,, between Palas and Constanța Mărfuri railway stations, non-electrified double-track line, km 1+175, in the running of the freight train no.89965 (got by the railway undertaking Tehnotrans Feroviar SA), consisted in the derailment of the last two wagons of the train, the last one overturned.

The investigation report was completed on the 11th March 2019.

Direct causes, contributing factors

Direct cause of this accident was the guiding wheel from the wagon no. 33877916958-4 (on the right side in the running direction) climbed over the rail gauge of the exterior rail of the curve, following the increase of the ratio between the guiding force and the load acting on this wheel, exceeding in a such way the derailment stability limit.

The increase of the ratio between the guiding force and the load acting on the guiding wheel happened following the serious load transfer of the right wheel of the guiding force and the increase of the lateral force (guiding) on this wheel.

Contributing factors:

Unsuitable technical condition of the track generated by the failures at the gauge , transversal level and the track direction in curve.

Underlying causes

- violation of the provisions of art.1.14.1.c from „Instruction of norms and tolerances for the construction and maintenance of the track for lines with standard gauge no.314/1989”, concerning the „Deviations from the gauge, in operation has to be uniformly with a variation of at most 2 mm/m”;
- violation of the provisions of art.7.A.1. from „Instruction of norms and tolerances for the construction and maintenance of the track for lines with standard gauge no.314/1989”, concerning the compliance with the tolerances for the prescribed transversal level of a rail against the another one, both straight line and in curve;
- violation of the provisions of art.7.A.4. concerning the keeping between the tolerances of the of the twist gradient canting;
- violation of the provisions of art.7.B.1. concerning the tolerances of the straight line;
- violation of the provisions of point 4.1. from Chapter „Norms of manpower and material consumption”, of „Instruction for the maintenance of the lines no.300/1982” concerning the supplying of the manpower norm for the current manual work maintenance.
- violation of the provisions of the Sheets no.3 and 4 from the Instruction 305/1997 „concerning the setting of the terms and order for the performance of the track inspections” concerning the way to perform the track inspections.

Root causes

The root cause of the accident is the non-application of the provisions of the system procedure „clear definition of the tasks concerning the safety responsibilities and their entrusting to the staff with adequate competences, code PS-36, section 5.3. paragraph 2: „to use for the railway safety responsibilities only staff suitable from professional point of view and for which there are medical approvals and psychological , aptitude approvals, valid ones” part of the safety management system of S.C. Grup Feroviar Român SA, concerning the use of the non-authorized staff for the jobs district inspector and foreman ganger, in case of Line District Năvodari of S.C. Grup Feroviar Român SA.

Safety recommendations

Along the investigation, one found that the staff was not skilled in order to assure the maintenance of the railway infrastructure, undersized, as against the provisions of the Instruction for the line maintenance no.300/1982.

Consequently, following it SC GRUP FEROVIA ROMÂN S.A. cannot meet with the provisions of ”Instruction no.305– for the setting up of terms and order for the track inspections” edition 1977 concerning the compliance with the terms for the technical inspections of the track, because for the positions district inspector and foreman ganger, it has no authorized staff that run these jobs. When the accident happened, SC GRUP FEROVIA ROMÂN S.A. assured the track technical inspection with a lineman and 7 track inspectors. According to the provisions of the Instruction no.305/1997 the fortnightly inspection of the track is made by a commission consisting in the district inspector and the foreman ganger. Because the manager of the non-interoperable infrastructure has to assure the infrastructure maintenance (including the track technical inspection by walking) for those 87,078 km line extended and 175 switches, with a single district inspector (whose activity was assured by a lineman), it is sure that only one person could not cover on foot, twice per month (for the fortnightly inspections) this distance , coordinate and participate in the maintenance activities. Also, the analysis of the worker number highlighted that for the railway infrastructure

maintenance, this infrastructure manager has for the line district Năvodari (at the accident site) 13 workers as against 49 ones resulting from the sizing of the activity of this district. The investigation commission concludes that the non-provision of the staff number necessary for the maintenance of the railway infrastructure is a danger for the railway safety, the more so as the infrastructure manager did not identify solutions in order to remove the staff deficiency. We mention that this report is the 4th one in which AGIFER found and wrote down this issue. Taking into account the factors contributing the accident, factors that are based on underlying causes, that are deviations from the practice codes, as well as that the surveillance of the economic operators from the railway transport system is in charge of Romanian Railway Safety Authority – ASFR, the investigation commission recommends ASFR to analyze if the infrastructure manager SC Grup Feroviar Român SA is still meeting with the conditions for the issuing of the safety authorizations types A and B, for the non-interoperable track section Palas – Năvodari.

3.4.7. The railway accident happened, in the running of the freight train no.23633, got by the railway freight undertaking SNTFM „CFR Marfă” SA, on the 20th March.2018, at about 21:50 o'clock, in the railway county Craiova, track section Turceni - Drăgotești (electrified line), in Turceni railway station, km 14+300, consisted in the derailment of two wagons of the train (the 4th and the 5th one from the locomotive, in the running), and the first bogie of the wagon no. 815366507573 (the 5th one from the locomotive, in the running direction). The investigation report was completed on the 13th March 2019.

Direct causes, contributing factors

The direct cause of the accident was the left wheels of the first bogie from the 5th wagon left the running surface and fell between the curved stock rail and the right point, from the switch no. 24, being on "diverging track". This leaving of the running track happened following the appearance, in dynamic conditions, of some vertical displacements of the frame rail-sleeper and favoured by the unsuitable technical condition of the wagon.

Contributing factors:

- existence of wet spots at the switch no.24, these wet spots leading to the vertical displacements of the frame rail-sleeper of the switch itself;
- almost complete wear of the polyamide plate fitted between the lower centre casting and the upper one from the bogie corresponding to the wheels no.5÷8 (first in the train running direction) from the wagon no.81536650757-3 (the 5th one of the train), this wear led to the difficult turn of this bogie under the wagon and favoured the climbing over the curved point from the switch no.24 by the right wheels of this bogie.

Underlying causes

Violation of the provisions of art.15, points 16 and 17 from the „Instruction of norms and tolerances for the track construction and maintenance for lines with standard gauge no.314/1989”, concerning the measures taking for the removal of the water from the switches, respectively the non-acceptance in operation of the wet spots of the switches.

Root causes

Non-application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for whole life cycle of the lines in operation process”, part of the safety management system of the public infrastructure administrator CNCF „CFR” SA, concerning the performance of the line maintenance and repair.

Additional remarks

Putting in operation of the interlocking systems for the switches and signals in the operation activity is for the automation of the human operations necessary for the preparation and monitoring of the traffic and shunting routes, leading to the increase of the traffic safety in a railway station. The safety level of the automatic operations from the railway transport activity

is well above the safety level of the operations performed completely or partially by the human factor in the traffic, it having as features the accuracy of the orders and the performance time reduced against the human traditional way. If the equipment does not still comply with one of the requirements from R.E.T. (Regulation for Railway Technical Operations) concerning the general safety conditions, stipulated at art.82, the traffic safety level is transferred exclusively to the movements inspector. Following this cause, the functional requirements of the switch and signal interlocking system has to be met precisely as they were designed, the failure of the system being an exception during a period of time limited by the nature and the workload necessary for the intervention in order to resume the system work (and the compliance with the requirements from R.E.T.). In this situation, if it continues beyond the reasonable intervention norms for maintenance, it should that the emergency operation of the technical system that centralizes the commands of the switches and signals (that decreases the traffic safety level designed for the railway operation in a railway station), determine the infrastructure administrator analyse the opportunity of the dangers induced by the new socio-technical system and of the associated risks and draw, if case, a new safety operation system, accepted by Romanian Railway Safety Authority. It is necessary because Romanian Railway Safety Authority granted a safety authorisation upon which the safety management system is accepted, from which the exceptions in the working of the technical systems are considered limited in time.

During the investigation, some deficiencies in the line maintenance were found out, these being able to generate the appearance of some dangers with effects for the traffic safety:

- the switch no.24 is very old, being put in operation in 1986, and in the last years it was proposed for replacement by the Track Section L4 Drobeta Turnu Severin;
- following the commission controls, very important non-conformities were found at the switch, others than those that influenced the accident occurrence, as follows:
 - the curved point did not support on all slide chairs, allowing its dynamic vertical displacement, when the rolling stock was crossing over;
 - heel blocks had wears beyond the accepted tolerances, it leading to the horizontal displacement of the points, also in dynamic conditions;
 - the curved point had important damages;
 - general wears of the switch metallic parts (frog, points and stock-rails);
 - unsuitable sleepers;
- the track section L4 proposed for the year in 2018 the replacement of 96 switches;
- through the paper no. 22/1/12/09.01.2019, submitted to AGIFER, the railway county Craiova notified that it had allocated for the year 2018 a budget that permitted the replacement of 3 (three) switches for the whole railway county, none for the Track Section L4;
- although the control program pf the Track Section L4 Drobeta Turnu Severin, District Turceni, is exactly respected, the drafted notes, containing the findings, do not produce the effect, non-approaching the main district problems; ex no approaching of the non-conformities existing at the accident site, these being found by the investigation commission, although there have been for a long time and became more serious from year to year.

Measures taken

Some works for the removal of the mood points from the switch no. 24 of the railway station Turceni were performed.

Safety recommendations

During the investigation, the commission found out that both the management of the infrastructure administrator, central and regional levels, and the railway undertaking identified but did not managed the risks generated by the lack of track maintenance, respectively of the wagons get, in order to dispose consequently solutions and viable measures for keeping under control the derailment danger.

So, if the own procedures of the safety management system- SMS were completely applied, as well as the provisions of the practice codes, part of the SMS, the infrastructure administrator could be able to keep the technical parameters of the track geometry between the limits of the tolerances imposed by the railway safety, and the railway undertaking could be able to take the measures for the failure of its wagon, avoiding in a such way the occurrence of this accident.

Because the presented issues were found out also during the investigation of other accidents (ex: accident from the 13th December 2017 between Golești–Bradul de Sus), following which the investigation commission disposed safety recommendations, the investigation commission considers that there is no need to issue another identical recommendation.

3.4.8. The railway incident happened on the 30th March 2018, at 08:14 o'clock, in the railway county Timișoara, in the railway station Domașnea Cornea, consisted in the hit of the equipment for the power supply of the switch no.3/9, by the locomotive EA 637, hauling the passenger train no.1692 (got by SNTFC CFR Călători SA).

The investigation report was completed on the 28th March 2019.

Direct causes, contributing factors

The direct cause of the railway incident was *the earth return current device (DCI)* from the axle no. 4, right side, of the locomotive EA 637, exceeded the structure clearance limit for the elements of the railway installations, following its detachment from the axle box, hitting the device for the power supply of the switch no.3.

Contributing factors:

- performance of the planned inspections type R1 + CUS at axles, on an improper inspection pit, that made difficult the performance of the inspection technological process + CUS in optimal conditions;
- improper fastening of DCI from the axle box no.4, right side, of the electric locomotive EA 637, at the performance, one day before, of the planned inspection type R1 + CUS. The locomotive was running for the first time after the performance of the planned inspection and ultrasonic control at axles;
- ineffective performance of the technical inspections at the locomotive:
 - during the locomotive reception after the inspection;
 - at the putting into operation of the locomotive after its exit from the depot for the train hauling;
 - in stations, along the route.

Underlying causes

- inobservance exactly of the inspection technological process during the performance of the planned inspection type R1+CUS at the locomotive EA 637, on the 29th March 2018, according to the Technical Specification code ST 05 2004 – Planned Inspections type Pth3, RT, R1, R2 at the electric locomotives of 3400/5100 kW, worked out by Company in charge with the Locomotive Repairs „SCRL CFR Brașov” SA, cap.5 – Work Schedule, letter A – Electric Part, point 6 – Earth return current device;
- inobservance exactly of the provisions from the operational procedure PO-5-7.5.1-29 „Ordering, tracking and reception of the accidental repairs and planned technical inspections for the traction rolling stock”, chapter 4 – Procedure presentation and from the „Job description” for the job Locomotive Examiner, chapter 2 – General competences regarding the responsibility of the locomotive examiner for the locomotive reception after the performance of the planned inspection and for the works carried during the planned inspection;
- improper carrying of the job competences resulting from the provisions of the Instructions for the activity of the locomotive crew, no.201/2007, Annex 4, art.3-(1), letters b) and c), regarding the obligation of the locomotive examiner to supervise the performance of the operations for putting into operation of the locomotive by the driver, respectively to do

personally the technical inspection of the locomotive, when it leaves the depot, for the train hauling;

- improper performance of the job competences resulting from the provisions of the Instructions for the activity of the locomotive crew, no.201/2007, chapter II, art.37-(3), letter a), regarding the obligation of the locomotive crew to carry, at the putting into operation of the locomotive, the visual inspection of the existence and integrity of all parts and subassemblies of the locomotive;
- performance of the job competences resulting from the provisions of the Instructions for the activity of the locomotive crew, no.201/2007, chapter III, art.46, point (1), corroborated with the point (2), letters b) and c) and point (7), regarding the obligation of the locomotive crew to check all the visible and accessible subassemblies of the locomotive, after disassembling of some parts, during the performance, within the railway stations, of the locomotive technical inspections.

Root causes: none.

Additional remarks

During the investigation of the railway incident, one found that the locomotive EA 637 was kept in operation having the norm of overhauls exceeded:

- 21 years against 10 years established by the afferent legal document;
- over 2.000.000 km run, against 1.000.000 km established by the afferent legal document between two repairs type RG,

it leading to the inobservance of the Railway Norm *"Railway vehicles. Types of planned inspections and repairs. Norms of time and km run for the performance of the planned inspections and repairs"*, annex no.1, table 3.1, A1, for the electric locomotives type EA, of 5100kw, approved by Order of Minister of Transports and Infrastructure no.315/2011, amended by Order no.1359/2012 of Minister of Transports and Infrastructure, regarding the planned repairs at the locomotives.

The railway undertaking, within the Safety Management System, identifies this issue as danger that generates the risk „Failures and interruptions in the railway operation activity”.

Safety recommendations:

Because this incident happened following the inobservance of the provisions from the Instructions for the activity of the locomotive crew, no.201/2007, and of some activities for which there are procedures in force, in the activity of the economic agents involved in the incident (SNTFC „CFR Călători” SA și SC „CFR-SCRL Brașov” SA), the investigation commission does not consider timely to issue safety recommendations.

3.4.9. The railway accident happened on the 2nd of April 2018, at 22:15 o'clock, in the railway county București, in Videle railway station, in the running of the freight train no.21716-1, got by the railway undertaking SNTFM „CFR Marfă” SA, consisted in the derailment of all the axles of the locomotive EA 875 and the first bogie of the first wagon on the switch no.21.

The investigation report was completed on the 1st of April 2019.

Direct causes, contributing factors

Direct cause of the accident was the climbing of the rail gauge of wing rail head from the „diverging” section of the switch no.21 in the railway section Videle by the flange of the right wheel of the first axle from the locomotive EA 875, following the cumulation of the effect generated by:

- movement to exterior side of the track of the part built-up common crossing „wing rail”;
- movement of the check rail from the built-up common crossing of the „diverging” section, following the hit of the lateral side from the running rail (at the end of the joint of the single built-up common crossing), by the left wheel from the first axle of the locomotive EA 875.

Contributing factors:

- exceeding of the tolerances values of the gauge on the switch no.21;
- unsuitable technical condition of the special wooden sleepers existing within the switch no. 21, especially at the single built-up common crossing and at the special metallic plate from the first support from the check rail end;
- -inactive indirect fastening system type K of the special metallic plate from the first support.

Underlying causes

- violation of the provisions from art.19.2 of the Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge- no.314/1989, related to the tolerance values accepted against the gauge prescribed for the switches.
- violation of the provisions of art.25, point 4 from Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge- no.314/1989, related to the fact that the unsuitable sleepers are not accepted within the switches.

Root causes

- Non-application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and relevant requirements within the whole life of the lines in maintenance process”, part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA, concerning the performance of the maintenance and periodical repairs at lines.

Additional remarks

During the investigation, there were found some deficiencies, without relevance for the accident causes, as follows:

- the provisions of the Railway Norm 67-006:2011 „Railway vehicles. Types of planned inspections and repairs. Norms of time and km run for the performance of the planned inspections and repairs”, approved by Order of Minister of Transports and Infrastructure no.315/2011 with further amendments, respectively:
 - chapter 3 – Norms for the performance of planned inspections and repairs of the railway vehicles and their cycle, subpoint 3.1, that is the locomotive EA 875 was not withdrawn from running at the achievement of the norm of time stipulated for the performance of the planned repairs;
 - chapter 3 – Norms for the performance of planned inspections and repairs of the railway vehicles and their cycle Table 3.1, letter A, position no.1, that is the cycle of planned repairs for the locomotive EA 875 was not met.

Safety recommendations

In case of the accident occurred on the 2nd April 2018, in the running of the freight train no.21716-1, one found out that the derailment was influenced by the unsuitable technical condition of the railway infrastructure.

For keeping the technical parameters according to the values imposed by the normal operation of the railway infrastructure, the public railway infrastructure administrator CNCF „CFR” SA, following the identification of the dangers that can appear in the maintenance of the railway infrastructure and of the assessment of the risks associated to the dangers, it established own measures for keeping under control the risks of accident occurrence, for the compliance with the provisions of the practice codes, that are part of the safety management system.

The public railway infrastructure administrator established through the practice codes (part of the Safety Management System - SMS) the conditions to be met in the maintenance of the infrastructure, so it meets with the requirements for the safety operation. The deviations from the practice codes identified by the investigation commission indicate that the safety management system is not properly applied by CNCF „CFR” SA. The materials provided in insufficient quantities and the very low number of the workers from the working units (compared to the number of workers resulted from the sizing of the maintenance subunits in charge with the track maintenance and repair) indicate that CNCF „CFR” SA, like public railway infrastructure administrator cannot assure the resources and logistics for the compliance

with the requirements established through the practice codes and procedures of the SMS (issues pointed out also by the managements of the structures in charge with the maintenance of the railway infrastructure from the railway station Videle).

The switch no.21 from the railway station Videle was kept in operation in the circumstances where, according to the census of the track parts, it had 20 special wooden sleepers unsuitable (this switch has 44 special wooden sleepers).

Because when the accident happened, the switch no.21 from the railway station Videle has been in operation for 37 years, corroborated with the fact that the subunits in charge with the railway infrastructure maintenance from the railway station Videle did not provide, according to the requirements, the resources necessary for the track maintenance and repair it shows that that the subunit had not the capacity to achieve the technical parameters necessary for the safety operation of this switch.

The switches, through the constructive composition and their role in the traffic getting, are some of the most loaded parts of the superstructure.

Their safety operation supposes a middle and long term analysis and strategy on the provision with the resources necessary for the maintenance at the level imposed by the safety conditions.

The investigation commission considers that the keeping in operation of the switches having unsuitable sleepers, is a danger for the railway safety and at the same time a major risk for the occurrence of some new derailment, with causes similar to these from the actual investigation report, risk that the infrastructure administrator has to keep under control through viable measures.

Taking into account these above mentioned and in order to prevent the occurrence of some accidents in conditions similar to these from the actual report, AGIFER reiterates the safety recommendation addressed to Romanian Railway Safety Authority – ASFR, for the accident happened on the 30th October 2017 in the railway station București Nord, consisting in the derailment on the switch no.1 of the locomotive EA 892, hauling the passenger train IR no.1741, as follows:

- 1) Romanian Railway Safety Authority-ASFR shall analyze through own surveillances, how the safety management system of the public railway infrastructure administrator is applied and if case, ask CNCF,,CFR”SA to correct and re-assess the measures for keeping under control its own risks.

3.4.10. The railway accident happened on the 4th April 2018, at about 03:58 o'clock, in the running of the freight train no.80311, got by the railway freight undertaking GRUP FERROVIAR ROMÂN SA, in the railway county Brașov, track section Brașov–Sighișoara, line 300, track I, between Racoș and Rupea railway stations, electrified double-track line, km 232+960, consisted in the derailment of the bogie no. 1 from the wagon series Zas no. 84537850465-6, the 33th one of the train, in the running direction.

The investigation report was completed on the 2nd April 2019.

Direct causes, contributing factors

The direct cause of the accident was the climbing over the rail gauge of the exterior curve rail by the flange of right wheel, from the first axle in the running direction of the wagon no.84537850465-6, during the running on a track section with the twist value over the limit accepted by the tolerances corresponding to the running speed.

Contributing factors

Horizontal track distortion at values of the neighbour deflections over the accepted tolerance.

Underlying causes

Infringement of the provisions:

- art. 7.A.4, from „Instruction of norms and tolerances for the track construction and maintenance – tracks with standard gauge - no.314/1989”, concerning the tolerances

accepted in accordance with the running speeds, against the values of the track twist for the basis 2,5 m;

- art. 7.B. 1, from „Instruction of norms and tolerances for the track construction and maintenance – tracks with standard gauge no.314/1989”, concerning the tolerances of the versines accepted for the curves arc of circle, according to the curve radius and running speed.

Root causes

None.

Additional remarks

During the investigation, the commission found some non-conformities and deficiencies, that had no relevance for the accident conclusions and causes, as follows:

- at both hauling locomotives, the rear-view mirrors from the driver's assistant side were missing, against the provisions of art.40 letter n) from Instructions for the locomotive crew activity no.201;
- when it left the railway station Racoș, the provisions of art.123 (4) from Instructions for the locomotive crew activity no.201 were not met, these concerning the way for start running of a train hauled also with a banking locomotive;
- the joint from the inner rail of the track (left one) situated at the marked point with no.23, had no correspondence on the right rail, following the rail breakage. A temporary repair of the welded track was made, but without making a final repair. Missing the possibilities for establishing the rail continuity (re-welding of the non-welded track after the stress relief) no buffer track panel was created, in accordance with the provisions of the Instruction no. 341 for the composition, maintenance and surveillance of the welded track;
- keeping in the railway station Brașov Triaj of the wagon no.33877852166-0 with the automatic brake active in the composition of the freight train no.80311, wagon to which the changeover device „Freight – Persons” was not allowing the operation on the position „Freight”, according to the train type.

Safety recommendations

During the investigation, the investigation commission found out that it is the responsibility of the infrastructure administrator management, both at the central and regional level, the identification and the dealing with the risks generated by the non-performance of the line maintenance, in order to be able for disposing consequently solutions and measures viable for keeping under control the danger of derailment on Romanian public infrastructure.

The members of the investigation commission found out that if the own procedures of the safety management system, as well as the provisions of the practice codes should have been applied, the infrastructure administrator had been able to keep the technical parameters of the track geometry between the limits of tolerances imposed by the railway safety, so preventing the occurrence of this accident.

The issues presented were also found in the investigation of another accident happened on the 16th May 2015, at 17:50 o'clock, in the railway county Brașov, track section Sibiu – Copșa Mică (non-electrified single-track line), between the railway stations Loamneș and Ocna Sibiului), when the investigation commission disposed the next safety recommendation: *„The railway infrastructure administrator establish its own safety measures that have to be implemented in order to be sure that within the frame of the maintenance process of the lines, both the provisions of the procedures of the own safety management system and of the practice codes are met”*.

In this respect, the investigation commission considers that it is necessary and appropriate the implementation of this safety recommendation, for which AGIFER, up to this moment, did not receive any answer concerning the measures taken or planned to be taken.

3.4.11. The railway incident happened on the 8th April 2018, at 16:30 o'clock, in the railway county Craiova, running line Vârciorova - Gura Văii, km.366+100, the plough of the locomotive from the passenger train Regio no.9508 (got by SNTFC „CFR Călători” SA), hit a hoist detached from the wagons for the car transport, that was in the line structure clearance. The investigation report was completed on the 27th March 2019.

Direct causes, contributing factors

The direct cause of the incident is the fall of the equipment for lifting/coming down (box, drum, gearing-down device) of the wagon no. 23564356021-4, it affecting the structure clearance.

Contributing factors

- improper tensioning of the steeled cable of the equipment for lifting/coming down (box, drum, gearing-down device), it allowing a possible catching of it by a stiff element of the track;
- improper assembly of the fastening system of this equipment on the wagon body.

Underlying causes: none.

Root causes: none.

Safety recommendations: none.

3.4.12. The railway incident happened on the 16th April 2018, in the railway county Craiova, in Târgu Jiu railway station, consisted in the runaway of the locomotive EC 057 (got by SNTFC „CFR Călători” SA), stopped on the line II, passing the route signal YIIP in stop position, it being on “red” position.

The investigation report was completed on the 23rd March 2019.

Direct causes, contributing factors

The direct cause of the incident is the lack of a sufficient pinning force of the locomotive, following a technical failure at it, consisting in the improper fastening of the brake shoes on the tyres of the wheels from the axle no.3, after the right operation of the hand brake by the human operator.

Contributing factors:

- use at the axle no.3, on which the hand brake operates, of a type of brake cylinder with the piston rod fixed on the guiding tube of the piston and not of a brake cylinder with the piston rod not fixed on the guiding tube;
- use of as drawback spring with the coil diameter growth to 9 mm instead 8 mm at the brake cylinder that operates on the axle no.3;
- change of the brake rope following the looseness in time of the rope fastening in the fixing clamps;
- use in the area for the fixing of the brake rope on the joining pin of two clamps instead three fixing clamps;
- keeping in operation of the electric locomotive EC 057, after it reached the norm of time for the performance of the planned repairs;
- stabling of the locomotive in an area where the characteristic gradient of the line is 2,64‰.

Underlying causes

- the provisions of Chapter 3 – Norms for the performance of the planned inspections and repairs at the railway vehicles and their cycle from the Railway Norm 67-006:2011 „Railway vehicles. Types of planned inspections and repairs. Norms of time or norms of km run for the performance of the planned inspections and repairs”, approved by Order of Minister of Transports and Infrastructure no.315/2011, amended by Order of Minister of Transports and Infrastructure no.1359/2012, as follows:
- subpoint 3.1, that is the electric locomotive EC 057 was not withdrawn from running when it reached the norm of time stipulated for the performance of the planned repairs;

- table 3.1, letter A, position no.10, that is the cycle of the planned repairs for the electric locomotive EC 057 was not met;
- inobservance of the paragraph 6 – Drawback spring, point II MAIN TECHNICAL DATA from the Technical Sheet no. E – P5 LE 5100 Kw and 3400 Kw – Brake cylinder, regarding the diameter of the spring wire;
- inobservance of the paragraph 8, point B – CONTROL from the Technological Sheet no. E – M4b LE 3400 Kw – Brake rigging, regarding the number of turns of the braking wheel for ensuring the fastening of the brake shoes on the tyres;
- inobservance of the paragraph 5, point 9, CHAPTER I – MECHANIC INSTALLATION from the technical specification „Planned repairs type RR, RG at electric locomotives of 3400 kW” code ST2 – 2003 of C.F.R. S.C.R.L. S.A., regarding the number of turns of the braking wheel in order to get the rope stretched (but unstressed – without tension);
- inobservance of the technical documentation - LE 3400 Kw – UNIT HAND BRAKE – drawing L008038000, regarding the number of fastening clamps and the distance between them;
- inobservance of art. 40, point a) – Instructions for the activity of the locomotive crew no.201/2006 approved by Order of Minister of Transports, Constructions and Tourism no.2229/2006 regarding the parts, installations and equipments missing or out of service, that prohibit the exit of the locomotive from the depot

Root causes

Reference document for the railway critical service „*PLANNED INSPECTIONS TYPE Pth3, RT, R1 and R2, at ELECTRIC LOCOMOTIVES of 3400/5100 kW - ST 5-2004*”, worked out by SNTFC ”CFR CĂLĂTORI” SA, for the provision of the maintenance for the electric locomotives of the own stock, manufactured by SC ELECTROPUTERE SA, does not contain provisions for the operations necessary for the inspection of the hand brake and its validation in order to be declared proper for the operation.

Additional remarks

During the investigation, one found deficiencies without relevance for the incident causes, regarding the stabling of the passenger locomotives on the tracks of Târgu Jiu railway station, this operation not being stipulated in any regulation agreed between SRTFC Craiova and SRCF Craiova.

Safety recommendations

With reference to the incident occurred in the running of the passenger train no.2093, hauled by the electric locomotive EC 057, one found that its movement after the application of the hand brake during the stabling happened following the improper application of the brake shoes on the tyres of the wheels from the axle no.3, after the application of the hand brake.

During the investigation, one found that the factors influencing the incident occurrence are represented by the unsuitable technical condition of the locomotive, therefore the investigation commission recommends Romanian Railway Safety Authority to ask the railway undertaking SNTFC ”CFR Călători” SA:

- the performance of a reassessment of the risks generated by the failure of the braking system of the rolling stock, which can generate incidents/accidents;
- analysis of the opportunity to revise the Technical Specification Code ST 5-2004, that is reference document for the railway critical service „*PLANNED INSPECTIONS TYPE Pth3, RT, R1 and R2, at the ELECTRIC LOCOMOTIVES of 3400/5100 kW*”, so the maintenances scheduled for the hand brake system ensure its inspection, adjustment and working during the time between two planned inspections.

3.4.13. Railway incident happened on the 19th April 2018, at about 15:20 o'clock, in the railway county Timișoara, in the railway station Păuliș, consisted in the passing of the entry signal X in stop position, followed by the forcing open of the first switch, run by the locomotive of the freight train no.90966-1, got by the railway undertaking SC RailForce SRL.

The investigation report was completed on the 28th March 2019.

Direct causes, contributing factors

The direct cause of the incident was generated by the human mistake appeared in the driving of the locomotive hauling the freight train no.90966-1, consisting in the inobservance of the stop order, sent by the position „red” of a light entry signal X and its passing by without permission.

Contributing factors:

- improper communication of the locomotive crew, using the radiotelephone equipment, with the movements inspector on duty in the railway station Păuliș;
- the physical condition of the locomotive crew, affected by the fatigue accumulated during the time between the duty crew coming and the incident occurrence.

Underlying causes

- inobservance of the provisions from the Regulation for railway technical operation no.002/2001, art.59-(4), regarding the passing of a signal in stop position;
- inobservance of the provisions from the Signalling regulation no.004/2006, art.21, regarding the compliance with the position of the light entry signal, having the position „STOP without passing the signal in stop position” (a light unit red, to the train);
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.127, paragraph (1), letter a) and art.127, paragraph (2) regarding the obligation of the locomotive crew, being in the hauling of the train, to track carefully the positions of the fixed signals and to take the measures imposed by the observations got along the route;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.136, paragraph (2) regarding the obligation of the locomotive crew to confirm the information received by the radiotelephone, repeating these, saying the number of the train hauled;
- inobservance of the provisions from the Instruction for the effective use of the radiotelephone equipments, their maintenance, operational troubleshooting and repair, no.322/1975, Annex no.1 regarding the radiophone procedure for the communication a shunting or traffic order.
- Inobservance of the provisions from the Norms for the continuous duty accepted for the locomotive, run by the locomotive crew, consisting in driver and driver's assistant, approved by Order of Minister of Transports no.256/2013, art.2 and art.8, paragraph (1), regarding the interpretation of the maximum continuous duty accepted for the locomotive and the rest outside the home of the locomotive crew.

Root causes: none.

Additional remarks

During the investigation of the incident, one identified as nonconformity the fact that the track inductor of 1000/2000 Hz, of the light entry signal X of the railway station Păuliș, was not active because the lack of parallelism in relation to the rail, with about 15 mm, vertically at one of the ends.

It led to the inobservance of the provisions from the Instruction for the equipment for the automatic control of the train speed type INDUSI, track equipment, of the Direction of Lines and Installations, from 1972, chapter 2, point 2.1 – Assembling of track inductors, regarding the compliance way with the assembling and gauge dimensions in operation.

Safety recommendations

The freight train no.90966-1 passed the light entry signal X of the railway station Păuliș in stop position because the driver did not comply with the restrictive position of the signal, following an improper communication, by the radiotelephone equipment, between the locomotive crew and the movements inspector on duty in the railway station Păuliș, and following the fatigue accumulated by the locomotive crew generated by the exceeding of the maximum continuous duty accepted for the locomotive.

All these nonconformities are based on the underlying causes, that are deviations from the good practice codes assumed by the railway undertaking.

But, because the investigation commission found that the dangers from the „Register for the evidence of the own dangers” are not concretely and clearly identified, with an effective analysis of the risks associated to these dangers (issues presented at the point C.5.2. *Safety management system*), AGIFER recommends Romanian Railway Safety Authority

- 1) to ask the railway freight undertaking SC Rail Force SRL, the revision of the „Register for the evidence of its own dangers” by the reassessment and analysis of the risks associated to the railway transport, generated by:
 - danger of passing the signals in stop position by the trains in running;
 - danger to exceed the maximum continuous duty accepted for the locomotive, run by the locomotive crew in the train hauling;
 - disposing proper measures for keeping them under control.

3.4.14. The railway accident happened on the 25th April 2018, at 00:50 o'clock, in the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station, Grupa A, when the freight train no. 42695-2 passed over the switch no.15A (the train got by the railway undertaking SNTFM „CFR Marfă” SA), consisted in the derailment of the first bogie of the wagon no. 31530670031-3 (the 5th one after the locomotive), derailed in the train running direction.

The investigation report was completed on the 5th April 2019.

Direct causes, contributing factors

Direct cause of this accident was the climbing over the closure rail (interior rail of the curve) of the switch no.15A by the flange of right wheel from the first axle (in the running direction) of the wagon no.31530670031-3. The climbing happened following the presence within the closure rails of a non-glued insulated joint, composed without complying the instruction (lateral rail misalignment, vertical rail misalignment and non-packed sleepers).

Contributing factors:

- unsuitable maintenance of the non-glued insulated joint from the closure rail of the curved stock-rail, within that one found out non-packed sleepers (gaps under the base of the sleepers), partial fastening and lignofolium fish plate broken. It led to the appearance of a lateral rail misalignment on the gauge face of the rail and a vertical rail misalignment.
- Non enforcement of some sufficient measures for the risk control, according what one should perform activities for the identification of the danger generated by the lateral and/or vertical rail misalignment at the joint, of the associated risks and of the afferent safety measures.

Underlying causes

- violation of the provisions from the „*Instruction of norms and tolerances for the track construction and maintenance for tracks with standard gauge no.314/1989*” as follows:
 - art.25, paragraphs (2) and (4), concerning the failures that impose the replacement of the wooden sleepers and the non-acceptance of unsuitable sleepers within the switches;
 - art.21, paragraphs (5) and (7), concerning the lateral shoulders at the joints and the level differences at the running surfaces of the joined rails;
- art.15, paragraph (17), concerning the gaps under the sleeper base existing within the switches;
 - art.10.A.6, concerning the size of the insulated joint gaps;
 - art.15.8, concerning the composition way of the ballast track bed within the switches;
- violation of the provisions of the Minister of Transports’ Order no.815/2010 from the 12th October 2010 for the approval of the Norms for the implementation and development of the system for keeping the professional competences of the staff with responsibilities in the traffic safety and for other staff categories carrying out specific activities in Romanian

railway transports, concerning the use in the technical inspection of the track, the management of the worker team and of the line district, of authorized staff (trained, getting certificates of medical and psychological aptitudes) for this activity;

- violation of the provisions from point 4.1. of Chapter 4 „Norms of manpower and material consumption”, of „*Instruction for line maintenance no.300/2003*” concerning the provision with the manpower norm for the current manual work maintenance.

Root causes

- violation of the provisions of the Operational Procedure code: PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life cycle of the tracks in the maintenance processes”, concerning the rhythmic provision with the material quantities necessary for the maintenance.
- Non-enforcement of the provisions from the Instruction for the track maintenance – approved through the Order no.519/03.04.2003, document associated to the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life cycle of the lines in the maintenance process”, part of the safety management system of CNCF „CFR” SA, concerning the sizing of the staff from the sub-units for the track maintenance, in relation to the total works, it being confirmed by the under sizing of the staff from the line district no.4 Dej Triaj within the Track Section L7 Dej.
- Non-application of the provisions from the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life cycle of the lines in the maintenance process”, part of the safety management system of CNCF „CFR” SA, concerning the identification and schedule of the maintenance performance

Measures taken

During the investigation, the railway county Cluj performed the identification and assessment of the risk factors concerning the associated dangers for the nun-glued insulated joints (lignofolium), action ended with a Report registered with the number 48/SC/3/123/26.06.2019. Also, during the investigation, within the railway county Cluj a *Team for the risk assessment* met, appointed in accordance with the procedure *PS 0-6.1 Risk Management*, this team performed an identification of the danger ” *Lateral and/or vertical rail misalignment at the butt joint*”, this danger being previously written down in the *Register for the Danger Evidence*.

Safety recommendations

The derailment of the wagon no.31530670031-3, being in the composition of the freight train no.42695-2 (got by the railway undertaking SNTFM „CFR Marfă” SA), happened following the unsuitable maintenance of the railway infrastructure.

During the investigation one found out that the superstructure maintenance was not made in accordance with the provisions of the practice codes (reference/associated documents of the procedures from the safety management system of CNCF „CFR” SA).

Taking into account that the provisions of PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life cycle of the tracks in the maintenance process”, part of the safety management system of CNCF „CFR” SA, were not applied, it was identified like root cause of the accident, for the prevention of some accidents that could happen in conditions similar to those presented in the this report, AGIFER issues the next safety recommendation:

- 1) Romanian Railway Safety Authority – ASFR analyze through own surveillance actions, the enforcement of the safety management system of the public railway infrastructure administrator and, if case, ask CNCF „CFR” SA, to rectify or reassess the measures for keeping under control the own risks.

3.4.15. The railway incident happened on the 20th April 2018, at 13:17 o'clock, in the railway county Galați, in Săhăteni railway station, consisted in the hit of the tensioned concrete mast SBC 45 by the first door of the 4th wagon from the freight train no.50436, got by the railway undertaking SC UNICOM TRANZIT SA, in the running direction. The investigation report was completed on the 7th March 2019.

Direct causes, contributing factors

The direct cause of the incident is the exceeding of the limit stipulated in the Structure clearance for the elements of the railway installations by the double lateral door of the wagon no. 33535304595-8, that open because the system for closing and fastening subsided.

Contributing factors:

- the action of the stresses generated by the load (wire coils) during the transport, dynamically;
- loading of the wagon with wire coils without meeting with the provisions from the Annex II RIV, regarding the loading of this type of good;
- improper condition of the locking of the closing handle of the double door.

Underlying causes

- inobservance of the provisions of point 2.3 „Walls, edges and doors” from the „Provisions for loading Book 1”, that is the goods leant on the walls or edges have not to generate stresses possible to damage or affect the transport safety;
- inobservance of the provisions of art.87 from the Instructions for the technical inspection and maintenance of the wagons in operation no.250/2010, Chapter IX, Table 7, point 4, that is the failure from the closing device of the double door was not managed according to the instruction, during the performance of the technical inspection at the composition of the train;
- inobservance of the provisions from the „Regulation for the running of the trains and shunting of the railway vehicles” no.005/2005, respectively art. 88 - (1) – When railway vehicles are coupled at trains, they have to get no failure, and their good has to be loaded and fastened according to the specific regulations in force. It is prohibited to couple at trains and keep in traffic the next railway vehicles:
- letter g) the uncovered or covered wagons, with doors or shutters detached or open, as well as uncovered wagons, with the locking devices incomplete or out of service.

Root causes: none.

Additional remarks

During the investigation, one found the next problems in the railway activity:

- -at the locomotive EA 778 the device for the punctual control of the speed (type „INDUSI”) was not operated on the position suitable for the type of train hauled „M”. It was operated on „P” corresponding to the hauling of the passenger and freight trains, running with the maximum speed stipulated in the working timetable 100 Km/h. The provisions of Art.88 - (2) from the „Instructions for the activity of the locomotive crew” no.201/2006 were not met;
- in the form „List of wagons” the staff of the railway undertaking did not encircle the braked weight of the wagon no.33535304595-8 that had the automatic brake insulated, although in the form „Note with the Brakes Insulated” the wagon is recorded at the position no.1.. The provisions of Art.40 - (4) from „Regulation for the running of the trains and shunting of the railway vehicles” No.005/2005 were not met.
- handling-reception of the set of wagons was not made by recording the name, surname, first name and of the function of the participants in the operation. The provisions of art.36, „ Common freight norms 5” point 5.1. from „Common norms for Romanian railway transports” approved by „Government Ordinance no.7/2005”, Annex 2, „Uniform norms for Romanian railway transports, applicable to the railway freight undertakings and beneficiaries”.

Measures taken:

UNICOM TRANZIT S.A. issued of itself **DECISION No.150/24.04.2018** disposing within the technical inspections all the wagons with failures at the closing and locking systems of the doors be notified for being repaired.

By the addresses no.3116/30.04.2018 and 3127/02.05.2018, UNICOM TRANZIT S.A. asked the repair units to submit to repair 11 wagons identified with failures.

From the analysis of the documents and procedures that regulate the cooperation between S.C. VIA TERRA SPEDITION S.R.L. and UNICOM TRANZIT S.A. regarding the delivery - reception of the wagons empty and loaded in the railway station Buzău, submitted to the investigation commission by these above mentioned, one found:

- S.C. VIA TERRA SPEDITION S.R.L. submitted to the investigation commission the Contract for Service Rendering no.12/2013 (valid until the 31st December 2018) applicable for the investigated incident.
- UNICOM TRANZIT S.A, through the address no.3668/22.05.2018 remembers that the contract above mentioned was applicable for another transport relation from 2013-2014.
- The lack of an agreement of delivery-reception concluded between the shunting operator and the undertaking, proves that the provisions from „Uniform norms for Romanian railway transports” approved by „Government Ordinance no.7/2005”, Annex 2, „Uniform norms for Romanian railway transports, applicable to the railway freight undertakings and beneficiaries”, art.36 – (2), stipulating that the delivery-reception of the rake of wagons be done within the working program of the railway undertaking, in the place and upon the conditions established by the order or by the agreements concluded between the railway undertaking and the clients.

For avoiding such situations in the future, through the paper no. 1127/15/30.05.2018, the investigation commission asked the two companies above mentioned to conclude an agreement, mutually accepted, for the regulation of the cooperation.

Up to the conclusion of the investigation report, we did not receive any communication about the decision of the companies above mentioned.

Safety recommendations: none

3.4.16. The railway incident happened on the 26th April 2018, at about 09:20 o'clock, in the railway county Timișoara, in the railway station Aradul Nou, consisted in the passing of the entry signal XZ in stop position by the passenger train no.16172, got by the railway undertaking SC „Regio Călători” SRL.

The investigation report was completed on the 18th April 2019.

Direct causes, contributing factors

Direct cause the railway incident was generated by a human mistake appeared in the driving process of the multiple unit, this mistake consisting of in the inobservance of the stop order, sent by „red” position of the entry light signal XZ of the railway station Aradu Nou and its passing in stop position.

Contributing factors:

The driver did not pay attention to the tracking of the signals, it leading to the late braking of the trains.

Underlying causes

- inobservance of the provisions of the Regulation for railway technical operation no.002/2001, art.59-(4), regarding the passing of a signal in stop position;
- inobservance of the provisions from the Signalling regulation no.004/2006, art.23, paragraph (2), corroborated with the art.21, regarding the compliance with the position of

exit light signal, being on „STOP without passing the signal in stop position” (a light unit of red colour, to the train);

- inobservance of the provisions from the from Instructions for the activity of the locomotive crew no.201/2007, art.127, paragraph (1), letter a) and art.127, paragraph (2) regarding the obligation of the locomotive crew to track carefully the position of the fixed signals in the train hauling and to take the measures imposed by the remarks done along the route.

Root causes: none.

Additional remarks

During the investigation one identified as nonconformity the fact that INDUSI equipment of the multiple unit, that has the role of additional measure of railway safety, was put out of operation by the driver for a short time.

It led to the inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201 approved by Order of Minister of Transports, Constructions and Tourism no.2229/2006, art.12 – (1), letter d), where it is stipulated that, the locomotive crew is prohibited to take out of operation, without reason, the equipment for the automatic control of the train speed.

Safety recommendations

During the investigation, the commission found that the occurrence of the railway incident was generated by the punctual error of the driver, that did not completely meet the instruction regulations.

There were issued procedures for the activity of the locomotive crew of the railway undertaking, being identified also dangers that can generate the risk of passing the signals in stop position, and the consequences that can appear in a such situation, but without these risks be properly managed.

In these conditions the investigation commission does not consider that the issuing of some safety recommendations is not necessary.

3.4.17. The railway incident happened on the 4th May 2018, in the activity of SC TMB „METROREX” SA București, track section Berceni–Pipera M2 (electrified double-track line), between the metro stations Piața Romană and Pipera, consisted in the hit of the infrastructure elements by a part detached from the train TEM 1317-2317.

The investigation report was completed on the 4th April 2019.

Direct causes, contributing factors

Direct cause of the incident was the breakage of the anti-roll bar of the semi-train 1317, at the car R, last bogie on the right side of the running direction.

Contributing factors

The failure of the anti-roll bar happened following a quality problem during the shoot peening process with metallic shots, this process being faulty done.

Underlying causes: none.

Root causes: none.

Measures taken

During the investigation, there was performed an inspection CUS (ultrasonic control) of anti-roll bar at all the trains type BM 3- CAF, following the inspections there were found 7 anti-roll bars with cracks, the specialist of the company CAF replacing them as follows:

1318/2318

- Anti-roll bar bogie 1, car R1, series number 238
- Anti-roll bar bogie1, car R2, series number 226

1320/2320

- Anti-roll bar bogie 1, car R2, series number 244

1321/2321

- Anti-roll bar bogie 2, car MP1, series number 260
- Anti-roll bar bogie 2, car MP2, series number 253

1322/2322

- Anti-roll bar bogie 1, car R1, series number 264
- Anti-roll bar bogie 1, car M1, series number 255.

Safety recommendations none.

3.4.18. The railway accident happened on the 8th of May 2018, at 06:14 o'clock, in the railway county Timișoara, in the running of the freight train no.80432-1, got by the railway freight undertaking GRUP FERROVIAR ROMÂN SA, at the entrance on the line 8 of Simeria railway station, the second bogie from the 20th wagon, in the running direction, and the first bogie of 21st wagon derailed.

The investigation report was completed on the 6th May 2019.

Direct causes, contributing factors

The direct cause of the accident was the over-heating, followed by the breakage of the axle journal afferent to the wheel no.1 from the wagon no.33537883273-7 (the 20th one of the train) and the loose of the guiding capacity of the axle corresponding to the wheels 1-2.

Contributing factors:

The old of the roller bearings fitted in the axle box afferent to the wheel no. 1 of this wagon (roller bearing WJ - 48 years old from its manufacturing, and the roller bearing WJP - 43 years old from its manufacturing).

Underlying causes

None.

Root causes

The root cause is the lack from the railway technical norm for the repair of the axle cases with roller bearings of some provisions for the establishment of the maximum working time for the cylindrical roller bearings, that provide the freight wagons (expressed in km run or years).

Additional remarks

During the investigation of this accident, one found out that the locomotive crew, driving the freight train no.80432-1 when the accident happened, had the continuous locomotive service 16 hours and 10 minutes, from which the effective driving time of the locomotive was 10 hours and 39 minutes.

It led to the violation of the provisions of Minister of Transports' Order no.256/29.03.2013, for the approval of Norms for the maximum continuous service accepted for the Romanian locomotive crew, chapter I – Maximum locomotive continuous service, art.3, letter b), where it is stipulated that, in case of simplified driving of the locomotive – without driver's assistant, maximum continuous service of the locomotive crew is 10 hours, for freight trains, from which the effective driving of the locomotive shall not exceed 8 hours.

Safety recommendations

On the 8th May 2018, at 06:14 o'clock, in the railway county Timișoara, in the railway station Simeria, in the running of the freight train no.80432-1, got by the railway freight undertaking GRUP FERROVIAR ROMÂN SA, two wagons derailed.

The investigation commission found out that the railway accident happened following the over-heating, followed by the breakage of the axle journal afferent to the wheel no.1 from the wagon no.33537883273-7 (the 20th one of the train).

The investigation commission found also that those two roller bearings type WJ/WJP, providing the axle case afferent to that axle journal, were 48 years old, respectively 43 years old.

Although, through the UIC leaflets (both that in force at the manufacturing time of the roller bearings involved, and this one is now in force), it is imposed like reliability condition the service life of 40 years for 75% from the roller bearings, and abroad there are technical norms that limit the use period of time of those roller bearings, by the railway technical norms in force

it is not stipulated any maximum service life for that type of roller bearings (expressed in km run or year).

Taking into account the causes and the factor leading to that accident, as well as the issues presented in chapter C.5.6. Similar previous events, for the improvement of the railway safety, the investigation commission reiterates the safety recommendations addressed to Romanian Railway Safety Authority – ASFR, for the railway accident happened on the 6th September 2015, at 22:04 o'clock, in the railway county Timișoara, between the railway stations Vălișoara and Valea Timișului, in the running of the freight train no.80368-1, as follows:

Romanian Railway Safety Authority - ASFR shall analyze the opportunity to add, at the railway technical norm for the repair of the axle cases with roller bearings, provisions for the establishment of the maximum service life for cylindrical the roller that provide the wagons (expressed in km run or years).

3.4.19. The railway accident happened on 23rd May 2018, at 16:47 o'clock, in the railway county Constanța, in Valu lui Traian railway station, in the running of the freight train no.80506-1, consisted in derailment of the first axle of the 9th wagon, in the running direction. The investigation report was completed on the 15th May 2019.

Direct causes, contributing factors:

The direct cause of the accident was the displacement of the tyre of the wheel from the steel wheel centre no.1, it leading to the change of the gauge of the wheelset with the wheels 1-2 and its derailment.

Contributing factors:

- unfastening of the tyre from the wheel no.1 of the wagon no.33536654241-3, following the decrease, during the time, of the fastening forces between the tyre and the wheel centre, generated by the stresses appeared from the moment of the tyre assembly on the wheel centre;
- lack of paint marks on the tyre of the wheel, it making difficult the detection of the tyre turn on the wheel centre;
- performance of the technical inspection during the composition, in unsuitable conditions, on a line with abundant vegetation and on a track section without any light source.

Underlying causes

None.

Root causes

Lack of tracking of the inspections performed at the wheelsets of the rolling stock, during the accidental repairs, generated by the lack of some records about the wheelsets condition.

Measures taken

After the accident, SC GFR SA management notified the next measures taken:

- the wagons staff was informed, during the meetings of theoretical training about the occurrence of this accident;
- a decision of the general manager was issued for remembering the specialty staff the obligation of visual checking and the checking by the hammer hitting of the wheels with tyre applied.

Safety recommendations

From the analysis performed within the investigation of the derailment of the wagon no. 33536654241-3, in the composition of the freight train no.80506-1, resulting the unfastening of the tyre of the wheel no.1 and its displacement on the wheel centre was possible following the gaps in the safety management system of the railway undertaking for the acceptance of the wagons submitted to accidental repairs, so the respective wagon was accepted without the mark on the tyre of the wheels 1,2 be visible.

Taking into account the above mentioned, Romanian Railway Safety Authority – ASFR should ask the railway undertaking SC GFR SA the revision of the safety management system for the

wagon acceptance after the accidental repair, so be sure that the procedures existing in this respect do not allow the re-introduction of a wagon with problems at the running gear.

3.4.20. The railway incident happened on the 24th May 2018, at 19:55 o'clock, in the railway county Braşov, in Predeal railway station, during the shunting of a set of 9 wagons, carried with the locomotive EA 386, got by the railway freight undertaking SC Unicom Tranzit SA, these vehicles ran away from the line no.2 of Predeal railway station on the track II to the railway station Azuga.

The investigation report was completed on the 20th May 2019.

Direct causes, contributing factors

The direct cause of the incident is the not ensuring of the braked weight percentage necessary for the shunting in the railway station Predeal, considering that the angle cocks between the locomotive and the first wagon were on "closed" position.

Contributing factors

- failure to check the position of the angle cocks;
- failure to perform the full brake test after coupling the locomotive EA 386 with the set of wagons from the line no.2;
- fatigue condition of the staff from the shunting crew.

Underlying causes

- violation of the provisions from art.47. - (6) of the Regulations for hauling and braking no.006/2005, approved through the Order of Minister of Transports, Constructions and Tourism no.1815/2005, that is the authorized agent of the railway undertaking did not open the angle cocks between the locomotive EA 386 and the first hauled vehicle;
- violation of the provisions of art.40. - (6) of the Regulations for hauling and braking no.006/2005, approved through the Order of Minister of Transports, Constructions and Tourism no.1815/2005, that is the driver did not check if the air pipes were tightly coupled and the angle cock open;
- violation of the provisions from the point.4 of the Sheet no.18 from the Operation Technical Plan – PTE of the railway station Predeal, that is the shunting was carried without filing with air the whole set of wagons and without carrying the full brake test;
- violation of the provisions of TITLE III – The working and rest time from the Law 53/2003 – Labour Code with further amendments, that the normal working time and the daily rest were not met with.

Root causes

Missing, from the Operational Procedure "For the appointment, ensuring and tracking of the train crew and monitoring of the compliance with the norms approved through the Order of Minister of Transports OMT 256/29.03.2013, concerning the maximum duty accepted for the locomotive, for the train crew of UNICOM TRANZIT in Romanian railway system" code POSF – 37 Revision 1, in force from the 1st April 2017, valid when the incident happened, of some real provisions that ensure the effective tracking of the train crew activity, so these meet with the normal working time and the daily rest.

Additional remarks

During the investigation, there were identified many nonconformities, without relevance for the incident causes, as follows:

- the provisions of the Sheet no.18 from the Operational Technical Plan – PTE of the railway station Predeal were not observed, that is the shunting with one driver, performed with the locomotive EA 386, was made by a shunting crew consisting in 1+1 (foreman shunter and a shunter) instead of 1+2 (foreman shunter and 2 shunters);
- the running up of the locomotive EA 386 from the line no.2 of Predeal railway station was done without meeting the limit of 5km/h in the area of the platforms, against the provisions of Sheet no.20 of PTE of the railway station Predeal;

- the shunting in the railway station Predeal was carried without the signal for the beginning of the shunting, that had to be given by the foreman shunter, against the provisions of the Instruction for the activity of the locomotive crew no.201, approved by Order of Minister no.2.229 from the 23rd November 2006;
- there were not performed braking tests in Braşov Triaj railway station at the freight train no.59448, neither after coupling the hauling locomotive EA 386 nor before the departure of the train to the railway station Predeal, against the provisions of the Regulation for hauling and braking no.006, approved by Order of Minister no.1815 from the 26th October 2005;
- the locomotive EA 514 ran from the 23rd May 2018 to the 25th May 2018, with the safety and vigilance equipment – DSV insulated unjustifiably, against the provisions of the Instruction for the activity of the locomotive crew no.201, approved by Order of Minister no.2.229 from the 23rd November 2006.

Safety recommendations

The incident happened in the railway county Braşov, in Predeal railway station consisted in the fact that, during the shunting of a set of wagons with the locomotive EA 386 ran away from the line no.2 of Predeal railway station to the track II of Azuga railway station.

This incident happened because the braked weight percentage necessary for braking was not ensured and it is based both on a human error and a wrong working skill used in shunting process.

The human error, represented by the omission of opening the angle cocks between the locomotive EA 386 and the first hauled vehicle, was possible following the less attention of the agent from the train crew, because of the fatigue accumulated from the duty start up to the incident occurrence and in the context of missing some real provisions within the operational procedure code POSF – 37 that ensure the effective tracking of the train crew activity for meeting with the normal working time and daily rest.

Taking into account these above mentioned, the investigation commission recommends Romanian Railway Safety Authority – ASFR to ask the railway freight undertaking SC Unicom Tranzit SA :

- 1) re-assessment of the risks generated by the danger "Failure of performance of the corresponding brake tests in the railway stations of composition or in case of forming wagon couple and/or re-forming for running on high gradient" and taking of effective measures for keeping it under control;
- 2) revision of the Operational Procedure "For the appointment, ensuring and tracking of the train crew and monitoring of the compliance with the norms approved through the Order of Minister of Transports OMT 256/29.03.2013, concerning the maximum duty accepted for the locomotive, ran by the train crew of UNICOM TRANZIT in Romanian railway system" code POSF – 37 Revision 1 in force from the 1st April 2017, so it shall have real provisions that ensure the compliance with the normal working time and the daily rest for the train crews.

3.4.21. The railway accident happened on the 5th June 2018, at about 06:12, in the railway county Braşov, track section Bartolomeu – Zărneşti (nonelectrified and noninteroperable single-track line), managed by the infrastructure manager SC RC-CF TRANS SRL Braşov, km.9+800, between Bartolomeu and Cristian railway stations, consisted in a fire burst into the multiple unit AMX no.557, hauled in the composition of the passenger train no. 16331, got by the railway undertaking SC Regio Călători SRL Braşov.

The investigation report was completed on the 30th May 2019.

Direct causes, contributing factors

Taking into account that during the investigation, the most affected areas by the fire were the oil catch can and the upper part of Diesel engine (valve cover), the investigation commission

considers like probable cause of the accident the ignition of the oil deposits resulting from the oil catch can and the hose for the joint with the engine block, following the heating of the engine parts during its operation.

Contributing factors

The factor contributed at the accident occurrence was the presence of the oil deposits at the oil catch can and the upper part of the Diesel engine.

Underlying causes: none

Root causes

- lack in the Technical specification code ST 1.019/2011 of some provisions for the performance and the maintenance of the Diesel engine cleaning and of its auxiliary parts;
- performance by the railway undertaking involved in the accident of risks and deficiency control, that is it did not identify all the dangers that could be reasonably identified (triggering of a fire caused by the unsuitable cleaning), and for those identified that could have led to a fire, the safety measure for keeping under control the respective risk was not properly controlled, in terms of effectiveness.

Additional remarks

During the investigation, the next findings on the deficiencies and lacks were made, without relevance for the conclusions on the accident causes:

- SC Regio Călători SRL Braşov drafted regulations for the running of the trains composed from many multiple units, in multiple units train control, drove from one driving cab by a single driver (endorsed by ASFR), without provisions for if and who should accompany the multiple units running without passengers, his training and the way to act in case of some failures at the multiple unit.

Safety recommendations

On the 5th June 2018, in the running of the passenger train no.16331, consisting in two multiple units type AMX, hauled only by the first driving cab, a fire triggered at the Diesel engine, at the second multiple unit running without passengers.

The actions for the risk assessment at the railway undertakings involved, presented some deficiencies, that is one did not identify all the dangers that could be reasonably identified, and for those identified that could have led to a fire, the safety measure for keeping under control the respective risk was not properly controlled, in terms of its effectiveness.

- 1) 1.The investigation commission recommends Romanian Railway Safety Authority – ASFR to ask SC Regio Călători SRL Braşov and SC MARUB SA Braşov the redrafting of the Technical Specification code ST 1.019/2011 for the insertion of some provisions for the performance and maintenance of the Diesel engine cleaning and of its auxiliary parts.
- 2) 2.The investigation commission recommends Romanian Railway Safety Authority – ASFR to ask SC Regio Călători SRL to run again the identification of the risks associated to the railway operations for the maintenance of the multiple units type AMX, through the identification of all dangers that could be reasonably identified and the setting up of some criteria for the acceptance of the corresponding risks, eventually through taking some additional safety measures, so the risks of their occurrence could be acceptable.

3.4.22. The railway accident happened on the 6th June 2018, at about 21:48 o'clock, in the railway county Cluj, track section Dej Călători - Beclean pe Someş, electrified double-track line, in Dej Triaj railway station, Group A, when the freight train no.41722, got by the railway undertaking SNTFM „CFR Marfă” SA, passed over the first joint of the switch no. 21A, the last bogie of the wagon no. 31533555642-1, derailed in the running direction.

The investigation report was completed on the 4th June 2019.

Direct causes, contributing factors

The direct cause of the accident is the climbing of the rail gauge face, that makes together the right stock rail, the first joint of the switch no.21A, by the left wheel of the first axle from the first bogie of the wagon no. 31533555642-1, in the running direction. The climbing happened following the existence at the insulated joint of a lateral rail misalignment and following some failures at the wagon

Contributing factors

- unsuitable maintenance of the not-glued insulated joint from the first joint of the switch no.21A, where one found out non-packed sleepers (wet spots), partial fastening, lingnofolium fishplate broken. This condition led to the appearance of the lateral and vertical rail misalignment.
- keeping in operation, at the derailment site, of some wooden sleepers whose technical condition imposes their replacement;
- deficiencies at the side bearers and the polyamide lining from the bogie corresponding to the wheels no.5÷8 (the second in the running direction of the train), of the wagon no.31533555642-1;
- missing of the support and of the low side bearer on the right side of the bogie from the wagon no.31533555642-1.

Underlying causes

- Violation of the provisions from „*Instruction of norms and tolerances for the track construction and maintenance for tracks with standard gauge no.314/1989*” as follows:
 - art.25, paragraphs (2) and (4), concerning the failures that impose the replacement of the wooden sleepers and the non-acceptance of unsuitable sleepers within the switches;
 - art.21, paragraphs (5) and (7), concerning the level difference at the running surfaces of the joined rails and the lateral rail misalignment at the joints, on the active surface of the rail;
 - art.15, paragraph (17), concerning the gaps under the sleeper base existing within the switches;
 - art.15, paragraphs (8) and (16), concerning the composition of the track bed within the switch and the removal of the water from their content.
- violation of the provisions of the Minister of Transports’ Order no.815/2010 from the 12th October 2010 for the approval of the Norms for the implementation and development of the system for keeping the professional competences of the staff with responsibilities in the traffic safety and for other staff categories carrying out specific activities in Romanian railway transports, concerning the use in the technical inspection of the track, the management of the worker gang and of the management of the line district, of authorized staff (trained, getting certificates of medical and psychological aptitudes) for this activity;
- violation of the provisions from „*Instruction 305 for the establishment of the terms and order of the track inspections*” edition 1997, sheet no.3, art.2; sheet no.4, art.3; sheet no.12, art.2; concerning the terms for the measurement of the switches with the recording of the measured values in the switch inspection book.
- violation of the provisions from art.43, Cap.IV „*Manpower and material consumption for the track maintenance*”, of „*Instruction for line maintenance no.300*” concerning the assurance of the norm of manpower and material basis for the current manual work maintenance.
- violation of the provisions from Table 6 – Failures and wears at the chassis and bogies/Handling way from Instructions for the technical inspection and the maintenance of the wagons in operation no.250/2005 concerning the withdrawal from traffic of a wagon with failures at the supports of the side bearers or at the side bearers.

Root causes

- non-application of all provisions of the Operational Procedure code: PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life cycle of the lines in the maintenance process” (including the annexes), part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA concerning:
 - coordination of the periodical maintenance and repairs of the tracks;
 - provision with the material basis and working force necessary for the periodical maintenance and current repair.
- non-identification like danger and not-keeping under control of the risks related to the keeping in operation of unsuitable sleepers, lignofolium fishplates broken, wet spots, within the switches;
- non-application of some sufficient measures for the risk control, that should have consisted in the identification of the danger generated by the lateral and/or vertical rail misalignment at the joint, of the associate risks and afferent safety measures;
- Non-performance by the infrastructure administrator of some efficient activities of learning, following the occurrence of an accident or incident, respectively of design and application of some corrective or preventive adequate measures;
- non-performance by the infrastructure administrator of all activities within the monitoring process, regulated by the REGULATIONS (EU) no. 1078/2012;
- Missing from the Disposal no. 235/2016 (assigned by CNCF „CFR” SA to meet with the requirement Q3 from the Annex II of the Regulations EU no. 1169/2010) of some coherent provisions on the learning practice, as well as the way to establish and apply corrective or preventive measures, following the occurrence of an accident or incident;
- missing in the Procedure code PO SMS 0-4.1.3 (assigned by CNCF „CFR” SA to meet with the requirement A3 from the Annex II of the Regulations EU no. 1169/2010) of some coherent provisions for the way to run the monitoring of the effectiveness of the measures for the risk control;
- the railway undertaking SNTFM „CFR Marfă” SA does not get some procedures/regulations that establish the competences necessary for the staff involved in the checking of the technical conditions for the coupling/uncoupling of wagons in/from the trains in transit and the performance way of these activities.

Safety recommendations

The derailment of the wagon no. 31533555642-1 of the freight train no.41722 (got by the railway undertaking SNTFM „CFR Marfă” SA), happened following the unsuitable maintenance of the railway infrastructure.

It was determined by the keeping within the switch of the unsuitable wooden sleepers, keeping of lignofolium fishplates broken in the track, the existence within the switch of non-packed sleepers (wet spots), it leading to the appearance of a vertical and lateral rail misalignment at the joint.

The administrator of the public railway infrastructure did not apply the own procedures of the SMS, completely, as well as the provisions of the practice codes, part of SMS, it having a substantial role in this accident occurrence.

During the investigation, the commission found that the management of the infrastructure administrator, at central and regional level, did not identify solutions for disposing consequently viable measures for supplying the sufficient quantities of materials necessary for the replacement of those unsuitable kept in operation, as well as for the assurance of the working force necessary for the periodical maintenance and repair of the switches.

Taking into account that on the 25th April 2018, in the railway station Triaj, Group A, at the passing of the freight train no. 42695-2 over the switch no.15A, train got by the railway undertaking SNTFM „CFR Marfă” SA, the wagon no. 31530670031-3 derailed, in similar conditions, the investigation commission considers that, as far as the safety recommendation

issued in the Investigation report of that accident, ended on the 5th of April 2019, shall be implemented, there is no more necessary the issuing of another safety recommendation similar for the present case.

Non performance by the infrastructure administrator of all activities of the monitoring process, regulated by the REGULATIONS (EU) no.1078/2012, was found within the investigation as being the root cause of this accident. It was found also during the investigation of the accident from the 15th March 2018, in the railway station Dealu Ștefăniței, ended on the 12th March 2019. As far as the safety recommendation no.1 „to ask the railway public infrastructure administrator the revision of the part from the own safety management system concerning the monitoring and learning, following the occurrence of an accident or incident, as well as the revision of the Own danger register”, issued in the Report for the investigation of that accident shall be implemented, there is no need to issue another safety recommendation similar for the present case.

During the investigation, the commission found that the railway undertaking SNTFM „CFR Marfă” SA, did not draft in accordance with the provisions of the criterium B.3 from the Annex II of the Regulations (EU) no.1158/2010, procedures/regulations that establish the competences of the staff and the way it assures the performance of the checking of the technical conditions when the wagons are coupled/uncoupled in the trains in transit, it allowed the keeping in running of a wagon whose failures were imposing its uncoupling from the train.

Taking into account this issue, the investigation commission recommends:

- 1) Romanian Railway Safety Authority – ASFR be sure that the railway undertaking SNTFM „CFR Marfă” SA, drafts procedures so that assure the identification of the competences necessary for the staff involved in the checking of the technical conditions for coupling/uncoupling the wagons at the trains in transit and the way to perform this activity, in order to keep under control the risks induced by this activity

3.4.23. The railway accident happened on the 14th June 2018, at about 22:20 o'clock, in the railway county Craiova, at the entry into Craiova railway station, in the running of the freight train no.60524, got by the railway freight undertaking TIM RAIL CARGO SRL, consisted in the derailment of a wagon loaded, the 15th one of the train.

The investigation report was completed on the 13th June 2019.

Direct causes, contributing factors

Direct cause of the accident was the unfastening of the tyre of the wheel no. 4, followed by its turn and cross displacement on the wheel centre, it leading to the accidental change of the distance between the inner faces of the wheel tyres (gauge) of wheelset corresponding to the wheels 3÷4 of the wagon no.84535304149-2.

The unfastening of this tyre happened in the conditions of the decrease during the time of the fastening forces between the tyre and the wheel centre, determined by the thermic and mechanic stresses appeared in the operation of the wheelset.

Contributing factors

- missing of the paint marks situated at 900 one to another on the tyre of the wheel no.4, it making difficult the detection of its turn on the wheel centre, at the performance of the technical inspections and brake tests;
- the fatigue cumulated by the examiner that performed the technical inspections and brake tests for the freight train no.60524, between the 13th÷14th June 2018

Underlying causes

Violation of the provisions of art.6, paragraph (2), letter c), corroborated with those from the point 20 of the Table 1 from the Instructions for the technical inspection and maintenance of the wagons in operation no.250/2005, with reference to the dealing with a wagon at which the paint marks situated at 900 one to another on the tyres of the wheels are missing.

Root causes

Non-identification, like danger, by the railway undertaking, of the fatigue of the employees with responsibilities in the technical inspection of the wagons, when these run activities specific to the job for a long time, without having ensured the rest conditions.

Additional remarks

During the technical inspection at the freight train no.60254 and at the trains from/in which it was formed/splitted up, in the railway stations Reșița Nord, Caransebeș and Drobeta Turnu Severin, because, in the railway station Reșița Nord, the examiner found the trains already stabled, and in the railway stations Caransebeș and Drobeta Turnu Severin he was in the hauling locomotive of the train the visual inspection of the train was not performed during its stabling/dispatching on/from the line, where the technical inspection was run. We underline that this operation (visual inspection of the train) is stipulated at art.6, paragraph (2) and at art.9, paragraph (2) from the Instructions for the technical inspections and maintenance of the wagons in operation no.250/2005.

Safety recommendations

With reference to the railway accident happened on the 14th June 2018, in the running of the freight train no.60524, one found out that it happened following the unfastening of the tyre from the wheel no.4 of the wagon no. 84535304149-2, followed by its turn on the wheel centre and the grinding of the fastening ring, it leading to the accidental change of the distance between the inner faces of the tyres from the wheels (gauge) of the wheelsets.

One also found that the accident happened following the missing of the paint marks situated at 900 one to another on the tyre of the wheel no.4, it making difficult the identification of the tyre turn on the wheel centres.

Non-identification of the nonconformities at the paint marks from the wheels of the wagon no.84535304149-2 (especially during the technical inspections and brake tests performed in the railway stations Drobeta Turnu Severin and Balota) was favoured also by the fatigue condition cumulated by the human operator (examiner). So, on the 13th June 2018, at 06 o'clock and to the 14th June 2018, at 19:30 o'clock, the examiner performed technical inspections and brake tests at the freight train no.60524 (in the railway stations Reșița Nord, Caransebeș, Drobeta Turnu Severin and Balota) and did not take the rest than for short times in the hauling locomotive.

So, following this working way, the railway undertaking did not get the keeping under control the risks generated by the fatigue condition of the own employees within the train technical inspections.

Taking into account the root cause, basis for this accident, in order to prevent some accidents similar those presented in this report, AGIFER issue the next safety recommendation:

- 1) Romanian Railway Safety Authority – ASFR shall ensure itself that TIM RAIL CARGO SRL, like railway freight undertaking, shall re-assess the own measures for the prevention and keeping under control the risks associated to the technical inspection and maintenance of wagons in operation.

3.4.24. The railway accident happened on the 20th June 2018, at 03:20 o'clock, in the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in the railway station Dej Triaj, Group A, when the freight train no. 42695 (got by the railway undertaking SNTFM „CFR Marfă” SA), hauled by the locomotive DA 970, passed over the switch no.15A, the first bogie of the wagon no.31530670031-3 (the 3rd wagon after the locomotive) derailed in the running direction.

The investigation report was completed on the 6th June 2019.

Direct causes, contributing factors

The direct cause of the accident was the flange of the left wheel (no. 7) from the guiding axle of the wagon no. 31530670031-3 climbed over the gauge face of the exterior closure rail of the

curve of the switch no.15A, following the exceeding of the derailment stability limit. It happened because the track twist in the area of the switch was exceeding the accepted limit, and the frame of the bogie involved (corresponding to the wheels no 5÷8) was distorted.

Contributing factors:

- unsuitable maintenance of the switch no.15A;
- reduced number of the staff from the Line District Dej Triaj, used for the track maintenance, corroborated with the lack of the adequate technical endowments;
- insufficient quantities of materials supplied to the Line District Dej Triaj for the track maintenance and repair;
- twist of the bogie frame, determined by the serious corrosion of this part and by the strong shocks transmitted by the frame of the bogie involved during the running of the wagon in derailed condition, following the previous derailment, happened on the 25th April 2018.

Underlying causes

- violation of the provisions of art.19.6. from Instruction of norms and tolerances for the track construction and maintenance-lines with standard gauge no.314/1989 concerning the tolerances accepted for the cross level;
- violation of the provisions of art.7.A.4. from Instruction of norms and tolerances for the track construction and maintenance-track with standard gauge no.314/1989 concerning the keeping between the tolerances of the inclination of the gradient at the track twist;
- violation of the provisions of point 4.1. from Chapter 4 „Norms of manpower and material consumption”, of Instruction for the line maintenance no.300 – edition in force concerning the provision with the norm of manpower for the current manual work maintenance.

Root causes

Non-application of the provisions from Instruction for the line maintenance no.300 – edition in force document associated to the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life time of the lines in the maintenance process”, part of the safety management system of CNCF „CFR” SA, concerning the sizing of the staff from the subunits in charge with the line maintenance, in relation to the total works, it being confirmed by the sub-sizing of the staff from the Line District Dej Triaj of the Track Section L7 Dej.

- Violation of the provisions from the same operational procedure code PO SMS 0-4.07, concerning the rhythmic provision with the quantities of materials necessary for the maintenance.
- Non-identification, like danger, of the serious twist of the bogie frames, between two inspections type RP, it being generated by the cumulation of the next factors:
 - long term use of the wagons without protection against the corrosion, for the bulk transport of the salt (a freight very corrosive);
 - strong shocks transmitted by the frame of the bogie involved, during the running of the wagons in derailed condition.

Additional remarks

During the investigation, one found that after the occurrence of the previous accident (on the 25th April 2019), the wagon was routed and entered into the Section IRV Oradea. In this workshop, the axles derailed of the wagon were inspected on the lathe and there were performed repairs at the suspension, centre castings, axles and braking equipment, without the measurement of the wagon chassis, operation stipulated at point 1.4, Table 1 from Instructions for the technical inspection and maintenance of the wagons in operation no. 250/2005.

Measures taken

In 2018, on the closure rails of the switch no.15A from the railway station Dej Triaj, two accidents happened following the unsuitable technical condition of the track superstructure (on the 25th April 2018 and on the 20th June 2018).

The railway county Cluj – Line Division, through the Line Department, decided, upon the paper no.43/A/533/3/2018 – „Provisions for performance of the movements inspector activity, works at lines, CT (interlocking) and IFTE (overhead line equipment) during the removal and replacement with track panels of the switch no.15A from the railway station Dej Triaj”, the removal of the switch and its replacement, on the „diverging section” with track panels type 49, on wooden sleepers, indirect fastening type K. These works were ended on the 6th July 2018, at 14:50 o'clock.

Safety recommendations

The derailment of the wagon no.31530670031-3, being in the composition of the freight train no.42695 (got by the railway undertaking SNTFM „CFR Marfă” SA), on the 20th June 2018, happened following the unsuitable maintenance of the infrastructure and the existing twist of the frame of the bogie involved.

During the investigation one found that the track superstructure maintenance was not made in accordance with the provisions of the practice codes (reference/associated documents to the procedures, parts of CNCF „CFR” SA safety management system).

One also found that within the identification and assessment of the risks, the railway county Transilvania of SNTFM „CFR Marfă” SA did not identify the risks generated by the danger of twist of the bogie frames, between those two inspections type RP, for the wagons without protection against the corrosion, used a long time for the bulk transport of the salt (good very corrosive) and involved in derailments (the wagon was involved also in the derailment from the 25th April 2018).

Taking into account the root causes, basis for the occurrence of the accident, in order to prevent accidents similar to those presented in this report, AGIFER issues the next safety recommendations:

- 1) Romanian Railway Safety Authority – ASFR shall assess, through own supervising actions, the application of the safety management system of the public railway infrastructure administrator and, if case, shall ask CNCF „CFR” SA, to correct or the re-assess the measures for keeping under control the own risks.
- 2) Romanian Railway Safety Authority – ASFR shall ask SNTFM „CFR Marfă” SA:
 - to assess the risks generated by the danger of the serious twist of the bogie frames, between the two inspections type RP, twist generated by the cumulation of the next factors:
 - long term use of the wagons without protection against the corrosion for the bulk transport of the goods very corrosive;
 - the strong shocks sent by the bogie frame, during the running of the wagons in derailed condition.
 - identification an application of the safety measures necessary for keeping under control of this risk
 - identification an application of the safety measures necessary for keeping under control of this risk.

3.4.25. The railway accident happened on the 23rd June 2018, at 15:18 o'clock, in the railway county Craiova, track section Filiași – Târgu Jiu, in Turceni railway station, when the freight train no.23642, got by the railway undertaking SNTFM „CFR Marfă” SA, hauled by the locomotive ED 050, was stabled, three wagons of the train derailed.

The investigation report was completed on the 13th June 2019.

Direct causes, contributing factors

The direct cause of the accident is the right wheel of the first axle from the second bogie (wheel no. 5) of the 37th wagon left the running surface of the head of the exterior rail of the curve and fell inside the track. It happened following the unsuitable technical condition of the track superstructure, allowing the increase of the track gauge over the maximum accepted value,

dynamically, under the action of the forces generated by the wagon no.81536654073-1, the wagon having technical and loading nonconformities.

Contributing factors:

- existence of some unsuitable sleepers, one after another, at the derailment site, that was not ensuring the fastening of the metallic plates on the exterior of the curve, allowing their displacement in the direction of the gauge increase;
- exceeding of the loading limit and of the axle load accepted for the wagons involved in the accident and for 26 wagons in front of those ones, in the running direction;
- the destruction of the centre pivot liner fitted between the lower centre casting and the upper one of the bogie corresponding to the wheels no.5÷8 (the second in the train running direction) from the wagon no.81536654073-1 (the 37th one of the train).

Underlying causes

- violation of the provisions of art.25, points 3 and 4 from „Instruction of norms and tolerances for track construction and maintenance for tracks with standard gauge no.314/1989”, concerning the failures that impose the replacement of the reinforced concrete sleepers, respectively the non-keeping within the track of some unsuitable sleepers;
- loading of the wagons of the freight train no.23642, without meeting with the provisions from the points 3.1 and 3.2 of the Annex II RIV, concerning the maximum load on axle and the loading limits;
- use, against the provisions of the Ministry of Transports’ Order 290/2000, Annex I, art.1, in the maintenance of the wagons, of critical railway products manufactured by economic agents that do not get railway supplier authorization.

Root causes

- non application of all provisions of the operational procedures code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for whole life time of the tracks in the maintenance process”, part of the safety management system of the railway public infrastructure administrator CNCF „CFR” SA, concerning the performance of the maintenance and periodical repairs at the tracks;
- non-application of all provisions of the operational procedure code PO 75.2 – edition 3/00 „Delivery of the wagons in the dispatching railway station”, part of the safety management system - SMS of SNTFM „CFR Marfă” SA, and of the Common working agreement, no. C.S/4095/ 41593, concerning the checking of the freight loading and ensuring.

Additional remarks

During the investigation, the next findings on some deficiencies and lacks resulted, without relevance for the conclusions on the causes.

Analyzing of the provisions from the procedures of the SMS of SNTFM „CFR Marfă” SA, the investigation commission found:

- in the flow diagram from the annex 2/ PO 75.2 is established the fact that „the reception of the loaded transport means from the customer is done, from technical point of view, by the examiner and by the SG staff from commercial point of view;
- in the Annex 1/ PO 75.6 is included like reference document the Disposal of the General Manager of SNTFM „CFR Marfă” SA no.23/2011, that in the annex 2 at point 9 establishes the fact that, „starting with the 1st July 2011 delivery-reception of the wagons at and from the beneficiary is done from technical point of view by the examiner”, also establishing the compulsory to draft then some documents.

At art.8.2 from the Common Working Agreement, no.C.S/4095/ 41593, concluded in October 2015 between SNTFM „CFR Marfă” SA, represented by the Railway County Banat – Oltenia, and SC Complexul Energetic Oltenia, is stipulated that „if there is no wagon staff, the delivery – reception from technical point of view is done by the commercial storekeeper”. This provision resulted in the performance of the reception from the beneficiary of the wagons from the

composition of the freight train no.23642 just by the commercial storekeeper. These wagons, during their reception from the beneficiary, were not inspected from technical point of view and the documents stipulated in the Disposal of the General Manager no. 23/2011 were not drafted. The commercial storekeeper had no training for the technical delivery-reception of the wagons, it resulting from the analysis of the plans for theoretical training specific to this job, from the statements of the storekeeper and from the statements of the staff in charge with the management, training and control, that had assigned the railway station Drăgotești.

One also found some deficiencies in the line maintenance, that could generate the appearance of some dangers affecting the traffic safety:

- although the control program of the Line Section L4 Drobeta Turnu Severin at the District Turceni is precisely met, the finding notes drafted do not have the effect, not reaching the main problems that the district has; ex. excepting of two finding notes, no reference was done at the non-conformities existing at the accident site, non-conformities found by the investigation commission, although these were for long time and worsened year by year;
- though in the documents that manage the evidence of the speed restrictions there are terms for the removal of these restrictions, these terms are almost never met.

Measures taken

On the curve where accident occurred have been carried out work for replacing sleepers.

Safety recommendations

During the investigation, the commission found that the management of the infrastructure administrator established the Interface risks with the Railway Undertaking and the measures for keeping under control, these being emphasized in the paper no.42/1/1052/16.04.2015 - „The interface risks with the Railway Undertaking and measures for keeping under control” of the Railway County Craiova, document part of the SMS. In this document it is stipulated at point 26 the danger „Exceeding of the axle load”, having like possible consequences vehicle derailments or deteriorations of the line or of the works of art. This risk is considered of unlikely frequency and marginal like severity.

After the establishment and quantification of this risk, between Drăgotești – Turceni, for the accident happened on the 3rd May 2016 and for the actual accident, this risk was established also like factor contributing at the occurrence of those two accidents, so its classification like „unlikely” and the severity „marginal” have to be re-assess.

Taking into account this issue, the investigation commission recommends:

- 1) Romanian Railway Safety Authority – ASFR shall ensure that the railway public infrastructure administrator revises the document no.42/1/1052/16.04.2015 - „Interface risks with the Railway Undertaking and the measures for keeping under control”, part of SMS.

The commission found that the railway undertaking established the performance of some inspections that its staff has to do in the reception of the consignments for transport. These inspections were established both for this activity generally, within the Operational Procedure 75.2 and for the actual case of the wagons taken from SC Complexul Energetic Oltenia through the Common working agreement, no.C.S/4095/ 41593. Taking into account that, although inspections at the upper site of the wagons were disposed, they can not be practically performed by the staff of the railway undertaking, because in the railway station Drăgotești the lines open for running are electrified ones.

Taking into account this issue, the investigation commission recommends:

- 2) Romanian Railway Safety Authority – ASFR shall ensure that the railway undertaking revises the measures disposed for the inspection of the wagon loading at their reception in the railway station Drăgotești in order to keep under control the risk of exceeding the loading limit and implicitly of the accepted load on the pair of wheels.

The investigation commission found that both the infrastructure administrator and the railway undertaking identified but did not manage the risks generated by the lack of maintenance at the

tracks maintenance, respectively at the wagons owned, in order to be able to dispose consequently viable solutions and measures for keeping under control the derailment danger.

So, if its own procedures of the safety management system had been completely applied, as well as the provisions of the practice codes, part of SMS, had been applied too, the infrastructure administrator would have been able to keep the technical parameters of the track geometry between the tolerance limits imposed by the railway safety, and the railway undertaking would have been able to take the measures for the failure at its own wagons, preventing in a such way the occurrence of this accident.

Because these issues were found and presented also during the investigation of other accidents (ex: accident happened on the 13th December 2017 between Golești–Bradul de Sus), following which safety recommendations were disposed, the issuing of other identical recommendations

3.4.26. The railway accident happened on the 30th June 2018, in the railway county Craiova, in Roșiori Nord railway station, on the switch no. 16, four wagons the freight train no.60250 (got by the railway undertaking SC LTE -Rail România SRL) derailed.

The investigation report was completed on the 27th June 2019.

Direct causes, contributing factors

The direct cause of the accident is the first right wheel of the bogie I (in the running direction of the train) from the 16th wagon left the running surface of the head of the inner rail of the curve of the switch no.16 and it fell inside the track. It happened following the unsuitable condition of the track superstructure, it allowing the increase of the gauge over the maximum accepted value, in dynamic conditions, under the action of the forces transmitted by the rolling stock.

Contributing factors:

- existence of some unsuitable consecutive sleeper, at the derailment site, that did not ensure the right fastening of the metallic plates at the interior of the curve, allowing their displacement in the direction of the gauge increase.

Underlying causes

- violation of the provisions of art.25, points 2 and 4 from „Instruction of norms and tolerances for the track construction and maintenance for tracks with standard gauge no.314/1989”, concerning the failures that impose the replacement of the wooden sleepers, respectively the non-acceptance within the track of some unsuitable sleepers, within the switches.

Root causes

- non-application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for whole life time of the lines in maintenance process”, part of the safety management system of the railway public infrastructure administrator CNCF „CFR” SA, concerning the performance of the maintenance and periodical repairs at the tracks.

Additional remarks

Some deficiencies were found in the track maintenance, that could lead to the appearance of some dangers with effects for the traffic safety:

- although the control program of the Track Section L2 Roșiori for the District no. 3 Roșiori Nord is met, the finding notes, submitted to the investigation commission, do not generate the effect, not reaching the main problems of the district; ex.no reference was made for the nonconformities existing at the accident site, nonconformities found by the investigation commission.

Measures taken

One performed works for the replacement of the special wooden sleepers within the switch no. 16, involved in the accident occurrence as well as repairs at the track no. 5 of Roșiori Nord railway station.

Safety recommendations

During the investigation, the commission found that the management of the infrastructure administrator drafted the system procedure PS SMCM – SMS 0-6.1 „Risk management”, having like date of coming into force the 17th October 2017, this procedure replacing PO SMS 0-4.12 „Management of the railway safety risks”. In this procedure it is established that the administrator, through its organisational structures, has to identify the risks „that can affect the activity performed and the objectives established”, the risks recently identified being written down in the form „risk alert”, enclosed to the procedure. It is also established a new "Register for the danger evidence", drafted according to the new procedure.

The commission found that this procedure is not implemented in the railway county Craiova, that is at this level "The register for the danger evidence" is drafted upon the old procedure, and the form „risk alert” is not known by the staff involved.

Taking into account this issue, the investigation commission recommends:

- 1) Romanian Railway Safety Authority – ASFR ensure that the railway public infrastructure administrator implements the system procedure PS SMCM – SMS 0-6.1 „Risk management”, part of SMS, in all its organisational structures.

The derailment of the wagons no. 33876735817-3 and 88535300469-4 (the 16th and 17th ones in the train composition), as well as of the wagons no. 85535310067-7 and 84535488317-3 (the 24th and 25th ones in the train composition) happened following the unsuitable maintenance of the track on the curve of the switch no. 16 (on the connection rails), with access to the line 5 of the railway station Roşiori Nord.

The investigation commission found that the infrastructure administrator identified but did not managed the risks generated by the missing of the line maintenance, in order to dispose consequently the solutions and the measures viable for keeping under control the derailment danger.

So, if the own procedures of the safety management system, as well as the provisions of the practice, part of SMS, had been completely applied, the infrastructure administrator should have been able to keep the technical parameters of the track geometry between the limits of the tolerances imposed by the railway safety.

Because these issues were found and presented also during the investigation of other accidents (ex: accident happened on the 28th March 2017 in the railway station Ciolpani or the accident happened on the 13th December 2017 between Goleşti–Bradul de Sus), following which safety recommendations were disposed, it considered that there is no need to issue other identical recommendations

3.4.27. The railway incident happened on the 16th July 2018, at 04.20 o'clock, in the railway county Craiova, in Drobeta Turnu Severin railway station, the freight train no.89306, got by the railway undertaking SC GRUP FERROVIAR ROMÂN SA, started to run from the line no. 7, on a route made for the freight train no.89300, that was stabled on the track no.8, followed by the forcing open the switch no.277.

The investigation report was completed on the 23rd March 2019.

Direct causes, contributing factors

Direct cause of the railway incident was generated by a human mistake appeared in the driving process of the hauling locomotive of the freight train no. 89306, this mistake consisting in the inobservance of the position of the track indicator of the exit light signal from the group Y7-8.

Contributing factors:

The train started to run without the locomotive crew occupying its normal working places in order to track the positions of the fixed signals.

Underlying causes

- inobservance of the provisions of the Instructions for the activity of the locomotive crew no.201/2007, art.92, paragraph(1), letter b) regarding the regulations for the occupation of the running line;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.119, paragraphs (1),(2) and (3) regarding the obligations of the locomotive crew for the occupation of the running line;
- inobservance of the provisions from the Signalling Regulation nr. 004/2006, art.122 paragraphs (1), (2) și (3) regarding the position of the track indicator of the exit light signal from the group Y7-8;
- inobservance of the provisions from the Regulation for the running of the trains and shunting of the railway vehicles no.005/2005, art.197, paragraph (5), point b. regarding the departure order for the occupation of the running line.

Root causes: none.

Safety recommendations: none.

3.4.28. The railway incident happened on the 23rd July 2018, in the activity of SC TMB „METROREX” SA București, track section Berceni–Pipera M2 (electrified double-track line), in the metro station Aviatorilor, consisted in the hit of the infrastructure elements by a part detached from the train TEM 1320.

The investigation report was completed on the 4th April 2019.

Direct causes, contributing factors

Direct cause of the incident was the breakage of the anti-roll bar of the semi-train 1320, at the car R, left bogie 2, respectively on the right side of the running direction.

Contributing factors

The failure of the anti-roll happened following a quality problem during the shooting pin process with metallic shots, this process being faulty done.

Underlying causes: none.

Root causes: none.

Measures taken

During the investigation, there was performed an inspection CUS (ultrasonic control) of the torque rods at all the trains type BM 3- CAF, following the inspections there were found 7 anti-roll bars with cracks, the specialist of the company CAF replacing them as follows:

- 1318/2318
 - Anti-roll bar bogie 1, car R1, series number 238
 - Anti-roll bar bogie 1, car R2, series number 226
- 1320/2320
 - Anti-roll bar bogie 1, car R2, series number 244
- 1321/2321
 - Anti-roll bar bogie 2, car MP1, series number 260
 - Anti-roll bar bogie 2, car MP2, series number 253
- 1322/2322
 - Anti-roll bar bogie 1, car R1, series number 264
 - Anti-roll bar bogie 1, car M1, series number 255.

Safety recommendations: none.

3.4.29. The railway accident happened on the 5th August 2018, at 21:56 o'clock, in the railway county Cluj, in Aleșd railway station, when the freight train no. 32101 (got by the railway undertaking SNTFM „CFR Marfă” SA) was dispatched, all the axles of the first wagon and the axles of the first bogie from the second wagon derailed over the switch no. 46.

The investigation report was completed on the 18th June 2019.

Direct causes, contributing factors

The direct cause of the accident is the first right wheel from the wagon no. 81536655251-2 climbed the drag shoe, in the running direction, then it fell inside the track.

The climbing of the drag shoe by the wheel happened in the conditions of the train dispatching with the shoe put under the wheel.

Contributing factors

- the drag shoe from the wheel of the first wagon of the train no. 32101 was not removed before the train dispatch;
- one did not see during the visual inspection of wheel blocked and/or of the non-ordered braked running;
- recording in the unified register for free routes, orders and movement of the railway station of a document that did not meet with the reality, concerning the fact that the drag shoe from the first wagon of the train no. 32101 was removed;
- acceptance and confirmation upon signature of a document not in accordance with the reality, in the unified register for free routes, orders and movement, about the fact that the drag shoe was removed from the first wagon of the train no. 32101;
- not-checking of the existence or of the missing from the rack of the drag shoe, that had to be removed from the first wagon of the train no. 32101;

Underlying cause

- violation of the provisions of art. 75. – (1) from the Regulations for the train running and vehicle shunting – no.005/2005, concerning the responsibility for the removal of the drag shoes;
- violation of the provisions of the sheet 24 PTE of the railway station Aleșd, concerning the location of the rack for the drag shoes in the movements inspector office;
- violation of the provisions of art. 15. – (1) from Instructions for the technical inspection and maintenance of the wagons in operation, no 250/2005, for the identification of the failures that can be heard or remarked during the running, respectively of the blocked wheels or non-ordered braked running;

Root causes

Non-identification of the danger resulted from the unsuitable operation of the drag shoe during the technologic process of forming, composing and dispatching of the trains in the forming stations.

Additional remarks

During the investigation the next findings on some deficiencies and lacks resulted, without relevance for the conclusions on the causes:

- sheet 24 PTE from Aleșd railway station does not regulate the working way for the removal of the drag shoe used for securing the wagons and the removal way of the drag shoe from the wagons before the train dispatch, between the shunting crew and the disposing station movements inspector in case of working with local station movement inspector that deals with records in the unified register for free routes, orders and movement ;

Measures taken

During the investigation, the parties involved took measures for the prevention of some similar accidents, as follows;

Staff of Aleșd railway station moved the rack for the shoes inside the office of the movements inspector

Safety recommendations

The derailment of the first two wagons of the freight train nor. 32101 happened following the violation of the practice codes on the operation of the drag shoes.

Following the investigation, one also found the contribution at the occurrence of the railway of the fact that the undertaking did not identify the danger and did not assess the risks associated for the non-removal of the drag shoe before the train dispatch from the forming stations.

Taking into account these above mentioned, the investigation commission addresses to Romanian Railway Safety Authority-ASFR the next safety recommendation:

- 1) to require the railway undertaking SNTFM "CFR Marfă" SA the revision of the safety management system and risk analysis for the dangers of non-removal of the drag shoe, before the train dispatch in the forming stations.

3.4.30. The railway incident on the 9th August 2018, in the railway county Cluj, track section Sărețel – Deda (electrified single-track line), between Monor Gledin and Deda railway stations, in the running of the freight train no.80609-2, got by the railway freight undertaking Grup Feroviar Român SA, consisted in the exceeding of the speed accepted by the line, imposed by the speed restrictions existing between those two railway stations Monor Gledin and Deda, was exceeded.

The investigation report was completed on the 05.08.2019.

Direct causes, contributing factors

The direct cause of the incident was the inadequate effect of the braking measurements taken during the train running on a slope track section.

Contributing factors:

- non-performance of the continuity test of the automatic brake, before the train leave Beclean pe Someș railway station;
- not-remarking of the unsatisfactory braking effect, after checking the effectiveness of the automatic brake and not taking of the necessary measures;
- operation of the automatic brake, applying and releasing the brake repeatedly or the simultaneous operation both of driver's automatic brake valve KD2 (train automatic brake) and of the valve FD1 (straight air brake);
- non-use of the locomotive electric brake during the running on slope, between Monor Gledin - Deda.

Underlying causes

- The operation guide for LE 060 EA of 5100 kW , Edition ASAB – 2007, concerning the tests and checking that have to be performed for taking over and prepare of the locomotive for a new service.
- Regulations for hauling and braking No.006/2005, concerning: performance of the braking tests, checking of the automatic brake effectiveness, way to perform the service brakes, completely and quickly, as well as the use of the electric brake for the runing on slopes.

Root causes: none.

Additional remarks

During the investigation, the next findings about some deficiencies and lacks were done, without relevance for the incident conclusions:

- from the endowment of a the locomotive was missing the key for the unlocking/locking of the driver's automatic brake valve KD2, against the provisions of the Guiding for the operation of LE 060 EA of 5100 kW;
- the driver had not the operation guide for the electric locomotive that he was driving, against the provisions of Art.9, letter b4) from the Instructions for the activity of the locomotive staff no.201/2007;
- the locomotive staff, got by the railway undertaking, did not notify that the keys for the unlocking/locking the valve KD2 were missing from the locomotive, against the provisions of Art.34(3) from the Instructions for the activity of the locomotive staff no.201/2007;

- in the route sheets of the locomotive staff, in the box „the location of the sleeping room for rest outside the home”, there are not written down the data for the identification of the accommodation units, because in the respective railway stations there were no sleeping rooms, specially arranged in this respect, against the provisions of Art.8(3) from the Norms for the maximum continuous service in the locomotive of the locomotive crew in Romanian railway system, approved through the Order of Minister of Transports no.256/2013;
- in the activity of the locomotive staff, the provisions of Art.8(1) from the Norms above mentioned, covering the rest time outside the home, that is not half from the previous worked time, are not always met;
- the locomotive crew being in the locomotive between Argeștru-Deda, consisted in the driver, without authorization for this type of service, against the provisions of Art.5 (2), letter c) from the Instructions for the activity of the locomotive staff no.201/2007. We mention that it is incident, classified at Art.8 group C, point 3.4 from the Regulations;
- the driver of the hauling locomotive, between Argeștru-Beclean pe Someș, carried out its duty on the 9th August 2018, between the hours 08:00÷20:00, having a continuous service in the Locomotive of 12 hours, against the regulation provisions, that limit this time at 10 hours, taking into account the fact that the service was performed only by the driver;
- the examiner who performed the technical inspection at the train, during its transit, in the railway station Beclean pe Someș, did not carry out also within this inspection the visual inspection at the train departure from the railway station, against the provisions of Art.10 letter t) from the Instructions for the technical inspection and maintenance of the wagons in operation no.250. We mention that it can be incident classified at Art.8 group C, point 3.1 from the Regulations;
- the conductor did not meet with the normal working time regulated by the Law 53/2003 – Working Code with further amendments.

Safety recommendations

Between the railway stations Monor Gledin - Deda, on the slope track section, the running speed of the trains was limited on three track sections at 30 km/h and on another one at 15 km/h. The driver could not comply with these speeds, in spite of the operation of the automatic brake. Before leaving Beclean pe Someș railway station, the train crew did not perform the continuity tests of the automatic brake, and during the running, did not operate the electric brake of the locomotive. During the action for the identification of the dangers associated to the railway operations, the railway undertaking did not identify all the dangers that could be reasonably identified, in connection with the investigated case, for those identified, the safety measures proved to be insufficient and also did not take the measures to be sure that the psychological examination of the staff with responsibilities in the traffic safety is done so the possible nonconformities concerning the organization skill and discipline, the attitude towards the activity or the awareness of the job importance concerning its impact on the destiny and life of other people, be found.

The investigation commission recommends Romanian Railway Safety Authority– ASFR, to ask Grup Feroviar Român SA:

- 1) revision and improvement of the activity for training the staff with responsibilities in the traffic safety in order to get a better understanding of the role of the regulations and of the importance of their compliance with, taking into account also the lessons for learning from the previous accidents, irrespective of the railway undertakings involved.
- 2) revision of the identification of the dangers associated to the railway operations for the train running, concerning the train braking and the running on slopes and taking of effective additional measures for keeping under control their occurrence risks;

- 3) analysis of the opportunity to revise the process for the psychological examination of the staff with responsibilities in the traffic safety, taking some additional measures, in order to get an effective exchange of information with the psychological offices.

3.4.31. The serious railway accident happened on the 12th August 2018, at 08:17 o'clock, in the railway county Craiova, track section Caracal-Craiova, on the running line track I, between Malu Mare - Banu Măracine railway stations, on the viaduct Cârcea from km 200+306, in the running of the freight train the freight train no.80315 (got by the railway freight undertaking SC GRUP FERROVIAR ROMÂN SA), consisted in the derailment of the hauling locomotive series BB 25200 no.208 and of the first 10 wagons, leading to the fall of the metallic bridge deck of the first viaduct span and of 7 wagons (wagons 2 ÷ 8 from the locomotive).

The investigation report was completed on the 8th August 2019.

Direct causes, contributing factors

The direct cause of the serious accident is the human error appeared in the train driving, that is the locomotive staff did not meet with the position of the light exit signal X II of the railway station Malu Mare, respectively „Stop without passing the signal in stop position”, leading to : the derailment of the locomotive, of the first 10 wagons and the fall of the deck bridge of the viaduct Cârcea together with the wagons being on it.

Contributing factors:

- not paying attention to the entry light signal X of the railway station Malu Mare with the position „FREE with the speed established. CAUTION! The next signal orders stop”;
- the locomotive driving and operation with INDUSI equipment isolated, from pneumatic point of view;
- the driving and operation of the locomotive, hauling the freight train no.80315 by staff with a physical condition affected by:
 - alcoholic drinks consumption;
 - fatigue cumulated following the exceeding of the limit of the maximum continuous duty accepted for the locomotive;
- tolerance by the train guard, of the consumption of alcoholic drinks of the driver during the duty.

Underlying causes

- violation of the provisions:
 - art.59-(4) from the Regulations for the railway technical operation no.002/2001, that prohibits the passing of the signal in stop position;
 - art.23, paragraph (2), corroborated with art.21 from the Signalling Regulations no.004/2006, regarding the compliance with the position of the light exit signal, having the position „STOP without passing the signal in stop position” (a light unit of red colour, to the train);
- violation of the provisions of art.127, paragraph (1), letters a), g) and of art.127, paragraph (2) from Instructions for the activity of the locomotive crew no.201/2007, regarding the obligation of the locomotive crew that, during the train hauling, pay attention to the position of the fixed signals and take the measures imposed by the remarks done along the route;
- violation of the provisions from the Annex 2, art.2(2), from the Instructions for the activity of the locomotive crew no.201/2007, where it is stipulated that it is prohibited to take out of service the pneumatic system for the evacuation of the general brake pipe, so, although the installations for safety, vigilance and control of the train speed order the train braking, the evacuation of the general brake pipe shall be prevented;
- violation of the provisions from art.9, paragraph (1), letter o) from the Instructions for the activity of the locomotive crew no.201/2007, regarding the obligation of the locomotive

staff to run the operations stipulated in the specific instructions, for the systems of traffic safety, fitted up in the locomotive;

- violation of the provisions of art.37, paragraph (3), letter j), from the Instructions for the activity of the locomotive crew no.201/2007, where it is stipulated that, at the taking into operation of the locomotive, the locomotive crew has to check the right working of the installations of safety, vigilance, control of the train speed and the recording of the locomotive parameters and of the seals applied them.
- violation of the provisions of art.1 from the Order of Minister of Transports and Telecommunications no.855 from the 24th February 1986 regarding some measures for the strengthening of the discipline in the units of the Ministry of Transports and Telecommunications, and of art.12, paragraph (1), letter b) from the Instructions for the activity of the locomotive crew no.201/2007 and the Job descriptions, that prohibits the locomotive staff to drink alcoholic drinks during the duty;
- violation of the provisions of art.3 letter b) from Norms for the maximum continuous duty in the locomotive, done by the staff in charge with the driving and/or operation of the locomotive in Romania, approved by the Minister of Transports' Order no.256/2013, regarding the time of the maximum continuous service accepted for the locomotive, in case of driving/operation of the locomotive by the driver – without the driver's assistant;
- violation of the provisions of art.16, from the Regulations for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and metro safety, approved by the Government Decision no.117/2010, regarding the obligations and responsibilities of the economic operators staff that performs railway transports;
- violation of the provisions from Internal regulations for the checking of GFR staff, regarding the consumption of the alcoholic drinks and drugs, with reference to „obligation to notify the hierarchical head or the unit manager, about the cases of persons under the influence of the alcohol or drugs that have to begin the duty or to continue it”.

Root causes

- absence of some concrete provisions, from „Internal regulations for the checking of GFR staff regarding the consumption of the alcoholic drinks and drugs „, regarding the way to perform the check and record the results of it for the staff when he begins the duty, it leading to a series of irregularities in this activity;
- violation of the provisions of art.4.2. from the disposal no.7 of SC GFR SA general manager, according that, in case of freight trains running over 50 km, the length of the maximum continuous duty for the locomotive is reduced with one hour as against the provisions of Order 256/2013.

Additional remarks

During the investigation, many nonconformities were found, without relevance for the accident causes, as follows:

- violation of the provisions of art.2, letters c), e) and f) Annex 3 from the Instructions for the activity of the locomotive crew no.201/2007, that is the tasks that are exclusively obligations of the shift head are carried by the locomotive examiner as follows:
- checking, at the shift beginning, of the general condition of the locomotive crew and if it is able for duty;
- issuing, filling in and handling of the route sheet for the locomotive that the locomotive crew is going to drive/operate;
- reception of the route sheet from the staff that ended the duty, respectively his direction for rest to the sleeping room specially set.
- violation of the provisions of art.9, paragraph (1), letter o from the Instructions for the activity of the locomotive crew no.201/2007, regarding the obligation of the locomotive crew to perform all the operations stipulated by the specific instructions for the operation

of the systems of information and traffic safety, fitted up on the locomotive, that is after taking the locomotive series BB 208 on the 11th August 2018, the driver did not input the data for the identification of the staff and of the hauled train;

- violation of the provisions of art.12, paragraph (1), letter e), from the Instructions for the activity of the locomotive crew no.201/2007, regarding the fact that the locomotive crew is forbidden to leave the locomotive during the duty, without meeting with the regulations in force;
- violation of the provisions of art.70 (14) from Regulations for hauling and braking no.006/2005, according what it is forbidden the isolation of the brake of the locomotive hauling the train, as well as the blocking of the release valves on „open”;
- violation of the provisions of art.9, paragraph (1), letter o) from the Instructions for the activity of the locomotive crew no.201/2007, regarding the obligation of the locomotive crew to perform the operations stipulated in the instructions specific to the traffic safety systems, fitted in the locomotive, respectively between Grădinari – Vadu Lat, at the passing by the signal of the automatic block line B113 the position “STOP without passing the signal in stop position! – a light red position to the train”, the driver operated without reason the button “Ordered passing ”;
- violation of the provisions of art.5 from the Regulations for the running of the trains and for the shunting of the railway vehicles no.005, approved through the Order of Minister of Transports, Constructions and Tourism no.1816/2005, that is, the railway undertaking did not ensure the checking of the train guard when he started the duty (employee of SC GFR SA), operating the freight train no.80315;
- violation of the provisions from chapter I, point 2 of the Internal regulations regarding the checking of GFR staff concerning the consumption of the alcoholic drinks and drugs no.G12/1369/2017, according these the train staff had to present himself at locomotive shed Chitila for his checking, if he is drunk and/or drugged;
- the permissive attitude within the engine shed Chitila, regarding the way of checking, at the beginning of the duty, of the locomotive crew, in order to identify the consumption of alcoholic beverages;
- violation of the provisions of art.60. - (1) letter f) from the Regulations for hauling and braking no.006/2005, according which before the departure of the train from the railway station or running line, in stop or the time from the last braking test is over 30 minutes, it is compulsory the performance of the continuity test;
- violation of the provisions of art.19 – (1) letter d, Chapter III from the Annex I of the Instructions for the activity of the locomotive crew no.201/2007 regarding the obligation of the locomotive crew to write down in the route sheet all the stops.

Measures taken

Following the accident, the railway freight undertaking SC GRUP FERROVIAR Român SA took the next measures:

- setting of 6 jobs of county inspectors with tasks of checking, through snap actions, the condition of the staff driving or operating the trains;
- checking, in each working point the trains in transit and of their driving and operation staff;
- there were concluded agreements with the Railway Counties Cluj and Iași, of the public railway infrastructure administrator „CNCF „CFR” SA, for the checking of SC GRUP FERROVIAR Român SA staff, that come in the units of these counties, for taking the trains. SC GRUP FERROVIAR Român SA will conclude such agreements with other railway counties of the public railway infrastructure administrator.

Safety recommendations

On the 12th August 2018, at 08:17 o'clock, in the railway county Craiova, track section Caracal-Craiova, on the running line I between Malu Mare - Banu Mărăciine railway stations, on the viaduct Cârcea from km 200+306, in the running of the freight train no.80315 (got by the

railway freight undertaking SC Grup Feroviar Român SA), a serious accident occurred, consisting in the derailment of the hauling locomotive series BB 25200 no.208 and of the first 10 wagons, leading to the fall of the metallic deck bridge of the first span of the viaduct and of 7 wagons (the 2nd and 8th wagons after the locomotive).

Following the investigation, the commission established that the serious accident happened following some human errors, generated by the physical condition of the locomotive crew, affected by the consumption of alcoholic drinks and the fatigue cumulated following the exceeding of the maximum continuous service time, accepted for the locomotive, as well by the taking out of service of the technical barrier represented by the installation for the automatic control of the train speed (INDUSI).

The causes and contributing factors that led to this serious accident occurrence impose the need of revision the safety management system of the railway freight undertaking.

Taking into account these findings, the investigation commission recommends Romanian Railway Safety Authority-ASFR shall be sure that the railway undertaking SC GRUP FEROVIA ROMÂN SA :

- 1) will revise its own safety management system, so will reduce the risks generated by:
 - unsuitable physical condition of the locomotive crew, determined by the consumption of the alcoholic drinks and the fatigue cumulated following the exceeding of the maximum continuous service accepted for the locomotive;
 - running of the locomotives with the safety installations isolated;
- 2) will analyze the opportunity to introduce new technical barriers, equipping the locomotives with systems that will not allow their beginning to run by drunk crew.

Taking into account that, during less 3 years, on Romanian railway public infrastructure two railway accident happened, having like factor the unsuitable physical condition of the locomotive crew, determined by the alcoholic beverages consumption and by the fatigue cumulated following the exceeding of the maximum continuous service time for the locomotive, in which two different railway undertakings were involved, the investigation commission proposed the expanding of these safety recommendations to all railway undertakings.

3.4.32. The railway accident happened on the 25th August 2018, at about 04:50 o'clock, in the railway county București, track section Ploiești Sud – Buzău (electrified double-track line), between Ploiești Est and Valea Călugărească railway stations, consisted in a fire burst into the locomotive EA 833, hauling the freight train no.83355, got by the railway undertaking SNTFM „CFR Marfă” SA.

The investigation report was completed on the 20th August 2019.

Direct causes, contributing factors

The direct cause of the accident was the over-heating of the cables from the power supply circuit of the traction engine no.3, following the increase of the current intensity, because the perforation of the diodes junction of the rectifier of the section block S3 during the working of the locomotive in traction condition, it leading to the ignition of their insulation and then the fire development at the other parts.

Contributing factors

- increase of the contact resistance between the diodes and their radiators, following the unfastening in time of the threaded joint between them;
- existence on the locomotive floor of oil residues resulting from the oil losses from the compressors.

Underlying causes

- violation of the provisions from the Instructions for the activity of the locomotive crew in the railway traffic no.201/2006 approved by the Order of Minister no.2229/2006,

respectively of art.44.- (3) letter b), regarding the obligation of fixing, within the intermediate inspections, of the failures at the parts, equipments and aggregates at which some problems appeared in the operation of the locomotive, written down by the driver in the on-board book;

- violation of the provisions from the Technical specification Planned inspections type PTAE (PTh), RAC, R1, RT, R1, R2 and accidental repairs type RIT, RIR, RAD, RA at the electric locomotives of 5100 kW Code: ST - LE 5100kW-Rev., edition: 2, revision: 0 from 2016, point 20.3, regarding the obligation to remove the oil losses coming from the compressor, within the inspections.

Root causes

- absence of some provisions in the Technical specification Planned inspections type PTAE (PTh), RAC, R1, RT, R1, R2 and accidental repairs type RIT, RIR, RAD, RA at the electric locomotives of 5100 kW Code: ST - LE 5100kW-Rev., edition: 2, revision: 0 from 2016, that impose the checking of the fastening of the threaded joint between the diodes and their radiators.

Measures taken

Following the accident the railway freight undertaking SNTFM „CFR Marfă” SA established that the locomotive EA 833 be submitted to planned repair.

Safety recommendations

On the 25th August 2018, at about 04:50 o'clock, in the railway county București, track section Ploiești Sud – Buzău (electrified double-track line), between Ploiești Est and Valea Călugărească railway stations, a fire burst into the locomotive EA 833, hauling the freight train no.83355, got by the railway undertaking SNTFM „CFR Marfă” SA.

Following the investigation, the commission established that the root cause of the railway accident is the absence of some provisions in the Technical specification Planned inspections type PTAE (PTh), RAC, R1, RT, R1, R2 and accidental repairs type RIT, RIR, RAD, RA at the electric locomotives of 5100 kW Code: ST - LE 5100kW-Rev., edition: 2, revision: 0 from 2016, that impose the checking of the fastening of the threaded joint between the diodes and their radiators.

Taking into account these above mentioned, the investigation commission recommends Romanian Railway Safety Authority – ASFR shall request the economic operator SC CFR IRLU SA and the railway freight undertaking SNTFM „CFR Marfă” SA the revision of the reference document that is the basis for the performance of the planned inspections at the electric locomotives, so through the operations stipulated within it, be ensured a proper fastening of the threaded joint between the diodes and their radiators.

3.4.33. The railway incident happened on the 9th September 2018, at 10:30 o'clock, in Bârlad railway station, in the railway county Iași, track section Tecuci – Iași (nonelectrified line) in the running of the passenger train IR no.1661, got by the railway undertaking SNTFC „CFR Călători” SA, this train did not stop in the railway station, at the platform and passed the exit signal X II in stop position, it being on „*STOP without passing the signal in stop position*”.

The investigation report was completed on the 4th September 2019.

Direct causes, contributing factors

The direct cause of the incident was a human error generated in the locomotive driving, that is the red position of the exit signal X II was not tracked, having the meaning Stop without passing the signal in stop position, leading to its passing in stop position, without having this right.

Contributing factors:

The driver did not pay attention to the signals, it leading to the delay braking of the train for its stop.

Underlying causes

- inobservance of the provisions from the Regulation for railway technical operation no.002/2001, art.59-(4), regarding the passing of a signal in stop position;
- inobservance of the provisions from the Signalling regulation no.004/2006, art.23, paragraph (2) corroborated with the art.21 regarding the compliance with the position of the light exit signal, having the position „STOP without passing the signal in stop position” (a light unit red, to the train);
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.127, paragraph (1), letter a) and art.127, paragraph (2) regarding the obligation of the locomotive crew, being in the hauling of the train, to track carefully the positions of the fixed signals and to take the measures imposed by the remarks got along the route;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.135, paragraph (1) regarding the obligation of the locomotive crew, at the entry in the railway station, regarding the measures that have to be taken for the safely train stop;
- inobservance of the provisions from the Regulation for railway technical operation no.002/2001, art.102-(1), letters b) and c) regarding the supplement of the signalling installations with systems for the automatic control of the trains speed (INDUSI) and for automatic stop, if in the point and moment controlled, the driver did not show his vigilance or the real speed is over that established for the respective situations.

Root causes: none.

Safety recommendations

Through the investigation, the commission found that the incident was generated by the punctual human error of the driver, who did not completely meet with the instruction regulations.

For the activity of the locomotive crew, the railway undertaking SNTFC „CFR Călători” S.A. worked out procedures, being identified dangers that can generate the risk to pass the signals in stop positions and the consequences that can appear in a such situation, but without these risks be properly managed.

During the investigation, the investigation commission found that the management of the central and regional infrastructure administrator did not identify and manage the risks generated:

- non addition at the signalling installations the systems for the automatic control of the train speed and for the automatic stop, in case of not meeting with the signal positions;
- through the audit/inspection/control one did not observed the lack of track magnet of 500 Hz at 250 m before the exit signal XII from the railway station Bârlad, so the infrastructure administrator shall dispose consequently viable solutions and measures for keeping under control the dangers generated by this lack.

Considering the train speed of 67 km/h, at 250 m before the exit signal, according to the calculations done, the investigation commission appreciates that, providing the signalling installation with the inductor of 500 Hz, the train was stopped, by emergency braking, at 33,6 m. before the signal, avoiding in a such way its passing in stop position.

So, if its own procedures of the safety management system had been completely applied, as well as the provisions of the practice codes, part of SMS, the infrastructure administrator should have kept the control of the dangers and the risks associated to the lack of track inductor of 500 Hz, preventing in a such way the incident occurrence.

In these conditions, the investigation commission recommends Romanian Railway Safety Authority - ASFR shall monitor that CN CF „CFR” SA:

- 1) re-analyse the projects for the provision of the signalling installations that, initially, at their taking into service, they were not provided with an inductor of 500 Hz at 250 m. before the light exit signals and in accordance with the

geographic place and possibilities/technical conditions to supplement the equipment with this type of system for the control of the train speed and for the automatic stop, in case of not meeting with the signal positions.

3.4.34. The railway incident happened on the 11th September 2018, at 15:55 o'clock, in the railway county Timișoara, in the railway station Glogovăț, in the running of the freight train no.46841-2, got by the railway undertaking Deutsche Bahn Cargo România, consisted in the forcing open the switch no.1.

The investigation report was completed on the 14th August 2019.

Direct causes, contributing factors

The direct cause of the incident was the operation of the switch on a position incompatible with the route, after setting up the centralised route.

Contributing factors:

- existence of an intermittent failure condition of the switch no.1 from the putting into operation of the interlocking system, that led to wrong way of the human factors in the operation and maintenance activity;
- the infrastructure manager did not establish and appoint the competences and responsibilities to its staff for operation, intervention and maintenance of the switch type HYDROSTAR COMBI;
- wrong application of the procedure for the conformity concerning the notification, intervention and removal of the interruptions appeared in the working of the interlocking systems in Glogovăț railway station, by the workers and maintenance staff on duty;
- lack of an adequate technical condition necessary for the external communications between the electromechanical worker and the movements inspector, allocated for the maintenance.

Underlying causes

Inobservance of the provisions of art 8.3. of Instruction for the operation of the electronic signal box from the railway station Glogovăț.

Root causes

- The staff in charge with the maintenance, which move for the removal of the interruption from the centralised switch nr.1 has no competences necessary for the removal of the failure at the integrated system for the movement of the points and locking (type HTDROSTAR COMBI);
- The infrastructure administrator has not an operational procedure where be presented the operations of maintenance, intervention and the responsibilities for the equipment for the operation of the switch no.1, which has an integrated system for the movement of the points and locking;

Safety recommendations

The investigation commission considers that for the prevention of similar incidents, that in slight different conditions can lead to serious accidents, it is necessary the next recommendation:

Romanian Railway Safety Authority shall check if the railway stations provided with interlocking systems, that have systems for the recording or stocking the data, the infrastructure administrator has and meets with the operational procedures regarding the downloading, analysis and interpretation of the data collected through which be disposed the *safety measures necessary for the maintenance of its infrastructure for a safety railway traffic*.

3.4.35. Railway accident happened on the 21st September 2018, at about 21:45 o'clock, in the railway county București, track section Chitila –Chiajna (electrified double-track line), km 1+200, between Chitila railway station and the branch line Rudeni, in the running of the freight train no.30610-1, got by the railway undertaking Deutsche Bahn Cargo România SRL, the first

five axles of the locomotive EA 2002 and the first axle of the wagon no.31804726021-7 (the first wagon after the locomotive) derailed.

The investigation report was completed on the 12th September 2019.

Direct causes, contributing factors

The direct cause of this accident is the fall between the rails of the first five axles of the right wheels (wheels that ran on the rail corresponding to the inner rail of the curve) from the electric locomotive EA 2002, hauling the freight train no.30610-1. The derailment of the locomotive led to the derailment of the first axle of the first wagon after the locomotive (wagon no. 31804726021-7).

The fall of the locomotive wheels between the rails happened following the lateral movement of the rails, after the action of the dynamic forces transmitted to them by the locomotive wheels, it generating the increase of the track gauge over the maximum value accepted in operation.

Contributing factors:

- existence of some normal wooden sleepers, whose unsuitable condition, was not allowing the movement of the metallic plates along the sleeper, through the screws fastening, allowing in a such way the increase of the track gauge over the maximum accepted value, under the dynamic forces transmitted to the rails by the wheels of the rolling stock;
- use, in the technological process for the performance of the repairs at the running line, track II, between the railway station Chitila and the branch line Rudeni of some normal impregnated wooden sleepers, that inside had failures that were not allowing their use in operation;
- not-tracking of the quality of the normal impregnated wooden sleepers, used for repairs at the running line, track II, between the railway station Chitila and the branch line Rudeni by the railway supplier that performed this work;
- the supplier of the railway service of impregnation with oily antiseptics of the wooden sleepers by ” a company that did not get Agreement for this type of service;
- application of AFER visa on the Conformity Statement issued by a railway supplier, that did not get Certification of Railway Technical Homologation and Railway Technical Agreement;

Underlying causes

- violation of the provisions of art.25, paragraphs (1), (2) and (4) from the „Instruction of norms and tolerances for the track construction and maintenance for tracks with standard gauge no.314/1989”, regarding the replacement of the wooden sleepers whose failures impose it.
- violation of the provisions of pct.4.1. from chapter.4 „Norms of manpower and materials consumption”, from „Instruction for the tracks maintenance no.300- edition in force”, regarding the provision with the norm of manpower for the current manual work maintenance;
- violation of the provisions of the Operational Procedure „Checking of the products used in its own regime by or by thirds for the maintenance and repair of the railway infrastructure” code PO SMS 0-4.11, regarding the inclusion in the contract provisions, of a provision for the use of the railway critical product, that have to be taken over by staff specialized and responsible from CNCF „CFR” SA.
- violation by CNCF „CFR” SA of the provisions from the Operational Procedure „Checking and control of the results of the inspections, maintenance and repairs performed by thirds, in order to find out if they are in accordance with the standards in force”, code PO SMS 0-4.10, that is it did not track the works for the consolidation of the running line superstructure, track II, with authorized staff like site inspector;
- supplying by CRISTAN PRODEXIM SRL of the product normal wooden sleepers impregnated, without getting Certification of Railway Technical Homologation and Railway Technical Agreement;

- violation of the conditions that were basis for the granting of the Railway Supplier Authorization and of the Technical Agreement, established at art. 8 letter k from the Annex 1 at the Minister of Transports' Order 290/2000, by the railway supplier that performed the line repairs, that is the norms compulsory for the performance of the service were not met, using, for the repairs, impregnated wooden sleepers purchased from a manufacturer that had no AFER authorization for the supplying of these products;
- violation of the provisions of art.6 from the Annex 7 of the Minister of Transports' Order no.290/2000, regarding the application by AFER technical inspection of the visa on the Conformity Statement issued by CRISTAN PRODEXIM SRL, giving that it was not getting Certification of Railway Technical Homologation and Railway Technical Agreement;

Root causes

- failure of the Safety Management System of CNCF „CFR” SA, in the control of the risk of use/contract of some products, that can endanger the railway safety;
- non identification of the danger, resulted from the use in the repairs of the railway infrastructure, of some railway critical products (wooden sleepers), without their quality reception and that do not correspond technically.

Measures taken

During the investigation, RGSC issued the paper no.20/851/2018, stipulating:

- setting up of the corresponding structures for the performance of the technical receptions of the railway critical products and their provision with specialists, at central and regional level;
- drawing of an operational procedure for the quality checking, as well as for the monitoring of the maintenance performed within the life time of the wooden sleepers (PO-7.4.3-03 – deadline 31.03.2019)

Safety recommendations

The derailment of the locomotive EA 2002 (derailment of the first five axles of the right wheels, in the running direction) and of the first wagon of the freight train no.30610-1 (first bogie) happened following the unsuitable maintenance of the railway infrastructure.

The investigation commission found that in the *Register for the record of the safety dangers* of the Railway County București, is not identified like danger generated by the use in the railway infrastructure maintenance of some railway critical products (wooden sleepers), for which the quality reception is missing and they do not correspond technically.

In this respect, the investigation commission addresses ASFR the next safety recommendation:

- 1) it shall request CNCF „CFR” SA the revision of the safety management system and a risk analysis for the dangers generated by the acceptance within the maintenance of railway critical products without their quality reception.

3.4.36. The railway accident occurred on the 27th September 2018, at about 22:40 o'clock, in the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station, on the entry route at the line 7A, switch no. 37, in the running of the freight train no. 42695, got by the railway undertaking SNTFM „CFR Marfă” SA, the first bogie of an empty wagon, the 13th one of the train, derailed.

The investigation report was completed on the 25th September 2019.

Direct causes, contributing factors

The direct cause of the accident is the flange of the left wheel (no. 7) from the leading axle of the wagon no.31530670097-4 climbed the gauge face of the straight closure rail of the switch no.37A, following the exceeding of the derailment stability limit. It happened following the effect generated by the value over the accepted tolerance of the track twist existing in the area of the straight closure and straight main rails from the „straight” position of the switch, on which overlapped the effect generated by the failures existing at the wagon ((lenoir link

suspension from the wheel no.7 was inefficient, the spring cover was in contact with the bogie frame; the manganese wear plate of the wheel no. 5 was broken in the welding area)

Contributing factors:

- unsuitable maintenance of the switch no.37A;
- insufficient material supplied to the line district for the track maintenance and repair;
- failures at the derailed bogie of the wagon no.31530670097-4 (inefficient lenoir link suspension at the wheel no.7 and the manganese wear plate of the wheel no. 5 with new breakage at the welding area) failures that led to serious oscillations non-absorbed, vertically and transversally, of the wagon body;

Underlying causes

- exceeding of the tolerances accepted for the cross level, against the provisions of art.19.6. from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”;
- exceeding of the tolerances accepted for the gradient reclining at the track twist, against the provisions of art.7.A.4 from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”;
- exceeding of the tolerances accepted for the counter-cants of the outer rail, against the provisions of art.7.A.3 from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”;
- keeping within the track switches of the unsuitable wooden sleepers, against the provisions of art.25, paragraphs (1), (2) and (4) from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”;
- unsuitable composition of the switch track bed, against the provisions of art.15, paragraph (8), from „Instruction of norms and tolerances for the track construction and maintenance, for lines with standard gauge no.314/1989”;
- violation of the deadlines for the measurement of the switches, the measured values being written down in the book for the switch inspection, against the provisions from „Instruction 305 for the establishment of the deadlines and order for the performance of the track inspections” edition 1997, sheet no.3, art.2; sheet no.4, art.3; sheet no.12, art.2, point b);
- lack of monitoring of the Decision no.42/E/41/2010 of the Line Division Cluj, against those established at point 1.1 from the Annex of REGULATION (EU) no.1078/2012 ;

Root causes

- non-application of the provisions from the operational procedures *code PO SMS 0-4.07, „Compliance with the technical specifications, standards and relevant requirements during the complete lifetime of the lines in the maintenance process”* (including the annexes), concerning:
 - removal of the track failures, keeping of the cross level and the track laying, according to the provisions of Annex no.2, „Types of maintenances (current repairs)” of PO SMS 0-4.07;
 - providing of the material basis necessary for the performance of periodical maintenance and current repair, supplying the sufficient quantities of sleepers, according to the provisions of point. III.2 „Supplying of the material basis” from the flow diagram of the maintenance process Annex no.1 of PO SMS 0-4.07, it leading to the non-performance in due time of the current works for the replacement for the unsuitable sleepers;
- non-application of the provisions from the operational procedure code PO SMS 0-4.28, „Checking and control of the maintenance results”, concerning the duties of the staff in charge with maintenance, it leading to the non-performance at the deadlines established in the Instruction 305 „concerning the setting of the deadlines and order for the performance of the track inspections” edition 1997, of the inspection of the switch

no.37A. by the staff with management responsibilities within the maintenance section and by the staff with inspection duties within the line district at the deadlines established;

- violation of the requirement A3 from the Annex II of the EU Regulation no.1169/2010, respectively the requirement to have procedures for the monitoring of the effectiveness of the measures for the risk control, because in the Procedure Code PO SMS 0-4.1.3, there are not provisions according which the monitoring includes compulsory activities, respectively – definition of a strategy, gathering and analysis of information, working out of an action plan for the unacceptable cases, implementation of the action plan and the assessment of the effectiveness of the measures included in the action plan – according to those stipulated at point 1.1 from the Annex and in the Appendix at the REGULATION (EU) no.1078/2012;

Safety recommendations

The derailment of the wagon no.31530670097-4, being in the composition of the freight train no.42695 (got by the railway undertaking SNTFM „CFR Marfă” SA), on the 27th September 2018, happened following the unsuitable maintenance of the railway infrastructure and of the technical condition of the derailed wagon.

During the investigation, the investigation commission found that the staff from the line section complies with the Decision no.42/E/41/2010 of the Line Division Cluj, regarding the periodicity of the inspections of the switches at the District L Dej Triaj. Decision no.42/E/41/2010 of Line Division Cluj has provisions against those from the Instruction 305 „concerning the establishment of deadlines and order for the performance of the track inspections” edition 1997. So, the Decision above mentioned stipulates that the measuring of the switches from the group A - Dej Triaj, by the staff with inspection duties within the line district (switches from the reception and dispatching lines), be made monthly (in the first fortnightly), it being against the provisions of the Instruction no.305 /1997, sheet no.4, art.3, paragraph 2 that stipulates the measuring in the range of 15 days.

The Decision no.42/E/41/2010 of Line Division Cluj is one of the elements that generated a wrong way of action in the duly identification of the superstructure failures, because the checking of the level on the switch no. 37A, instead to be done in range of 15 days, it was made in range of 30 days, by staff with inspection duties within the line district and in range of 1 year, by the staff with management duties within the maintenance section, instead to be made quarterly. Lack of compliance with the deadlines for the superstructure inspection, stipulated at art.3, paragraph 2 from the Instruction no.305 /1997, sheet no.4 has direct implication in the duly identification of the superstructure failures.

The investigation commission found that, through the application of its own management system, the infrastructure administrator, at regional level, did not identify within the monitoring, the fact that the staff of Section L Dej, meets with the Decision no.42/E/41/2010, because in the Procedure Code PO SMS 0-4.1.3, there are not provisions for the composition of the monitoring with all the processes and procedures included in the management system, including the technical, operational and organizational measures for the risk control. It also found that in the Procedure Code PO SMS 0-4.1.3, there are not provisions concerning the fact that the monitoring includes compulsory activities, respectively – definition of a strategy, gathering and analysis of information, working out of an action plan for the unacceptable cases, implementation of the action plan and the assessment of the effectiveness of the measures included in the action plan.

So, if the public infrastructure administrator had stipulated within its own SMS procedures, regulations that comply with the requirement A3 from the EU Regulation no.1169/2010, requirement concerning the procedures for the monitoring of the effectiveness of the measures for the risk control, it should have been able to prevent the occurrence of this accident, making the monitoring in accordance with the provisions of EU Regulation 1078/2012. So, within the monitoring one had been able to identify and take the preventive measures with reference to the Decision no.42/E/41/2010.

Taking into account the issues presented, in order to reduce the risk of occurrence of some similar railway accidents, the investigation commission recommends Romanian Railway Safety Authority – ASFR:

- 1) 1. shall request public railway infrastructure administrator the revision of the part of its own safety management system concerning the monitoring of the effectiveness of the measures for the risk control.
- 2) 2. shall request the public railway infrastructure administrator the revision of the Decision no.42/E/41/2010 and its correlation with the provisions of the Instruction no.305 „concerning the establishment of the deadlines and order for the track inspections” edition 1997.

3.4.37. The railway incident happened on the 1st November 2018, at 10:05 o'clock, in the railway county Craiova, in the railway station Mihăiești, end X, making wrong the exit route to the railway station Măldăeni for the passenger train no.9006, got by the railway undertaking SNTFC "CFR Călători" SA.

The investigation report was completed on the 14th August 2019.

Direct causes, contributing factors

Direct cause of the incident is a human error consisting in the request and the wrong establishment of the scheduled closing, correlated with the wrong setting of the track on which the switches, for which the maintenance was asked, are fitted.

Underlying causes:

- inobservance of the provisions of art. 32(8) from the Regulation for the running of the trains and shunting of the railway vehicles no.005, approved by Order of Minister of Transports, Constructions and Tourism no.1816 from 26th November 2005;
- inobservance of the provisions regarding the way for the performance of the biannual inspections and checking of the hidden parts of the switches.

Root causes:

The root cause for the incident occurrence was the ineffective application, for the achievement of the purpose followed in the activity for the management of the railway safety, of the procedures for the monitoring of the maintenances for the biannual inspections of point machines and checking of the hidden parts of the switches, part of SMS of the infrastructure administrator.

Safety recommendations:

During the investigation, the commission found that the management of central and regional infrastructure administrator did not identify and did not manage the risks generated by the inobservance of the provisions regarding the performance way of the biannual works and the checking of the hidden parts of the switches, in order to be able to dispose consequently viable solutions and measures for keeping under control the dangers generated by them.

So, if its own procedures of the safety management system had been completely applied, as well as the provisions of the practice codes, part of SMS, the infrastructure administrator could have been able to keep under control the dangers and risks associated, preventing in a such way the occurrence of this incident.

In these conditions, the investigation commission recommends Romanian Railway Safety Authority ASFR shall follow that CNCF CFR SA:

- 1) re-analyzes the strategy for the monitoring of the way to get and do the line closing for the performance of the biannual inspections and for the checking of the hidden parts at the switches and analyzes the opportunity to include the nonconformities found in the report in the category of the unacceptable nonconformities.

3.4.38. The railway incident happened on the 4th November 2018, at 16:42 o'clock, in the railway county Craiova, in the railway station Ploșoru, consisted in the wrong setting of the exit route to Rovinari railway station for the passenger train Regio no.2855, got by the railway undertaking SNTFC "CFR Călători" SA.

The investigation report was completed on the 14th August 2019.

Direct causes, contributing factors

The direct cause of the incident is the wrong setting of the exit route of the train.

Contributing factors

- lack of some provisions in the instruction for the operation of the equipment CED, type CR 3, from Ploșoru railway stations, that should contain the way of setting the exit route in case of the exit of train on the "false track" left track instead of right track (on the double track usually the right track is used for the train running);
- to make permanent a working way (running on a false track) that should be occasionally, without carrying a risk analysis in this direction.

Underlying causes

Inobservance of the provisions of art.125 (1) letter c) from the Regulation for the running of the trains and shunting of the railway vehicles no.005, approved by Order of Minister of Transports, Constructions and Tourism no.1816 from the 26th October 2005.

Root causes

Monitoring performed at central and regional level one did neither identify nor manage the risks generated by the lack of regulation the way to make the routes on „false” track, in order to be able to dispose consequently viable solutions and measures, in order to keep under control of the dangers generated by them.

Safety recommendations:

During the investigation, the commission found that the management of the central and regional infrastructure administrator did neither identify nor manage the risks generated by the lack of regulation of the way to set the routes for the running on false tracks, in order to dispose consequently viable solutions and measures for keeping under control the dangers and risks associated, generated by them.

In these conditions, the investigation commission recommends Romanian Railway Safety Authority ASFR shall ask CNCF „CFR” SA:

- 1) the performance of a risk analysis and an assessment of the risks regarding the train running on false track and, in accordance with the analysis result, to take measures for keeping under control the dangers and risks associated, generated by them.

3.4.39. The railway accident happened on the 7th November 2018, at about 21:30 o'clock, in the railway county Craiova, in the railway station Roșiori Nord, consisted in the derailment of a wagon from the composition of the passenger train no.1597 (got by the railway undertaking SNTFC "CFR Călători" SA), on the switch no 31 of the railway station.

The investigation report was completed on the 4th November 2019.

Direct causes, contributing factors

The direct cause of the accident is the first left wheel of the first bogie from the second car of the train left the running surface of the rail head, on the inner rail of the curve of the switch no. 31 and fell inside the track. It happened following the unsuitable technical condition of the superstructure, allowing the increase of the track gauge over the maximum accepted value, in dynamic conditions, under the action of the forces generated by the rolling stock.

Contributing factors:

- presence of some unsuitable sleepers consecutively, at the derailment site, that did not ensure the fastening of the metallic plates inside the curve, allowing their movement in the direction of the gauge increase.

Underlying causes

- violation of the provisions of art.25, points 2 and 4 from the „Instruction of norms and tolerances for the track construction and maintenance, for tracks with standard gauge no.314/1989”, with reference to the failures that impose the replacement of the wooden sleepers, respectively the refuse to keep unsuitable sleepers within the switches.

Root causes

- non application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant within the whole life cycle of the tracks in maintenance process”, part of the safety management system of the railway public infrastructure administrator CNCF „CFR” SA, with reference

Measures taken

There were performed works for the replacement of the special wooden sleepers in the area of the switch no.31.

Safety recommendations

During the investigation, the commission found that the management of the infrastructure administrator worked out the system procedure PS SMCM – SMS 0-6.1 „Risk management”, with date of coming in force 17.10.2017, procedure that replaced PO SMS 0-4.12 „Management of the railway safety risks”. This procedure establishes that the administrator, through its organization structures, has to identify the risks „that can affect the activity performed and the objectives established”, the risks new identified being recorded in the form „risk alert”, annex of the procedure. A new "Register for the evidence of the dangers" is also drawn up, in accordance with the new procedure.

The commission found that this procedure is not implemented by the railway county Craiova, that is here "The register for the evidence of the dangers" is drawn up also upon the old procedure, and the form „risk alert” is not known by the involved staff.

The derailment of the car no.50533616029-4 happened following the unsuitable maintenance of the track from the curve of the switch number 31 (on the joining rails), with access to the direct line III (track II) of the railway station Roşiori Nord.

The investigation commission found that the infrastructure administrator identified but did not manage the risks generated by the lack of track maintenance, in order to be able to dispose consequently solutions and measures viable for keeping under control the derailment danger.

So, if the own procedures of the safety management system have been completely applied, as well as the provisions of the practice codes, part of the safety management system, the infrastructure administrator should have been able to keep the technical parameters of the track geometry between the limits imposed for the railway safety.

As these issues were found and presented during the investigation of other railway accidents (ex: accident happened on the 30th June 2018 in the railway station Roşiori Nord, the one happened on the 28th March 2017 in the railway station Ciolpani or the one happened on the 13th December 2017 between Goleşti–Bradul de Sus), for which safety recommendations were issued, the issuing of other identical recommendations was considered as unnecessary.

3.4.40. The railway incident happened on the 12th November 2018, at about 06:10 o'clock, in the railway county Timișoara, in the railway station Bănița, consisted in the passing of the light exit signal YIII in stop position, on red, by the freight train no.30562 (got by the railway undertaking Deutsche Bahn Cargo România), hauled with the locomotive EA-1077 and forcing open the switch no.1A.

The investigation report was completed on the 12th November 2019.

Direct causes, contributing factors

Direct cause of the railway incident was the inobservance of the position "STOP without passing the signal in stop position!" of the exit light signal Y III of the railway station Bănița, that was on the red position to the train and passing the signal in stop position without having this right.

Contributing factors:

- not tracking of the position of the signal YIII;
- inobservance of the provisions regarding the emergency braking;
- not observing of the forcing open of the switch 1A;
- non-use of RER equipment from the locomotive for information and communication

Underlying causes

- inobservance of the provisions from the Regulation for the railway technical operation no.002/2001, art.59-(4), that prohibits the passing of a signal in stop position;
- inobservance of the provisions from the Regulation for signalling no.004/2006, art.23-(2), corroborated with art.21, regarding the observance of the position of the exit light signal, that was on „STOP without passing the signal in stop position" (a light red unit to the train);
- inobservance of the provisions from the Instructions for the activity of the locomotive crew, art. 119 (2) and art 121 (1), regarding the tracking of the fixed signal (exit one) position.

Root causes: none.

Additional remarks

Without having direct connection with the incident occurrence, the locomotive crew does not perform the continuity test when the banking locomotive is uncoupled.

Safety recommendations

- 1) The railway freight undertaking Deutsche Bahn Cargo România shall run a risk analysis for the next dangers:
 - inobservance of the exit light signal;
 - not tracking of the exit signal position;
 - inobservance of the provisions regarding the emergency braking
 - not observing of the forcing open the switch;
 - non-performance of the continuity test after uncoupling the banking locomotive;
 - Non-use of RER equipment of the locomotive to inform and communicate.
 - and shall assess the need to introduce these dangers in the category of the no-acceptable nonconformities.

3.4.41. The railway incident happened on the 11th November 2018, at about 11:10 o'clock, in the railway county Timișoara, interoperable track section Deva - Radna, electrified double-track line, track II, between the railway stations Ilteu and Zam, km 528+560, in the running of the freight train no.70926, got by the railway undertaking MMV Rail România, the first bogie from the wagon no. 31817853504-7, in the running direction of the train (axles 3 and 4), derailed following the fall of 4 brake shoes and of their locking keys.

Following the findings of the investigation commission, on the 18th June 2019, the investigation was closed and the incident was re-classified in accordance with the provisions of the *Investigation Regulation*, art.10 - "*Facts of thirds, individuals or legal persons, that endangered the railway safety, that generated interruptions of the railway transport, destruction and/or theft of parts or materials from the composition of railway vehicles... .*".

3.4.42. The railway accident happened in the running of the breakdown train no.38321, got by the public railway infrastructure administrator CNCF „CFR” SA, hauled with the locomotive EA 573, on the 16th November 2018, at about 11:55 o'clock, in the railway county Braşov, track section Braşov - Sighişoara (electrified double-track line), km 267+154, , between Beia and Mureni railway stations on the track I, consisted in the derailment of first two axles of the bogie no. 1 from the rail crane EDK 1000/1 of 125 t, it being in the train composition. The investigation report was completed on the 4th November 2019.

Direct causes, contributing factors

The direct cause of the accident was the right wheels of the axles no. 1 and 2 from the bogie no. 1 of the rail crane EDK 1000/1, first in the running direction, climbed the gauge face of the rail from the exterior of the circular curve.

Contributing factors:

- The improper variation of the gauge, over the tolerances accepted, in the area of the climbing point.
- Improper maintenance of the crane, that led to the lack of greasing of the centre casting from the bogie no. 1 of the crane EDK 1000/1.

Underlying causes

The underlying causes of the accident was the violation of some provisions from the instructions and regulations in force:

- Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989, Art.1, point 14.1.c, with reference to the tolerances accepted against the deviations from the gauge, in operation.
- Instruction for the operation of the intervention vehicles no.632/2000, point 1.4, with reference to the compliance with the job instructions, with the orders and regulations in force, in the activity of the intervention vehicles and their crews.
- Regulations for Railway Technical Operation no.002/2001, art.228(1), with reference to the establishment of the conditions imposed for the technical condition of the railway vehicles (crane).
- Regulations for the train running and shunting of the railway vehicles no.005/2005, art.88(2), with reference to the prohibition to couple within the trains and keeping in traffic of railway vehicles not-matriculated in the fleet of a railway undertaking or not-authorized for running in accordance with the specific regulations.

Root causes

- non-identification of the dangers and non-assessment of the risks associated for the activity of the sequence of operations and of their crews.

Additional remarks

During the investigation, the next findings with reference to the deficiencies and gaps were made, without relevance for the conclusions on the accident causes:

- the crane involved in the accident had no technical certificate issued by AFER, for matriculation and it was not registered in the National Register of Vehicles, against the provisions from the Instruction for the operation of the intervention vehicles no.632/2000, point 13.2.4 and the Order no. 1484/2014 concerning the measures for the application of the Decision 2007/756/EC of the Commission from the 9th November 2007 for the adoption of a common specification of the national register of vehicles stipulated at art.14 paragraphs (4) and (5) of the Directives 96/48/EC and 2001/16/EC, Art.2÷4;
- for the breakdown train there is not staff standardized for the shunting activity, against the provisions of the Instruction for the operation of the intervention vehicles no.632/2000, point 4.6.2.

Measures taken

The railway county Braşov made available to the investigation commission the Notification document from September 2019 (accepted by regional CTE), for „Performance of periodical

repairs at the wagons for administrative use, that come from wagons or cars". According to the documents made available, on this occasion one will perform also periodical repair type RP of the railway part for the cranes and boom-carrying wagons, both at crane of 125 tf, and that of 250 tf.

Safety recommendations

On the 16th November 2018, between the railway stations Mureni and Beia, in the running of the train no.38324 (breakdown train), the first two axles of the rail crane EDK 1000 of 125 tf derailed, this crane being in the composition of the train.

During the investigation, some non-conformities were found, regarding the maintenance of the crane, non-performance of the assessment and evaluation of the risks for the activity of the breakdown train, as well as the violation of the provisions of Art.12, point 6, letter c) from the Norms for the granting of the Safety Authorization part A, approved through the Minister of Transports' Order no.101/2008 with reference to the existence of „procedures for ensuring the conformity with standards and with other normative conditions along whole life time of the equipment and operations”.

Considering those above mention, in accordance with the provisions of Art.25(2) from the Law no.55/2006 for the railway safety, the investigation commission recommends Romanian Railway Safety Authority

- 1) shall take care that CNCF re-analyze SMS so the dangers be identified and the risks associated assessed for the activity of the breakdown trains and of their crews and shall dispose consequently measures in accordance with the provisions of the Minister of Transports' Order no.101/2008 for the approval of the Norms for the granting of the safety authorizations to Romanian railway infrastructure administrator/manager.

3.4.43. The railway accident happened on the 18th November 2018, at about 22:15 o'clock, in the railway county Brasov, track section Deda - Războieni (nonelectrified single-track line), km.268+900, between Dumbrăvioara and Târgu Mureș Nord railway stations in the running of the passenger train Regio no.4511, got by the railway passenger undertaking SNTFC „CFR Călători” SA, a fire burst into the hauling locomotive, type diesel electric no.92 53 0 620759-6. The investigation report was completed on the 14th November 2019.

Direct causes, contributing factors

The direct cause of the accident was the ignition of the petroleum residuals mixed with dust, deposited along the time on the inferior side of the locomotive body *DA no.759* and on the sub-parts of the bogies, in contact with the sparks resulted from the contact between the brake shoes and the locomotive wheel tyres, within the braking process.

Contributing factors:

- existence of petroleum residuals resulted from the oil losses of the diesel engine;
- keeping in operation of the locomotive *DA no.759*, after it reached the time limit for the planned repairs performance;
- keeping in service of the locomotive *DA no.759*, after reaching the normal time of working, without having a notice for it extension;
- writing down in the safety certificate valid of the locomotive *DA no.759*, when the accident happened, it having no report of technical inspection issued by Romanian Railway Notified Body - ONFR.

Underlying causes

Underlying causes of the accident were the violation of some provisions from the instructions and regulations in force, that is:

- Instructions for the activity of the locomotive crew no.201/2006 art.44.- (3) letter b, regarding the obligation to remove, within the intermediary inspections, the failures from

the parts, equipments and aggregates to which some problems appeared in the locomotive operation, written down by the driver in the on-board book of the locomotive.

- Railway Norm 67-006:2011 "Railway vehicles. Types of planned inspections and repairs. Norms of time or norms of km run for the performance of the planned inspections and repairs", approved through the Order of Minister of Transports and Infrastructure no.315/2011, amended through the Order of Minister of Transports and Infrastructure no.1359/2012, chapter 3, regarding:
- withdrawal of the locomotive DA no.759 when it reaches the time norm stipulated for the performance of the planned repairs;
- compliance with the cycle of planned repairs for the locomotive DA no.759.
- Operational procedure code PO-0-7.1-14 got by SNTFC „CFR Călători” SA, point 4.7.5 and Annex no.4, regarding the periodicity for the performance of the planned repairs.
- Order of Minister of Transports no.1484/2008 for the approval of the Norms for the granting of the technical approval for the railway vehicles that exceeded the normal time of working/service time, Art.3 (6) regarding the assessment of the technical condition of the railway vehicles for keeping them in operation after exceeding the normal time of operation.

Root causes

- lack in the Technical specification code ST 6-2004 of some provisions for the performance of the works for keeping clean the engine room and the sub-parts of bogies, following the losses of petroleum resulted from the locomotive operation;
- improper drafting of the operational procedure code PO-0-7.1-14, that is, it does not have real provisions about the measures that have to be taken in case the rolling stock reaches the norm of time/km for the performance of the planned repairs;
- during the action for the identification and assessment of the risks associated to the railway safety, run by the railway undertaking, for the generated risk „fires in the railway vehicles from the composition of the trains in running”, the danger „non-compliance with the cycle of inspections and repairs at the rolling stock” was not identified;
- the locomotive involved in the accident was written down in the Safety certificate, without meeting with the provisions of the Minister of Transports’ Order no.535/2007 (with further amendments) regarding the approval of norms for the granting of the safety certificates, for carrying out transports on Romanian railways, Annex – NORMS for the granting of the safety certificates Art.19(3), Art.15(4), point 12 – relevant documents necessary for the renewal of the safety certificates.

Safety recommendations

In case of the railway accident happened on the 18th November 2018, in the running of the passenger train Regio no.4511, one found that the fire burst into the locomotive **DA no.759** happened following its improper technical condition generated by the oil losses resulted from diesel engine, that along the time deposited on the locomotive sub-parts and that were not removed during the maintenance works performed.

During the investigation, one found that the locomotive was kept in service after reaching the time norm for the performance of the planned repairs, against the provisions of the Order of Minister of Transports and Infrastructure no.1359/2012 for the amendment of the Railway Norm "Railway vehicles. Types of planned inspections and repairs. Norms of time or norms of km run for the performance of planned inspections and repairs", approved through the Order of Minister of Transports and Infrastructure no.1359/2012, it being a factor contributing to the accident occurrence.

Therewith, one found that the locomotive was written down in the Safety certificate, part B, annex II, without meeting with the legal requirements, respectively without performing its technical inspection, the locomotive being used in a technical condition that did not allow it. According to the regulations in force, the lack of the report for the technical inspection, prohibits the writing down of a locomotive in the safety certificate, and consequently its

running, the railway undertaking having no authorization to carry out transports with the locomotive concerned

Considering these above mentioned, in accordance with the provisions of Art.25(2) of Law no.55/2006 for the railway safety, the investigation commission recommends Romanian Railway Safety Authority:

- 1) to request the railway passenger undertaking SNTFC „CFR Călători” SA and economic operator SRL „CFR SCRL Braşov” SA, to remake the Technical Specification ST 6-2004, for the introduction of some provisions for performance and keeping the Diesel engine, engines room and sub-parts of the bogies cleaned
- 2) to request the railway passenger undertaking SNTFC „CFR Călători” SA the revision of the operational procedure PO-07.1-14 „Planning of the inspections and repairs for the locomotives, multiple units and electrical train sets got by SNTFC “CFR Călători” SA”, for adding some real provisions regarding the withdrawal from operation of the locomotives when they reach the norm of time/km for the performance of the planned repairs, in accordance with the regulations in force.
- 3) to request the railway passenger undertaking SNTFC „CFR Călători” SA to run again the identification and assessment of the risks associated to the railway operations, for the risk of fires at the railway

3.4.44. The railway accident on the 23rd November 2018, at 13:32 o'clock, in the railway county Iaşi, track section Suceava-Bacău, track II, between the railway stations Iteşti and Bacău, km 309+627, in the running of the freight train no. 61716 (consisting in the locomotive ED 36 and 38 wagons), got by the railway freight undertaking SNTFM „CFR Marfă” SA, consisted in the derailment of the 34th one in the train composition.

The investigation report was completed on the 21st November 2019.

Direct causes, contributing factors

The direct cause of the accident was the breakage of the main leaf from the leaf spring suspension, afferent to the guiding wheel (wheel no.7) from the wagon no.82537855489-3 in the area of the spring eye situated in the front part, running direction, this breakage led to the sudden rise of the wheel angle of attack and, implicitly, to the serious rise of the guiding force applied on this wheel.

In these conditions, the ratio between the guiding force and the load acting on the guiding wheel raised seriously, leading to the exceeding of the derailment stability limit and, finally, to the climbing of the right rail by the wheel no.7.

Contributing factors:

- the fatigue of the material, that under the periodical bending efforts to which the main leaf was transmitted, in the presence of the stress concentrators, generated by the shape of the leaf at the beginning of the spring eye, led to the cracks appearance and finally to the breakage
- existence of some old cracks (60% from the section of the main leaf of the spring) in the area of the spring eye, cracks that can not be identified during the technical inspections of the trains, because the area is covered by the parts of the suspension rings (support of the suspension ring, the suspension ring and bolt locking).

Underlying causes: none.

Root causes

In the safety management system of the railway undertaking there are missing some regulations (procedures) concerning the performance of the checking, between the planned inspections, for the identification of some hidden failures (that can not be observed during the technical inspections of the trains) at the suspension of the wagons provided with bogies type „H”.

Safety recommendations

Regarding the accident happened in the running of the freight train no.61716, on the 23rd June 2019, one found that the breakage of the main leaf of the suspension spring corresponding to the wheel no.7 of the wagon no. 82537855489-3 occurred in fatigue conditions, being some old cracks (60% from the section of the spring main leaf) in the area of the spring eye, these cracks can not be seen during the technical inspections of the trains, because the area is covered by the part of the suspension rings (support of the suspension ring, the suspension ring and bolt locking).

Other cracks could be identified if, the safety management system of the railway undertaking should have got regulations (procedures) that stipulate the performance of the checking at the suspension springs from the bogies type „H”, in their hard to reach parts, be made at periods of time so established that the appearance of the cracks in those areas be soon identified, and the frequency of the spring breakages in operation be in a such way reduced.

Considering these above mentioned, as well as those mentioned in chapter C.5.6. Similar previous, the investigation commission considers necessary the issuing of the next safety recommendations:

- 1) Romanian Railway Safety Authority – ASFR shall analyze, with the railway freight undertakings which get wagons provided with bogies type „H”, the opportunity to introduce into the safety management system some regulations (procedures) that stipulate measures for periodical checking of the springs from the suspensions of these bogies, in its areas hard to reach (that can not be seen during the performance of the train technical inspections), for keeping under control the risks induced by the appearance of the cracks at the spring leaves.

3.4.45. The railway incident happened on the 30th November 2018, in the railway county Constanța, track section București Nord – Ciulnița (electrified double-track line), in the railway station Dragoș Vodă, between km 95+680 and km 95+750, the parts of the switches no. 1,7 and 13 were hit by the brake-rod adjuster type RL2-350 from the axle no.4 of the locomotive EA 122, being in the composition of the passenger train no.1583, got by the railway undertaking SNTFC „CFR Călători” SA.

The investigation report was completed on the 3rd October 2019.

Direct causes, contributing factors

The direct cause of the incident is the detachment of the brake-rod adjuster body RL2-350 of the axle no.4 from the threaded joint between the hold and the traction tube, followed by its falls on the track superstructure.

Contributing factors:

Working of the brake-rod adjuster RL2-350 in vibration conditions generated by the locomotive running, as well as its submission to alternative forces of lengthening and compression in the applying the brake/releasing the brake, favoured the unthreading and detachment of the traction tube from the hold of the brake-rod adjuster, twisting of the rods for the support of the stop plates and cut of the fastening cable.

Underlying causes:

- inobservance of the provisions from the railway norm "Railway vehicles. Types of planned inspections and repairs. Norms of time and km run for the performance of the planned inspections and repairs" regarding the keeping in operation of the locomotive with the norm of time and km exceeded.
- inobservance of the provisions of the Technical specification code ST5-2004 of SCRL Brașov, chapter 5, letter B – Mechanical part, point.4 – Braking regulator (travel)(RL2-350, RL-2, with sleeve) regarding the checking of the brake slack adjusters type RL2-350 of the locomotive EA 91 53 0 410 122 -2, during the technical inspections type R1, made on the 23rd November 2018(warranty term 10 days according to the provisions of

Chapter no.8 of the same technical specification), when it needed to do the checking of the getting both the stable travel of the brake cylinder piston, and the technical of the parts of the adjuster type RL2-350 afferent to the axle no.412.

Root causes: none.

Safety recommendations: none.

3.4.46. The railway incident happened on the 5th December 2018, at 15:28 o'clock, in the railway county Timișoara, in Glogovăț railway station, the exit route for the passenger train no. 2028 (got by the railway undertaking SNTFC „CFR Călători” SA) was wrong set. The investigation report was completed on the 19th November 2019.

Direct causes, contributing factors

The direct cause of the incident is the nonoperation of the switch no.9 on the direct position, corresponding to the exit route.

Contributing factors:

Not solving of the incident consequences from the 11th September 2018 (switches no.1 and 7 rested on open position without control, secured with locking and blocked in the installation), that led to the situation that any exit route from Glogovăț railway station from the track 1-6 to Ghioroc, track II, is made non-centralized, the running is performed upon train order operations, the train dispatching upon running order and with the exit signals on closed position.

Underlying causes:

Inobservance of the provisions art.8.7. from the Instruction for the operation of the electronic signal box from the railway station Glogovăț

Root causes: none.

Safety recommendations:

The investigation commission considers that for the prevention of similar incidents, that in slight different conditions can lead to serious consequences, the next recommendation is imposed:

- 1) railway infrastructure administrator shall make a risk analysis related to the danger represented by the not fixing within a reasonable time the interruptions that depends on the purchase of some parts of the installations CE and shall assess the need to introduce this danger into the category of the unacceptable nonconformities.

3.4.47. The railway incident happened on the 11th December 2018, at 12:30 o'clock, in the railway county Galați, in the railway station Vădeni, when the passenger train 1573, got by the railway undertaking SNTFC „CFR Călători” SA, was received upon calling-on signal on the line 5 occupied by the train 1772.

The investigation report was completed on the 24th September 2019.

Direct causes, contributing factors

Direct cause of the incident is the wrong setting of the entry route for the train on the line 4 of the railway station Vădeni.

Contributing factors:

- interference of the not authorized staff in the movement activity, setting a route, in the presence of the movements inspector
- not checking of the train entry route;
- inobservance of the procedure for finding and removal of the interruptions into the interlocking system.

Underlying causes:

- inobservance of the provisions of art. 94 from the Instruction for the operation of the interlocking system of the railway station Vădeni;

- inobservance of the provisions of art.31 from „Regulation for the running of the trains and shunting of the *railway vehicles*” No.005/2005.

Root causes: none.

Measures taken

Starting with 13:05 o'clock the movements inspector on duty ended its shift and at 16:30 o'clock the interruption existing at the interlocking system of the railway station Vadeni was removed..

Safety recommendations: none.

3.4.48. The railway accident happened On the 18th December 2018, at 19:10 o'clock, in the railway county Timișoara, in the running of the freight train no. L79706 (got by the railway undertaking Grup Feroviar Român SA), between Utvinișu Nou and Sîntana railway stations, at the level crossing from the km 12+547, provided with mechanical barrier, a minibus was met and damaged and the driver was hurt.

The investigation report was completed on the 6th July 2019.

Direct causes, contributing factors

The direct cause of the accident is of the accident is a human error consisting in the not closing of the mechanical barrier for the train passing by.

Underlying causes

- violation of the provisions of art. 16(5) from the Regulations for the running of the trains and shunting of the railway vehicles.
- violation of the annex 4 of the Operation Technical Plan PTE from the railway station Utvinișu Nou – Regulations for the working of the barriers providing the running line, operated by barrier guards, R 005 art 16 paragraph (4).

Root causes

- high frequency of the road traffic that leads to the barrier forcing by the road drivers at the rush hours, correlated with the lack of some technical measures that lead to the decrease of the time for barrier closing for the trains coming from the direction Sîntana.
- lack of an overpass/subway at the crossing, from the km 12+547, of the line Sântana – Utvinișu Nou, with the national road DN 79, technical class III, Arad – Oradea, in accordance with the provisions of art.2.4 from the SR 1244-1 issued by IRS in February 1996, and of art.11 from the Instruction no.314/1989.

Safety recommendations:

During the investigation, the commission found that the management of the infrastructure administrator, at central and regional level, did neither identify nor manage the dangers generated by:

- existence of a road traffic of high frequency at the level crossing, that leads to the forcing of the barrier by the drivers at rush hours and which generates pressure on the employees, in order to be able to dispose consequently solutions and measures viable for keeping under control the risks generated by these.

Given the conditions, the investigation commission recommends ASFR, together CNCF CFR SA :

- 1) re-analyze the performance of the activity at the level crossing provided with mechanical barriers for keeping under control the dangers and the risks associated.

3.4.49. The railway accident happened on the 22nd December 2018, at 02:00 o'clock, in the railway county Timișoara, running line Grădinari Caraș – Berzovia, non-electrified single-track line, between the railway stations Doclin and Tirol, km.13+325, in the running of the freight train no.69498S, got by the railway undertaking SC Tim Rail Cargo SRL, the last 4 wagons derailed.

Following the findings of the investigation, on the 22nd February 2019, the investigation was closed and the accident reclassified according to the provisions of *Investigation Regulation*, at art.9, paragraph a) - "The are not classified like accidents or incidents the situations or facts that led to closing of the railway traffic accidentally, upon causes:

a) natural, respectively floods, landslides, heavy snow, falls of rocks, of trees or other unforeseen obstacles, earthquakes, fires of vegetation."

3.4.50. The railway accident happened on the 23rd December 2018, at 07:20 o'clock, in the railway county Timișoara, track section Livezeni – Subcetate, track I, between Băești and Subcetate, railway stations km 34+993, in the running of the passenger train no. 1821 (consisting in the locomotive EA1 137 and six cars), got by the railway undertaking SNTFC „CFR Călători” SA, consisted in the derailment of the train.

The investigation report was completed on the 13th November 2019.

Direct causes, contributing factors

The direct cause of the accident was the loss of the bearing capacity and of the guiding capacity of the outside rail of the curve, following its breakage and creation of a gap of 460 mm (under the dynamic effect of the train rolling stock).

Contributing factors

- unsuitable making of the unit „joint”, from km 34+993 (track I of the running line Băești - Subcetate being at the outside rail of the curve with the radius $R = 280$ m), made during the intervention at the broken rail, recorded on the 10th December 2018 (13 days before the accident), and lack of measures necessary for ensuring the safety of the railway traffic (decrease of the traffic speed on this track section unconsolidated);
- exceeding of the maximum value accepted for the lateral wears of the outside rail of the curve, it leading to the increase of the wheel angle at plane of contact (γ);
- exceeding of the maximum value accepted for the track twist, for the traffic speed established (65 km/h), at the accident site;
- exceeding of the maximum value accepted for the track gauge of curves with radius of 280 m, at the accident site;
- lack of periodical technical inspections at the track on the 17th, 19th and 21st December 2018, on track sections including the accident site;
- non-identification and non-replacement at the deadline of the rail with failure, category I, existing at the accident site.
- exceeding of the maximum value accepted for the transport capacity of the rails existing within the track, when the accident happened (rail type 49, non-welded track).

Underlying causes

- violation of the provisions art.21, point 10 from Instruction no.314/1989 regarding the prohibition to accept within the running and direct lines from the railway stations, rail sections with length under 6 m, for lines with speeds of 51 – 120 km/h”.
- violation of the provisions of art. 21, point 1 from Instruction no.314/1989 regarding the maintaining within the track of rails with failures, category I.
- violation of the provisions of art. 23 from Instruction no.314/1989 regarding the compulsoriness to take measures for speed limitation, until the replacement of the rails with failures, category I existing within the track.
- violation of the provisions of art. 21-point 2 from the Instruction no.314/1989 regarding the maintaining within the track of the rails with wears over the maximum ones accepted by the regulations in force.
- violation of the provisions of art.1 from the Instruction no.314/1989 regarding the tolerances of the track gauge for the curves with radius of 280 m, that is 1455 mm (standard gauge 1435 mm + over-widening of 10 mm + tolerance of 10 mm). We point

out that the gauge in these points was influenced also by the lateral serious wear at the outside rail of the curve.

- violation of the provisions of art. 7, point 4, from the Instruction no.314/1989 regarding the maximum values accepted for the track twist, in accordance with the train maximum speed.
- violation of the provisions of art.1 and art.2, Sheet no. 2 from the Instruction no.305/1997 regarding the performance way of the periodical technical inspection at the track.

Root causes

- non-application of the provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and relevant requirements for the whole life time of the tracks in maintenance process”, part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA, regarding the performance of the maintenance and repair at the tracks.
- non-application of the provisions of the operational procedure code PO SMS 0-4.28 „Checking and control of the maintenance results”, part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA, regarding the tasks of the staff in charge with control.
- non-application of the provisions of the operational procedure code PO 0-10.2.-1 „Treatment of the malfunctions and failures resulting from the current operations at the interlocking system (SCB)”, part of the integrated management system quality - environment - railway safety (SMCM – SMS) of CNCF „CFR” SA”, Annex 1 regarding the diagram of the process for the notification of the inconveniences.

Safety recommendations

With reference to the accident happened on the 23rd December 2018, in the running of the passenger train no.1821, consisting in the derailment of the last three cars of the train, one found that the derailment was generated by the improper condition of some parts of the railway superstructure, affecting the track geometry. So, one found that the derailment happened following:

- unsuitable making of the unit „joint”, from km 34+993, on the track I of the running line between the railway stations Băești and Subcetate, made during the intervention at the failure (broken rail), recorded on the 10th December 2018 (13days before the accident), and lack of measures necessary for ensuring the safety of the railway traffic (decrease of the traffic speed on this track section unconsolidated);
- exceeding of the maximum value accepted for:
 - the lateral wears of the outside rail of the curve;
 - track twist, for the established running speed (65 km/h);
 - track gauge at the accident site;
- keeping within the track of rails with transport capacity exceeded;
- keeping within the track of rails with failures and improper maintenance of the joints;
- non-performance of periodical technical inspections at the track on the 17th, 19th and 21st December 2018, on track sections including the accident site; Non-performance of the periodical technical inspections at the track, at the accident site, at the deadlines and periods of time (once every two days) established by the regulations in force, led to the non-identification of the dangers for the traffic safety. We point out that, before the publication of the Instruction for the establishment of deadlines and of the order of the track inspections no. 305/1997, the inspection of the running and direct lines from the railway stations provided with automatic section block (BLA) and of the secondary lines (with traffic under 1 million gross tonnage/year), were made daily, the risk that possible dangers about the technical condition of the railway superstructure/infrastructure not be identified being better kept under control.

Considering the non-conformities about the technical condition of the railway infrastructure at the accident site, found during the investigation, as well as that the continuous surveillance of the railway superstructure and infrastructure is one of the main task of the staff in charge with the track maintenance, and the safety levels that have to be reached are expressed through risk acceptance criteria and defined like common safety objectives, the investigation commission considers necessary the issuing of the next safety recommendation:

- 1) Romanian Railway Safety Authority – ASFR shall analyze with the public railway infrastructure administrator CNCF,„CFR” SA the need and the opportunity to change the present regulation framework for the establishment of deadlines and order for the performance of the track inspections, as they are established by the Instruction no. 305/1997, as follows:
 - the provisions of art.1, Sheet no. 2 (Tasks of the ganger) be changed so the walk technical inspection of the running and direct tracks from the railway stations provided with automatic section block (BLA), of the secondary lines, of the afferent switches, of the track beds and of the art works be performed efficiently, as it is stipulated (defined) in EU Regulations no.1077/2012.

3.4.51. The railway accident happened on the 26th December 2018, at 00:33 o'clock, in the running of the freight train no. 44505, got by the railway freight undertaking SNTFM CFR Marfa SA, in the railway county Cluj, between Rapa de Jos and Monor Gledin railway stations, km. 36+727, consisted in the derailment of first axle of the locomotive EA 563, in the train running direction.

The investigation report was completed on the 19th December 2019.

Direct causes, contributing factors

Direct cause of the accident is the leading wheel (right wheel in the train running direction) of the locomotive EA563 climbed gauge face of the exterior rail of the curve by, following the increase of the ratio between the lateral (guiding) force and the load acting on this wheel, so exceeding the derailment stability limit. The increase of the ratio between the guiding force and the load acting on the leading wheel happened following the serious load transfer of the right wheel of the leading axle and increase of the lateral force (guiding) on this wheel.

Contributing factors:

- unsuitable technical condition of the track, generated by the failures at the cross level and gauge, following the keeping in operation, at the derailment site (km 36+727), of some normal wooden sleepers whose technical condition was imposing their replacement;
- unsuitable working of the hydraulic damper afferent to the axle no.6, locomotive left side , the axle derailing;

Underlying causes

- violation of the provisions of art.7.A.1. from „Instruction of norms and tolerances for the track construction and maintenance for tracks with standard gauge no.314/1989”, with reference to the tolerance values for the stipulated cross level of a rail against the another one;
- violation of the provision of art.7.A.4. with reference to the keeping between tolerances of the track twist gradient;
- violation of the provisions of art.25, paragraphs (2) and (4) from the „Instruction of norms and tolerances for the track construction and maintenance, for tracks with standard gauge no.314/1989”, concerning the failures that impose the replacement of the wooden sleepers and inadmissibility non-keeping within the track of unsuitable sleepers;
- violation of the provisions of art.14.1, paragraph (c) „Instruction of norms and tolerances for the track construction and maintenance, for tracks with standard gauge no.314/1989”, regarding the inadmissibility of a gauge variation in operation over the maximum value of 2 mm/m;

- not meeting with the deadline established in the Table 3.1 from the Railway norm NF 67-006:2011, for the performance of the planned inspection type R2 at the locomotive EA 563, it leading to the non-identification and non-repair of the breakage at the welding of the lower support from the hydraulic damper afferent to the left axle 6, during the inspection.

Root causes

- non application of all provisions of the operational procedure code PO SMS 0-4.07 „Compliance with the technical specifications, standards and requirements relevant for the whole life time of the lines in maintenance process”, part of the safety management system of the public railway infrastructure administrator CNCF „CFR” SA, regarding the performance of the periodical maintenance and repair at the tracks.
- non identification of danger and not keeping under control of risks resulted from the non-removal, according to the deadlines stipulated by the regulations in force, of the failures of level 3,4,5 and 6, found during the checking of the current and direct lines with the testing and recording car;
- non identification of the danger and not keeping under control of the risks resulted from the not meeting with the tolerances accepted in operation for the track cant and gauge;
- non identification of the danger and not keeping under control of the risks resulted from the keeping within the track of the unsuitable wooden sleepers;
- non application of all provisions of the operational procedure code PO 74.3 „Maintenance and repair of the traction rolling stock”, part of the safety management system of the railway undertaking SNTFM „CFR Marfă” SA, concerning the performance of the maintenance and repairs at the locomotives;

Safety recommendations

The derailment of the locomotive of the freight train no.44505 happened following the unsuitable maintenance both of the railway superstructure and of the locomotive derailed. During the investigation, one found that the superstructure maintenance was not made in accordance with the provisions of the practice codes (reference/associated documents of the procedures from the safety management system of CNCF „CFR” SA).

Through the risk management system, the public railway infrastructure administrator took, for keeping under control the risks of derailment, the next measures:

- compliance with the provisions of the practice codes regarding the removal of the track failures, according to the deadlines established by it;
- performance of the track periodical repairs, in accordance with the provisions of the practice codes and of the procedures from SMS.

Non-application by the public railway infrastructure administrator of the measures established by itself for keeping under control the risks associated to derailment dangers, corroborated with keeping in operation of a railway superstructure whose geometry was unsuitable, created conditions favourable for the appearance of the derailment danger.

The railway undertaking identified the risks that can result from the derailment occurrence generated by the unsuitable maintenance of the locomotives and it established through its own safety management, measures for the control of those risks. So, through the safety management system, the railway undertaking established like measures for keeping under control the derailment risks:

- compliance with the provisions regarding the withdrawal from running of the locomotives with the repair deadline expired;
- compliance with the provisions for the performance of the periodical inspections at the locomotives;

The investigation commission found that the measures took by the railway undertaking, for the withdrawal from running of the locomotives with the inspection deadline expired, were not applied by itself, it generating conditions favourable for the appearance of the derailment danger.

Considering the factors contributing to the accident occurrence, factors based on the underlying causes, that are deviations from the practice codes, the investigation commission does not consider necessary to issue safety recommendations.

3.4.52. The railway accident happened on the 29th December 2018, at 13:15 o'clock, in the railway county Constanța, in Fetești railway station, in the running of the freight train no.87937, got by the railway freight undertaking SNTFM „CFR Marfă” SA, consisting in the locomotives EC125 and EA 816 (inactive), after ending the entry route to Movila on the line 1 of the railway station, when it ran on the switch no.99 to diverging track (right deviation), consisted in the derailment of the first axle of the first bogie from the locomotive EA 816, in the running direction.

The investigation report was completed on the 5th December 2019.

Direct causes, contributing factors

Direct cause of the accident is the climbing of the gauge face of the rail from the curved toe rail of the switch no.99 by the flange of the left wheel of the locomotive first axle in the running direction, following the increase of the ratio between the guiding force and the load acting on this wheel, exceeding in a such way the stability limit at derailment.

Contributing factors

- suspension of the axle no. IV, that was blocked, introducing holds (metallic additions – compressor pinions) between its axle boxes and the guard connections, and introducing holds (additions – metallic profiles) between the frame of the bogie no.II and the axle boxes, from both sides, at the axle no.V for the load transfer on the bogie no.II;
- exceeding of the maximum accepted load on the wheels of the axle no.V, it leading to the load transfer of the left wheel of the axle no.VI and climbing of the gauge face of the rail.
- keeping in service of the locomotive, after reaching the norms of time/km for the performance of the planned repairs type RR, RG, against the provisions of Order of Minister of Transports and Infrastructure no.1359/2012 for the amendment of the Railway Norm "Railway vehicles, Types of planned inspections and repairs. Norms of time or of km run for the performance of planned inspections and repairs", approved by Order of Minister of Transports and Infrastructure no. 315/2011

Underlying causes

- violation of the provisions from „Regulations for hauling and braking no.006/2005”, Art.3(1) point a) - Annex 4 (Characteristic data of the electric locomotive type 060-EA), that is the maximum accepted load on the axle no.V at the locomotive EA 816 was exceeded.
- violation of the provisions of the Railway Norm 67-006:2011 "Railway vehicles. Types of planned inspections and repairs. Norms of time or of km run for the performance of planned inspections and repairs", approved by Order of Minister of Transports and Infrastructure no. 315/2011, amended by Order of Minister of Transports and Infrastructure no.1359/2012 respectively:
 - chapter 3 – Norms for the performance of the planned inspections and repairs of the railway vehicles and their periodicity (cycle), subpoint 3.1, that is the locomotive EA 816 was not withdrawn when it reached the norm of time or km stipulated for the performance of the planned repairs type RR, RG;
 - chapter3 – Norms for the performance of the planned inspections and repairs of the railway vehicle and their periodicity (cycle), Table 3.1, letter A, position no. 1, that is the cycle of planned repairs type RR, RG, at the locomotive EA 816, was not met;
- violation of the provisions from the Instructions for the activity of the locomotive crew no.201/2006 approved by the Minister's Order no.2229/2006, respectively of art.44.- (3) letter b), concerning the obligation to remove , within the intermediate revisions, the

failures at the parts, equipments and aggregates, to which some problems appeared during the locomotive operation, recorded by the driver in the locomotive book;

Root causes

- the absence of some technical provisions (technical specifications) that regulate the working way, in case of hauling and movement to the repairing companies of the electric locomotives that have the failure „blocked axle”, the with the rollbocks - diplory;

Safety recommendations

The railway accident happened on the 29th December 2018, at 10:05 o'clock, in the running of the freight train no.87937, consisting in the derailment of the first axle from the first bogie, in the running direction, from the locomotive EA 816, generated by the increase of the ratio between the guiding force and the load acting on the wheels of this axle, exceeding in a such way the stability limit at derailment, was generated by:

- suspension of the axle no. IV, blocked, introducing holds (metallic additions – compressor pinions) between its axle boxes and the guard connections, and introducing holds (additions – metallic profiles) between the frame of the bogie no.II and the axle boxes, from both sides, at the axle no.V for the load transfer on the bogie no.II, for the locomotives taking to repairs;
- unsuitable technical condition of the locomotive (axle box overheated, destruction of the springs with rubber levels type Metalastik and finally the axle blocking), that had to be kept under control through checking and specific works of maintenance, that are performed during the planned repairs.

During the investigation, one found that the locomotive EA 816 was kept in service after reaching the norms of time/km for the performance of planned repairs, against the provisions of Order of Minister of Transports and Infrastructure no.1359/2012 for the amendment of the Railway Norm "Railway vehicles, Types of planned inspections and repairs. Norms of time or of km run for the performance of planned inspections and repairs", approved by Order of Minister of Transports and Infrastructure no. 315/2011, it being a factor contributing to the accident occurrence.

Considering the causes and factors that led to the accident occurrence, as well as the fact that the supervision of the economic operators from the railway field is in charge of Romanian Railway Safety Authority – ASFR, the investigation commission considers necessary to issue the next safety recommendations:

- 1) Romanian Railway Safety Authority – ASFR shall analyze together with the railway undertakings and the entities in charge with the maintenance of the electric locomotives type LE the possibility to issue some technical provisions (technical specifications) that regulate unequivocally the working way for hauling and moving to the repair companies the electric locomotives that have the failure „blocked axle” with the special device rollbocks diplory, simultaneously with the certification of this special device for suspension according to the Minister of Transports Order no.410/26.07.1999;
- 2) Romanian Railway Safety Authority – ASFR shall take care that the entities in charge of the maintenance of the electric locomotives type LE revise the procedures/technical specifications, that are the reference documents for the job in charge with the maintenance, in order to identify solutions that cover the risks generated by the blocking of the axles at the electric locomotives.
- 3) Romanian Railway Safety Authority – ASFR, through specific actions, shall be sure that the legal provisions and/or the provisions of the specialized instructions in force are met by the railway undertakings and the entities in charge with the locomotive maintenance (Order of Minister of Transports and Infrastructure no. 315/2011 from the 4th May 2011 for the approval of the Railway Norm "Railway vehicles, Types of planned inspections and repairs. Norms of time or of km run for

the performance of planned inspections and repairs"), concerning the technical condition of the railway vehicles used by the railway undertakings.

3.4.53. The railway incident happened on the 4th January 2019, at 03.49 o'clock, in the railway county Craiova, in Vlădueni railway station, consisted in the passing by the shunting limit signal from the main track II and forcing open the switch no.4 by the freight train no.51703 (got by the railway undertaking SNTFM CFR „Marfă” SA).

The investigation report was completed on the 12th December 2019.

Direct causes, contributing factors

The direct cause of the incident (passing by the shunting limit signal and forcing open the switch) is a human mistake in the driving of the hauling locomotive, consisting in the lack of braking measures, proper and early, before the shunting limit signal, lack of attention in tracking the positions of the entry and exit semaphores.

Contributing factors

- inobservance of the position of the entry semaphore by the locomotive crew;
- improper communication between the locomotive crew and the movements inspector on duty in the railway station Vladuleni, done through the radiotelephone equipment of the locomotive;
- early measures for the application of the train brake, taken by the driver.

Underlying causes

- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.127, paragraph (1), letter a) and art.127, paragraph (2) regarding the obligation of the locomotive crew to pay attention to the fixed signals and to take measures imposed by the remarks done along the route;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.136, paragraph (2), regarding the obligation of the locomotive crew to confirm the information received through the radiotelephone, repeating them, saying the number of the train hauled;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.136, paragraph (4), regarding the obligation of the locomotive crew, when upon the working timetable the train passes through the railway station, to contact the movements inspector by radiotelephone in order to inform him about the need to stop and the cause leading to this situation;
- inobservance of the provisions from the Regulation for hauling and braking no.006/2005, art.72, paragraph (2), where it is stipulated that any train braking has to be early made, decreasing the pressure corresponding for the speed slackening, respectively the train stop be made before or at the established place.
- inobservance of the provisions from the Regulation for signalling no.004/2006, art.136, paragraph.1, regarding the compliance with the stop of the railway vehicles on a line, without endangering those running on the close line.

Root causes: none.

Additional remarks

During the investigation, other deficiencies, without relevance for the accident causes, were identified:

- Exceeding of the maximum accepted duty of the locomotive crew, consisting in driver and driver's assistant, with 3 hours and 45 minutes, according to the journey report series 2U, no.0662 from the 29th/30th December 2018 at the freight trains, rake of wagons and shunting no.23689, 23680, CM 5, 99998 and CM 2, with electric-diesel locomotive DA 913. Inobservance of Art.2, point b) from the Order of Minister of Transports no.256/29.03.2013 for the approval of the norms for the maximum continuous duty

accepted for the locomotive, rendered by the locomotive crew in Romanian railway system.

- When the incident happened, one found that the driver of the main locomotive DA 913 was getting „COMPLEMENTARY CERTIFICATE FOR LOCOMOTIVE DRIVERS” , identification number given by the employer MRF022009757, valid from the 21st August 2018 up to the 21st August 2028, recorded internally with the number CCCV-V/29/2018, certificate valid just for the shunting in railway complexes.

Measures taken

During the investigation and working out the report, the railway freight county Banat Oltenia – Training Centre Depot Craiova submitted to the commission a new complementary certificate for the driver above mentioned, valid for the shunting duty in the railway complexes and for the freight train hauling on some track sections, the certificate being issued upon a minute concluded in the Depot Craiova following the exam for getting additional competence for hauling freight trains on some track sections, worked out on the 18th December 2018.

Safety recommendations: none.

3.4.54. The railway accident happened on the 10th January 2019, at 03:25 o'clock, in the railway county Constanța, track section București Nord – Constanța (electrified double-track line), in Cernavodă Pod railway station, on the main track IV, consisted in a fire burst into the locomotive DA 727, hauling the freight train no.80680, got by the railway freight undertaking SC Grup Feroviar Român SA.

The investigation report was completed on the 13th December 2019.

Direct causes, contributing factors

The direct cause of the accident was the ignition of the oil steams into the diesel engine crankcase, following the entrance of the flame from the combustion chamber, it leading to the explosion into it.

Contributing factors

Limestone deposits on the exterior surfaces of the cylinders, as well as inside the packings of the cylinder heads, it leading to the decrease of the cooling capacity of the pistons.

Underlying causes: none.

Root cause: none.

Safety recommendations

On the 10th January 2019, at 03:25 o'clock, in the railway county Constanța, track section București Nord – Constanța (electrified double-track line), in the railway station Cernavodă Pod, on the direct line IV, in the running of the freight train no.80680 (got by the railway freight undertaking SC GFR SA), a fire burst into the engine room of the hauling locomotive DA 72.

Following the investigation, the commission established that the accident factor was the overheating of the pistons no.5 and 11, following the limestones deposits resulted from the cooling liquid of the diesel engine.

Taking into account these above mentioned, the investigation commission recommends Romanian Railway Safety Authority – ASFR

- 1) shall request the railway freight undertaking SC GFR SA to analyze the opportunity of revision of the way to keep under control the parameters of the cooling liquid at the locomotives provided with diesel engines.

3.4.55. The railway incident happened on the 8th January 2019, at 07:08 o'clock, in the railway county Timișoara, track section Caransebeș-Lugoj (electrified single-track line), in Lugoj railway station, at the level crossing from km 514+580, in the running of the passenger train no.1699 (got by the railway passenger undertaking SC SNTFC „CFR Călători” SA), consisted in the illegal operation of the interlocking system, that can affect the railway safety.

The investigation report was completed on the 5th December 2019.

Direct causes, contributing factors

The direct cause of the incident is the incorrect application of the commands for the closing of the barrier from the level crossing SAT, km 514+580, in case of failure.

Contributing factors:

- lack of the contact (11-13) 1ASR (cancelling of the road signalling) from the scheme for the operation of the acoustic and optical signalling device (DAOS);
- existence of a failure at the section XIAD of the railway station Lugoj (JIL failure at km 513+780);
- lack of regulations for the closing of the barrier in case of failure;
- lack of cancellation of the command TCAF (button for the working cancellation).

Underlying causes

- violation of the provisions from art. 104 of the Regulations for the railway technical operation (RET) no. 002/2001.
- violation of the provisions from the annex 3 (Regulations for the working of the equipments CT, SCB, IFTE and TC of the railway station and regarding the operation and working of the barriers type BAT and SAT put on the running line, between the neighbouring stations) from the Guide for the drafting of the operational technical plan of the railway station.

Root cause

Monitoring at regional and central level did neither identify nor manage the dangers and associated risks generated by the lack of regulations for the barrier closing in case of interruption to train movements.

Additional remarks

Unrelated to the incident causes, the investigation commission identified 2 designing way of the electric schemes for the opening different from the normal one (forced opening) with de remote controller TCAF (remote controller for the working cancelling) (for the equipments SAT of the running lines in case of the operation of the command TCAF white light from the road signalling is closed and for the equipments SAT from the railway station in case of operation the command TCAF white light from the road signalling is open and flashing).

Measures taken

The contact (11-13) 1ASR was introduced in scheme, according to the homologated schemes, in the circuit for the power supply of the acoustic and optical signalling device (DAOS), so the application of the command TCAF the red road warning lights be closed, acoustic signalling stopped and white light closed (non-working of the equipment SAT) on the 10th January 2019.

Safety recommendations

During the investigation, the commission found that the management of the infrastructure administrator, at regional and central level, did neither identify nor manage the risks generated by:

- lack of regulations of the barrier closing in case of failure;
- existing of 2 designing ways of the electric schemes for the barrier opening, different from the normal one (forced opening), with the command TCAF (button for the working cancelling) (for the equipments SAT of the running lines in case of application the command TCAF the white light from the road signalling is closed, and for the equipments SAT from the railway station in case of application the command TCAF the white light from the road signalling is open and flashing);

in order to be able to dispose consequently viable solutions and measures for keeping under control the dangers and associated risks generated by these.

In these conditions, the investigation commission recommends Romanian Railway Safety Authority ASFR to request CNCF „CFR” SA:

- 1) the performance of a risk analysis regarding the danger represented by the lack of regulations for the failures at the equipments SAT /BAT from the running lines or

railway station and disposing consequently viable solutions and measures for keeping under control the dangers and associated risks generated by these;

- 2) the performance of a risk analysis regarding the danger represented by the non-standardizing of the schemes of the equipments SAT/BAT of the railway station and from the running line and disposing consequently viable solutions and measures for keeping under control the dangers and associated risks generated by these

3.4.56. The railway incident happened on the 22nd January 2019, at 17.48 o'clock, in the railway county Timișoara, noninteroperable track section Berzovia – Reșița Nord (managed by RC - CF TRANS SRL), nonelectrified single-track line, in the railway station Vasiova, in the running of the freight train no.69492 (got by the railway undertaking SC Tim Rail Cargo SRL), consisted in the passing by the shunting limit signal from the main track no. III and forcing open the switch no.5.

The investigation report was completed on the 12th December 2019.

Direct causes, contributing factors

The direct cause of the incident (passing by the fouling mark and forcing open the switch) is a human mistake appeared in the driving process of the hauling locomotive, consisting in lack of measures for the proper application of the brake early, before the fouling mark, lack of attention in the tracking of the exit semaphore position and not tracking of the working timetable.

Contributing factors:

- inobservance by the locomotive crew of the train stop stipulated in the working timetable;
- improper communication between the locomotive crew and the movements inspector on duty in the railway station Vasiova, made by the radiotelephone equipment;
- late taking of measures for the application of the brake by the driver.

Underlying causes

- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.125, paragraph (1), regarding the obligation of the locomotive crew to know the timetable of the train hauled and to assure its running without delay and in safety conditions, meeting with the running speeds, journey times, stops and their length, stipulated in the working timetable or in the timetable made at the train routing;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.135, paragraph (1) regarding the obligation of the locomotive crew that, when in the working timetable is stipulated stop in all railway stations, the driver has to take the measures to stop safely the train.
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.136, paragraph (2) regarding the obligation of the locomotive crew to confirm the information received by the radiotelephone, repeating these, saying the number of the train hauled;
- inobservance of the provisions from the Regulation for hauling and braking no.006/2005, art.72, paragraph (2), where it is stipulated that any train braking has to be early made, decreasing the pressure corresponding for the speed slackening, respectively the train stop be made before or at the established place.
- inobservance of the provisions from the Regulation for signalling no.004/2006, art.136, paragraph.1, regarding the compliance with the stop of the railway vehicles on a line, without endangering those running on other close line.

Root causes: none.

Additional remarks:

- after the incident, the driver continued its duty, left with the freight train no. 69492 Vasiova railway station, at 19.38 o'clock and arrived in the railway station Timișoara Nord at 23.15 o'clock, where according to the journey report series AD, no.5034 and

series AD, no.5035 the maximum accepted duty was exceeded with 6 hours and 57 minutes according to the provisions of Order of Minister of Transports no.256 from the 29th March 2013.

- the switch no.5, end X of Vasiova railway station has no indicator for the switch position, according to the art.45 from the Regulation for the railway technical operation no.002/2001 (it was damaged, having only the lower part of the indicator box).
- the caution semaphore from the end Y of the railway station Vasiova was not operated following some failures, not running the function of signal that anticipate the position of the entry semaphore according to the art.67.(1) of the Regulation for railway technical operation no.002/2001.

Safety recommendations

During the investigation the commission found that the incident happened following a punctual error of the driver, which did not meet with the instruction regulations.

The railway undertaking worked out procedures for the activity of the locomotive crew, identifying also dangers that can generate the risk of passing by the shunting limit signals, not tracking of the working timetable and not taking of the measures for early application of the brake, the consequences that can appear in a such situation, but without a proper management of these risks.

In these conditions, the investigation commission considers that the issuing of some safety recommendations is not necessary.

3.4.57. The railway accident happened on the 27th January 2019, around 14:30 o'clock, in the railway county Braşov, track section Luduş – Măgheruş Şieu, line 420 (non-interoperable single-track line and non-electrified one), km 7+ 977, between the railway stations Luduş and Sărmăşel, in the running of the passenger train R 16300, got by the railway passenger undertaking REGIO CĂLĂTORI SRL Braşov, consisted in the derailment of third bogie of the multiple unit type AMX, in the running direction.

The investigation report was completed on the 27th August 2019.

Direct causes, contributing factors

The direct cause of the accident was the climbing of the gauge face of the exterior curve rail by the leading wheel of the bogie no.3 (the bogie no. 1 of the trailer vehicle), situated on the right running site of the multiple unit *AMX no.1704*, following the increase of the ratio between the guiding force and the load acting on this wheel, so exceeding the derailment stability limit.

The increase of the ratio between the guiding force and the load acting on the guiding axle happened following the serious load transfer of the right wheel from the guiding axle and following the increase of the lateral force (guiding one) on this wheel.

Contributing factors

- unsuitable technical condition of the track generated by failures at the gauge, cross level and track direction into the curve.

Underlying causes

The underlying causes of this accident were: violation of some provisions from the instructions and regulations in force regarding the track maintenance:

- „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989”, art.1, paragraph 14.2, regarding the tolerances accepted for the gauge and its variation;
- „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989”, art.7, A.1 regarding the tolerances accepted for the prescribed cross level of a rail against the another one of the line, both for the straight line and for the curved ones;

- Art. 7.A.4, from „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989” regarding the tolerances accepted for the track twist measured every 2,5 m, according to the running speeds;
- “Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989”, art.B.4, regarding the tolerances accepted for the plane track position, respectively the prescribed versine in the connection curves;
- art.25, paragraphs (2) and (4) from „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989”, regarding the failures that impose the replacement of the wooden sleepers and non-keeping within the track of unsuitable sleepers;
- Annexes IV from the Instruction for the line maintenance – No. 300/1982, regarding the meeting with the cycles of periodical repair and current maintenance;
- Chapter I, art. 3, a) from the „Instruction for line overhauls - no. 303, edition 2003.

Root causes: none.

Additional remarks

During the investigation, the commission found some non-conformities and deficiencies, without relevance for the conclusions and accident causes, but which are submitted for the analysis of the parties involved in the accident, for the improvement of its own activity, as follows:

- from the documents requested and submitted to the investigation commission by the infrastructure manager RC CF TRANS Braşov and from the statements of the employees responsible for the maintenance, one found that the company has no annual minimal schedule for the dynamic checking of the track geometrical parameters with the testing and recording car . At point 1.1, chapter 1 Operation of the testing and recording cars from „Instruction for the use of the testing and recording cars no. 329/1972”, it is mentioned:

Measurement of the lines with the testing and recording cars is carried upon an annual minimal schedule. In the minimal schedule it is stipulated the frequency of the measurement for each line. For the setting of the frequency of a line measurement, there will be considered the traffic density, the maximum accepted running speed, line condition, type of raile, etc.

Upon these data, the district for the track maintenance has to schedule the works for the removal of the registered failures, as well as the works for the track maintenance. Comparing the data resulted from two checkings, one can know the evolution over the time of the track condition, the activity of district in charge with the track maintenance and the measures to be taken for the track condition improvement can be established by the company decision makers;

- the data from the technical records regarding the track geometrical parameters are not identical, they do not fit , as it results from the checking of the documents submitted by the infrastructure manager (ex: curve radius differs in the curve book against that longitudinal section, and the overcant of the constant radius curve in the curve book is not identical with that from the book of the curve measurements). The commission considered the data from the book of the curve measurements of the district in charge with the maintenance, that are in accordance with the regulations from the „Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge - no.314/1989” (correlation between the constant radius curve and the overcant).

Safety recommendations

Considering the factors contributing to the accident occurrence, these being the basis for the underlying causes, that are deviations from the practice codes and the keeping under control of the railway safety risks, the investigation commission did not consider necessary to issue some safety recommendations.

3.4.58. The railway incident happened on the 3rd February 2019, in the railway county Craiova, track section Filiași – Târgu Jiu (electrified double-track line), in the railway station Târgu Jiu, where the electric locomotive EC 053, got by SNTFC „CFR Călători” SA, stopped, coupled at the passenger train no. 2092 and the brake on the line no. II, started to run and passed by the light signal YIIP about 100 m, the signal being „with a light red unit to the train – Stop without passed the signal in stop position!”, forced open the switch no.41. The investigation report was completed on the 12th December 2019.

Direct causes, contributing factors

Direct cause of the incident is the lack of the sufficient force to stop the locomotive, following a technical failure at it, consisting in the improper application of the brake shoes on the tyres of the wheels of the axle no.3, as well as the improper operation of the hand brake by the human operator at a wagon of the train.

Contributing factors:

- use at the axle no.3, on which the hand brake operates, a brake cylinder with the piston rod fixed on the piston guiding tube and not a brake cylinder with the piston rod not fixed on the guiding tube;
- change of the length of the brake cable following the unfastening during the time of the cable tightening in the fixing clips;
- use in the area of tightening the brake cable on the joining pin of two clips instead three for fastening;
- keeping in operation of the electric locomotive EC 053, after achieving the norm of time for the performance of planned repairs;
- improper operation of the hand brake at the wagon by the human operator in order to keep stopped the rake of cars;
- stabling of the locomotive and cars on a line with the characteristic gradient is 2,64‰.

Underlying causes

- inobservance of the provisions of Chapter 3 – Norms for the performance of the planned inspections and repairs at the railway vehicles and their cycle from the Railway norm 67-006:2011 „Railway vehicles. Types of planned inspections and repairs. Norms of time or km run for the performance of planned inspections and repairs”, approved by Order of Minister of Transports and Infrastructure no.315/2011, amended by Order of Minister of Transports and Infrastructure no.1359/2012, as follows:
 - subpoint 3.1, that is the electric locomotive EC 057 was not withdrawn from running when it reached the norm of time stipulated for the performance of the planned repairs;
 - table 3.1, letter A, position no.10, that is the cycle of planned repairs at the electric locomotive EC 057 was not met;
- inobservance of paragraph 8, point B – CONTROL from the Technological Sheet no. E – M4b LE 3400 Kw – Brake rigging, regarding the number of turns of the brake wheel for ensuring the application of the brake shoes on the wheel tyres;
- inobservance of the paragraph 5, point 9, CHAPTER I – MECHANICAL INSTALLATION from the technical specification „Planned repairs type RR, RG at electric locomotives of 3400 kW” code ST2 – 2003 of C.F.R. S.C.R.L. S.A., regarding the number of turns of the brake wheel in order to keep the cable stretched but without tension);
- inobservance of the technical documentation - LE 3400 Kw – ENSEMBLE HAND BRAKE – drawing L008038000, regarding the number of clips for fastening and the distance between them;
- inobservance of Art. 40, point a) – Instructions for the activity of the locomotive crew no.201/2006, approved by Order of Minister of Transports, Constructions and Tourism no.2229/2006 regarding the parts, installations and equipments lack or out of service that did not allow the exit of the locomotive from the depot;

- inobservance of Art. 74 – (1), point a) – Regulation for the running of the trains and shunting of the railway vehicles no.005/2005 regarding the responsibility for the application of the hand brakes and/or application of the drag shoes in order to prevent the railway vehicle runaway.

Root causes

- Reference document for the railway critical service „PLANNED INSPECTIONS TYPE Pth3, RT, R1 AND R2, AT THE ELECTRIC LOCOMOTIVES OF 3400/5100 kW - ST 5-2004”, worked out by SNTFC ”CFR CĂLĂTORI” SA, for ensuring the maintenance of the own electric locomotives, manufactured by SC ELECTROPUTERE SA, does not contain specifications about the operations necessary for the checking of the hand brake and its validation in order to declare it corresponding for the operation.

Additional remarks

- during the investigation, one identified deficiencies without relevance for the incident causes, regarding the stabling of the passenger train locomotives on the lines of the railway station Târgu Jiu, operation that is not in any regulation concluded between SRTFC Craiova and SRCF Craiova.

Safety recommendations

As for the incident happened when the passenger train no.2092 was stopped in the railway station Târgu Jiu, hauled with the electric locomotive EC 053, one found that it started to run following the improper application of the brake shoes on the wheel tyres from the axle no.3, after the operation of the hand brake wheel of locomotive and improper application of the hand brake of the rake of wagons.

Within the investigation, one found that the factors influencing the incident occurrence are represented also by the improper technical condition of the locomotive, therefore the commission recommends Romanian Railway Safety Authority shall ask railway undertaking SNTFC ”CFR Călători” SA:

- 1) performance of a re-assessment of the risks generated by the failure of the braking systems of the rolling stock, that can generate incidents/accidents;
- 2) analysis of the opportunity to revise the Technical Specification Code ST 5-2004, that is the reference document for the railway critical service „PLANNED INSPECTIONS TYPE Pth3, RT, R1 and R2, AT THE ELECTRIC LOCOMOTIVES OF 3400/5100 kW”, so the scheduled maintenances at the braking system ensure its checking, adjustment and working between two planned inspections.

3.4.59. The railway incident happened on the 29th March 2019, in the activity of SC TMB „METROREX” SA București, main line IV, between the metro stations Gara de Nord 2 and Basarab 2, in the running of the metro train, consisting in REM type IVA 034-072-130, consisted in the passing the signals X1N from the station Gara de Nord 2 and X1B from the station Basarab 2, in stop position, having the red light unit meaning „stop without passing the signal in stop position”.

The investigation report was completed on the 20th May 2019.

Direct causes, contributing factors

The direct cause of the incident is a human error, consisting in the lack of attention in tracking the positions of the exit signals of the stations Gara de Nord 2 and Basarab 2, having the a red light position meaning „stop without passing the signal in stop position”.

Contributing factors:

- the train crew did not track and communicate the position of the exit signals.
- the train crew did not stand up as long as the exit signals had the position ordering the stop.
- the train crew did not track the position of switches from the exit route of the train.

- the movements staff of the station Gara de Nord 2 did not notify the drivers of the metro train regarding the shunting on the connecting line with access to the station Basarab.
- the movements staff from the Traffic Controller, main line IV, did not track the train running and the activity of the movements staff from the station Gara de Nord 2.

Underlying causes: none.

Root causes: none

Additional remarks

The disposal regarding the running and shunting of the test train no. 1, sent by the movements staff of the Traffic Controller was not complete.

Safety recommendations: none.

3.4.60. The railway incident happened on the 5th April 2019, at about 21:20 o'clock, in the railway county Craiova, track section Strehaia – Drobeta Turnu Severin, electrified single-track line, in the railway station Drobeta Turnu Severin, consisted in the starting to run of the freight train no.60502, got by the railway undertaking SC TIM RAIL CARGO SRL, from the line no.7, on a route set for the line 8, it leading to the forcing open the switch no.27.

The investigation report was completed on the 14th August 2019.

Direct causes, contributing factors

The direct cause of the incident is a human mistake appeared on the locomotive driving, consisting in the passing of the exit light signal of group Y7-8 in stop position, without meeting with the position of the line indicators.

Contributing factors:

- the train crew appreciated wrong the positions of the exit signal from the group Y 7-8;
- the disposing station movements inspector set wrong the exit route from the line 8 instead the line 7;
- bad communication between the train crew and the disposing station movements inspector of the railway station, having competences in the train running.

Underlying causes

- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.92, paragraph (1), regarding the provisions for the occupation of the running line;
- inobservance of the provisions from the Instructions for the activity of the locomotive crew no.201/2007, art.119, paragraphs (1), (2) and (3) regarding the obligations of the locomotive crew for the occupation of the running line;
- inobservance of the provisions from the Regulation for signalling no.004/2006, art.122, paragraph (1),(2) and (3) regarding the position of the line indicator of the group exit light signal.
- inobservance of the provisions from the Regulation for the running of the trains and shunting of the railway vehicles no.005/2005, art.197 paragraph (5), point b, regarding the departure order for the occupation of the running line.

Root causes

- the confirmation of the external station movements to the disposing station movements inspector that the train meets the requirements for running is not clearly regulated.

Safety recommendations

- 1) performance of a risk analysis regarding the danger represented by the illegal passing of a signal and the assessment of the need to introduce this danger in the category on the unacceptable nonconformities.
- 2) maintenance of the radio equipment from the office of the disposing station movements inspector from the railway station Drobeta Turnu Severin, so it shall work continuously.

- 3) Regulation of the way the external station movements confirm to the disposing station movements inspector that the train, that has to be dispatched, meets the requirements for running that is not clearly regulated.

3.4.61. The railway incident happened on the 16th May 2019, at 14:47 o'clock, in the railway county Iași, in the railway station Holboca, in the running of the train no.L79767, got by SC Grup Feroviar Roman SA, with order to pass on the direct line III, route set on the section block, with the entry and exit signals on free position „Green”, consisted in forcing open the switch no.4, that on site was on „minus”, giving access on the diverging track II. The investigation report was completed on the 23rd Octombrie 2019.

Direct causes, contributing factors

Direct cause of the railway incident (switch forcing) was setting and locking of the switch no.4 on the unsuitable position for the ordered route..

Contributing factors:

The factors contributing to the railway incident were:

- the technical condition was not in compliance with the technical project of the equipment for secure with keys and section block;
- human error, that is:
 - non operation in compliance with the regulations, for the setting of the exit route of the train;
 - not checking of the clearance of the line and of the entry-exit route of the train;

Underlying causes

- inobservance of the provisions of the Regulation for railway technical operation no.002/2001, art.82 – a, regarding the clearance of the signal corresponding to the ordered route;
- inobservance of the provisions for the technical maintenance and repair of the interlocking system (SCB), art 287, regarding the conditions that the operating apparatus has to meet;
- inobservance of the provisions from the Regulation for the running of the trains and shunting of the railway vehicles no.005/2005, art.125, paragraph (1) b) art.130 (3) art.139 (1) b);
- inobservance of the provisions from the Instruction for the operation of the equipment from the railway station Holboca art. 13 art. 15, art.24

Root causes

- improper application of the own procedures, part of the requirements of the Safety Management System, regarding the training and monitoring of its own staff responsible with the operation and maintenance, in order to learn right working skills, to comply with the operational procedures imposed by the conformity requirements stipulated in the instructions and regulations for technical operation.

Safety recommendations

During the investigation, the investigation commission found that the management of the central and regional infrastructure administrator did not manage the risks generated by the next dangers:

- inobservance of the sequence of the operations from the routes made through the signal boxes with keys and block;
- maintenance of the installations SBW that prevent the clearing of the signal with a switch put and locked on the position improper to the ordered route,

in order to dispose viable solutions and measures for their keeping under control.

So, if the economic organization had tracked the compliance of its own staff, properly, with the operational procedures that cover the risks associated to the dangers above mentioned, it could have prevented the incident occurrence.

For the achievement of a such objective the investigation commission recommends Romanian Railway Safety Authority - ASFR shall track that CNCF CFR SA:

1) *reanalyses the monitoring:*

- 1.1. *the performance of the maintenance of the installations SBW, that prevent the clearance of the signal without a route switch be operated on the proper position;*
- 1.2. *making of routes, having signal boxes with keys and block, and analyzes the opportunity to include these nonconformities in the category of the unacceptable nonconformities.*

3.4.62. Railway incident happened on the 24th June 2019, in the railway county Iași, in the running of the passenger train no.5731 (got by the railway undertaking SNTFC „CFR Călători” SA), consisted in the derailment of all 4 axles of the locomotive EC 078, on the running line Dărmănești – Cacica, at the level crossing from km.4+925, it being covered with a thick level of river deposits, taken from the access road following the heavy rains.

The investigation report was completed on the 24th September 2019.

Following the findings of the investigation commission, on the 24th September 2019, the investigation was closed and the railway incident was re-classified according to the provisions of the *Investigation Regulation*, art.9, paragraph a) - ” *The are not classified as accidents or incidents the situations or facts that led to the closing of the railway traffic, accidentally, having the next causes:*

- a) *Natural ones, respectively floods, landslides snow-drifts, rock falls, falls of trees or of other obstacle unforeseeable, earthquakes, vegetation fires.”.*

3.4.63. The railway incident happened on 8th August 2019, at about 15:40 o'clock, in the railway county Constanța, track section Fetești - Constanța (electrified double-track line), in the railway station Dorobanțu, in the running of the train no.80528, got by the railway undertaking SC Grup Feroviar Român SA, consisted in the hit of the track inductor of 100/2000 Hz afferent to the signal X3, by the axle guard tie bar of wheel no.6 of the wagon no.87537960759-6, the 16th one of the train.

The investigation report was completed on the 18th September 2019.

Direct causes, contributing factors

Direct cause of the incident is the fall of the axle guard tie bar from the wagon no.87 53 7960 759-6 series Zas from wheel no. 6, the 16th one from the locomotive.

Contributing factors:

- Wearing of threads on the fastening system within the bogie;
- unfastening of the screws for the fixing of the axle journal tie bar, being in the holes with the threads distorted and their coming out, leading to the fall of the axle guard tie bar, and the shearing of the new active screw existing.

Underlying causes:

- inobservance of the provisions of art.6, paragraph 2, letter c, from the instructions for the technical inspection and maintenance of the wagons in operation no.250/2005, regarding the working and wear of the parts and subparts.

Root causes: none.

Measures taken

During the stop of the train no.80528 in the railway station Dorobanțu, wagon technical staff got by SC GFR SA ensured the fastening of the axle guard tie bars no.4 and 6, replacing the missing ones and fastening with screws, all the axles of the train were checked, then the necessary recordings were done for the dispatching of the train in safety conditions.

Safety recommendations: none.

3.5 Accidents and incidents investigated within the last 5 years

Investigations performed between 2015-2019:

Accidents investigated (1)		2015	2016	2017	2018	2019	TOTAL
Accidents (Art.19, 1 + 2)	Train collisions	1	1	-	-	-	2
	Collisions between trains and obstacles	-	-	-	-	-	-
	Train derailments	16	17	26	22	27	108
	Level crossing accidents	1	-	-	-	1	2
	Persons accidents generated by the rolling stock in motion	-	-	-	-	-	-
	Rolling stock fires	3	5	5	3	4	20
	Accidents involving dangerous goods	-	-	-	-	-	-
Other accidents (Art.21.6)	Trains collisions	-	-	-	-	-	-
	Collisions between trains and obstacles	-	-	-	-	-	-
	Train derailments	-	-	-	-	-	-
	Level crossing accidents	-	-	-	-	-	-
	Person accidents generated by the rolling stock in motion	-	-	-	-	-	-
	Rolling stock fires	-	-	-	-	-	-
	Accidents involving dangerous goods	-	-	-	-	-	-
Incidents		27	14	17	12	31	101
TOTAL		48	37	48	37	63	233

(1) one took into account the year of the investigation finishing;

4. SAFETY RECOMMENDATIONS

4.1. Brief revision and presentation of the recommendations issued in 2019

Through the issued recommendations, Romanian Railway Investigation Agency aimed the improvement of the railway safety and the prevention of the accidents.

No.	Train/ rolling stock involved		Site of the railway event			Date of the report completion	Type of railway event	
	No. of train	Type of train	Occurrence site	Occurrence date	Hour			
1.	5454 1654 1766	passenger	Suceava; Molid-Frasin; Pojorâta;	15.01.2018	---	14.01.2019	incident	Breakage of the pantograph of the electric locomotives
		In the railway county Iași, track section Suceava - Dărmănești (electrified double-track line), in the railway station Suceava, the both pantographs of the locomotive EC126, hauling the passenger train Regio nr.5454 (got by the railway undertaking SNTFC „CFR Călători” SA) broke and the contact line disconnected. Through further disposal, the investigation was expended to another two similar cases, happened in the same railway county, in the running of the trains got by the same railway undertaking, given the repeatability, as follows: - between the railway stations Molid and Frasin, km.49+500, the pantograph no. 2 from the locomotive EA305, hauling the passenger train IR no.1654 and some brackets for the contact line support broke; - in the railway station Pojorâta, the pantograph of the locomotive EA078, hauling the passenger train IR no.1766 broke and the contact line afferent to the lines 2 – 4 was affected.						
		Recommendations issued	2	1. Romanian Railway Safety Authority-ASFR shall take care that the product „pantograph type EP3” classified like railway critical product at the risk class 1B, whose failure generates the serious interruptions in the railway operation, if it will be used in the endowment of the locomotives that will be submitted to the modernization through repairs type RG or RK, be submitted to the technical homologation, upon on a reference technical documentation; 2. Romanian Railway Safety Authority-ASFR shall take care that the railway public infrastructure manager CNCF „CFR” S.A. shall make an inventory of the electrified track sections on which the locomotives provided with the this pantographs EP3 can be accepted and shall notify this information to all interested factors.				
		Recommendation in implementation process (open)	1	Up to the working out of this report, no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation no.1, issued following the investigation of this incident.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified about the safety recommendation no.2, issued following the investigation of this incident, that it was analyzed, the measures to be taken were identified and they were implemented.				
2.	80592-1	freight	Valea Albă- Drobeta Turnu	01.02.2018	05:20	30.01.2019	accident	Derailment of 5 wagons

			Severin					
		In the railway county Craiova, on the running single-track line, between the railway stations , 5 wagons of the freight train no.80592-1, got by the railway undertaking SC Grup Feroviar Român Valea Albă and Drobeta Turnu Severin Mărfuri , derailed (one of them overturned).						
		Recommendations issued	1	1. Romanian Railway Safety Authority shall analyze through supervision how CNCF„CFR” SA, like public infrastructure manager, ensures the conditions so the safety measures which it proposed for keeping under control the dangers and the associated risks, concerning the performance of the public infrastructure maintenance, be applicable.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified about the safety recommendation issued following the investigation of this accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
3.	89965	freight	Palas-Constanța Mărfuri	18.03.2018	07:20	11.03.2019	accident	Deraiment of 2 wagons
		In the railway county Constanța, non-interoperable track section Palas – Năvodari, between the Palas and Constanța Mărfuri railway stations, nonelectrified double-track line, km 1+175, in the running of the freight train no.89965 (got by the railway undertaking Tehnotrans Feroviar SA), the last two wagons of the train derailed, the last one overturned.						
		Recommendations issued	1	ASFR shall analyze if the infrastructure manager SC Grup Feroviar Român SA is still meeting with the conditions for the issuing of the safety authorizations types A and B, for the non-interoperable track section Palas – Năvodari				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.1 issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
4.	42564	freight	Dealul Ștefăniței	15.03.2019	19:05	12.03.2019	accident	Deraiment of a wagon
		In the railway county Cluj, track section Sighetu Marmăției – Salva, nonelectrified single-track line, in Dealul Ștefăniței railway station, in the running of the freight train no.42564, got by the railway undertaking SNTFM „CFR Marfă” SA, the first bogie of a wagon, loaded with wooden material, being the 27th of the train, derailed. .						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall ask public railway infrastructure administrator the revision of the part of safety management system regarding the monitoring and learning, following the occurrence of an accident or incident, as well as the revision of „Own register of dangers”. 2. Romanian Railway Safety Authority – ASFR shall analyse the opportunity the change of the Instructions no.250/2005 – national norm for setting up of the way of technical inspection and maintenance of the wagons in operation, that is the introduction of some provisions concerning the case the wagons provided with bogies with coil springs side bearer, the body of the lower side bearer from both sides of the bogie comes in contact with the upper				

				side of the bogie frame, it be established like failure and the wagons having a such failure be withdrawn from traffic .for additional checking and schedule of repairs necessary for the removal of the causes leading to this failure.				
		Recommendation mplemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified about the safety recommendation no. 1 issued following the investigation of this accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
		Recommendation in implementation process (open)	1	Up to the working out of this report , no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation no.2, issued following the investigation of this accident.				
5.	EC 057	Light locomotive	Târgu Jiu	16.04.2017	11:10	26.03.2019	incident	Runaway of a locomotive and the passing of a signal in stop position
		In the railway county Craiova, in Târgu Jiu railway station, the locomotive EC 057 (got by SNTFC „CFR Călători” SA), stopped on the line II, ran away, passing by the route signal YIIP in stop position, it being on “red” position						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall ask the railway passenger undertaking SNTFC ”CFR Călători” SA the performance of a reassessment of the risks generated by the failure of the braking system of the rolling stock, which can generate incidents/accidents; 2. Romanian Railway Safety Authority – ASFR shall ask the railway passenger undertaking SNTFC ”CFR Călători” SA the analysis of the opportunity to revise the Technical Specification Code ST 5-2004, that is reference document for the railway critical service „PLANNED INSPECTIONS TYPE Pth3, RT, R1 and R2, at the ELECTRIC LOCOMOTIVES of 3400/5100 kW”, so the maintenances scheduled for the hand brake system ensure its inspection, adjustment and working during the time between two planned inspections.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations no.1 issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations no.2 issued following the investigation of the railway incident, that it was analyzed, the measures to be taken were identified and they were implemented.				
6.	90966-1	freight	Păuliș	19.04.2018	15:20	28.03.2019	incident	Passing of a signal in stop position
		In the railway county Timișoara, in Păuliș railway station, the locomotive of the freight train no. 90966, got by the railway undertaking SC RailForce SRL, passed the entry signal X in the stop position, followed by the forcing open of the first switch, met along the route.						

		Recommendations issued	1	1. Romanian Railway Safety Authority shall ask the railway freight undertaking SC Rail Force SRL, the revision of the „Register for the evidence of its own dangers” by the reassessment and analysis of the risks associated to the railway transport, generated by: - danger of passing the signals in stop position by the trains in running; - danger to exceed the maximum continuous duty accepted for the locomotive, run by the locomotive crew in the train hauling; disposing proper measures for keeping them under control.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway incident, that it was analyzed, the measures to be taken were identified and they were implemented.				
7.	21716-1	freight	Videle	02.04.2018	22:15	01.04.2019	accident	Derailment of the locomotive and of the first wagon of a freight train
		In the railway county București, in Videle railway station, in the running of the freight train no.21716-1, got by the railway undertaking SNTFM „CFR Marfă” SA, all the axles of the locomotive EA 875 and the first bogie of the first wagon derailed, on the switch no.21.						
		Recommendations issued	1	1.Romanian Railway Safety Authority-ASFR shall analyse through own surveillances, how the safety management system of the public railway infrastructure administrator is applied and if case, ask CNCF„CFR”SA to correct and re-assess the measures for keeping under control its own risks.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
8.	80311	freight	Rupea-Racoș	04.04.2018	03:58	02.04.2019	accident	Derailment of a wagon
		In the railway county Brașov, track section Brașov-Sighișoara, line 300, track I, between Racoș and Rupea railway stations , electrified double – track line, km 232+960, in the running of the freight train no. 80311, got by the railway undertaking SC Grup Feroviar Român SA, the bogie no. 1 from the 33rd wagon of the train derailed in the running direction.						
		Recommendations issued	1	1.Romanian Railway Safety Authority – ASFR shall ask the railway infrastructure administrator to establish its own safety measures that have to be implemented in order to be sure that within the frame of the maintenance process of the lines, both the provisions of the procedures of the own safety management system and of the practice codes are met				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were				

				identified and they were implemented.				
9.	42695-2	freight	Dej Triaj	25.04.2018	00:50	05.04.2019	accident	Derailment of a wagon
		In the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj, group A railway station, when the freight train no. 42695-2 (got by the railway undertaking SNTFM „CFR Marfă” SA) passed over the switch no.15A, the first bogie of the wagon no. 31530670031-3 (the 5th one after the locomotive), derailed in the train running direction.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall analyze through own supervision actions, the enforcement of the safety management system of the public railway infrastructure administrator and, if case, ask CNCF „CFR”SA, to rectify or reassess the measures for keeping under control the own risks.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
10.	80432-1	freight	Simeria	08.05.2018	06:14	06.05.2019	accident	Derailment of 2 wagons
		In the railway county Timișoara, in the running of the freight train no.80432-1, got by the railway freight undertaking GRUP FERROVIAR ROMÂN SA, when it entered the line 8 of the Simeria railway station, the second bogie from the 20th wagon, in the running direction, and the first bogie of 21st wagon derailed						
		Recommendations issued	1	1. Romanian Railway Safety Authority - ASFR shall analyze the opportunity to add, at the railway technical norm for the repair of the axle boxes with roller bearings, provisions for the establishment of the maximum service life for cylindrical the roller that provide the wagons (expressed in km run or years).				
		Recommendation in implementation process (open)	1	Up to the working out of this report , no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation issued following the investigation of this accident.				
11.	80506-1	freight	Valu lui Traian	23.05.2018	16:47	15.05.2019	accident	Derailment of a wagon
		In the railway county Constanța, in Valu lui Traian railway station, in the running of the freight train no.80506-1, the first axle of the 9th wagon derailed in the running direction.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR should ask the railway undertaking SC GFR SA the revision of the safety management system for the wagon acceptance after the accidental repair, so be sure that the procedures existing in this respect do not allow the re-introduction of a wagon with problems at the running gear.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway				

				accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
12.	Rake of wagons and locomotive	shunting	Predeal	24.05.2018	19:55	20.05.2019	incident	Runaway of a set of 9 wagons
		In the railway county Braşov, in Predeal railway station, during the shunting of a set of 9 wagons with the locomotive EA 386, got by the railway freight undertaking SC Unicom Tranzit SA, these vehicles ran away from the line no.2 of the railway station Predeal and entered the track II of the railway station Azuga.						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR to ask the railway freight undertaking SC Unicom Tranzit SA the re-assessment of the risks generated by the danger "Failure of performance of the corresponding brake tests in the railway stations of composition or in case of forming wagon couple and/or re-forming for running on high gradient" and taking of effective measures for keeping it under control. Romanian Railway Safety Authority – ASFR to ask the railway freight undertaking SC Unicom Tranzit SA the revision of the Operational Procedure "For the appointment, ensuring and tracking of the train crew and monitoring of the compliance with the norms approved through the Order of Minister of Transports OMT 256/29.03.2013, concerning the maximum duty accepted for the locomotive, ran by the train crew of UNICOM TRANZIT in Romanian railway system" code POSF – 37 Revision 1 in force from the 1st April 2017, so it shall have real provisions that ensure the compliance with the normal working time and the daily rest for the train crews				
		Recommendations in implemented (closed)	2	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations issued following the investigation of the railway accident, that they were analyzed, the measures to be taken were identified and they were implemented.				
13.	16331	passenger	Bartolomeu - Cristian	05.06.2018	06:12	30.05.2019	accident	Fire into a multiple unit
		In the railway county Braşov, track section Bartolomeu - Zărneşti (nonelectrified single-track line), managed by the railway infrastructure manager SC RC-CF TRANS SRL Braşov, km.9+800, between Bartolomeu and Cristian railway stations, a fire burst into the multiple unit AMX no.557, being hauled in the composition of the passenger train no. 16331, got by the railway undertaking SC Regio Călători SRL Braşov.						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall ask SC Regio Călători SRL Braşov and SC MARUB SA Braşov the redrafting of the Technical Specification code ST 1.019/2011 for the insertion of some provisions for the performance and maintenance of the Diesel engine cleaning and of its auxiliary parts. 2. Romanian Railway Safety Authority – ASFR shall ask SC Regio Călători SRL to run again the identification of the risks associated to the railway operations for the maintenance of the multiple units type AMX, through the identification of all dangers that could be reasonably identified and the setting up of some criteria for the acceptance of the corresponding risks, eventually through taking some additional safety measures, so the risks of their occurrence could be acceptable.				

		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no. 1 issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no. 2 issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
14.	41722	freight	Dej Triaj	06.06.2018	21:48	04.06.2019	accident	Derailement of a wagon
		In the railway county Cluj, track section Dej Călători - Beclean pe Someș, electrified double-track line, in Dej Triaj, Group A railway station, when the freight train no. 41722, got by the railway undertaking SNTFM „CFR Marfă” SA passed over the first joint of the switch no.21A, the last bogie of the wagon no.31533555642-1 derailed.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall take care that the railway undertaking SNTFM „CFR Marfă” SA, drafts procedures so that assure the identification of the competences necessary for the staff involved in the checking of the technical conditions for coupling/uncoupling the wagons at the trains in transit and the way to perform this activity, in order to keep under control the risks induced by this activity				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process				
15.	41722	freight	Dej Triaj	20.06.2018	03:20	06.06.2019	accident	Derailement of a wagon
		In the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj, Group A railway station, when the freight train no. 42695 (got by the railway undertaking SNTFM „CFR Marfă” SA), hauled by the locomotive DA 970, passed over the switch no.15A, the first bogie of the wagon no.31530670031-3 (the 3rd wagon after the locomotive) derailed in the running direction.						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall assess, through own surveillances, the application of the safety management system of the public railway infrastructure administrator and, if case, shall ask CNCF „CFR” SA, to correct or the re-assess the measures for keeping under control the own risks. 2. Romanian Railway Safety Authority – ASFR shall ask SNTFM „CFR Marfă” SA: a. to assess the risks generated by the danger of the serious twist of the bogie frames, between the two inspections type RP, twist generated by the cumulation of the next factors: - long term use of the wagons without protection against the corrosion for the bulk transport of the merchandises very corrosive; - the strong shocks sent by the bogie frame, during the running of the wagons in derailed condition. b. identification an application of the safety measures necessary for keeping under control of this risk				

		Recommendation in implementation process (open)	1	Up to the working out of this report, no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation issued following the investigation of this accident.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no. 2 issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
16.	60524	freight	Craiova	14.06.2018	22:20	13.06.2019	accident	Derailment of a wagon
		In the railway county Craiova, at the entry in Craiova railway station, in the running of the freight train no.60524, got by the railway freight undertaking SC TIM RAIL CARGO SRL, a wagon loaded derailed, being the the 15th one of the train.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall take care that TIM RAIL CARGO SRL, like railway freight undertaking, shall re-assess the own measures for the prevention and keeping under control the risks associated to the technical inspection and maintenance of wagons in operation				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
17.	23642	freight	Turceni	23.06.2018	15:18	13.06.2019	accident	Derailment of three wagons
		In the railway county Craiova, track section Filiași – Târgu Jiu, in Turceni railway station, when the freight train no.23642, hauled with the locomotive ED 050, got by the railway undertaking SNTFM „CFR Marfă” SA, parked, three wagons derailed.						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall ensure that the railway public infrastructure administrator revises the document no.42/1/1052/16.04.2015 - „Interface risks with the Railway Undertaking and the measures for keeping under control”, part of SMS. 2. Romanian Railway Safety Authority – ASFR shall ensure that the railway undertaking revises the measures disposed for the inspection of the wagon loading at their reception in the railway station Drăgotești in order to keep under control the risk of exceeding the loading limit and implicitly of the accepted load on the wheelset.				
		Recommendations in implementation process (open)	2	Up to the working out of this report , no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation issued following the investigation of this accident.				
18.	32101	freight	Aleșd	05.08.2018	21:56	18.06.2019	accident	Derailment of two wagons
		In the railway county Cluj, in Aleșd railway station, when the freight train no. 32101 was dispatched (train got by the railway undertaking SNTFM „CFR Marfă” SA), all axles of the first wagon and the axles of the first bogie of the second wagon derailed over the switch no. 46.						

		Recommendations issued	1	1. Romanian Railway Safety Authority-ASFR shall require the railway undertaking SNTFM "CFR Marfă" SA the revision of the safety management system and risk analysis for the dangers of non-removal of the drag shoe, before the train dispatch in the forming stations.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
19.	60250	freight	Roșiori Nord	30.06.2018	10:02	27.06.2019	accident	Derailment of four wagons
		In the railway county Craiova, in Roșiori Nord railway station, four wagons of the freight train no.60250 (got by the railway undertaking SC LTE -Rail România SRL), derailed over the switch no.16 of the railway station.						
		Recommendations issued	1	1.Romanian Railway Safety Authority – ASFR shall take care that the railway public infrastructure administrator implements the system procedure PS SMCM – SMS 0-6.1 „Risk management”, part of SMS, in all its organisational structures				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process				
20.	80602-2	freight	Monor Gledin - Deda	09.08.2018	---	05.08.2019	incident	Speed exceeding
		In the railway county Cluj, track section Sărățel - Deda (electrified single-track line), between Monor Gledin and Deda railway stations, in the running of the freight train no.80609-2, got by the railway freight undertaking Grup Feroviar Român SA, it exceeded the speed accepted by the line, imposed by the speed restrictions existing between those two stations.						
		Recommendations issued	3	1.Romanian Railway Safety Authority– ASFR shall ask Grup Feroviar Român SA the revision and improvement of the activity for training the staff with responsibilities in the traffic safety in order to get a better understanding of the role of the regulations and of the importance of their compliance with, taking into account also the lessons for learning from the previous accidents, irrespective of the railway undertakings involved. 2. Romanian Railway Safety Authority– ASFR shall ask Grup Feroviar Român SA the revision of the identification of the dangers associated to the railway operations for the train running, concerning the train braking and the running on slopes and taking of effective additional measures for keeping under control their occurrence risks. 3. Romanian Railway Safety Authority– ASFR shall ask Grup Feroviar Român SA analysis of the opportunity to revise the process for the psychological examination of the staff with responsibilities in the traffic safety, taking some additional measures, in order to get an effective exchange of information with the psychological offices.				
		Recommendations implemented (closed)	2	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations no. 1 and 2, issued following the investigation of				

				the railway accident, that they were analyzed, the measures to be taken were identified and they were implemented.				
		Recommendation not implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.3, issued following the investigation of the railway accident, that it was analyzed and it considers that no implementation is required.				
21.	80315	freight	Malu Mare-Banu Mărăcine	12.08.2018	08:17	08.08.2019	Serious accident	Derailment of the locomotive and 10 wagons
		In the railway county Craiova, track section Caracal-Craiova, on the running line, track I, between Malu Mare - Banu Mărăcine railway stations, on the viaduct Cârcea from km 200+306, in the running of the freight train no.80315 (got by the railway freight undertaking SC GRUP FERROVIAR ROMÂN SA), the hauling locomotive series BB 25200 no.208 and the first 10 wagons of the train derailed, generating the fall of the metallic deck bridge of the first viaduct span and 7 wagons (the wagons from the 2nd to the 8th from the locomotive).						
		Recommendations issued	2	1. Railway Safety Authority-ASFR shall be sure that the railway undertaking SC GRUP FERROVIAR ROMÂN SA revises its own safety management system, so will reduce the risks generated by: - unsuitable physical condition of the locomotive crew, determined by the consumption of the alcoholic drinks and the fatigue cumulated following the exceeding of the maximum continuous service accepted for the locomotive; - running of the locomotives with the safety installations insulated; 2. Railway Safety Authority-ASFR shall be sure that the railway undertaking SC GRUP FERROVIAR ROMÂN SA analyzes the opportunity to introduce new technical barriers, equipping the locomotives with systems that will not allow their beginning to run by drunk crew.				
		Recommendations not-implemented (closed)	2	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations issued following the investigation of the railway accident, that they were analyzed and it considers that it is not timely the implementation.				
22.	46841-2	freight	Glogovăț	11.09.2018	15:55	14.08.2019	incident	Signal passed on danger
		In the railway county Timișoara, in Glogovăț railway station, in the running of the freight train no.46841-2, got by the railway undertaking Deutsche Bahn Cargo România, the switch no. 1 was forced open.						
		Recommendations issued	1	1. Romanian Railway Safety Authority shall check if the railway stations provided with interlocking systems, that have systems for the recording or stocking the data, the infrastructure administrator has and meets with the operational procedures regarding the downloading, analysis and interpretation of the data collected through which be disposed the safety measures necessary for the maintenance of its infrastructure for the safety traffic.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway incident, that it was analyzed, the measures to be taken were identified and they are in implementation process				

23.	9006	passenger	Mihăiești	01.10.2018	10:05	14.08.2019	incident	Wrong setting of the route
		In the railway county Craiova, in Mihăiești railway station, end X, the exit route of the passenger train no. 9006, got by the railway undertaking SNTFC "CFR Călători" SA, to the railway station Măldăeni, was made wrong.						
		Recommendations issued	1	1. Romanian Railway Safety Authority ASFR shall follow that CNCF CFR SA re-analyzes the strategy for the monitoring of the way to get and do the line closing for the performance of the biannual inspections and for the checking of the hidden parts at the switches and analyzes the opportunity to include the nonconformities found in the report in the category of the unacceptable nonconformities.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway incident, that it was analyzed, the measures to be taken identified and they were implemented.				
24.	2855	passenger	Ploșoru	04.10.2018	16:42	14.08.2019	incident	Wrong setting of the route
		In the railway county Craiova, in Ploșoru railway station, the exit route of the passenger train Regio no.2855, got by the railway undertaking SNTFC "CFR Călători" SA, to Rovinari railway station, was made wrong.						
		Recommendation issued	1	1. Romanian Railway Safety Authority shall ask CNCF „CFR” SA 1. To perform a risk analysis and an assessment of the risks at the running of the trains on right track (on the double track lines) and, according to the result of the analysis, to take measures for keeping under control the dangers and risks associated, generated by it.				
		Recommendation not-implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway incident, that it was analyzed and it considers that no implementation is required.				
25.	83355	freight	Ploiești Est-Valea Calugărească	25.08.2018	04:50	20.08.2019	accident	Fire into the electric locomotive
		In the railway county București, track section Ploiești Sud – Buzău (electrified double-track line), between Ploiești Est and Valea Călugărească railway stations, a fire burst into the locomotive EA 833, hauling the freight train no.83355, got by the railway undertaking SNTFM „CFR Marfă” SA						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall request the economic operator SC CFR IRLU SA and the railway freight undertaking SNTFM „CFR Marfă” SA the revision of the reference document that is the basis for the performance of the planned inspections at the electric locomotives, so through the operations stipulated within it, be ensured a proper fastening of the threaded joint between the diodes and their radiators.				
		Recommendation not-implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation issued following the investigation of the railway incident, that it was analyzed and considers that no implementation is required.				

26.	60502	freight	Drobeta Turnu Severin	05.04.2019	21:20	14.08.2019	incident	Signal passed on danger
		In the railway county Craiova, track section Strehaia – Drobeta Turnu Severin, electrified single-track line, in the railway station Drobeta Turnu Severin, the freight train no. 60502, got by the railway undertaking SC TIM RAIL CARGO SRL, started to move from the line no.7, on a route made for the line 8, it leading to the forcing of the switch no.27.						
		Recommendations issued	3	1. Romanian Railway Safety Authority-ASFR shall ask CN CF „CFR” SA the performance of a risk analysis regarding the danger represented by the illegal passing of a signal in stop position and the assessment of the need to introduce this danger in the category of the unacceptable nonconformities. 2. Romanian Railway Safety Authority-ASFR shall ask CN CF „CFR” SA the maintenance of the radio equipment from the office of the disposing station movements inspector from the railway station Drobeta Turnu Severin, so it shall work continuously 3. Romanian Railway Safety Authority-ASFR shall ask CN CF „CFR” SA the regulation of the way the disposing station movements inspector submits to the external station movements the train for dispatching.				
		Recommendations not implemented (closed)	2	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations no. 1 and 3, issued following the investigation of the railway incident, that they were analyzed and it considers that no implementation is required.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.2, issued following the investigation of the railway incident, that it was analyzed, the measures to be taken identified and they were implemented.				
27.	1661	passenger	Bârlad	09.09.2018	10:30	04.09.2019	incident	Signal passed on danger
		In the railway county Iași, track section Tecuci – Iași (nonelectrified line), in the running of the passenger train IR no.1661, got by the railway undertaking SNTFC „CFR Călători” SA, exit signal X II was passed in stop position, it having the position „Stop without passing the signal in stop position”.						
		Recommendations issued	1	1. Romanian Railway Safety Authority - ASFR shall monitor that CN CF „CFR” SA re-analyzes the projects for the provision of the signalling equipment that, initially, at the setting into function, they were not provided with a track magnet of 500 Hz at 250 m. before the light exit signals and in accordance with the geographic place and possibilities/technical conditions to supplement the equipment with this type of system for the control of the train speed and for the automatic stop, in case of not meeting with the signal positions.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway incident, that it was analyzed, the measures to be taken identified and they were implemented.				
28.	30610-1	freight	Chitila-Chiajna	21.09.2018	21:45	12.09.2019	accident	Derailment of the locomotive and of a wagon

		In the railway county București, track section Chitila-Chiajna (electrified double-track line), km 1+200, between Chitila railway station and Industrial Branch Rudeni, in the running of the freight no.30610-1, got by the railway undertaking SC Deutsche Bahn Cargo România SRL, the first axle of the locomotive EA 2002 and of the wagon no.31804726021-7 (first after the locomotive) derailed.						
		Recommendations issued	1	1.Romanian Railway Safety Authority – ASFR shall request CNCF „CFR” SA the revision of the safety management system and a risk analysis for the dangers generated by the acceptance within the maintenance of railway critical products without their quality reception.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken identified and they were implemented.				
29.	42695	freight	Dej Triaj	27.09.2018	22:40	25.09.2019	accident	Derailment of a wagon
		In the railway county Cluj, track section Dej Călători - Beclean pe Someș (electrified double-track line), in Dej Triaj railway station, on the entry route to the track 7A, in the area of switch no. 37, in the running of the freight train no. 42695, got by the railway undertaking SNTFM „CFR Marfă” SA, the first bogie of an empty wagon, the 13th one of the train, derailed .						
		Recommendations issued	2	1. Romanian Railway Safety Authority – ASFR shall request public railway infrastructure administrator the revision of the part of its own safety management system concerning the monitoring of the effectiveness of the measures for the risk control.				
				2. Romanian Railway Safety Authority – ASFR shall request the public railway infrastructure administrator the revision of the Decision no.42/E/41/2010 and its corelation with the provisions of the Instruction no.305 „concerning the establishment of the deadlines and order for the track inspections” edition 1997.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.1, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.2, issued following the investigation of the railway accident, that it was analyzed the measures to be taken were identified and they were implemented.						
30.	L79767	Light locomotive	Holboca	16.05.2019	14:47	23.10.2019	incident	Passing the signal in stop position
		In the railway county Iași, in Holboca railway station, in the running of the train no.L79767, got by SC Grup Feroviar Roman SA, having order to pass on the direct line III, route made into the section block, with the entry and exit signals on free „Green”, the switch no. 4 was forced open, it being on site on „minus”, giving access to the deflecting section II.						

		Recommendations issued	1	1. Romanian Railway Safety Authority - ASFR shall track that CNCF CFR S. reanalyses the monitoring of: - the performance of the maintenance of the installation SBW, that prevent the clearance of the signal without a route switch be operated on the proper position; - making of routes, having signal boxes with keys and block, and analyzes the opportunity to include these nonconformities in the category of the unacceptable nonconformities.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway incident, that it was analyzed, the measures to be taken were identified and they were implemented				
31.	L79706	Light locomotive	Utviņu Nou-Sântana	18.12.2018	19:10	06.07.2019	accident	Hit of a car and hurt of a person
		In the railway county Timișoara, in the running of the freight train no.L79706 (got by the railway undertaking SC Grup Feroviar Român SA), between Utviņu Nou and Sântana,railway stations at the level crossing provided with mechanic barrier, from km.12+547a minibus was surprised and damaged, the driver of the minibus being injured.						
		Recommendations issued	1	1.Romanian Railway Safety Authority-ASFR, together CNCF CFR SA shall reanalyse the performance of the activity at the level crossing provided with mechanical barriers for keeping under control the dangers and the risks associated				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented				
32.	38321	Sequence of operations crane EDK	Beia-Mureni	16.11.2018	11:55	04.11.2019	accident	Derailment of the crane
		In the railway county Brașov, track section Brașov - Sighișoara (electrified double-track line), km 267+154, between Beia and Mureni railway stations, on the track I, in the running of the breakdown train no.38321, got by the public railway infrastructure administrator CNCF „CFR” SA, the first two axles of the bogie no. 1 from the rail crane EDK 1000/1 of 125 t, being first in the running direction, derailed.						
		Recommendations issued	1	1. Romanian Railway Safety Authority shall take care that CNCF re-analyse SMS so the dangers be identified and the risks associated assessed for the activity of the breakdown train and of their crews and shall dispose consequently measures in accordance with the provisions of the Minister of Transports’ Order no.101/2008 for the approval of the Norms for the granting of the safety authorizations to Romanian railway infrastructure administrator/manager.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented				
33.	1821	passenger	Subcetate-Băești	23.12.2018	07:20	13.11.2019	accident	Derailment of three cars

		In the railway county Timișoara, track section Livezeni - Subcetate, track I, between Băești and Subcetate railway stations, km 34+993, in the running of the passenger train no.1821 (consisting in the locomotive EA1 137 and 6 cars), got by the railway passenger undertaking SNTFC „CFR Călători” SA, the last 3 cars of the train derailed.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall analyze with the public railway infrastructure administrator CNCF„CFR” SA the need and the opportunity to change the present regulation framework for the establishment of deadlines and order for the performance of the track inspections, as they are established by the Instruction no. 305/1997, as follows: - the provisions of art.1, Sheet no. 2 (Tasks of the ganger) be changed so the walk technical inspection of the running and main tracks from the railway stations provided with automatic section block (BLA),of the secondary lines, of the afferent switches, of the track beds and of the art works be performed efficiently, as it is stipulated (defined) in EU Regulations no.1077/2012.				
		Recommendation in implementation process (open)	1	Up to the working out of this report , no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation issued following the investigation of this accident.				
34.	4511	passenger	Dumbrăvioara-Târgu Mureș Nord	18.11.2018	22:15	14.11.2019	accident	Fire into diesel locomotive
		In the railway county Brașov, track section Deda – Războieni (nonelectrified single-track line), km.268+900, between Dumbrăvioara and Târgu Mureș Nord railway stations, in the running of the passenger train Regio no.4511, got by the railway passenger undertaking SNTFC „CFR Călători” SA, a fire burst into the hauling locomotive, type electric diesel no.92 53 0 620759-6.						
		Recommendations issued	3	1. Romanian Railway Safety Authority shall request the railway passenger undertaking SNTFC „CFR Călători” SA and economic operator SRL „CFR SCRL Brașov” SA, to rework the Technical Specification ST 6-2004, for the introduction of some provisions for performance and keeping the Diesel engine, engines room and sub-parts of the bogies cleaning 2. Romanian Railway Safety Authority shall request the railway passenger undertaking SNTFC „CFR Călători” SA the revision of the operational procedure PO-07.1-14 „Planning of the inspections and repairs for the locomotives, multiple units and electrical train sets got by SNTFC “CFR Călători” SA”, for adding some real provisions regarding the withdrawal from operation of the locomotives when they reach the norm of time/km for the performance of the planned repairs, in accordance with the regulations in force. 3. Romanian Railway Safety Authority shall request the railway passenger undertaking SNTFC „CFR Călători” SA to run again the identification and assessment of the risks associated to the railway operations, for the risk of fires at the railway vehicles from the composition of the train in running.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.1, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
		Recommendation in implementation process (open)	1	Up to the working out of this report , no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation no.2 issued following the investigation of this accident				

		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.3, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
35.	30562	freight	Bănița	12.11.2018	06:10	12.11.2019	incident	Signal passed on danger
		In the railway county Timișoara, in Bănița railway station, the freight train no.30562 (got by the railway freight undertaking SC Deutsche Bahn Cargo România SRL), hauled with the locomotive EA – 1077 passed the exit light signal YIII in stop position, having red position, forcing open the switch no. 1A.						
		Recommendations issued	1	1. Romanian Railway Safety Authority shall ask the railway freight undertaking Deutsche Bahn Cargo România the performance of a risk analysis for the next dangers: a. inobservance of the exit light signal; b. not tracking of the exit signal position; c. inobservance of the provisions regarding the emergency braking d. not observing of the forcing open the switch; e. non-performance of the continuity test after uncoupling the banking locomotive; f. non-use of RER equipment of the locomotive to inform and communicate. and shall assess the need to introduce these dangers in the category of the no-acceptable nonconformities				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they were implemented.				
36.	2028	passenger	Glogovăț	05.12.2018	15:28	19.11.2019	incident	Route set wrong
		In the railway county Timișoara, in Glogovăț railway station, the exit route for the passenger train no.2028 (got by the railway undertaking SNTFC „CFR Călători” SA) was wrong set.						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall ask the railway infrastructure administrator the performance of a risk analysis related to the danger represented by the not fixing within a reasonable time the interruptions that depends on the purchase of some parts of the installations CE and shall assess the need to introduce this danger into the category of the unacceptable nonconformities				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed, the measures to be taken were identified and they are in implementation process.				
37.	61716	freight	Itești-Bacău	23.11.2018	13:32	21.11.2019	accident	Derailment of a wagon
		In the railway county Iași, track section Suceava – Bacău, track II, between Itești and Bacău railway stations, km 309+627, in the running of the freight train no. 61716 (consisting in the locomotive ED 36 and 38 wagons), got by the railway freight undertaking SNTFM „CFR Marfă” SA, the first bogie of the 34th wagon of the train derailed						

		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall analyze, with the railway freight undertakings which get wagons provided with bogies type „H”, the opportunity to introduce into the safety management system some regulations (procedures) that stipulate measures for periodical checking of the springs from the suspensions of these bogies, in its areas hard to reach (that cannot be seen during the performance of the train technical inspections), for keeping under control the risks induced by the appearance of the cracks at the spring leaves.				
		Recommendation in implementation process (open)	1	Up to the working out of this report, no answer was received from Romanian Railway Safety Authority regarding the level and way of implementation the safety recommendation issued following the investigation of this accident				
		freight	Fetești	29.12.2018	13:15	05.12.2019	accident	Derailment of a locomotive
38.	87937	In the railway county Constanța, in the running of the freight train no.87937, got by the railway freight undertaking SNTFM „CFR Marfă” SA, in the railway station Fetești, the first axle of the first bogie from the locomotive EA 816 derailed in the running direction.						
		Recommendations issued	3	1. 1) Romanian Railway Safety Authority – ASFR shall analyze together with the railway undertakings and the entities in charge with the maintenance of the electric locomotives type LE the possibility to issue some technical provisions (technical specifications) that regulate unequivocally the working way for hauling and moving to the repair companies the electric locomotives that have the failure „blocked axle” with the special device rolbock diplory, simultaneously with the certification of this special device for suspension according to the Minister of Transports Order no.410/26.07.1999. 2. Romanian Railway Safety Authority – ASFR shall take care that the entities in charge with the maintenance of the electric locomotives type LE revise the procedures/technical specifications, that are the reference documents for the job in charge with the maintenance, in order to identify solutions that cover the risks generated by the blocking of the axles at the electric locomotives. 3. Romanian Railway Safety Authority – ASFR, through specific actions, shall be sure that the legal provisions and/or the provisions of the specialized instructions in force are met by the railway undertakings and the entities in charge with the locomotive maintenance (Order of Minister of Transports and Infrastructure no. 315/2011 from the 4th May 2011 for the approval of the Railway Norm "Railway vehicles, Types of planned inspections and repairs. Norms of time or of km run for the performance of planned inspections and repairs"), concerning the technical condition of the railway vehicles used by the railway undertakings				
		Recommendations implemented (closed)	3	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations, issued following the investigation of the railway accident, that they were analyzed, the measures to be taken were identified and they were implemented				
39.	1699	passenger	Lugoj	08.01.2019	03:25	05.12.2019	incident	incorrect operation of the interlocking

								system
		In the railway county Timișoara, track section Caransebeș-Lugoj (electrified single-track line), in the railway station Lugoj, at the level crossing from km 517+580, in the running of the passenger train no.1699 (got by the railway passenger undertaking SC SNTFC „CFR Călători” SA), the interlocking systems were operated incorrectly, that can affect the railway safety.						
		Recommendations issued	2	1. Romanian Railway Safety Authority ASFR shall request CNCF „CFR” SA the performance of a risk analysis regarding the danger represented by the lack of regulations for failure at equipment SAT /BAT from the running lines or railway station and disposing consequently viable solutions and measures for keeping under control the dangers and associated risks generated by these; 2. Romanian Railway Safety Authority ASFR shall request CNCF „CFR” SA the performance of a risk analysis regarding the danger represented by the non-standardizing of the schemes of the equipment SAT/BAT of the railway station and from the running line and disposing consequently viable solutions and measures for keeping under control the dangers and associated risks generated by these.				
		Recommendations in implementation process (open)	2	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendations, issued following the investigation of the railway incident, that they were analyzed, the measures to be taken were identified and they are in implementation process.				
40.	EC 053	Light locomotive	Târgu Jiu	03.02.2019	---	12.12.2019	incident	Locomotive runaway
		In the railway county Craiova, track section Filiași – Târgu (electrified double-track line), in Târgu Jiu railway station, the electric locomotive EC 053, got by SNTFC „CFR Călători” SA, stopped, coupled at the train and brake on the track no. II at the rake of cars of the passenger train no.2092, started to run and passed the light signal YIIP in stop position with about 100 m, the signal having the position „a light unit red to the train– Stop without passing the signal in stop position!”, forcing open the switch no.41.						
		Recommendations issued	2	1. Romanian Railway Safety Authority shall ask railway undertaking SNTFC ”CFR Călători” SA the performance of a re-assessment of the risks generated by the failure of the braking systems of the rolling stock, that can generate incidents/accidents; 2. Romanian Railway Safety Authority shall ask railway undertaking SNTFC ”CFR Călători” SA the analisys of the opportunity to revise the Technical Specification Code ST 5-2004, that is the reference document for the railway critical service „PLANNED INSPECTIONS TYPE Pth3, RT, R1 and R2, AT THE ELECTRIC LOCOMOTIVES OF 3400/5100 kW”, so the scheduled maintenances at the braking system ensure its checking, adjustment and working between two planned inspections.				
		Recommendation no implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.1, issued following the investigation of the railway incident, that it was analyzed and it is considered that no implementation is required.				
		Recommendation in implementation process (open)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation no.2, issued following the investigation of the railway incident, that it was analyzed, the measures to be taken were				

				identified and they are in implementation process.				
		freight	Cernavodă Pod	10.01.2019	03:25	13.12.2019	accident	Fire into locomotive diesel
41.	80680	In the railway county Constanța, track section București Nord – Constanța (electrified double-track line), in Cernavodă Pod railway station, on the main track IV, a fire burst into the locomotive DA 727, hauling the freight train no.80680, got by the railway freight undertaking SC Grup Feroviar Român SA						
		Recommendations issued	1	1. Romanian Railway Safety Authority – ASFR shall request the railway freight undertaking SC GFR SA to analyze the opportunity of revision of the way to keep under control the parameters of the cooling liquid at the locomotives provided with diesel engines.				
		Recommendation implemented (closed)	1	Romanian Railway Safety Authority, through the answer sent by the paper no.2310/590/07.08.2020 notified regarding the safety recommendation, issued following the investigation of the railway accident, that it was analyzed and the measures to be taken identified and they were implemented.				

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

Investigations completed in	Number of the issued recommendations	Number of the implemented recommendations	Number of the recommendations in implementation process	Number of the recommendations for which ASFR communicated that will not be taken into account	Number of the recommendations without answer
2015	32	7	10	8	7
2016	27	0	0	19	8
2017	31	1	0	1	29
2018	42	31	6	5	0
2019	60	26	17	8	9
TOTAL	192	65	33	41	53

General Manager
Phd. Vasile BELIBOU