



**ROMANIAN RAILWAY AUTHORITY**

**- AFER -**

**ROMANIAN RAILWAY INVESTIGATING  
BODY**

**- OIFR -**

**ANNUAL REPORT**

**2012**



## Preamble

This report presents the activity carried out by Romanian Railway Investigating Body in 2012.

Romanian Railway Investigating Body was established, organised and operated according to the provisions of the Law no. 55/16.03.2006 concerning the railway safety (through which was transposed the Directive 2004/49/CE of European Parliament) and of the Government Decision no.1561/1<sup>st</sup> of November 2006 for the amendment of the Government Decision no.626/1998 on the organization and operation of Romanian Railway Authority- AFER, being an independent and permanent body within Romanian Railway Authority- AFER.

Romanian Railway Investigating Body was established for the serious railway accident investigation, its objective being the railway safety improvement.

Romanian Railway Investigating Body has the obligation to investigate the serious railway accident and also, it can investigate those accidents and incidents which under slightly different conditions could lead to serious accidents, including the technical failure of the structural subsystems or of the interoperability constituents to high speed railway systems or European conventional, taking into account in its decision the next:

- the gravity of the accident or the incident;
- if it is part of a series of relevant accident or incidents for the whole system;
- its impact on the railway safety at the community level;
- requests of the infrastructure administrator, railway undertakings, Romanian Railway Authority- AFER or of other EU member states.

Taking into account the necessity to regulate the way to perform the railway accidents/incidents investigation on Romanian railway network, respectively to develop and improve the railway safety and to regulate the surveillance of the railway accident investigation according with the provisions of the Law 55/2006 on railway safety, one imposed the drawn up of the Regulation for accidents and incidents investigation, for development and improvement of the railway safety on Romanian railway and subway network.

On the 17<sup>th</sup> of February 2010 was adopted the Government Decision no. 117 for approval of the Regulation for accidents and incidents investigation, for development and improvement of the railway safety on Romanian railway and subway network and were repealed:

- Ministry of Transport's Order no. 210 from 14<sup>th</sup> of March 2000 on approval of the Instructions for prevention and investigation of the railway events and accidents - no. 003.
- Ministry of Transport, Public Works and Housing Order's no. 1852 from 11<sup>th</sup> of January 2002 for approval of the Instructions for prevention and investigation of the subway events and accidents - no. 003 M.

The Regulation for accidents and incidents investigation, for development and improvement of the railway safety on Romanian railway and subway network was published in the Official Journal, Part I no. 138 from 02<sup>nd</sup> of March 2010 and entered into force on the 01<sup>st</sup> of May 2010.

The Regulation for accidents and incidents investigation, for development and improvement of the railway safety on Romanian railway and subway network addresses to the whole spectrum of railway undertakings that develop operations of railway or subway transport:

- a) administrator/administrators of railway infrastructure;
- b) noninteroperable railway infrastructure's managers;
- c) railway undertakings;
- d) railway undertaking that perform transport operations with the subway;

- e) railway undertakings that hold in property, leasing or with rent, industrial branches connected at the public railway infrastructure and/or at the private railway infrastructure opened to the public traffic;
- f) railway undertakings that hold in property, leasing or with rent, railway vehicle that run on the railway infrastructure;
- g) railway undertakings that develop activities related to the railway transport.

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## 1. PRESENTATION OF ROMANIAN RAILWAY INVESTIGATING BODY

Romanian Railway Investigating Body was established for the investigation of the serious railway accidents, its objective being the improvement of the railway safety and accidents prevention.

Romanian Railway Investigating Body was organized and functioning according to the provisions of Law no. 55/16<sup>th</sup> of March 2006 concerning the railway safety (through which was transposed the Directive 2004/49/CE of European Parliament) and of the Government Decision no.1561/01<sup>st</sup> of November 2006 for the amendment of the Government Decision no.626/1998 concerning the organisation and the operation of Romanian Railway Authority- AFER, being an independent and permanent body within the Romanian Railway Authority- AFER.

Romanian Railway Investigating Body is functionally independent from Romanian Railway Safety Authority and from any railway regulation authority. Also Romanian Railway Investigating Body is independent in its organization, legal structure and decision-making from any infrastructure manager, railway undertaking, charging body, allocation body and notified body and any interested party whose networks may conflict with the tasks entrusted Romanian Railway Investigating Body.

Romanian Railway Investigating Body has the obligation to investigate the serious railway accident and also, it can investigate those accidents and incidents which under slightly different conditions could lead to serious accidents, including the technical failures of the structural subsystems or of the interoperability constituents to high speed railway systems or European conventional.

Romanian Railway Investigating Body fulfills its tasks independently by any infrastructure manager, railway undertaking, charging body, allocation body and notified body and has the necessary resources for this. Investigators enjoys by a complete independence in carrying out the investigating tasks.

Romanian Railway Investigating Body may carry out other tasks set by Government Decision about the investigation of other events than railway accidents and incidents, insofar as, those investigations do not endanger its independence.

### 1.1 National legislation and the level of the Safety Directive implementation

The Directive 2004/49/CE of European Parliament and Council was transposed in Romania by the Law no. 55/16<sup>th</sup> of March 2006 concerning the traffic safety, which entered into force on 16<sup>th</sup> April 2006.

Safety Directive implementation was achieved through the Government Decision no. 117/02<sup>nd</sup> of March 2010 through which was approved the Regulation for the investigation of the railway accidents and incidents, the development and improvement of Romanian railway safety and were cancelled the Ministry of Transport's Orders no. 210 from the 14<sup>th</sup> of March 2000 concerning the approval of the Instructions for the prevention and investigation of the railway accidents and events – 003 and the Ministry of Transports, Public Works and Housing no. 1852 from the 11<sup>th</sup> of January 2002 for the approval of the Instructions for the prevention and investigation of the subway events and accidents – M 003.

### 1.2 Role and purpose

Romanian Railway Investigating Body became operational on the 1<sup>st</sup> of March 2007 when its organizational structure was approved by the Ministry of Transport's Order no. 373/1<sup>st</sup> of March 2007.

#### *The role of Romanian Railway Investigation Body*

The role of Romanian Railway Investigation Body is to develop railway accidents/ incidents investigating actions and make analyzes and studies on the causes and circumstances that led at its occurrence. Romanian Railway Investigation Body can also perform other tasks established by Government Decision about the investigation to the other events than railway accidents and incidents.

According to the provisions of the Safety Directive, Law no. 55/2006 concerning the traffic safety and of the Government Decision no. 117/02<sup>th</sup> of March 2010 through which was approved the Regulation for the investigation of the railway accidents and incidents, for development and improvement of Romanian railway safety, Romanian Railway Investigation Body taking into account in its decision the next:

- the gravity of the accident or the incident;
- if its is part of a series of relevant accident or incidents for the whole system;
- its impact to railway safety at the community level;
- request of the infrastructure administrator, railway undertakings, Romanian Railway Authority- AFER or of other EU member states.

Romanian Railway Investigation Body does not investigate:

- railway accidents/incidents wich are not relevants for the system of railway;
- cases of suicid.

### Purpose

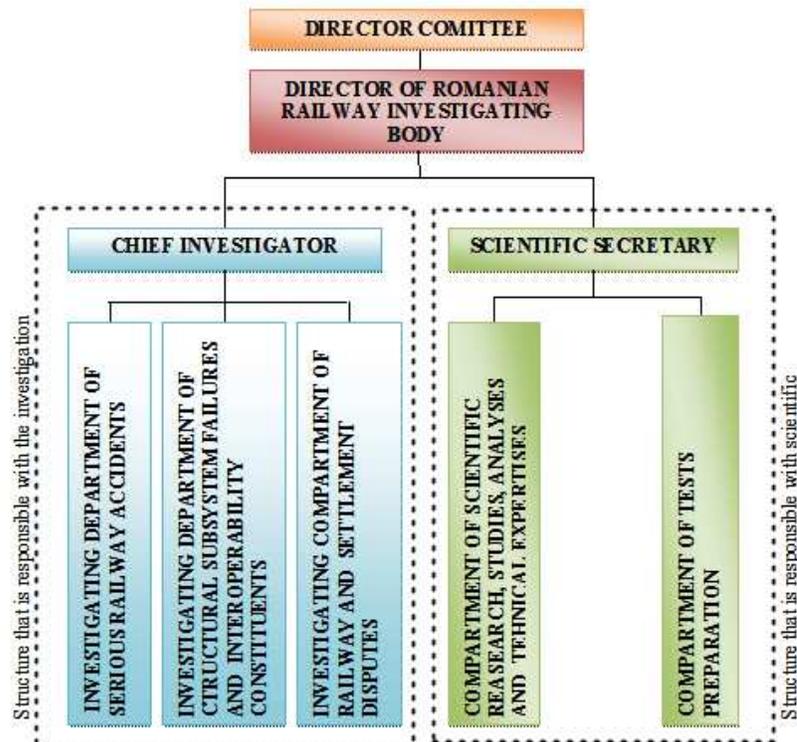
The aim pursued by Romanian Railway Investigating Body through the investigating actions of the railway accidents and incidents is to improve the railway safety and to prevent similar accidents or incidents.

This is achieved by safety recommendations set out in the investigation and subject to a chapter of structure investigation report.

Romanian Railway Investigating Body does not investigate those accidents which falls outside the goal.

### 1.3 Organization

In March 2009 the Director Committee of the Investigating Body approved the organizational structure of Romanian Railway Investigating Body on which the Management Board of Romanian Railway Authority proposed it for approval to the Ministry of Transports and Infrastructure. The organizational structure of Romanian Railway Investigating Body was approved by the Ministry of Transports and Infrastructure's Order no. 562/27<sup>th</sup> of April 2009.



Romanian Railway Investigating Body operated with this structure until 05<sup>th</sup> of December 2012, when through the Ministry of Transport's Order no. 2191/05<sup>th</sup> of December 2012 was approved a new structure of Romanian Railway Authority – AFER and hence of Romanian Railway Investigating Body:

Taking into account:

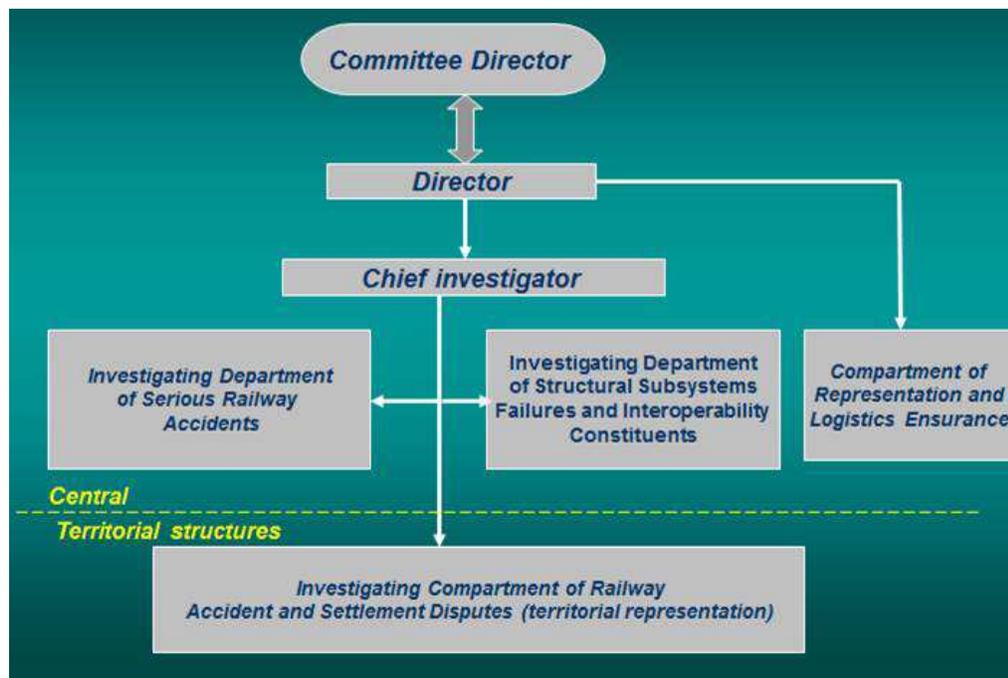
- the investigation activity that involves the possibility to start the investigating process in any moment and in any point of Romanian Railway network;
- the provisions of the Regulation for investigating the railway accidents and incidents, article 81 – (1) „The persons empowered by Romanian Railway Investigating Body, Legal Court, Environment National Guard, Ministry of Internal Affairs, Ministry of Health and Ministry of Labour, Family and Social Protection perform their examinations at the accident/incident place according with the legislation in force, in order to allow to the railway undertakings to act for remove the accident/incident consequences and restore the train's traffic **as soon as possible**. (2) Starting the removal operations of the accident/incident's consequences and of the train's traffic restoration is ordered by the main investigator, after the consulting with the prosecution bodies, if appropriate.
- the principles of the quick intervention and of the investigating process operative start that were recommended by European Railway Authority – ERA.

it is necessary the presence of the investigating commission members at the accident place in the shortest time.

Also, is required a more adequate and efficient framework regarding the relation with the European Railway Authority and the development of the logistic insurance activities that are necessary in the investigating process of the railway accidents/incidents.

In this context, appeared the necessity to modify the organizational structure of Romanian Railway Investigating Body in order to develop a new territorial structure through which Romanian Railway Investigating Body be able to ensure the aspects that were above mentioned as well as to establish new departments.

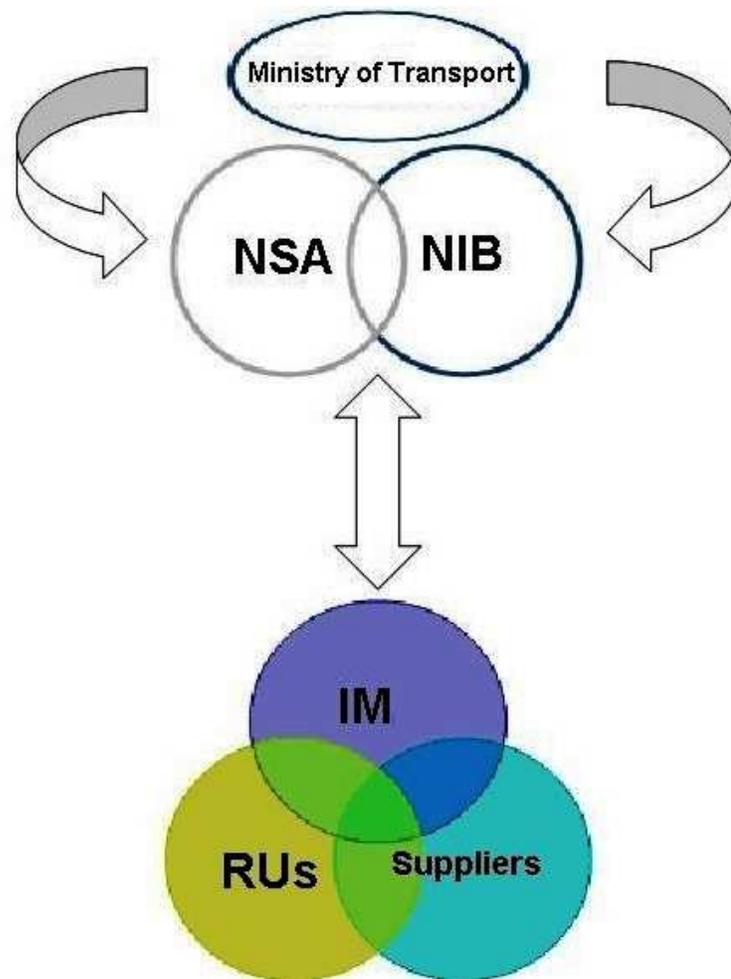
The current organizational structure is presented in the following figure:



The responsibilities of the departments that are subordinated to the Chief Investigator derive from the provisions of the articles 19(1),19(2) by the Law no. 55/2006 regarding the railway safety, respectively the investigation of the serious accidents in the railway system and the investigation of those accidents and incidents which in slightly different condition could led at serious accidents,

including technical failures of the structural subsystems or of the interoperability constituents of the high speed railway system or european conventionale.

#### 1.4 Organizational flow



## 2 INVESTIGATION PROCESS

The investigation aims to prevent the accidents and incidents and includes gathering and analyzing 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 the legal point of view an administrative act, allowing the main investigators to fulfill their tasks as efficiently as possible and as soon as possible. The investigation is independent of any legal investigation. The investigation does not handle in any way the establishment of the degree of guilt or the responsibility.

The result of an accident or incident investigation is part of the investigation report prepared according with the seriousness of the accident or incident.

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

Before the drawing up of the investigation report ( the final investigation report) one works out a draft report, that according to the provisions of the art 22(3) of the Law 55/2006 is submitted to the infrastructure administrator, 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 to 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 make comments on the information of the report draft.

If Romanian Railway Investigating Body considers that the opinions and comments are relevant for the investigation, the investigation report is change accordingly.

After its ending, the investigation report is submitted to Romanian Railway Investigating Body for the approval and publishing on Romanian Railway Investigating Body site.

## 2.1 Investigated cases

During 2012 the Romanian Railway Investigating Body, taking into account the seriousness of the railway accidents/incidents, including technical failures of the structural subsystems of railway happened on Romanian railway and subway network and their impact on the railway safety, according to the provisions of the art. 19(1) and (2) of the Law no. 55/2006 concerning the railway safety , considered necessary to start 42 investigative actions.

From these in 2012, 31 investigations were finished, 10 have been finished during 2013 and in one case it has been decided to stop the investigation.

In 2012 8 investigations were finished that started between March - December 2011, so the total number of investigations completed in 2012 was 39.

- investigations started in 2011 – finished in 2012	= 8
- investigations started in 2012 – finished in 2012	= 31
- investigations started in 2012 – stopped in 2012	= 1
- <u>investigations started in 2012 – finished in 2013</u>	<u>= 10</u>
<b>Total investigations performed in 2012</b>	<b>= 50</b>

### Investigations finished in 2012 = 39

- serious accidents	= 0
- accidents	= 23
• <i>colisionsi</i>	= 0
• <i>deralments</i>	= 20
• <i>hits of road vehicles</i>	= 1
• <i>fires</i>	= 2
- incidents	= 15
- technical failure of the structural subsystems or of interoperability constituents	= 1

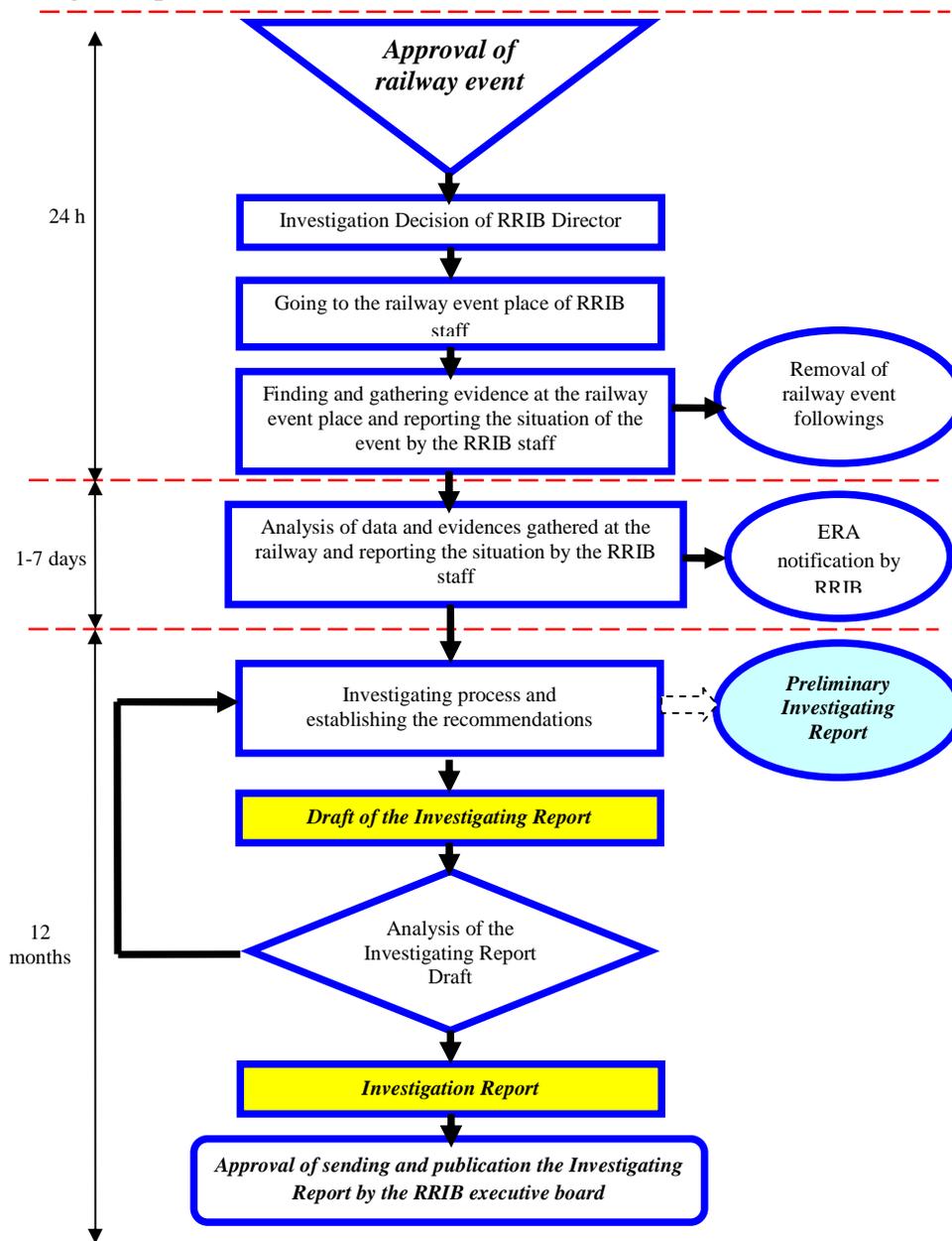
The publishing length of the investigations did not exceed 12 months, stipulated in the Law no. 55/2006, concerning the traffic safety and the provisions of the Regulation for the accident and incident investigation, development and improvement of railway safety on Romanian railway and subway transport network .

## 2.2 Institutions involved in the investigation (currently or exceptionally)

From its establishment until now, in the investigations Romanian Railway Investigating Body cooperated with the authorities in charge with the legal inquiry, as well as with other authorities responsible with the interventions at the accident/incident place.

According to the provisions of the art. 20 , paragraph 4 of the Law no. 55/2006 concerning the railway safety, in the investigations, Romanian Railway Investigating Body can use, if necessary, specialist from related fields. During 2012 was not necessary to apply the provisions of this article, investigative actions carried no need to call on specialists in related fields.

### 2.3 Investigation process.



## 3 INVESTIGATIONS

### 3.1 Overview on investigations that were finalized in 2012 comparative with 2011, identification of the main tendencies.

Type of accidents investigated in 2011	Number of accidents	Number of victims		Damages (lei)	Damages (€)	The trend compared with 2010
		Deaths	Seriously injured			
Train collisions	0	-	-	0	0 €	-2 (-100%)

Train derailments	20	-	-	947.317,88	216.382,46 €	+1 (+5%)
Hits of road vehicles	1	2	2	134.895,58	30.113,31 €	+1 (+100%)
Rolling stocks fires	2	-	-	16.753,86	3.743,44 €	-13 (-87%)
<b>TOTAL</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>1.098.976,32</b>	<b>250.239,21 €</b>	<b>-13 (-36%)</b>
<b>Total damages in euro (about)</b>				<b>250.239,21 €</b>		

### 3.2. Investigations that were finalized and started in 2012

In 2012 Romanian Railway Investigating Body concluded and published 39 investigation reports (8 were investigations initiated on march –December 2011) and initiated the investigation procedure for 10 cases for which the investigation actions that were undertaken in 2012 were completed in 2013.

In the table bellow are shown the investigations and the legal basis for their carrying out, taking into account the requirements of the European Directive on the railway safety and the national legislation.

#### Concluded investigations in 2012

No.	The date of occurrence	Description	Legal basis of the investigation	Concluding date
1	10.03.2011	Technical failure of the interoperability constituent „rail” – braking a big number of rails, during 2010-2011, In the Branch of the Railway County Iași” Regional Center of Operation, Maintenance and Railway Repairs – Section L4 Bacău, on line no.500, on lines I and II <b>between the railway stations Adjud and Bacău.</b>	i	23.01.2012
2	17.05.2011	On the activity area of “ Regional Center of Operation, Maintenance and Railway Repairs” București, in the train no.9432 traffic belonging to SNTFC „CFR Călători” SA, on the running section Titu – Târgoviște (non-electrified double line) <b>between the railway stations Dâmbovicioara and Podu Rizii</b> , at km 2+500, occurred a fire at the locomotive DA 793.	i	18.01.2012
3	02.10.2011	On the activity area of “ Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Strehaia - Drobeta Turnu Severin (electrified single line), <b>in the railway station Valea Albă</b> , at km 349+060, one occurred the derailment of the first bogie in the running direction of the wagon	i	24.02.2012

		no.33877915348-9 (the 20th from the locomotive) from the freight train no.70838-1 (belonging to the railway undertaking SC GRUP FERROVIAR ROMÂN SA).		
4	20.10.2011	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, running section Lehliu-Medgidia (electrified double line), <b>when entry into the railway station Dragoș Vodă</b> , occurred the derailment of all wheels of the first bogie from wagon no. 84539305320-0 (the second from the locomotive) at the reverse running of the freight train no.93596 (belonging to the freight railway undertaking SNTFM „CFR Marfă”-SA) over the crossing with movable frog of switch no.4 from the cross-over 2-4.	i	26.03.2012
5	15.11.2011	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Strehaia - Drobeta Turnu Severin (electrified simple line), <b>in the railway station Valea Albă</b> , at km 349+541, in the freight train no.91795 traffic (belonging to the railway freight undertaking SNTFM „CFR Marfă” SA) one derailed the axles by the wheels no.5-6 and 7-8 from the first bogie in the running direction from the wagon series Eacs no. 31535480307-6 (the 15th from the locomotive).	i	03.02.2012
6	02.12.2011	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Cluj, <b>between the railway stations Coșbuc and Salva</b> , at km 0+937, in the freight train no.43632 traffic (belonging to the freight railway undertaking SNTFM „CFR Marfă” SA) one occurred the derailment of wagon no.31535475910-4, (the 32th from the locomotive) by both bogies.	i	21.03.2012
7	05.12.2011	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Galați, running section Adjud - Ghimeș (electrified line) at km 55+012 (in the Salina tunnel), <b>between the railway stations Dofteana and Tg. Ocna</b> , at km 55+012, in the passenger train no.5211 traffic (belonging to the railway undertaking SNTFC „CFR CĂLĂTORI” SA), one occurred the derailment of the first axle of the locomotive EA 41-0761-1 which hauled the train.	i	28.02.2012
8	18.12.2011	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, running section Fetești-Țândărei (electrified double line), <b>at the exit from the railway station Movila</b> , in the area of switch no.1 (km 71+100), in the freight train no.43430	i	03.02.2012

		traffic (belonging to the freight railway undertaking SNTFM „CFR Marfă” SA) occurred the derailment of all axle of the wagon no.81530666697-6, the 5th from the rear of the train.		
9	16.01.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Strehaia - Drobeta Turnu Severin (simple line, electrified), <b>in the railway station Ciochiuța</b> , one occurred the derailment of the locomotive EA 40-0010-5 belonging to the railway undertaking SC UNIFERTRANS SA București (which was at the first route after a repair type lifting repair), on the connection rails of the switch no.2, pass the point trailing, by climbing with the left wheel, of axle no. 1 in the running direction, at about 7 meters after the built-up common crossing.	i	22.03.2012
10	31.01.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” București, running section Giurgiu Nord – Videle (simple line, non-electrified), <b>between the railway stations Bălănoaia and Stănești</b> , at the level crossing at km 11+015 equipped with road automatic signalling equipment without half-barriers SAT, in the freight train no.92212 traffic (belonging to the freight railway undertaking SNTFM „CFR Marfă” SA) one occurred the derailment of the locomotive DA 1279 by the first bogie in the running direction.	i	04.05.2012
11	20.02.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Iași, one pass the entry signal Y from the railway station <b>Itești</b> , which ordered stop for the passenger train no.5422 (belonging to SNTFC „CFR CĂLĂTORI” SA).	i	09.03.2012
12	21.02.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Cluj, running section Arad – Oradea (simple line, non-electrified), between the railway stations <b>Ciumeghiu and Salonta</b> , at km 74+710, in the passenger train running regio no.15111 (belonging to the railway undertaking SC Regional SRL Cluj-Napoca) one occurred the derailment of axle no.4 from the wagon hauled by the motorised train AMX no.97-0553-4.	i	21.03.2012
13	01.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, running section Fetești-Țândărei (electrified double line), <b>in the railway station Țândărei</b> , in the freight train no.41794-1 traffic (belonging to the railway undertaking SNTFM	i	26.04.2012

		„CFR Marfă” SA) one occurred, passing over the switch no.23, 3 wagons derailed (24th, 25th and 26th from the locomotive).		
14	09.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, <b>in the railway station Drobeta Turnu Severin</b> , one pass the common signal Y7-8 and trailing the switch no.27 by the freight train no.92212 (belonging to the railway undertaking SC CTV SA București).	i	26.04.2012
15	11.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, running section Făurei- Țândărei (electrified double line), at the entry into the railway station <b>Țândărei</b> , one hit the field magnet 1000/2000 Hz of the route signal YFP, and of the connecting cables of the insulated section 031 by the 5th wagon (no.37807963112-3) from the rear of freight train no.60791 (belonging to the railway undertaking SC Transferoviar Grup SA).	i	05.04.2012
16	15.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, running section Caransebeș-Orșova (electrified simple line), <b>in the railway station Teregova</b> , in the switch no.3 area, one derailed by the first axle in the running direction from the locomotive EA 40-0273-9 hauling the freight train no.51754 (belonging to the railway undertaking SNTFM „CFR Marfă” SA).	i	04.05.2012
17	24.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Cluj, running section Sărățel – Deda, <b>in the railway station Râpa de Jos</b> , at km 39+905 over built-up common crossing of the switch no.3, in the freight train no.83599-2 traffic (belonging to the railway undertaking SNTFM „CFR Marfă” SA) one derailed the locomotive EA 40-0499-0 by the first axle in the running direction.	i	10.05.2012
18	24.03.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Strehaia – Caransebeș (electrified simple line), <b>in the railway station Gura Văii</b> , at about 50 meters before the switch no.2, on the section 024, in the passenger train no.9508 traffic (belonging to the railway undertaking SNTFC “CFR Călători” SA) one occurred the derailment of the first axle from the hauling locomotive EA 767.	i	15.05.2012
19	02.04.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs”	i	17.04.2012

		Braşov, running section Braşov-Sighişoara (electrified double line), in the railway station <b>Racoş</b> , in the freight train no. 32602 traffic (belonging to SNTFM “CFR Marfă” SA) one hit and brake the fuel tank of the locomotive DHC no.315 which was hauled in the train, after the hauling locomotive, by a rail section along line 5 within the railway station in the right side of the running direction.		
20	03.04.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Braşov, <b>in the railway station Braşov</b> , one found out that the freight train no.30640 runned (belonging to the railway undertaking DB Schenker Rail Romania) without having the mass brake percentage ensured to kept the train stopped.	i	07.05.2012
21	03.04.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Timişoara, running section Livezeni – Simeria, <b>between the railway stations Crivadia and Baru Mare</b> , at km 54+159, in the traffic on lone I of the freight train no.30205 (belonging to the railway undertaking SC SERVTRANS INVEST SA) one occured, the derailment of axle 3 from the second bogie no.2 from the wagon 31535494331-0.	i	03.07.2012
22	19.04.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Braşov, running section Braşov - Sighişoara (electrified double section), <b>between the railway stations Augustin and Racoş</b> , at km 227+787, in the freight train nr.80360-1 traffic (belonging to the railway undertaking SC GFR SA Bucureşti) one occured the derailment of the first bogie in the running direction of the wagon no.335353043011 (the second from the rear).	i	23.08.2012
23	10.05.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Braşov, running section Braşov - Sighişoara (electrified double line), <b>in the railway station Rupea</b> , passing over the switch no.23, in the freight train no.802940-1 traffic (belonging to the railway undertaking SC GFR SA Bucureşti) one occured the derailment of both bogies of the wagon no.33537951309-6 and with one axle fom the wagon no.37807850057-6.	i	30.08.2012
24	19.06.2012	On the activity area of “Regional Center of Operation, Maintenance and Railway Repairs” Braşov, running section Dârste-Braşov Triaj (electrified double line), the locomotive DA 1531 started to run away (belonging to the railway undertaking SC GFR SA ) <b>in the</b>	i	03.07.2012

		<b>railway station Dârste</b> and entry on current line II Dârste-Braşov Triaj, followed by derailment and overturning on one side when at its entry in the railway station Braşov Triaj.		
25	23.06.2012	In the range of activity of ” Regional Center of Operation, Maintenance and Railway Repairs”, Braşov, running section Coşlariu-Sighişoara (electrified double line), passing signal Y <sub>1</sub> in the railway station <b>Coşlariu</b> with the stop position - „STOP without passing the signal” and trailing the switch no.3 (electrodynamic centralized) by locomotive EA 725 located in hauling freight train no.20970 (belonging to the railway undertaking SC Cargo Trans Vagon SA).	<b>I</b>	03.07.2012
26	25.06.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs Bucureşti, in the running of the interregio train no.1654 (belonging to the railway undertaking SNTFC „CFR Călători” SA), on section <b>Mizil – Ploieşti Sud</b> with the main brake air pipe interrupted.	<b>i</b>	16.07.2012
27	28.06.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Constanţa, running section Feteşti-Medgidia, the passing of entry signal Y occurred in railway station <b>Mircea Vodă</b> with the stop position - „STOP without passing the signal”, by the freight train no. 51574 (belonging to the freight railway undertaking SNTFM,„CFR Marfă”-SA), hauled by EA 572 locomotive.	<b>i</b>	18.07.2012
28	01.07.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Bucureşti, at the exit from railway station <b>Bucureştii Noi</b> , in the area of switch no.10 C, in the dispatch of the train no.81720-1 (belonging to the freight railway undertaking SNTFM „CFR Marfă” SA) the derailment of the first axle occurred in the running direction of the hauling locomotive EA 40-0636-7.	<b>i</b>	01.11.2012
29	05.07.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Bucureşti, section I.L.Caragiale-Moreni-Filipeştii de Pădure-Gura Palângii, in the railway station <b>C.F. I.L. Caragiale</b> , occurred the hitting of a car by the rake of wagons CM2 (belonging to the freight railway undertaking SNTFM „CFR Marfă” SA) at the level crossing at km 0+600.	<b>i</b>	19.12.2012
30	08.07.2012	On the transport network belonging to <b>SC METROREX SA, subway main line I between stations staţiile Timpuri Noi – Piaţa Unirii</b> , at km 6+354 the passenger train, consisting in REM 1109-2109, hit with the half-lifted pantograph from the second unit (REM	<b>i</b>	27.07.2012

		1109) in the running direction, a cross trough for the directing of the water from the existing infiltration in the gallery ceiling, situated at about 300 m from the platform of the subway station Timpuri Noi.		
31	28.07.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, in the running of the passenger train no.15200-1( belonging to S.C. TRANSFEROVIAR CĂLĂTORI - S.R.L.), in the railway station <b>Dobra</b> the ensemble switch – inside locking with clip had an unsuitable operation, leading to the coming out of the fastening clip afferent to the curved point from the locking box, before to run the exit route from the line no. 2.	i	23.10.2012
32	02.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Piatra Olt – Bradu de Sus, between railway stations <b>Costești - Pârvu</b> (km.120+700), in the running of the train no.98930 (the ballast screener MCB 450-064), occurred a fire in the engine room, at the electric engine 3.	i	25.09.2012
33	08.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Iași, running section Ungheni - Iași, the passing of entry signal YP occurred in railway station <b>Socola</b> with the stop position - „STOP without passing the signal”, by the passenger train no.6501 (belonging to the railway passenger undertaking SNTFC „CFR Calatori”SA), and the trailing of the switch no. 13C.	i	30.08.2012
34	08.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, on the running section Fetești-Medgidia (double electrified line), occurred the passing of the entry signal Y and of the exit signal Y1 from the railway station Ovidiu, both of them on position – „STOP”, by the train no. 88982 – tower coach- (belonging to SC Electrification Branch SA Constanta, district LC Fetesti).	i	26.08.2012
35	11.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, the passing of entry signal Y occurred in railway station <b>Mircea Vodă</b> with the stop position - „STOP without passing the signal”, by the freight train no.50544 belonging to the railway freight undertaking SC„UNIFERTRANS”-SA.	i	16.08.2012
36	19.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs”	i	25.09.2012

		Cluj, running section Jibou – Sărmășag, in current line at km. 99+700, <b>between railway station Zalău Nord and Mirșid</b> , in the running of the freight train no. 69731( belonging to the railway undertaking SC TRANSFEROVIAR GRUP SA Cluj-Napoca), consisting in the derailment of the first bogie, running direction, of the wagon no. 31530667181-1.		
37	30.08.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” București, <b>in the railway station București Triaj, Switch cabin 17</b> , in the running of the freight train no. 84796-1 (belonging to the railway undertaking SNTFM „CFR Marfă” SA) at its crossing over the switch no. 23, consisting in the derailment of the second bogie, in the running direction, of the wagon no. 81536653788-5, the 9th from the rear of the train.	i	19.11.2012
38	02.09.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Galați, running section Barboși – Tecuci, in railway station <b>Barboși Triaj</b> , in the running of the freight train no.39547 (belonging to railway undertaking SC SERVTRANS INVEST SA)occurred the derailment of the locomotive DA 1566, of wagon no.33535304474-6 and of the first bogie of the wagon no.31535375368-6.	i	07.11.2012
39	21.11.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, running section Fetești-Palas (double electrified line), in railway station <b>Medgidia between Medgidia and Basarabi</b> , in the running of the freight train no. 80351(belonging to the railway undertaking SC GFR SA), consisting in the hit and damage of 6derailment of the second bogie, in the running direction, of the wagon no. 81536653788-5, the 9th from the rear of the train.	i	19.12.2012

**Legal basis of the investigation:** i= In accordance with Safety Directive ii= Under national law (that covers possible areas excluded through art. 2, paragraph 2 of the Safety Directive), iii= Optional – other criteria(National rules / regulations that Safety Directive does not refer).

### Investigations started in 2012 and ended in 2013

No.	Date of occurrence	Presentation	Legal basis for the investigation	Ending date
1	02.09.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” București, at the entry on the exit route of line 1C <b>in the railway station Bucureștii Noi to București Triaj Switch cabin 17</b> the derailment of the first	i	11.02.2013

		two axles occurred in the running direction of the locomotive EA 40-0526-0 hauling the freight train no.84796-1 (belonging to railway undertaking SNTFM „CFR Marfă” SA)..		
2	28.09.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Petroșani – Târgu Jiu (single electrified line), in railway station <b>Târgu Jiu</b> , at parking the train in line 4, in the end of the station Y, occurred the derailment of the first axle of the first locomotive bogie ED 91 53 0 474030-0 located at the rear of the freight train no. nr.84790, (belonging to the railway freight undertaking SNTFM „CFR Marfă”).	i	15.01.2013
3	02.10.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Craiova, running section Băbeni - Alunu (single non electrified line), non interoperable section under the management of SC RC CF TRANS SRL Brașov, <b>between railway stations Popești and Copăceni</b> , in the running of the freight train no. 39237 (belonging to the railway undertaking SC SERVTRANS INVEST SA București), occurred the derailment of the first axle of the first bogie of the locomotive DA 60-1636-4 located at the rear of the train.	i	07.02.2013
4	12.10.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Brașov, running section Blaj - Praid (single non electrified line) non interoperable section under the management of SC RC CF TRANS SRL Brașov, <b>between railway stations Praid and Sovata</b> , in the running of the freight train no.99962 (belonging to the railway freight undertaking SC RAIL FORCE SRL Brașov), occurred the derailment of wagons no.338767359288 and no.315559724853 (9th and 10th from the rear of the train.).	i	17.01.2013
5	28.10.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, running section Reșița Nord-Voiteni (single non electrified non interoperable line), under the management of SC RC-CF TRANS SRL Brașov, <b>in the railway station Gătaia</b> , in the running of the freight train no.14446 (belonging to the railway freight undertaking SC REGIOTRANS SRL Brașov), occurred the derailment of both bogies of the motoriosed train AMX 97-0577-3.	i	21.02.2013
6	12.11.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, section on line no.117 <b>Livezeni – Lupeni in current line at Km 94+910 – 95+118</b> , line under the management of SC RC-CF TRANS SRL Brașov, in the running of the freight train no.23815 (belonging to the railway freight	i	12.02.2013

		undertaking SNTFM „CFR Marfă” SA), occurred the derailment of the first bogie in the running direction of wagon no.81536654856-9 located the 5th from the signal.		
7	06.12.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Constanța, at dispatching of the train Inter Regio no.1681 (belonging to the railway freight undertaking SNTFC „CFR Călători” SA) of line <b>III from railway Fetești</b> towards railway Ovidiu on running line II based on free pass system with running order, disposing station movement inspector, without pursuing the complete exit of the train from the station he handled the switches 14/28 in order to prepare the shunting route for restabing the train set no.8015 in line 1T, for composing the train no.8018 with departure at 16:45.	i	16.01.2013
8	22.12.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, <b>in railway station Pui</b> , at passing the level crossing from km 43+810 of the freight train no.50408 (belonging to the railway freight undertaking SC UNIFERTRANS SA) occurred the derailment of the second bogie in the running direction of wagon no.88536656800-8, located the 9th from the rear of the train.	i	21.02.2013
9	22.12.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Iași, running section Iași – Pașcani (electrified double line), between railway stations <b>Ruginoasa and Târgu Frumos</b> , in running of the freight train no. 61723-2 (SNTFM „CFR Marfă” SA) the maximum speed of the line was exceeded.	i	10.07.2013
10	30.12.2012	In the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Timișoara, <b>in railway station Petroșani</b> , in running of the freight train no.20976-1 (belonging to the railway freight undertaking SC Cargo Trans Vagon) occurred the derailment of an axle of wagon no. 33535300809-7.	i	16.05.2013

**Legal basis of the investigation:** i= In accordance with Safety Directive ii= Under national law (that covers possible areas excluded through art. 2, paragraph 2 of the Safety Directive), iii= Optional – other criteria(National rules / regulations that Safety Directive does not refer).

### 3.3. Research studies (or safety studies) ordered and completed in 2012

#### Studies ordered and completed in 2012

Order date	Study name (type, location)	Basis for legislation	Additional data
-	-	-	-

**Legal basis of the investigation:** i= In accordance with Safety Directive ii= Under national law (that covers possible areas excluded through art. 2, paragraph 2 of the Safety Directive), iii= Optional – other criteria(National rules / regulations that Safety Directive does not refer).

## Studies ordered in 2012

Order date	Study name (type, location)	Basis for legislation	Additional data
-	-	-	-

**Legal basis of the investigation:** **i**= In accordance with Safety Directive **ii**= Under national law (that covers possible areas excluded through art. 2, paragraph 2 of the Safety Directive), **iii**= Optional – other criteria (National rules / regulations that Safety Directive does not refer).

### 3.4. Summary of investigation completed in 2012

During 2012 there were completed a number of 39 investigations from which 8 are opened in 2011 and 31 investigation opened in 2012.

Below is a syntetical situation of the 39 investigation reports completed during 2012.

- 3.4.1. Technical failure of the interoperability constituent „rail” – breaking of a large number of rails during 2010-2011, in the range of activity of “Regional Center of Operation, Maintenance and Railway Repairs” Iași – Secția L4 Bacău, on running line no.500, on line I and II between railway stations Adjud and Bacău.

The investigation report was completed on 23.01.2012.

#### Direct cause

The direct cause was a decrease in resistance to breaking of the rails in application under time of a variable loads from traffic which led to breaking rails at lower voltages than the resistance to breaking of steel rails.

Breakage that occurs while under the application of variable load is a fatigue breakage.

The fatigue of steel from the rail is manifested by the appearance and development of cracks in the contact area wheel-rail and thru plastic deformation associated to hardening phenomenon.

Nature and especially the evolution of faults indicates that they are due to fatigue of the material (steel) by repeated dynamic requests.

#### Underlying causes

1. Non complying with the provisions of article 21, point 1 from the Instruction of norms tolerances for tracks construction and maintenance – tracks with normal gauge no. 314/1989, which provide that is not admitted the maintenance in tracks of the rails with faults category I, those should be replaced as soon as possible, or within 5 days of the finding.
2. Non complying with the provisions of the Instructions for determination of rail faults and for checking the rails no. 306/1972, regarding the measurements to be taken when is identified the fault type 20, referred as: “ From the broken rail will be sent a coupon to be analysed at the Institute for Studies and transport investigations, and DGLI will have to take action based on the results

#### Root causes - none.

#### Safety recommendations

The recommendations are directed to address the following issues:

1. Lines with superstructure manufactured with rails type R65 produced by Azovstal of Ukraine (former USSR) during 1989-1991, until the execution of repair of the rails, it is recommended to avoid performing packing of sleepers, lateral displacement, , dynamic stabilization and cleaning of the ballast with heavy rail vehicles to not cause faults by dynamic loads transmitted by equipments to rails, during the technological process.
2. Avoiding performance of weld repairs of defective rail surface conditions in which the material are made from is affected by the fatigue.
3. Completing the instruction no.306/1972:

- Entering in the current classification of rail faults caused by the fatigue phenomenon and existing terms in UIC leaflet 712 to define rail faults caused by fatigue phenomenon (eg squats, head checks, shelling, belgrospis);
  - The means of identification, checking, watching in time and correction of curling wear;
  - Determine the running conditions depending of the category of rail faults.
4. Introducing into the nomenclature of maintenance and repair of rails, contained in the current instructions, of works and technological processes relating to: grinding, milling or planing rails in maintenance work.

***Measures related at the rail type R65 that is manufactured by Azovstal from Ucraina, between the 1989-1991 years.***

1. The inventorying on the entire railway network of the track sections built with rail type R65, produced by Azovstal from Ucraina, their detailed checking in order to identify the rails with failures that are similar with those that appeared on the traffic-section Adjud-Bacău and to establish the measures that are necessary for the insurance of the railway safety;
  2. The identification of the switches that were built with rail that had the same manufacturer and the establishment of the insurance of the railway safety.
- 3.4.2. The railway accident happened on the 17<sup>th</sup> of May 2011 on the railway branch of the Regional Center of Railway Operation, Maintenance, and Repairs – București, on the traffic Târgoviște – Titu, between the railway stations Dâmbovicioara and Podu Rizii, on the running line, at the km 2+500, in the running of the passenger train no. 9432 (belonging to SNTFC „CFR Călători” SA București) by a fire in the enginehouse (the area of the electrical switch cabinet of the traction motor no.1) at the locomotive DA 60-0793-4.

The investigating report was completed on the 18<sup>th</sup> of January 2012.

**Direct cause**

The fire one occurred due to the breakdown of the insulation of the power cables H and F of the traction motor no.4. These are situated outside the electrical switch cabinet of the power cables, fact that led at the melting of these cable's insulation, at the appearance of the lighting discharge between them and the ignition of their insulation.

**Contributing factors**

The breakdown of the insulation was the result of the appearance of the commutation overvoltages that one occurred because of the train's heating plant (type INDA) and the traction electrical motors, in the conditions of an allowed minimum values of the insulating resistance of the power cables that belong to the traction motor no.4.

**Underlying causes - none.**

**Root causes - none.**

**Safety recommendations.**

- Drafting of a study regarding the appearance of the commutation overvoltages that one occurred because of the train's heating plant (type INDA) and the traction electrical motors, in order to establish the protection methods of the power circuits, in order to prevent the occurrence of similar cases.
- 3.4.3. The railway accident happened on the 2<sup>nd</sup> of October 2011, at 17:59 hour, on the Branch of the Regional Center of Railway Operation, Maintenance and Repairs – Craiova, traffic section Strehaia - Drobeta Turnu Severin (electrified single line), in the railway station în stația Valea Albă, at the km 349+060, on the main line II, in the running of the freight train no. 70838-1 (belonging to the railway undertaking - SC GRUP FERROVIAR ROMÂN SA,) through the derailment of the wagon no.33877915348-9 (the 20<sup>th</sup> from

the locomotive) by one bogie (the axles with the wheels 1-2 and 3-4, first bogie in the running direction).

The investigating report was completed on the 24<sup>th</sup> of February 2012.

**Direct cause**

The direct cause of the railway accident was the exceeding of the stability limit at the derailment through the unloading of the first wheel (the axle with the wheels no. 1-2 was the first axle of the first bogie in the running direction) of the wagon no. 33877915348-9, fact that led at the climbing of the rail from the right side of the track and the falling of the first wheel outside the track. The unloading of the first axle one occurred due to the appearance of an reaction additional force between this and the bogie frame no.1, force that appeared as a result of the breakeage of the joint bolt between the crowbar and the brake block hloder that belongs to the wheel no.1, followed by the turning of the brake block hloder around the bolt of the triangular axis and then, by the entry and blocking of the of the crowbar between the brake block hloder and wheel.

**Contributing factors - none.**

**Underlying causes - none.**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.4. The railway accident happened on the 20<sup>th</sup> of October 2011, on the Branch of the” Regional Center of Railway Operation, Maintenance and Repairs - Constanța”, traffic section Lehliu-Medgidia (electrified double line), in the running of the freight train no. 93596 ( belonging to SNTFM „CFR Marfă”-SA), through the derailment of all wheels from the first bogie of the wagon no. 84539305320-0 (the second wagon from the locomotive), during the train running reversely over the crossing with movable frog no.4 within the cross over 2-4.

The report was completed on the 26<sup>th</sup> of March 2012.

**Direct cause**

The direct cause of the derailment was the train runnig reversaly, when the flange of wheel from the right side of the first bogie’s axle of the wagon no. 84539305320-0 met the flexible diamond of the switch no. 4 in the straight position (incompatible position for the running „in deflexion’’).

- the station movement inspector performed incompletely the receiving route of the train no. 93596, omitting to operate the switch no. 4 in the position that was necessary for the route, respectively „on deflexion position’’ and then to verify the correctness of the route;
- the error of the staff that was designated with the surveillance of the station movement inspector activity and who did not observe that he did not performe the correctly route;
- the wrong decision that the engine driver took it (the train running reversely), without respecting the instructional provisions.

**Contributing factors - none.**

**Underlying causes - none.**

**Root causes - none.**

**Safety reccomendations - none.**

- 3.4.5. The railway accident happened on the 15<sup>th</sup> of November2011, in the Branch of the” Regional Center of Railway Operation, Maintenance and Repairs” Craiova, on the track section Strehaia – Drobeta Turnu Severin (electrified single line), ), in the railway station Valea Albă, at km 349+541, in the running of the freight train no. 91795 (belonging to SNTFM „CFR Marfă” SA), consisting in the derailment of the axles with

the wheels no.5-6 and no.7-8 of the first bogie in the running direction from the wagon series Eacs no. 31535480307-6 ( the fifteen from the locomotive).

The investigating report was completed on 03.02.2012.

**Direct cause**

Exceeding the stability limit at derailment by the first wheel load transfer no.7 ( the axle with wheels no.7-8 was the first axle of the first bogie in the running direction) of the wagon series Eacs no. 31535480307-6, fact that led to the rail climbing from the right side of the track and falling of wheel no.8 from the left, inside the running track.

**Factors that contributed:**

- the difference between the values of effective rolling circle diameters of the wheels no.5 and 6 from the same wheelset that exceeded the minimum limit, allowed by the provisions of the Instruction for repairing the wheelsets of the railway vehicles, no.931/1986, fact that led to the increase of the lateral clearance of the wheelset 7-8 and also to the increase of the striking angle of wheel no.7 in relation with the rail.
- lack of a piece from the wear plate, located between the upper and the lower centre casting to the first bogie in the running direction and also the high wears of the two centre castings ( the value of the wears from both centre castings was of approximately 5-6 mm, higher than the maximum value of 4 mm allowed by the Railway Technical Norm no.81-005/2006 and Instruction no.936/1991), fact that led to the appearance of an unlubricated friction between the two centre castings and also to the very strong increase of the friction moment between the two parts of this assembly.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none**

- 3.4.6. The railway accident happened on December 2, 2011, on the activity area of the „ Regional Center of Operating, Maintenance and Repairs CF” Cluj, on the running section Salva – Vișeu, between the railway stations Coșbuc and Salva, by derailment of a wagon of both bogies.

The investigating report was completed on March 21, 2012.

**Direct cause**

Is represented by the decrease of the guiding capacity of the rail corresponding to the outer rail of the curve ( curve with left deviation in the running direction of the train), the escalation of the head of rail from the outer rail of the curve to the km 0+937 by the lip of the wheel tyre from the right side of the first bogie axle of the wagon no. 31535475910-4, its running on the head of rail on a distance of 4,7 meters, followed by the falling of this wheel outside the track and falling of the wheel correspondent to the same axle between the stretch of rails.

**Factors that contributed :**

- Exceeding the tolerance of 25 mm as regards the track position horizontally plan neighbour archs, respectively between the escalation point ( point „0”) and its previous point ( the measuring the track deflections in curve was made to the middle of the measurement rope of 20 meters);
- Exceeding the variation of the deviations to the track gauge with 0,8 mm/m;
- The appearance in time of a wear of 2 mm, when operating, of the upper friction stone, fact that led to the increase of the bogie resistance rotating and inclination of the wagon body);
- consequences on the train set when running on a down-grade area with a slope of 4,8 0/0 in the conditions that the hauling locomotive remained without power on the engine, the train speed decreasing, the engine driver requesting for help to the pushing locomotive.

The wagon derailment occurred by cumulating all factors presented, none of these, alone, could provoke the wagon derailment.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none**

- 3.4.7. The railway accident happened on December 5, 2011, at 19:51 hour, on the activity area of the „ Regional Center of Operating, Maintenance and Repair CF” Galati, on the running section Adjud- Ghimeş, by derailment of the locomotive EA 41-0761-1 that hauled the train 5211 ( belonging to the railway undertaking SNTFC „CFR CĂLĂTORI” SA).

The investigating report was completed on February 28, 2012.

**Direct cause**

Is represented by the decrease of the guiding capacity of the rail corresponding to the outer rail of the curve ( curve with left deviation in the running direction of the train), on the area of passing from an area without broken stone prism and with non-corresponding sleepers, to an area with broken stone prism ensured in 70 % and with new sleepers. The non-corresponding track technical condition from these two areas, corroborated with dynamic behaviour of the axle when running, all these allowed the escalation of the first axle tyre lip of the locomotive followed by the falling of the first axle of the first bogie.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.8. The railway accident happened on December 18, 2011, around 18:20 o'clock, on the activity area of the Regional Center of Constanta, on the running section Feteşti-Țândărei ( electrified double line), on the running of the freight train no.43430 ( belonging to the freight railway undertaking SNTFM „CFR Marfă” - SA) in the railway station Movila at the passing over the switch no.1 ( km 71+100), by derailment of all axles of the wagon no. 81530666697-6, the fifth from the locomotive, The investigating report was completed on February 3, 2012.

**Cauza directă**

**The direct cause** of this accident occurrence is the increase of the striking angle of the wheel no.5 of the wagon no. 81530666697-6, the fifth from the rear of the train and of the horizontal force of guiding the axle with wheels no.5-6 ( axle no.2 in the running direction), over its ability to guide, caused by the breaking from its connection of the suspension spring main leaf ( laminated suspension spring) corresponding to the axle journal no.6 of the same wagon. The cumulative effect of these led to the climbing of the trailing wheel lip no.5, ( the wheel from the right in the running direction), on the right stock rail of the switch no.1, from Movila railway station , followed by the wheel's falling from the left of the same axle ( wheel no.6) on the head of the screw C2 of middle lock from the base of the right point switch. Following the impact, the point switch broked in three parts.

The breaking from its connection of the suspension spring main leaf corresponding to the axle journal no.6 had as effect:

- cancellation of the pendulum system of overtaking and damping of the oscillations on the axle journal no.6;
- consumption of the total longitudinal clearance of the axle afferent to the curve negociation to this axle journal to the running of the bogie in straight line;
- placing the axle with wheels 5-6 in a radial position ( striking angle  $\alpha > 0$  to wheels no.5 and 6).

**Factors that contributed to the accident occurrence were:**

- existence of an old crack in a percent of 50% to the main leaf of the laminated suspension spring ( spring of 8x1200mm with negative arch) corresponding to the axle journal no.6, in the spring connection, disposed under an angle of approximately 40° compared to the edge of the spring connection, defect placed on the spring inside the track ( to the lateral bogie solebar) and impossible to be found due to this positioning , with the occasion of performing the technical inspections at arrival, composition and transit that the trains had in the composition of which the wagon circulated since the last periodic repair performed on February 24, 2006.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.9. The railway accident happened on January 16, 2012, at 14:00 hour, on the activity area of the „Regional Center of Operating, Maintenance and Repairs” Craiova, on the running section Strehaia-Drobeta Turnu Severin ( simple electrified line), in the railway station Ciochiuța, by derailment of the locomotive EA 40-0010-5, belonging to the railway undertaking S.C Unifertrans S.A București on the connection rails of the switch no.2, trailed on the heel, by the climbing with the left wheel of the axle no.1 in the running direction, at approximately 7 meters after the common crossing head.

The investigating report was completed on March 22, 2012.

**Direct cause**

The direct cause was represented by the climbing of the connection rail of the switch no.2 by the wheel from the left in the running direction of axle no.1, in the conditions of the existence on the active flank , in the area of connecting the tyre's lip of a hole having a 1,5 mm depth, on a length of 1720 mm.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none**

- 3.4.10. The railway accident happened on January 31, 2012, at 15:35 hour, on the activity area of the „Regional Center of Operating, Maintenance and Repairs CF”Bucuresti, on the running section Giurgiu Nord – Videle ( non-electrified simple line), between C.F. Bălănoaia and Stănești railway stations , in the area of the level crossing placed at the km 11+015, by derailment of a bogie of the locomotive DA 1279, that was hauling the freight train no.92212 ( belonging to the railway undertaking SNTFM „CFR Marfă” SA București).

The investigating report was completed on May 4, 2012.

**Direct cause**

Was represented by the hitting by the wheel from the left ( in the running direction) of axle no.2 of the locomotive DA 1279 of the long rod from the traction engine no.1, fact that led to these axle derailment and then to the derailment of axles no.3 and no.1.

The hit spare part was fallen and blocked in the trough from the left of the level crossing from the km 11+015.

The pulling of the engine traction long tod was produced by the breaking of a piece from the toothed wheel of the axle no.1, followed by the breaking and detaching of some elements of the traction gear , in the conditions of appearing of an over-operation of the hauling locomotive DA 1279 that after the damaging of the pushing locomotive, it had to sensure by itself, the hauling of the locomotive no. 92212 ( on an slope with 15% gradient).

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations – none.**

- 3.4.11. The railway incident happened on February 20, 2012 on the activity area of the „Regional Center of Operating, Maintenance and Repairs CF” Iasi, by exceeding the entry signal Y of Itesti railway station, that was ordering the stop of the passenger train no.5422 ( belonging to the railway undertaking SNTFC „CFR CĂLĂTORI” SA). The investigating report was completed on March 9, 2012.

**Direct cause**

The direct cause is represented by non-stopping the train no.5422 in front of the entry signal Y of Itesti railway station that was ordering the stop.

This was possible following a human error appeared within the process of driving the train no.5422, the engine driver not perceiving the fact that the entry signal Y of Itesti railway station had non-permissive light ( signal out ).

**Underlying causes - none .****Root causes - none.****Safety recommendations - none.**

- 3.4.12. The railway accident happened on February 21, 2012 on the running of the passenger train no.15111, on the activity area of the „Regional Center of Operating, Maintenance and Repairs”Cluj, on the running section Arad – Oradea, between Ciumeghiu and Salonta railway stations, by derailment of a one axle motorised train hauling wagon. The investigating report was completed on March 21, 2012.

**Direct cause**

The direct cause is represented by the lost of the rail guiding capacity from the left side of the running direction of the train, due to the breaking of a piece of 12 cm from the head of rail. In these conditions, the wheel from the right side fell out between the stretch of rails leading to the falling of the wheel from the left side of the same axle.

**Factors that contributed:**

- The breaking of the end of the rail from the electric insulated joint, following the existence of a crack that spread from this end of the rail to the first fish-bolt hole. This crack spread trough the rail web and head.

**Underlying causes**

- Non-replacing the damaged rail of category I, existent in the evidence of damaged rails of Section L5, from the km 74+710 ( the rail from the right side in the direction of counting the track kilometers).

**Root causes - none.****Safety recommendations - none.**

- 3.4.13. The railway accident happened on 1-st of March, 2012 around 15:05 hour on the area of the activity of the „Regional Center of Operating, Maintenance and Repairs”Constanta, on the running section Fetești-Țândărei (double electrified line), on the running of the freight train no. 41794-1 ( belonging of the railway undertaking SNTFM „CFR Marfă” - SA), to Țândărei railway station, by derailment of a number of 3 wagons ( the 24-th, the 25-th and respectively the 26-th from the locomotive) from its composition. The investigating report was completed on 26-th of April , 2012.

**Direct cause**

The direct cause is represented by the lost of the contact wheel- rail corresponding to the wheel from the right side of the first axle of the second bogie in the running direction, ( axle with wheels no. 3L-4R) of the wagon no. 31533540310-3 ( the 5-th wagon from the rear of the train ), following these wheel’s suspension occurred by the climbing of the axle box on the case of the buffer from the end X of the wagon, the right side in the running direction, fallen in the structure clearance O-SM, on the switch no.23 of TJD nr. 23/27 of Țândărei railway station.

The suspension of wheel no.3L led to a lateral displacement to the left in the running direction, fact that caused this axle derailment ( axle with wheels no. 3L-4R ), taking to the derailment of the other axle of the same bogie, followed by the derailment of the next wagon of both bogies ( the 4-th wagon from the rear of the train) and of the third wagon from the rear of the train of the first bogie in the running direction.

**Factors that contributed**

- The falling of the gear case due to the breaking of the welding cord between the interior tube and the base of the gear that was performed non-correspondingly.

**Underlying causes**

- Underdimensioning the beard half V from the base of the gear to 5 mm comparative with 10 mm as it is foreseen in the documentation of performing the gear casing, fact that led to the non-corresponding performance of the welding cord that ensures the subassembly interior tube – base.

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.14. The railway incident happened on 9-th of March, 2012, on the activity area of the „Regional Center of Operating, Maintenance and Repairs”Craiova, in Drobeta Turnu Severin railway station, by exceeding the common signal Y7-8 and trailing the switch no.27 by the freight train no.92212 ( belonging to the railway undertaking SC CTV SA București).

The investigating report was completed on 26-th of April , 2012.

**Direct cause**

The direct cause is represented by the putting in motion of the freight train no.20948, followed by passing the common signal of *Drobeta Turnu Severin railway station, although its signal for line no.8 was on position. This was possible following a human error appeared within the process of driving the locomotive*, the engine driver non-perceiving and non-watching closely the common signal Y7-8 of Drobeta Turnu Severin railway station.

**Underlying causes - none.**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.15. The railway incident happened on the 11-th of March, 2012, on the activity area of the „Regional Center of Operating, Maintenance and Repairs”Constanta, on the running section Făurei- Țândărei ( electrified double line), at the entry in Țândărei railway station, occurs the hitting the inductor of 1000/2000 Hz afferent to the route signal YFP, respectively of the cables ( ropes) of the insulated section 031 by the fifth wagon ( no. 37807963112-3) from the rear of the freight train no. 60791 ( belonging to the railway undertaking SC Transferoviar Grup SA).

The investigating report was completed on the 5-th of April , 2012.

**Direct cause**

The falling of the exterior scale, during the route, from the wagon series Za, no. 378079631123 from the train composition no.60791, due to the old existent cracks until the complete breaking of the welding cords foreseen for fastening of the exterior scale.

**Factors that contributed**

Old cracks in the welded cords to the ends of fastening the exterior scale on the wagon solebar, respectively to the upper part of the wagon ( on the tank wagon), that weren't found with the occasion of technical inspections.

**Underlying causes**

Non-observing the provisions of article 6, paragraph (2) letter c, on the „Technical inspection when composing the train” and of the article 17, paragraph (1), letter g,

table no.7, point 10, on „Defects and wears to wagons and the method for treating them of „Instructions on technical inspection and maintenance of wagons during operation no.250/2005”.

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.16. The railway accident happened on the 15<sup>th</sup> of March 2012, at 22:27 hour, on the Branch of the Regional Center for Operation, Maintenance and Repairs Timișoara, on the traffic section Caransebeș-Orșova (electrified simple line), in Teregova railway station, by the derailment of the locomotive EA 40–0273–9 that hauled the train no. 51754 (belonging to the SNTFM „CFR Marfă” SA).

The investigating report was completed on 4-th of May , 2012.

**Direct cause**

The direct cause is represented by the climbing of the exterior connection rail of the switch curve no. 3 by the left first wheel as a result of exceeding the derailment safety limit in conditions of the increase of the guidance force (horizontal) and decrease of the load on the wheel 1 from the left ( vertical).

**Contributing factors:**

- the increase of the friction between the flange of wheel of the left first wheel and the inner face of the top of the rail due to the downtime of the lubrication device of the locomotive flange of wheel;
- the difference of running circles diameter at the first left-right wheels from the guiding axle that had a value of 1,5 mm towards 1, the allowed limit;
- the gauge value of +10 mm registered in point 0 in which one occurred the climbing of the exterior link rail of the switch curve towards the allowed tolerances +5/-1 mm at every point of measurement excepting the point of switch tongue for gauge of 1433 mm;

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.17. The railway accident happened on 24th of March 2012 , on the activity area of the „Regional Center for Operation, Maintenance and Repairs” Cluj, in the freight train running no. 83599-2 belonging to SNTM ”CFR Marfă” SA, by the derailment of the locomotive EA 40-0499-0 of the first axle in the running direction, on line no.4 in the railway station Râpa de Jos, at the km 39+905.

The investigating report was completed on the 5-th of May , 2012.

**Direct cause**

The direct cause of the accident consists of the inappropriate condition of the sleepers, that under the action of the locomotive transversal dynamic forces, allowed the track over-widening at values above maximum tolerances permissible in operating and falling between the rails of the right wheel of the locomotive first axle.

**Contributing factors**

Using an improvised mounting system by which 4 normal sleepers were replaced with spliced sleepers, each sleeper was made up of two pieces.

**Underlying causes - none .**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.18. The railway accident happened on the 24-th of March, 2012, at 16:29 hour, on the activity area of the „Regional Center for Operation, Maintenance and Repairs” Craiova, on the running section Turnu Severin-Orșova ( electrified simple line) to Gura Vaii

railway station, to 135 meters from the switch no.2, on the section 024 by derailment of first axle of the first bogie in the running direction of the locomotive EA 767 that was hauling the passenger train no.9508 ( belonging to the passenger railway undertaking SNTFC CFR Călători SA București).

The investigating report was completed on the 15-th of May , 2012.

**Direct cause**

The direct cause was represented by the lost of the rail guiding capacity that led to its climbing by the wheel from the left of the first axle of the locomotive EA 767, the falling of this wheel outside the track, followed by the falling inside the track of the wheel from the right side of the same axle.

**Factors that contributed**

The track twist with values over the tolerances allowed by the Instruction for performing the works of major overhaul of the track no.302/1986, following the insufficient broken stone for performing the intermediary packing of sleepers.

**Underlying causes**

Non-ensuring the quantity of broken stone for performing the intermediary packing of sleepers due to the uneven distribution of the clean broken stone resulted following the cleaning of the ballast, contrary to the chapter II, B item 3.e of the Instruction for performing the works of major overhaul no.302/1986.

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.19. The railway incident happened on the 27<sup>th</sup> of April 2012, at around 10:53 hour, on the Branch of “Regional Center of Railway Operation, Mainenance and Repairs –Braşov”, traffic section Braşov-Sighişoara (electrified double line), in the railway station Racoş, in the running of the freight train no. 32602 (belonging to “CFR Marfă” SA) one occurred the hitting and the breaking of the locomotive’s fuel tank (locomotive DHC no.315- the second locomotive after the hauling locomotive) by a rail section that was stored along the line no. 5 of the railway station (on the right side of the running direction).

The investigating report was completed on the 17<sup>th</sup> of April 2012.

**Direct cause.**

The direct cause of the railway accident was the material’s storage (rail sections) in the railway clearance of the line no.5 from the railway station Racoş.

**Underlying causes - none.**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.20. The railway accident happened on the 03<sup>rd</sup> of April 2012, on the Branch of “Regional Center of Railway Operation, Mainenance and Repairs –Braşov”, in the railway station Braşov, one found out the running of the freight no. 30640 (belonging to the railway undertaking - DB Schenker Rail Romania) without having ensured the braked weight percentaje for the train keeping stop.

The investigating report was completed on the 07<sup>th</sup> of May 2012.

**Direct cause.**

The direct cause of the railway accident was the dispatching of the freight train no. 30640 from the railway station Curtici and its running on the distance Beia – Racoş, without having ensured the braked weight percentaje for the train keeping stop with hand brakes (the lack of six tonnes from the necessary braked weight for train keeping stop with hand brakes) because of the improper check of the train and incorrect completion of the wagon’s list by the train staff.

**Underlying causes - none.**

**Root causes - none.**

**Safety recommendations - none.**

- 3.4.21. The railway accident happened on the 03<sup>rd</sup> of April 2012, on the Branch of “Regional Center of Railway Operation, Maintenance and Repairs - Timișoara, traffic section Livezeni – Simeria, between the railway stations Crivadia and Baru Mare, through the derailment of the axle no.3 from the bogie no.2 of the wagon no. 31535494331-0. The investigating report was completed on the 03<sup>rd</sup> of July 2012.

**Direct cause.**

The direct cause of the railway accident was the limit of the bogie no.2 (wagon no. 31535494331-0) rotation in a curve with right deflection followed by the falling of the wheel from the left side (2R) between the running lines and the falling of the first axle of the wheel (2L) (the wheel from the right side) outside the track.

**Contributing factors.**

- the polyamide plate of the low centre casting of the bogie no. 2 with rust traces on the 55% from the contact surface;
- the appearance in time of two crushing surfaces with discharge of the material from the polyamide plate that was located between the centre castings of the bogie no.2 (these correspond to the two opposite corners of about 600, whose common bisector coincides with the longitudinal axle of the bogie);
- the lack of a permanent bright surface on the whole contact area of the friction stones.

**Underlying causes - none.****Root causes - none.****Safety recommendations - none.**

- 3.4.22 The railway accident happened on the 19<sup>th</sup> of April 2012, at 08:25hour, on the Branch of the Regional Center of Railway Operation, Maintenance, and Repairs – Brașov, running section Brașov –Sighișoara (electrified double line), between the railway stations Augustin- Racoș, at km 227+787, through the derailment of the first bogie in the running direction of the wagon no.335353043011 (the second from the rear of the train ) located in the composition of the freight train no.80360-1 (belonging to the railway freight undertaking SC GFR SA București) .

The investigating report was completed on the 23<sup>th</sup> of August 2012.

**Direct cause**

As a result of the lateral movement of the metallic plate on the wooden sleepers, under the horizontal forces transmitted to the rails by the wheels of rolling stock during running, which permitted falling between the rails from the right side of the axle of the last but one wagon, running in this condition on a distance of 16,5 meters, after that occurred the climbing of the rail proper to the external rail of the curve by the wheel from the left side of the same exit and its falling outside the track.

**Contributing factors.**

- improper wooden sleepers which does not allow fastening the coach screws for tightening up the metallic plate on sleepers;
- existence of the excess of cant proper to the running speed limited at 30 km/h which led to raising the value of the horizontal force which is applying in the running plane on the rail inside the curve (right in running direction).

**Underlying causes - none.****Root cause - none.****Safety recommendations - none.**

- 3.4.23. The railway accident happened on the 10<sup>th</sup> of May 2012, at around 11:15 hour, on the Branch of the „Regional Center of Railway Operation, Maintenance, and Repairs – Brașov”, traffic section Brașov - Sighișoara (electrified double line), in the railway

station Rupea, at the passing over the switch no.23, through the derailment by the both bogies of the wagon no. 33537951309-6 and by a axle of the wagon no. 37807850057-6 (the both wagons belong to the railway undertaking - SC GFR SA București).

The investigating report was completed on the 30th of August 2012.

**Direct cause**

The direct cause of the railway accident was the widening of the track gauge over the maximum value that is allowed by the provisions of the article 1, point 13 from the Instruction of norms and tolerances for the track construction and maintenance (tracks with normal gauge) no. 314/1989, during the passing of the rolling stock over the switch no. 23 from the railway station Rupea.

**Contributing factors.**

- the technical condition of the sleepers that led at a improper tightening of the rail by the sleepers. (the screws were ripped, tilted and can not ensuring the setting of the metal plates).

**Underlying causes - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.24. The railway incident happened on the 19<sup>th</sup> of June 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Brasov, track section Darste – Brasov Triaj (double electrified line consisting in the run away of the locomotive DA 1531(belonging to the railway undertaking SC GFR SA) from the railway station Darste and its entrance on the running line II Darste – Brasov Triaj, followed by its derailment and overturning on a side, at the entrance in the railway station Brasov Triaj.

The investigation report was ended on the 3rd of July 2012

**Direct cause**

It is the non-ensurance by the driver against the run away of the light diesel locomotive in accordance with the Regulations for hauling and braking no. 006/2005, art. 80, points 12 and 13 and the locomotive leaving without meeting with the provisions of the Order of General Division of Transport no. 310/1/441/1993, chapter III, point 3.

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.25. The railway incident happened on the 23<sup>rd</sup> of June 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Brasov, track section Coslariu-Sighisoarea (double electrified line), consisting in the passing of the signal Y1 on stop position, in the railway station Coslariu, on „red” position – „STOP without passing the signal on stop position” and the trailing of the switch no. 3 (interlocking) by the locomotive EA 725, hauling the freight train no. 20970 (belonging to the railway undertaking SC Cargo Trans Vagon SA).

The investigation report was ended on the 3rd of July 2012

**Direct cause**

The freight train no. 20970 started to run without having the departure order, the light position of the exit track signal being „red” – („STOP without passing the signal on stop position!”). It was possible because a human mistake appeared in the driving of the freight train no. 20970, consisting in the wrong reading by the driver of the running order issued by the railway station Coslariu.

**Contributing factors**

- non-reading aloud, by the driver, of the running order;
- non-repeating by the driver’s assistant of the running order;
- non-signing by him of the original on, that left at the driver, against the provisions of the Instruction no. 201/2007, art. 90(2).

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.26. The railway incident happened on the 25<sup>th</sup> of June 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Bucuresti, where the interregio train no. 1654 (belonging to the railway undertaking SNTFC „CFR Calatori” SA) run between Mizil and Ploiesti with the general air pipe broken.

The investigation report was ended on the 16th of July 2012

**Direct cause**

Interruption of the train general air pipe of 5 atm., by the operation on closed position of the front cocks between the wagons 4 and 5 by the train conductor

**Underlying cause**

Non-compliance with the instruction provisions for the performance of the train brakes according to the art. 62 from the Regulations for the hauling and braking no. 006/2005, approved by Order of Minister of Transports, Constructions and Tourism no. 1815/2005.

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.27. The railway accident happened on the 28<sup>th</sup> of June 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Constanta, track section Fetesti-Medgidia, consisting in the passing of the entry signal Y on stop position in the railway station Mircea Voda, on „red” position – „STOP without passing the signal on stop position” by the freight train no. 51574 (belonging to the railway freight undertaking SNTFM „CFR Marfa”SA), hauled by the locomotive EA 572.

The investigation report was ended on the 18th of July 2012

**Direct cause**

The freight train no. 51574 did not stop on the 28th of June 2012 at the entry signal Y from the railway station Mircea Voda, on stop position.

It was generated by a human mistake appeared in the driving of the train no. 51574, because of the wrong perception of the light position of the entry signal Y from the railway station Mircea Voda (light position of the of the signal was:”red” – („STOP without passing the signal on stop position!”) by the train driver.

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.28. The railway accident happened on the 1<sup>st</sup> of July 2012, at 7,40 o’clock, in the “Branch of the Regional center for railway operation, maintenance and repairs” Bucuresti, at the exit from the railway station Bucurestii Noi, in the area of the switch no. 10C, in the dispatching of the freight train no. 81720-1 (belonging to the railway freight undertaking SNTFM „CFR Marfa”SA), consisting in the derailment of the first axle in the running direction of the hauling locomotive EA 40-0636-7.

The investigation report was ended on the 1st of November 2012

**Direct cause**

It is the transfer of the right wheel load, from the first axle of the locomotive, running direction of the train, because the front lifting happened at the moment of the locomotive start to run on a track distance with slope 6,2%, in curve.

It led to the climbing of the right wheel lip from the fist axle of the locomotive on the out rail head of the curve of the switch no. 10C, followed by the derailment of the wheel, implicitly of the locomotive axle no. 6

**Contributing factors**

Presence of broken sleepers on the inside track of the curve of the switch at 3030 mm from the tip joint and at 4100 mm from the overclimbing point.

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

3.4.29. The railway accident happened on 5<sup>th</sup> of July 2012, in the Branch of the “Regional center for railway operation, maintenance and repairs Bucuresti”, track section I.L. Caragiale-Moreni-Filipestii de Padure-Gura Palangii, in the railway station I.L. Caragiale, consisting in the hit of a car by the rake of wagons CM2 (belonging to the railway freight undertaking SNTFM „CFR Marfa” SA) at the level crossing from the km 0+600.

The investigation report was ended on the 19<sup>th</sup> of December 2012

**Direct cause**

It was the non-ensurance of the braked mass percentage necessary to keep stopped the rake of wagons lack of wagons CM2, being on the branch line carrying feeder traffic I.L. Caragiale – fan of industrial branches Gura Palangii.

**Contributing factors**

- the shunting gang left the rake of wagons CM2, SNTFM “CFR Marfa” SA did not ensure another shunting gang, taking into account that the shunting of the rake of wagons CM2 was not finished and it was not stabled on one of the lines from the railway station I.L. Caragiale, as it is stipulated in the chapter 3, art. 7 from the Regulations for the operation of the track section I.L. Caragiale-Moreni-Filipestii de Padure-Gura Palangii, approved by AFER and the Ministry of Transports, Constructions and Tourism. The shunting gang leaving endangered the traffic safety on the branch line carrying feeder traffic I.L. Caragiale-Gura Palangii and in the railway station I.L. Caragiale;
- the driver left the locomotive of the rake of wagons CM2, without meeting with the provisions of the art. 12, paragraph 1, letter e from the Instructions for the activity of the locomotive staff no. 201/2007, approved by Order of the Ministry of Transports, Constructions and Tourism no. 2229/23.11.2006;
- delivery of the locomotive to the driver’s assistant for surveillance was made without being shedded on a line especially dedicated in a traction unit or station, as it is stipulated at the art. 9, paragraph 1, letter e and at the art. 30 – (1) from “Instructions for the activity of the of the locomotive staff no. 201/2007, approved by Order of the Ministry of Transports, Constructions and Tourism no. 2229/23.11.2006”;
- service transfer from the locomotive driver of the rake of wagons CM2 to the driver’s assistant, in charge with the surveillance;
- position of the fixed derailer S1 that, at the passing of the rake of wagons CM2, run away from the branch line carrying feeder traffic I.L. Caragiale-Gura Palangii, was “Overturn from the rail”, against the provisions:
- art. 170, paragraph 2 of the Regulations for railway technical operation no. 002/2000, approved by Order of Ministry of Public Works, Transports and Lodgings 1186/2001;
- art. 35, paragraph 6, 10th section from the Regulations for the running of the trains and of the shunting vehicles no. 005/2005;
- chapter 3 from the Regulations for the operation of the track section I.L. Caragiale-Moreni-Filipestii de Padure-Gura Palangii, approved by AFER and Ministry of Transports, Constructions and Tourism.

**Underlying cause - none.**

**Root causes - none.**

**Safety recommendations - none.**

The addressees of the safety recommendations are Romanian Railway Safety Authority, the public railway infrastructure manager CNCF"CFR" SA and the freight undertaking SNTFM "CFR Marfa"SA.

The recommendations aim to settle the next issues:

1. Analysis of the opportunity to achieve the dependence between the position of the fixed derailer S1 and the position of the mechanical barrier from the level crossing km 0+600 with interlocking system in the railway station I.L. Caragiale;
2. Analysis of the opportunity to supplement the provisions of the Regulations for hauling and brake no. 006/2005 where to be mentioned the measures that the driver's assistant has to take when the driver is not in the locomotive or he is not able and the train, the train set or the light locomotive run away and can not be braked.
3. Updating of the regulation framework concerning the definition of the branch line carrying feeder traffic;
4. Supplement of the instruction for the operation of the interlocking system from the railway station I.L. Caragiale with the provisions concerning the working way when the fixed derailer S1 is out of service.
5. Analysis of the procedures for sending the dispositions and the register way between OPAD of SNTFM headquarters and CLSC Bucuresti in order to remove the ambiguities that can appear in the verbal communication of the dispositions.

- 3.4.30. The railway incident happened on 8th of July 2012, on the transport network belonging to SC METROREX SA, subway main line I, between the subway stations Timpuri Noi and Piata Unirii, at the km 6+354, the passenger train, consisting in REM 1109-2109, hit with the half-lifted pantograph from the second unit (REM 1109) in the running direction, a cross trough for the directing of the water from the existing infiltration in the gallery ceiling, situated at about 300 m from the platform of the subway station Timpuri Noi.

The investigation report was ended on the 27th of July 2012

**Direct cause**

The running of the train BM 1109-2109, with the pantograph of the unit 1109 half-lifted, hanging the trough for the water directing from the km 6+354 from the gallery ceiling, being out of the structure clearance, it leading to the breakage of the pantograph arm, pulling of the contact strip, as well as the damage of the respective troughs. It was possible because at the moment of the energy supply from the contact rail, after the repair of the subway train 1109, its pantograph did not move down in a normal operation position (did not locked)

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

One took the next measures for the company that ensures the maintenance of the subway trains type Bombardier:

1. the additional inspection of the fastening bearing between the pantograph arm and the device for lifting-moving down, at the corresponding inspection of the pantographs;
2. performance of tests for lifting-moving down of the pantograph at each exit of the subway train from the depot.

- 3.4.31. The railway incident happened on the 28<sup>th</sup> of July 2012, in the "Branch of the Regional center for railway operation, maintenance and repairs" Timisoara, in the running of the passenger train no. 15200-1 (belonging to SC TRANSFEOVIAR CALATORI SRL), when in the railway station Dobra the ensemble switch – inside locking with clip had an

unsuitable operation, leading to the coming out of the fastening clip afferent to the curved point from the locking box, before to run the exit route from the line no. 2.

The investigation report was ended on the 23rd of October 2012.

**Direct cause**

- unsuitable ensurance of the locking box fastening;
- wrong fitting-up of the stroke-arresting device, on the lock-bar in the hole for the fastening of the operation device, allowing the opening over 55 mm;
- fitting up and the unsuitable adjustment of the inside locking with clips.

These causes led to the unsuitable operation of ensemble switch-inside locking with clips, generating the coming out of the fastening clip afferent to the curved point from the locking box, before running the exit route from the line no. 2.

**Contributing factors**

Non-checking of the joining between the point and stock-rail by the pointsman on duty in the switch cabin no. 2 according to the Technical provisions from the paper no. 21/1/3c/165/2006 of Track Divisions, from the 10th of March 2006. According to the paper no. 3/2/3/101 from the 10th of August 2012 of Traffic Divisions, the times for the route preparing were included in the crossing times establishment.

**Underlying cause** – non-seeing, during the controls and inspections performed according to the regulations, of the wrong fitting-up of the stroke-arresting device on the lock-bar, as well as the fitting up and the unsuitable adjustment of the inside locking with clips.

**Root cause - none.**

**Safety recommendations**

Additional at the provisions from “Instructions for driver activity no. 201/2005” of a provision according which the driver has to monitor, at the dispatching from the station, the switch position.

- 3.4.32. The railway accident happened on the 2nd of August 2012, at 13,10 o'clock, in the “Branch of the Regional center for railway operation, maintenance and repairs” Craiova, track section Piatra Olt – Bradu de Sus, between the railway stations Costesti – Parvu (km. 120+700), at the ballast screener MCB 450-064, consisting in the fire in the engine room, at the electric engine 3.

The investigation report was ended on the 25th of September 2012

**Direct cause**

Short-circuit between the conductor, situated between a main pole and a reversing pole, of the traction engine no. 3 and the brush collar support

**Contributing factors**

Non-compliance with the deadline established for the works specific to the repair type at the balast screener (due for repair type RG in 1995 and 2005 years, and for the repair type RK in 2000), led to an advanced wear at the equipments and generator sets, generating:

- decrease of the electrical strength of the insulating material at the conductors between the poles of the traction engine no. 3;
- oil leakages through the sealing areas of the hydraulic parts of the diesel engine and their deposit in hard-to-reach points.

**Underlying cause**

Non-performance of the works for the removal of the oil deposits (fuel, greases) from the hard-to-reach constructive areas of the balast screener, where they can appear.

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.33. The railway incident happened on the 8<sup>th</sup> of August 2012, at 17,30 o'clock, in the “Branch of the Regional center for railway operation, maintenance and repairs” Iasi,

track section Ungheni – Iasi, consisting in the passing of the route signal YP from the railway station Socola, on „red” position – „STOP without passing the signal on stop position” by the passenger train no. 6501 (belonging to the railway passenger undertaking SNTFC „CFR Calatori”SA), and the trailing of the switch no. 13C.

The investigation report was ended on the 30th of August 2012

**Direct cause**

A human mistake appeared in the driving of the train no. 6501, that is the driver and the conductor of the train no. 6501 did not perceive the position of the route signal YP from the railway station Socola, it being on stop position (red)

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.34. The railway incident happened on the 8<sup>th</sup> of August 2012, at 12,31 o'clock, in the “Branch of the Regional center for railway operation, maintenance and repairs” Constanta, track section Fetesti – Medgidia (double electrified track), consisting in the passing of the entry signal Y and of the exit signal Y1 from the railway station Ovidiu, both of them on position – „STOP”, by the train no. 88982 – tower coach (belonging to SC Electrification Branch SA Constanta, district LC Fetesti).

The investigation report was ended on the 26th of August 2012

**Direct cause**

It is the non-stopping of the train no. 88982 – tower car – on the 8th of August 2012 at the entry signal Y from the railway station Ovidiu, on stop position.

It was possible because the human mistake appeared in the driving of the train no. 88982 – tower car, consisting in the wrong understanding of the provisions of the running order and the passing of the signals Y and Y1 on stop positions.

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.35. The railway incident happened on the 11<sup>th</sup> of August 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Constanta, consisting in the passing of the signal Y from the railway station Mircea Voda, on „red” position – „STOP without passing the signal on stop position” by the freight train no. 50544 (belonging to the railway freight undertaking SC „UNIFERTRANS”SA).

The investigation report was ended on the 26th of August 2012

**Direct cause**

It is the non-stop of the freight train no. 50544 from the 10th of August 2012 at the entry signal Y from the railway station Mircea Voda, on stop position.

It was possible because the human mistake appeared in the driving of the train no. 50544, that is the driver of the hauling locomotive did not see the plate identification of the entry signal Y from the railway station Mircea Voda

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations - none.**

- 3.4.36. The railway accident happened on the the 19<sup>th</sup> of August 2012, happened in the “Branch of the Regional center for railway operation, maintenance and repairs” Cluj, track section Jibou – Sărmășag, between the railway stations Zalău Nord and Mirșid, in the running of the freight train no. 69731 (belonging to the railway undertaking SC TRANSFEROVIAR GRUP SA Cluj-Napoca), consisting in the derailment of the first bogie, running direction, of the wagon no. 31530667181-1.

The investigation report was ended on the 25th of September 2012

**Direct cause**

In is the exceeding of the allowed report of the wheel load at the second bogie axles of the wagon in the running direction (the axles with the wheels no. 1-2, and 3-4), because of the wagon incomplete unloading (the goods from the diagonal compartment opposit the trailing wheel no. 8 was not unloaded).

It led at the transfer of the load of the trailing wheel when the bogie entered on the curve, favouring the climbing of the wheel lip on the head of the rail from the outside line of the curve, at the km 99+077 and the derailment of the axle with the wheels no. 7-8, followed by the derailment of the axle with the wheels no. 5-6.

**Contributing factors**

The running with the decreased speed of 26 m/h on a curve whose effective cant of track was of 50 mm, leading to the load transfer of the wheels from left bogie, in the running direction.

**Underlying cause - none.****Root cause - none.****Safety recommendations - none.**

- 3.4.37. The railway accident happened on the 2<sup>nd</sup> of September 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Bucuresti, in the railway station Bucuresti Triaj, Switch Cabin 17, in the running of the freight train no. 84796-1 (belonging to the railway undertaking SNTFM „CFR Marfa” SA), at its crossing over the switch no. 23, consisting in the derailment of the second bogie, in the running direction, of the wagon no. 81536653788-5, the 9th from the rear of the train.

The investigation report was ended on the 19th of November 2012

**Direct cause**

It is the unsuitable operation of the ensemble centre casting, that led to the decrease of the bogie mobility, affecting the capacity of curve running

**Underlying cause - none.****Root cause - none.****Safety recommendations - none.**

- 3.4.38. The railway accident happened on 2<sup>nd</sup> of September 2012, in the “Branch of the Regional center for railway operation, maintenance and repairs” Galati, track section Barboși – Tecuci, in the running of the freight train no. 3954 (belonging to the railway undertaking SC SERVTRANS INVEST SA), consisting in the derailment of the locomotive DA 1566, of the wagon no. 33535304474-6 and of the first bogie of the wagon 31535375368-6

The investigation report was ended on the 7th of November 2012

**Direct cause**

The direct cause of the accident is leaving of the running track as a result of entering the train no.39457 on a not allowed route and passing over a buffer stop following the decision of driver from the locomotive DA1566 to not comply with regulations on passing the signal YG2 on stop position, with „*STOP without passing the signal on stop position !*”.

**Underlying cause**

One identified the following underlying causes:

- a) the absence of communication by radio-telephone of the entry conditions, exit through the railway station, and mutual confirmation between the movements inspector and the train driver, according to article 189 of *Regulation for train running and shunting of the railway vehicles no.005*, approved by Order of Minister of Transports, Constructions and Tourism no.1816 from 26.10.2005, with further amendments and article 136 paragraph (1) of *Instructions for locomotive’s staff activity - no 201*, approved by Order of Minister of Transports, Constructions and

Tourism no.2229 of 23.11.2006, amended by the the Order of Railways Department no.36/155/1979;

- b) running of the train no.39547 with an unsuitable speed, as a result of non compliance by the driver with the provisions on maximum speed admitted in line of 5km/h, specified in the sheet for the approval of speed restrictions (BAR - 1-10 september 2012), non observance of provisions of article 125paragraph (1) of *Instructions for locomotive's staff activity - no 201*, approved by Order of Minister of Transports, Constructions and Tourism no.2229 of 23.11.2006;
- c) non performance by the disposing station movements inspector of the orders of the interlocking system to ensure early the route of the train no.39547, according to article185 and article 204,letter e, of *Regulation for train running and shunting of the railway vehicles no.005*, approved by Order of Minister of Transports, Constructions and Tourism no.1816 from 26.10.2005, as amended;
- d) the use by the railway undertaking of radio frequency improper to distribution panel in their work area, task specified at paragraph 2.3 of *Instruction regarding the efficient use of radiotelephone equipment, maintenance, operative breakdown repairs and their repair* approved by the Departmental Council with no. 322 on 26.02.1975.

#### **Root cause**

The root cause is the lack of unitary updated regulation regarding the instruction and authorization of operation staff, repair and maintenance, regarding the conditions of use of fixed radiotelephones, mobile and portable, which are applicable to all participants in the railway transport.

#### **Safety recommendations**

Since in well-defined circumstances in regulations and instructions used in running trains and shunting movements of train sets, communications by radiotelephone equipments constitutes orders or disposals which completes given orders through indication's signals used in signalisation to the romanian railway, the actualisation is recommended or, by case issuing specific reglementations applicable to communications of railway transport, to ensure the reglementation and uniform aplicability of principles and rules for using the networks in railway transport, repartition of frequencies and also of conditions for instruction and authorization of staff which operates fixed radiophones, mobile and portable, aplicable to entire participants of railway transports. (infrastructure manager , railway transport operator and railway provider.)

- 3.4.39. The railway accident happened on the 21<sup>st</sup> of November 2012, at 5,40 o'clock, in the "Branch of the Regional center for railway operation, maintenance and repairs"Constanta, track section Fetesti – Palas (double electrified line), in the railway station Medgidia, between Medgidia and Basarabi, in the running of the freight train no. 80351(belonging to the railway undertaking SC GFR SA), consisting in the hit and damage of 6derailment of the second bogie, in the running direction, of the wagon no. 81536653788-5, the 9th from the rear of the train.

The investigation report was ended on the 19th of November 2012

#### **Direct cause**

It is the broken of the outside triangle afferent to the axle 5-6 from the wheel no. 6, the third axle in the running direction of the wagon no. 33537993379-9, the 18th in the train, leading to the hit of 6 joint coils in the running of the train no. 80351, on the 21st of November 2012, on the line Medgidia-Basarabi.

The broken and fall of the outside triangle afferent to the axle 5-6, the 3rd axle of the wagon no. 33537993379-9, were generated by the upper detachment of the brake hanger afferent to the wheel no. 6, firts in the running direction, left side.

The detachment of the upper brake hanger led to the imbalance of the triangle, and because the normal brakes during the route, happened:

- contact between the ensemble brake hanger and the wheel no. 6 (lip, running surface and wheel inner surface);
- fall of the ensemble brake hanger
- damage of the left end of the triangle (gudgeon area), because the contact with the lip of the wheel no. 6 (about 40% entered in the gudgeon)
- twisting and broken of the triangle yoke, at the joint with the vertical crowbar of the brake rigging from the axle no. 5-6.
- the vertical crowbar of the brake rigging from the axle no. 5-6.

Because the missing parts could not be recovered (shoe, brake shoe key, brake hanger, vertical crowbar, bolts and fastening parts and their ensuring, afferent to the wheel no. 6), the investigation commission could not establish the cause of the detachment and fall of the upper brake hanger, implicitly the triangle brake.

**Underlying cause - none.**

**Root cause - none.**

**Safety recommendations**

Analysis of the technological reports for the technical preparation of the freight trains, in order to keep under control of the risks to non-identify deficiencies and degradations at wagons. This investigation report shall be sent to CNCF "CFR" SA Bucuresti, SC GFR SA, SC GRAMPET SERVICE SA and Romanian Railway Safety Authority.

### 3.5 Accidents and incidents investigating during the last 5 years Investigations between the years 2008-2012

Investigated accidentse <sup>(1)</sup>		2008	2009	2010	2011	2012	TOTAL
Accidents Art 19, 1 + 2)	Train collisions	-	-	3	2	-	5
	Collisions between trains and obstacles	-	-	-	-	-	-
	Train derailments	5	3	9	19	20	56
	Level crossing accidents	-	-	-	-	1	1
	Person accidents generated by the rolling stock in motion	-	-	-	-	-	-
	Rolling stock fires	-	-	2	15	2	19
	Accidents involving dangerous goods	-	-	-	-	-	-
Other accidents (Art 21.6)	Train 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	-	-	-	-	-	-
	<b>Incidents</b>	-	<b>2</b>	<b>22</b>	<b>29<sup>(2)</sup></b>	<b>16<sup>(3)</sup></b>	<b>69</b>
	<b>TOTAL</b>	<b>5</b>	<b>5</b>	<b>36</b>	<b>65</b>	<b>39</b>	<b>150</b>

<sup>(1)</sup> one took into account the year of the investigation ending;

<sup>(2)</sup> one ended also a structural subsystem failure, not-included in the total number of the incidents ended in 2011;

<sup>(3)</sup> one ended also a a failure of a interoperability constituent, not-included in the total number of the ended incidents ended in 2012.

## 4 RECOMMENDATIONS

### 4.1 Brief revision and presentation of the recommendations

Implementation of the recommendations between the years 2008-2012

Issued recommendations		Implementation of the recommendations					
		Implementation		In process		Non-implemented	
Anul	[No.]	[No.]	[%]	[No.]	[%]	[No.]	[%]
<b>2008</b>	<b>24</b>	5	20,8	-	-	19	79,2
<b>2009</b>	<b>23</b>	21	91,3	2	8,7	-	-
<b>2010</b>	<b>57</b>	39	68,4	5	8,8	13	22,8
<b>2011</b>	<b>44</b>	9	20,4	4	9,1	31	70,5
<b>2012</b>	<b>13</b>	5	39	-	-	8	61
<b>TOTAL</b>	<b>161</b>	<b>79</b>	<b>49</b>	<b>11</b>	<b>7</b>	<b>71</b>	<b>44</b>

**DIRECTOR**  
**Cristian-Marius MOȘ**