



**ROMANIAN RAILWAY AUTHORITY**

**- RRA -**

**ROMANIAN RAILWAY INVESTIGATION BODY**

**RRIB**

**ANNUAL REPORT**



## BRIEF PRESENTATION

The present report contains the activity carried out by the staff of Romanian Railway Investigating Body during the year 2008.

Romanian Railway Investigating Body was set up in accordance with the provisions of the Directive 2004/49/EC of the European Parliament, that was transposed into the Romanian legislation through the Law no. 55/16.03.2006 concerning the railway safety, adopted by the Romanian Parliament, amended by the provisions of the Romanian Government Decision no. 1561/21.11.2006 for the amendment of the Government Decision no. 626/1998 on the organization and functioning of Romanian Railway Authority – AFER.

Romanian Railway Investigating Body started its activity on the 1<sup>st</sup> of March 2007 when its organization structure was approved by the Minister of Transport's Order no. 373/01.03.2007.

The purpose of the Romanian Railway Investigating Body setting up, as independent body in the organization structure of the Romanian Railway authority – AFER is to improve the Romanian railway safety.

This purpose is achieved by the Romanian Railway Investigating Body through:

- performance of some investigations in order to establish the causes that led to the serious accidents occurrence, including the technical failures of the structural subsystems or of the interoperability constituents, belonging to the Romanian railway systems;
- issuing of the safety recommendations in order to prevent the occurrence of similar accidents.

Romanian Railway Investigating Body pays attention, apart of the serious railway accidents that generated deaths, injured persons or important material damages, to those railway accidents and incidents, which in slight different conditions, could lead to serious accidents, including the technical failures of the structural subsystems or of the interoperability constituents from the Romanian railway system.

From the analysis of the recommendations does not result that the actions carried out by Romanian Railway Investigating Body were recognized by the Romanian infrastructure managers and undertakings as being useful. It is explained by their inertia in accepting our recommendations. Acceptance of a neutral body that by its performed investigations and issued recommendations has effects in the transports activity and its connections, in some cases, is very difficult.

In order to eliminate this impediment, Romanian Railway Investigating Body, according to the provisions of the Safety Directive, initiated the Government Decision project for the approval of the “Regulations for the investigation of the railway accidents and incidents, for the development and the improvement of the Romanian railway safety”.

When this report was drawn up, Romanian Railway Investigating Body is at an advanced stage of approval and promotion by Government Decision of the “Regulations for the railway accidents and incidents investigation, for the development and improvement of the Romanian railway safety”, these regulations that will replace the present principles and the procedures stipulated in “Instructions for the prevention and investigation of the railway accidents and events no. 003/2000” that stipulate as the investigation of the causes leading to the railway accidents, guilty establishment and covering the damages be performed by the commission (called investigation commission), with the new principles and procedures for the railway accidents and incidents, investigation as they are defined in the Directive 2004/49/EC of the European Parliament and Council.

Because of the Safety Directive principles concerning the investigation status and the purpose of the investigations are not included in the provisions of the present instructions, there was very necessary to be issued this new regulations and the Government Decision project for its endorsement for approval.

The originality of these regulations consists in that, upon the Minister of Transport and Infrastructure request, the Safety Directive provisions shall be applied to the subway field.

The major impediment in the acceptance of the new regulations by the system was that Romanian Railway Investigating Body, through its investigations, does not establish the guilty of the staff involved in the railway accidents and incidents occurrence.

The purpose of Romanian Railway Investigating Body actions, according to the Directive 2004/49/EC is to improve the safety on the Romanian railway network performing investigations and issuing safety recommendations in order to prevent the occurrence of some similar railway accidents and not to establish the guilty or the damages. These responsibilities are incumbent of other Romanian institutions.

From the beginning of March 2007 (setting up moment) up to the moment of the report drawing up, Romanian Railway Investigating Body performed 5 investigations and issued 24 safety recommendations.

Unfortunately in 2 of the serious accidents there were deaths and injured persons, in one case died a person, in another case were a died person and the 4 serious injured persons, the last one was analyzed by the media.

The analysis of the circumstances and causes that led to the accidents occurrence proved that these do not occurred many times due to a single cause. Their occurrence is due also to the safety management that allowed to keep some deficiencies.

The completion of the investigations consists in the drawing up of the investigation reports, that the Romanian Railway Investigating Body publishes on its site, proving in a such way the availability concerning the transparency of this information.

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## B. INTRODUCTION

The achievements of Romanian Railway Investigating Body for the analyzed period of 12 months are the results of the activity of 11 employees.

### B.1. Report introduction

The objectives of the annual report are:

- presentation of Romanian Railway Investigating Body, its role and objectives;
- stage of the Safety Directive implementation
- overview of Romanian Railway Investigating Body – OIFR and its relationships with other authorities .

Romanian Railway Investigating Body was set up at the beginning of 2006, following the adoption by the Romanian Parliament of the Law no. 55/16.03.2006 (amended by the provisions of the Romanian Government Decision no. 1561/21.11.2006 for the amendment of the Government Decision no. 626/1998 concerning the organization and functioning of Romanian Railway Authority – AFER) through which the provisions of the Directive 2004/49/EC of the European Parliament and Council concerning the railway safety were transposed.

Romanian Railway Investigating Body is part of the organization structure of Romanian Railway Authority – AFER and it is an independent body in the organization, legal structure and decisions making of any infrastructure administrator, railway undertaking, being independent, from the functional point of view, of Romanian Railway Safety Authority and of any regulation authority from the railway field.

Romanian Railway Investigating Body is independent of any public prosecuting body, its actions concerning exclusively railway safety, in order to improve it. This body has no tasks in the investigation of the guilty persons or of any responsibilities.

Legal issues concerning the infringements, as well as prosecuting issues, are the activity object of some public institutions with competences in this field. Romanian Railway Investigating Body, by its tasks, does not influence any way the activity of these institutions.

Romanian Railway Investigating Body was set up in order to carry out investigations of the railway serious accidents, its object being the improvement of the railway safety and the prevention of the accidents.

The purpose for which was set up Romanian Railway Investigating Body is established by the Safety Directive and is achieved by:

- performance of some investigations whose purpose is to establish the causes and circumstances of the serious accidents occurrence, as well as those accidents and incidents that in slight different conditions could lead to serious accidents, including technical failures of the structural subsystems or of the interoperability constituents;
- issuing of safety recommendations whose purpose is to prevent the accidents;
- supplying of assistance in the investigations performed by similar bodies from European Union, when it is requested;
- sharing of experience from the railway accidents/incidents investigation;
- Organization of meetings between the specialized bodies of European Union and the representatives of different actors from the Romanian railway field (undertakings, infrastructure managers, railway suppliers and public institutions) in order to achieve an information change in the railway field.

Romanian Railway Investigating Body carries out its activity in Romanian field where are operated:

- railway interoperable infrastructure;
- railway non-interoperable infrastructure;
- railway private infrastructure that is not exclusively used by its owner.





			derailment of the first bogie of the wagon no. 33535495059-3 (the 19 <sup>th</sup> wagon from the locomotive), in the direction of running	between the wheels loads 1.2 of this axle (real 1:2.43, maximum accepted 1:1.25) because of the loading and non-suitable ensuring of the goods.
3	The 18 <sup>th</sup> of April 2008	Railway station Livezeni Ciuc Halt Paltinis	Between the railway station Livezeni Ciuc and the movement halt Paltinis happened the derailment of the first axle of the locomotive EA 690, which run as banking locomotive of the freight train no. 60828, hauled by the locomotive EA 734	Compaction because of the traffic of the connection zone between the performed work on the bridge Utusoiu and the track bed, at the end of the pack wall appeared a ramp of 1/96
4.	The 26 <sup>th</sup> of My 2008	Halt Mogoseni	At the entrance of the passenger train no. 4483 in the movement halt Mogoseni, at the switch no. 5 happened the derailment of the first axle (axle no. 6) of the locomotive EA 826, in the direction of running	Destruction of the line because of the load, being the unsuitable sleepers
5	The 22 <sup>nd</sup> of July 2008	Railway station Lumina	The first bogie of the empty wagon no. 33870821328-1 ( the 10 <sup>th</sup> from the locomotive ), belonging to the freight train no. 59213 derailed	The non-suitable maintenance of the line
6	The 27 <sup>th</sup> of July 2008	Railway station Palas	The locomotive DA 1383, in its running from the signal M 22 to the line no. 3, occupied by the freight train 64752, collided very seriously with the last wagon of this train, it led to the derailment of one axle of the wagons no. 315393390887 (the second from the locomotive) and no. 315393331311 (the third from the locomotive)	Collision happened because the fact that the driver did not establish a correlation between the running speed of the locomotive DA 1383 and the available free distance
7	The 29 <sup>th</sup> of July 2008	Railway station Targu Jiu	The derailment of the first bogie of the wagon no. 31835320080-7 in the direction of running (loaded with steel cakes), the 8 <sup>th</sup> in the formation of the freight train no. 60432, over the switch no. 12 of the railway station	The turned and displaced tyre because of the unsuitable tightening
8	The 27 <sup>th</sup> of August 2008	Movement Halt Recea	At the passing of the freight train no. 42402-1 on the deflecting section 2 it was happened the derailment of the	Non-performance of the packing of sleepers works necessary at the heel joint of the points and crossing

			2 <sup>nd</sup> bogie of the wagon series Sgns no. 315345560165 (the 8 <sup>th</sup> from the locomotive), in the direction of running, loaded with an empty transcontainer	
9	The 20 <sup>th</sup> of September 2008	Railway station Motru Est-Movement Halt Jirov	In the running of the freight train no. 93845, hauled by the locomotive EA 675 happened the derailment of both bogies of the wagon no. 825366540102 and of one bogie of the wagon no. 825366534147 (the 11 <sup>th</sup> and the 12 <sup>th</sup> wagon from the train formation)	The LENOIR system from the leading bogie of the wagon became stuck
10	The 22 <sup>nd</sup> of September 2008	Railway station Sinaia	In the running of the freight train no. 80422 happened the derailment of all the axles of the hauling locomotive EA 1081, on the switch no. 7 from the railway station (the locomotive run derailed up to the switch 3/5)	Existence of a lateral shoulder of 6 mm at the top joint of the crossing no. 7, joint insulated with stratified wood isolating rail joint, fastened in a rail clip and of a vertical shoulder of 10 mm at the other isolated joint corroborated with loosen fastening in the joint area and in the built up common crossing area.
11	The 6 <sup>th</sup> of October 2008	Railway station Fetesti	In the running of the freight train no. 70661 there was happened the derailment of the first bogie of the wagon no. 885366565608 (the second wagon from the locomotive), loaded with granulated slag	The asymmetrical loading of the goods in the wagon
12	The 21 <sup>st</sup> of October 2008	Railway station Berceni	At the stabling of the freight train no. 92205 in the railway station Berceni, on the line 6 happened the derailment of the axle 3 of the wagon no. 815366533348 (the 21 <sup>st</sup> from the locomotive, loaded) at about 100 m against the safety mark, due to the firing and break of the axle journal, respectively the falling of the axle bearing from the wheel 6	The break of the axle journal no. 6 from the axle no. 3 of the wagon no. 815366533348
13	The 23 <sup>rd</sup> of October 2008	Railway stations Brasov - Darse	The derailment of one bogie of the 4 <sup>th</sup> wagon from the locomotive, no. 315354754774 (loaded with copper concentrate – bulk) from the formation of	The asymmetrical loading of the wagon



			the freight train no. 71882	
14	The 23 <sup>rd</sup> of October 2008	Railway station Ploiesti Triaj	At the entrance in the railway station of the freight train no. 32503 on the line 3A, in the area of the switch no. 109 happened the bumping of the freight train no. 32503 by a rake of wagons. Following the collision happened the derailment of one bogie of the 2 <sup>nd</sup> wagon from the train rear (no. 31535494245-2 / empty) and its support on a catenary support, respectively the derailment of both bogies of the 3 <sup>rd</sup> wagon from the train rear (no. 31535483843-7-empty) and the brake of the traction coupling of the 10 <sup>th</sup> wagon (no. 31535493292-5)	The start of the rake of wagons running on the line 5A by the driver, with the electric locomotive EA 380, with one driver, without be sure about the colour - light signals position, followed by the passing of the signal Y5A whose position was "stop without pass the signal"
15	The 19 <sup>th</sup> of November 2008	Medgidia PC2	During the running of the freight train no. 59476 consisting in 33 wagons happened the derailment of the first bogie of the wagon no. 3387082139177 (the 7 <sup>th</sup> from the train rear) loaded, in the direction of running	<ul style="list-style-type: none"> <li>a) The over-loading of the inner rail of the curve because of the over-cant in the curve.</li> <li>b) The overload of the fastening rail-sleeper following the running of wagons with exceeded axle load in the trains running between the 14<sup>th</sup> and the 19<sup>th</sup> of November 2008, including the train no. 59476 from the 19<sup>th</sup> of November 2008.</li> <li>c) The complete wear (at the bogie no. 1-4) and advanced wear (at the bogie 5-8) of the wearing plates Railko that led to a critical operation of the centre casting of the wagon no. 33870821391-7</li> </ul>
16	The 29 <sup>th</sup> of November 2008	The non-interoperable track section Dorobantu-Romcim Medgidia	In the running of the freight train no. 59480 (belonging to the undertaking SC UNIFERTRANS SA Bucuresti), consisting in 35 wagons, hauled by the locomotive DA 1186 and the	1) The over-loading of the inner rail of the curve because of the present over-cant in the curve, of the running with low speed and of the train running way (only by

			<p>banking locomotive DA 952 happened the derailment of 3 wagons from the formation of the train (the 6<sup>th</sup>, the 7<sup>th</sup> and the 8<sup>th</sup> from the end of the train), loaded as follows:</p> <ul style="list-style-type: none"> <li>- the first bogie in the direction of running and one axle of the second bogie of the wagon no 338708213297 (the 6<sup>th</sup> from the train rear) derailed ;</li> <li>- the wagons no. 338708213842 (the 7<sup>th</sup> from the train rear) and no. 338708213677 (the 8<sup>th</sup> from the train rear) overturn from the bridge over the Channel Dunare – Marea Neagra on the running lines I and II of the main line 800 (Bucuresti – Constanta) perpendicularly on the track centre, so the running line between the railway stations Medgidia – Dorobantu was closed (the line I was closed for rehabilitation works of the pan-European corridor IV).</li> </ul>	<p>banking);</p> <ol style="list-style-type: none"> <li>2) The loosening of the fastening rail-sleeper and the brake of the special wooden sleepers for the points and crossings following their collision with the derailed rolling stock wheels on the 19<sup>th</sup> of November 2008;</li> <li>3) Overload of the fastening rail-sleeper following the running of the wagons with exceeded axle load in the formation of the freight train no 59214 on the 19<sup>th</sup> of November 2008, after reopening the traffic with speed restriction of 5 km/h, following the railway event on the 19<sup>th</sup> of November 2008;</li> <li>4) Derailment of the wagon no. 33870821384-2 , generated by the derailed wagon no. 338708213329-7, with the locked centre casting;</li> <li>5) The running in the curve of small radius and high overcast of the wagons with the high centre of gravity (wagons series Tads) that can become unstable when they are in the formation of the trains with low running speed</li> </ol>
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#### Train collisions, including collisions with obstacles in the structure clearance

Current no.	Date of occurrence	Place of occurrence	Short description	Cause
1.	January 9,2008	Pucioasa railway station-Vulcana Pandele movement	The train no.9434 (hauled with the locomotive DA 769) encountered and hit an unsupervised horse within the structure	An unsupervised horse entered in the structure clearance gauge.

		halt	clearance gauge, fact that led to the damaging of the locomotive's air tube.	
2.	January 16, 2008	CFR Plopsoru railway station-Rovinari railway station	The locomotive EA 806 that hauled the passenger train no. 1724 encountered and hit an unsupervised horse in the structure clearance gauge, fact that led to the damaging of the locomotive air tubes of 5 and 10 atmospheres.	An unsupervised horse entered in the structure clearance gauge.
3.	January 21, 2008	CFR Siculeni railway station-Izvoru Oltului railway station	The locomotive EA 919 that hauled the passenger train no.4504 hit a sledge loaded with wood, left in the structure clearance gauge.	A sledge loaded with wood was left in the structure clearance gauge.
4.	January 28,2008	Bacau railway station-Garleni movement halt	The passenger train no. 657 hit two unsupervised horses left in the structure clearance gauge, fact that led to the breaking of the air tube of 10 atmospheres from the unit brake of the locomotive.	Two horses entered in the structure clearance gauge.
5.	January 30,2008	Cogealac railway station- Mihai Viteazu movement halt	The passenger train no. 8654 hit a cart with animal traction, abandoned in the structure clearance gauge.	A cart entered in the structure clearance gauge.
6.	January 31, 2008	Jegalia railway station-Baraganu movement halt	The train no.80427 encountered and hit a horse in the structure clearance gauge.	A horse entered in the structure clearance gauge
7.	February 14,2008	Lunca de Mijloc movement halt	The tip lorry having the matriculation number HR 03 PHH, which its tipping body raised up during circulation hit the railway platform at	Raising the tipping body of the tip lorry during circulation and striking the railway art works.

			the km 116+910 leading to the breaking and falling of some pieces from the platform parapet in the structure clearance gauge that previously were hit by the locomotive EA 689 (belonging to the Engine shed Galati) that was hauling the train no.5214.	
8.	March 10,2008	Fieni railway station – Pucioasa railway station	The passenger train no. 1882 composed of the motorised train DESIRO no.2071 encountered and deadly hit an unsupervised horse in the structure clearance gauge.	A horse entered in the structure clearance gauge
9.	April 5, 2008	Craiova railway station-Filiasi	The freight train no. 27217 composed of the isolated locomotive no.EA 616 encountered and hit an unsupervised horse in the structure clearance gauge.	A horse entered in the structure clearance gauge
10.	April 12, 2008	Campina railway station-Floresti Prahova movement halt	The freight train no. 83452, hauled with the locomotive EA 673, encountered and hit an unsupervised horse in the structure clearance gauge.	An unsupervised horse entered in the structure clearance gauge.
11.	April 17, 2008	Doicesti railway station – Vulcana movement halt	The train no.1887 encountered and hit an unsupervised cow in the structure clearance gauge.	A cow entered in the structure clearance gauge.
12.	April 27, 2008	Carbunesti railway station – Jupanesti movement halt	The freight train no. 91318 encountered and hit an unsupervised horse in the structure clearance gauge, fact that led to the breaking of the air cocks of 5 and 10 atmospheres.	An unsupervised horse entered in the structure clearance gauge.
13.	April 27, 2008	Campina railway	The passenger train no. 1622 encountered and	A flock of sheep entered in the structure

		station-Floresti Prahova	hit a flock of sheep , fact that led to the air cock breaking from the air reservoir.	clearance gauge.
14.	May 3, 2008	Chitila railway station-Buftea railway station	The passenger train no. 3011 encountered and hit an unsupervised horse in the structure clearance gauge, fact that led to the damaging of the locomotive's pipe of 5 atmospheres of the locomotive EA 772 that was hauling the train.	A horse entered in the structure clearance gauge.
15.	May 3, 2008	Valea Putnei movement halt- Pojorata	The passenger train no. 1654 encountered and hit a deer in the structure clearance gauge, fact that led to the damaging of the air reservoir of the locomotive EA 758.	A deer entered in the structure clearance gauge.
16.	June the first, 2008	Pietrosita railway station-Tepes Voda movement halt	The passenger train no. 1884 composed of the motorised train Desiro 2076 encountered and hit an unsupervised horse in the structure clearance gauge.	A horse entered in the structure clearance gauge.
17.	June 24,2008	Dumbrava Barsei movement halt- Codlea	The passenger train no. 626 encountered and hit two unsupervised horses in the structure clearance gauge.	Two horses entered in the structure clearance gauge.
18.	June 25,2008	CFR Fetesti railway station-Borcea movement halt	The freight train no. 13944 encountered and hit an unsupervised horse in the structure clearance gauge.	A horse entered in the structure clearance gauge.
19.	June 25,2008	CFR Fetesti railway station-Borcea movement halt	The freight train no. 12274 encountered and hit an unsupervised horse in the structure clearance gauge.	A horse entered in the structure clearance gauge.
20.	July 7, 2008	CFR Filiasi railway station	The passenger train no. 1372-1, hauled with the locomotive no. EA 080 encountered and hit	A cattle herd entered in the structure clearance gauge.



			four unsupervised cows in the structure clearance gauge, fact that led to the damaging of the air pipe of 5 atmospheres of the locomotive EA 080.	
21.	The 7th of July 2008	Tâmna railway station – Igiroasa movement halt	The passenger train no. 12193, hauled with the locomotive no. EA 147 met and hit in the structure clearance 2 unwatched bovines, it led to the damaging of the pipes of 5 and 10 atmospheres of the locomotive EA 147.	Entrance of two bovine in the structure gauge
22.	The 11th of July 2008	Ogoarele halt – Perisora movements halt	The passenger train no. 1681, hauled by the locomotive no. EA 379 met and hit in the structure clearance an unwatched bovine, it led to the breaking of the coupling of the inductor from the armatures equipment of the locomotive EA 379	Entrance of a bovine in the structure gauge
23.	The 14th of July 2008	Radomiresti – Mihailesti movement halt	The passenger train no. 12193, hauled by the locomotive no. EA 147 met and hit in the structure gauge an unwatched flock of sheep	Entrance of a flock of sheep in the structure clearance
24.	The 27th of July 2008	Codlea – Dumbravita movement halt	The passenger train no. 2101 hit in the structure clearance an unwatched horse, it led to the damaging of the pipe of 10 atmospheres of the air plant of the locomotive	Entrance of a horse in the structure clearance
25.	The 31st of July 2008	Carbunesti railway station - Jupanesti movement halt	The passenger train no. 2095 met and hit in the structure clearance an unwatched horse, it led to the damaging of the pipe of 10 atmospheres of the locomotive air	Entrance of a horse in the structure clearance

			plant	
26.	The 4th of August 2008	Monor Gledin railway station - Rapa de Jos movement halt	The passenger train no. 407 - 2 met and hit in the structure clearance a bear	Entrance of a bear in the structure clearance
27	The 11th of August 2008	Derin halt – Medgidia railway station	The train 8652 hit with the locomotive stairs a tree falled in the structure clearance	Falling of a tree in the structure clearance
28.	The 17th of September 2008	Gaesti railway station – Matasaru movement halt	The passenger train no. 9008 met and hit in the structure clearance an unwatched horse, it led to the damaging of the locomotive air half-couplings	Entrance of a horse in the structure clearance
29.	The 28th of September 2008	Rosiori Nord railway station – Maldaeni movement halt	Passenger train no. 9397 met and hit an unwatched bovine in the structure clearance	Entrance of a bovine in the structure clearance
30.	The 8th of October 2008	Mureni movement halt – Vanatori railway station	The passenger train no. 1746 met and hit two unwatched horses in the structure clearance, it led to the breaking of the locomotive air pipes	Entrance of 2 horses in the structure clearance
31	The 10th of October 2008	Turnisor – Cristian Sibiu movement halt	Passenger train no. 2413 met and hit a bovine in the structure clearance	Entrance of a bovine in the structure clearance
32	The 21st of October 2008	Rupea railway station – Racos movement halt	The freight train no. 23721 met and hit an unwatched bovine in the structure clearance, it leading to the breaking of the general pipe of the locomotive EA 698	Entrance of a bovine in the structure clearance
33	The 14th of November 2008	Valea Lunga railway station – Campu Libertatii movement halt	Passenger train no. 346-1 met and hit a deer in the structure clearance, it led to the breaking of the air cocks of 5 and 10 bars of the locomotive	Entrance of a deer in the structure clearance
34	The 27th of November	Videle railway	Passenger train no. 1824, hauled by EA	Entrance of a horse in the structure clearance

	2008	station	318, having entry order on the line 3, met and hit an unwatched horse in the structure clearance	
35.	The 21st of December 2008	Bals railway station – Robanesti movement halt	Passenger train no. 1896 consisting in motorised trains DESIRO no. 2007 and no. 2054, met and hit an unwatched horse in the structure clearance	Entrance of an unwatched horse in the structure clearance.

Further below we present you an information situation of the train derailments, occurred following the individuals purpose to disturb the transports or to damage railway material goods.

No.	Occurrence date	Occurrence place	Brief presentation	Cause
1	The 2nd of April 2008	Mirsid movement halt	At the exit of the freight train no. 43613 hauled by the locomotive DA 1314 and the banking locomotive DA 746, from the deflecting section 3, belonging to the movements halt Mirsid, in the area of the switch no. 2/6 there occurred the derailment of one axle of the wagon no. 81537880784-7 (the 4th from the signal), the derailment of one axle of the wagon no. 81537880872-0 (the 5th wagon from the signal), the derailment and the overturning on the right side of the running direction of the wagon no. 81537882854-6 (the 7th from the signal), the derailment and the overturning on the left side of the running direction of the wagon no.	Detachment and theft of the metallic elements for the fastening of the check rail by the unidentified persons, it leading to the canting of it to the rail, followed by the running of the wheel flange on the check rail and movement of the wagon in the crossing area, on the direct line instead of the check line

			82537889029-7 (the 8th wagon from the signal )	
2	The 16th of April 2008	Palas railway station	At the entrance in the railway station Palas of the freight train no. 82701 occurred the derailment of the first bogie in the running direction of the empty wagon no. 85537882555-5, the 11th from the signal in the train forming.	The theft by the unidentified persons of stop-block and of the block holder from the left side of the first axle of the first bogie from the derailed wagon.

We also present you below the derailments occurred following the train collision with obstructions in the clearance ( unwatched animals or rocks ), but which were not taken into account in the train derailments situation from the safety indicators for the year 2008. In these situations the railway staff is responsible with the notification of the Railway Police concerning the occurrence of these acts, and the Railway Police, together with other entitled public institutions proceed to the identification of the possible guilty persons in order to cover the damages happened at the railway vehicles or at the railway infrastrucrure.

No.	Occurrence date	Occurrence place	Brief presentation	Cause
1.	The 8th of February 2008	The railway stations Barabant - Zlatna	The derailment of the first axle in the running direction of the motorised train AM 4508 which formed the passenger train no. 14894	Falling in the structure clearance of some boulders from the slopes
2.	The 18th of April 2008	The railway stations Voiteni - Gataia	The motorised train AM 4514103-6 which run as passenger train no. 14666 met and hit a flock of sheep in the structure clearance. Following the impact there occurred the derailment of the axle no. 2 of the motorised train	Entrance of a flock of sheep in the structure clearance and its hitting by the train
3.	The 19th of September 2008	The railway station Zarnesti - Rasnov movement halt	The passenger train no. 14712 (consisting in the motorised train X4500 no. 4524 and 2 wagons) met and hit an unwatched flock of	Entrance and hitting of a flock of sheep in the structure clearance

			sheep. Following the impact there occurred the derailment of the first axle in the running direction of the first wagon	
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### **B.3. Philosophy of the accidents investigation**

#### **B.3.1. Generalities**

From the date of the Safety Directive transposing up to the date of this report drawing up, in Romanian, according to the legislation in force, there are 2 different activities concerning the railway accidents and incidents:

- railway accidents and events prevention and inquiry, carried out in accordance with the provisions of the Instructions for the railway accidents and events prevention and inquiry no. 003/2000, approved by the Minister of Transports' Order no. 210/14.03.2000;
- railway accidents and incidents investigation, carried out in accordance with the provisions of the Law no. 55/16.03.2006 concerning the railway safety, amended by the provisions of the Romanian Government Decision no. 1561/12.11.2006 for the amendment of the Government Decision no. 626/1998 concerning the organization and functioning of Romanian Railway Authority – AFER, this law being the transposed Directive 2004/49/EC of the European Parliament and Council..

Although these two activities are different, they have as common subject to establish the causes that led to the railway events occurrence (railway event is both the railway accident and the railway incident) and to establish the prevention measures in order to prevent the occurrence of some similar ones.

In order to be legal and to comply strictly with the provisions of the Safety Directive, Romanian Railway Investigating Body:

- started and drew up the text of the „Regulations for the investigation of the railway accidents and incidents, for the development and improvement of the Romanian railway safety”, that was analyzed and established together with the economic companies which run railway or subway transports and defined as being:
  - o railway infrastructure administrator, that is Railway National Company CN „CFR” SA;
  - o non-interoperable railway infrastructure managers;
  - o railway undertakings;
  - o Subway Transport Company Bucuresti „Metrorex” SA;
  - o economic companies which own, have in lease or hire, industrial lines connected to the public railway infrastructure and/or private railway infrastructure opened for running;
  - o economic companies that own or hire railway vehicles which run on the railway infrastructure;
  - o economic companies that carry out railway connected and adjoining activities.
- a project of a government decision for the approval of the „Regulations for the investigation of the railway accidents and incidents, for the development and improvement of the Romanian railway safety” and for the cancellation of the Minister of Transports' Order no. 210/14.03.2000 that approves the Instructions for the prevention and inquiry of the railway accidents and events no. 003/2000.

Before the approval of the new regulations, these two activities are carried out simultaneously.



### B.3.2. Railway accidents and events inquiry

In Romania all the railway accidents and events are inquired according to the provisions of the Instructions for the prevention and inquiry of the railway events no. 003/2000.

At the moment of this report drawing up, the prevention and inquiry of the railway accidents and events are carried out or, if case, managed, by Romanian Railway Safety Authority – ASFR, according to the provisions of the Instructions for the prevention and inquiry of the railway accidents and events no. 003/2000, approved by Minister of Transports' Order no. 210/14.03.2000.

According to these instructions there is stipulated the next:

- the inquiry of the railway accidents and events consists in an ensemble of activities for the establishment of the circumstances of the occurrence, causes, infringements, guilties and the necessary prevention actions;
- the inquiry of the railway accidents and events is performed, for each situation, by an inquiry commission. The president and the members of the inquiry commission are established, for each situation, according to the provisions of the annex 1 of this instruction.

The result of the commission activity is the drawing up of the inquiry report, consisting in:

- ❖ inquiry report whose content consists in:
  - recording of the railway accidents and event according to the classification on categories established in accordance with the gravity, effects, damages value;
  - the presentation of the railway accident or event occurrence;
  - its effects;
  - material damages value;
  - causes that led to the railway accident or event occurrence;
  - guilties, penalties and proposed actions;
  - all the documents collected by the inquiry commission that are the basis in the drawing up of the report.
- ❖ one stipulates that the activity of the inquiry commission is performed independent of the investigation commission.
- the inquiry is ended when the inquiry report is drawn up, ended;
- copies of the inquiry files are sent by the commission president to the managers of the economic companies involved in the occurrence of the railway accidents and events, in order to apply the penalties and the established actions.

With reference to the inquiry files, the Instructions 003/2000 in force also stipulate as follows:

- the files for the inquiry of the railway accidents are mandatory sent by the Railway State Inspectorate of Romanian Railway Authority, to the prosecutor's offices under whose responsibility is the area where occurred the railway events;
- the files for the inquiry of the railway events, recorded according to the instructions in the class of those very serious groups A1 – A3, will be obligatorily sent by the manager of the economic company whose staff is guilty for their occurrence, to the prosecutor's offices under whose responsibility is the area where occurred the railway events;
- the files for the inquiry of the other railway events can be sent to the prosecutor's offices under whose responsibility is the area where occurred the railway events, when the manager of the economic company whose staff is guilty for their occurrence consider it necessary;
- the measures to be adopted, will be taken irrespective of the application of the disciplinary penalties.

According to the provisions art. 3, paragraph (2), point n from the Regulations for the organization and functioning of Romanian Railway Safety Authority, stipulated in the annex no. 1 of the Romanian Government Decision no. 1561/2006 for the amendment of the Government

Decision no. 626/1998 concerning the organization and functioning of Romanian Railway Authority – AFER, Romanian Railway Safety Authority – ASFR inquire the railway accidents and ends the inquiry of the other railway events in case of divergence between the involved parties, including the subway transport.

Also, according to the provisions art. 3, paragraph (2), point o of the same annex, Romanian Railway Safety Authority – ASFR notifies Romanian Railway Investigating Body about the occurrence of the railway events.

### **B.3.3. Investigation of railway accidents and incidents**

The investigation of the railway accidents and incidents is performed in accordance with the provisions of the Law no. 55/2006 concerning the railway safety, amended by the provisions of the Romanian Government Decision no. 1561/2006 for the amendment of the Government Decision no. 626/1998 concerning the organization and functioning of Romanian Railway Authority – AFER. These legal papers transpose into the Romanian legislation the Directive 2004/49/EC of the European Parliament and Council.

In accordance with the provisions of the point p, art. 3, chapter I from the Law no. 55/2006 concerning the railway safety, investigation is a process performed in order to prevent the railway accidents and incidents, that consists in gathering and analyzing the information, establishing the conditions of their occurrence, including establishing the causes and, if case, issuing some safety recommendations.

In accordance with the provisions of the art. 19, chapter V of the Law 55/2006 concerning the railway safety, Romanian Railway Investigating Body performs an investigation of the serious railway accidents, its purpose is to improve the railway safety and to prevent the accidents.

Romanian Railway Investigating Body can investigate besides the serious accidents, those accidents and incidents that in slight different conditions could have lead to serious accidents, including the technical failures of the structural subsystems or of the interoperability constituents of the European high speed or conventional systems.

Romanian Railway Investigating Body decides, as properly, if an investigation of a such accident or incident is performed, taking into account in its decision the next:

- a) the gravity of the accident or incident;
- b) if it is part of a series of accidents or incidents, relevant for the whole system;
- c) its impact on the community safety;
- d) applications of the infrastructure administrator, railway undertakings, Romanian Railway Safety Authority or of the European Union member states.

The investigation does not aim to establish the guilt or the responsibility.

In accordance with the provisions of art. 20, chapter V of the law 55/2006 concerning the railway safety, the investigation status is:

- 1) investigation has legal status of administrative paper, allowing to the main investigators to meet with the tasks as efficiently as possible and in the shortest time as possible;
- 2) according to the legislation in force and, if case, in cooperation with the responsible authorities for the juridical investigation, the investigators will be able as soon as possible :
  - a) to have access to the accident or incident place, as well as to the involved rolling stock, respective infrastructure and to the equipments for the control of the traffic and for signaling;
  - b) the have the right to draw up a list of the proves and to remove under control the vehicles, equipments or the parts of the infrastructure in order to be examined or analyzed;
  - c) to have the access to/and the use of the records of the on-board recording equipments and of the equipments for the record of the verbal messages and for the record of the functioning of the signalling and traffic control system

- d) to have access to the results of the victim bodies examination;
  - e) to have access to the results of the train staff examination and of other railway staff examination, staff involved in the accident or incident;
  - f) to have the possibility to question the railway involved staff and other witnesses;
  - g) to have access to any relevant information or records got by the infrastructure administrator, railway undertakings and Romanian Railway Safety Authority.
- 3) investigation is performed irrespective of any juridical investigation;
- 4) in the investigation process Romanian Railway Investigating Body can, if necessary, to use specialists from connected fields.

#### **B.4. Directive 2004/49/EC of the European Parliament and Council, implementation achievement**

In order to harmonize the regulation framework from the railway safety field with that of the European Union member states, Romanian Parliament adopted the Law no. 55 from the 16th of March 2006 concerning the railway safety, through this law is achieved the development and the improvement of the Romanian railway safety, with incidences in the improvement of the railway transport services.

On the 1st of November 2006 was issued the Romanian Government Decision no. 1561 for the amendment of the Government Decision no. 626/1998 concerning the organization and functioning of Romanian Railway authority – AFER.

In order to comply with the tasks according to the provisions of these legal papers, there was necessary to re-organize Romanian Railway Authority, on the 21st of November 2006, when Romanian Government Decision no. 1561 came into force.

Starting with this date and in accordance with the provisions of the Law no. 55/2006 concerning the railway safety, in Romanian Railway Authority – AFER were set up 4 independent bodies with permanent activity, namely:

- Romanian Railway Safety Authority – ASFR;
- Romanian Railway Notified Body – ONFR;
- Romanian Railway Investigating Body – OIFR;
- Romanian Railwai Licensing Body – OLFR.

The tasks of these independent bodies are established by organization and functioning regulations, stipulated in the annexes of the Regulations for the organization and functioning of Romanian Railway Authority – AFER

As a result of a new concept put into force in the railway field by the Law no. 55/2006, that is „ investigation of the accidents and incidents” as well as of the innovations concerning their achievement, there was necessary to replace the present Instructions for the prevention and inquiry of the railway accidents and events no. 003/2000.

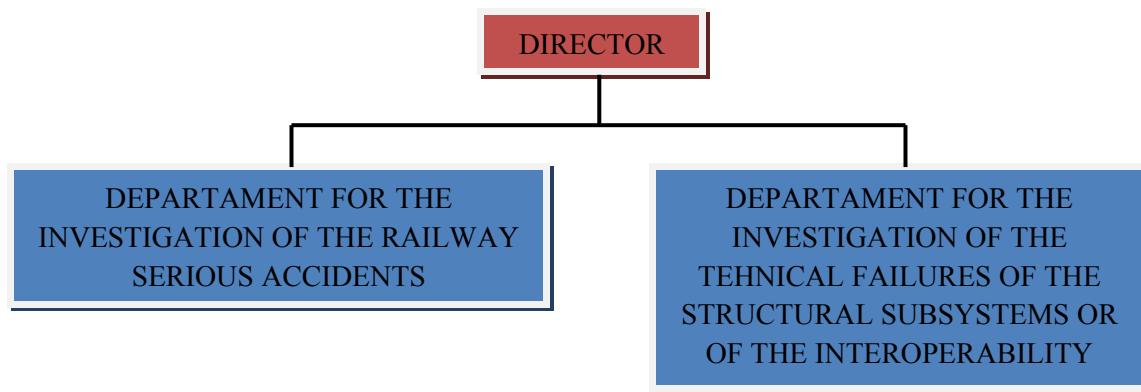
### **C. Organization**

#### **C.1. General presentation**

According to the provisions of the Law no. 55/2006 concerning the railway safety and of the Government Decision no. 1561/01.11.2006 concerning the amendment of the Government Decision no. 626/1998 concerning the organization and functioning of Romanian Railway Authority – AFER, Romanian Railway Investigating Body – OIFR is an independent body of Romanian Railway Authority – AFER, appointed to perform the next activities:

- investigates the serious railway accidents;
- investigates other accidents and incidents that in slight different conditions could lead to serious accidents;

- investigates technical failures of the structural subsystems or of the interoperability constituents of the European high speed or conventional railway systems;
- can ask for or offer support to the similar investigating bodies from other European Union member states or European Railway Agency in order to offer competences or to perform technical inspections, analysis or assessments;
- draws up yearly a report on its activities carried out in the previous year, that is published in AFER Journal and on its site and sends it to the European Railway Agency no later than the 30th of September; it also publishes the final reports of the performed investigations in AFER Journal and on its site and sends them to the European Railway Agency;
- other tasks specific to its activity field, given to it through legal papers.

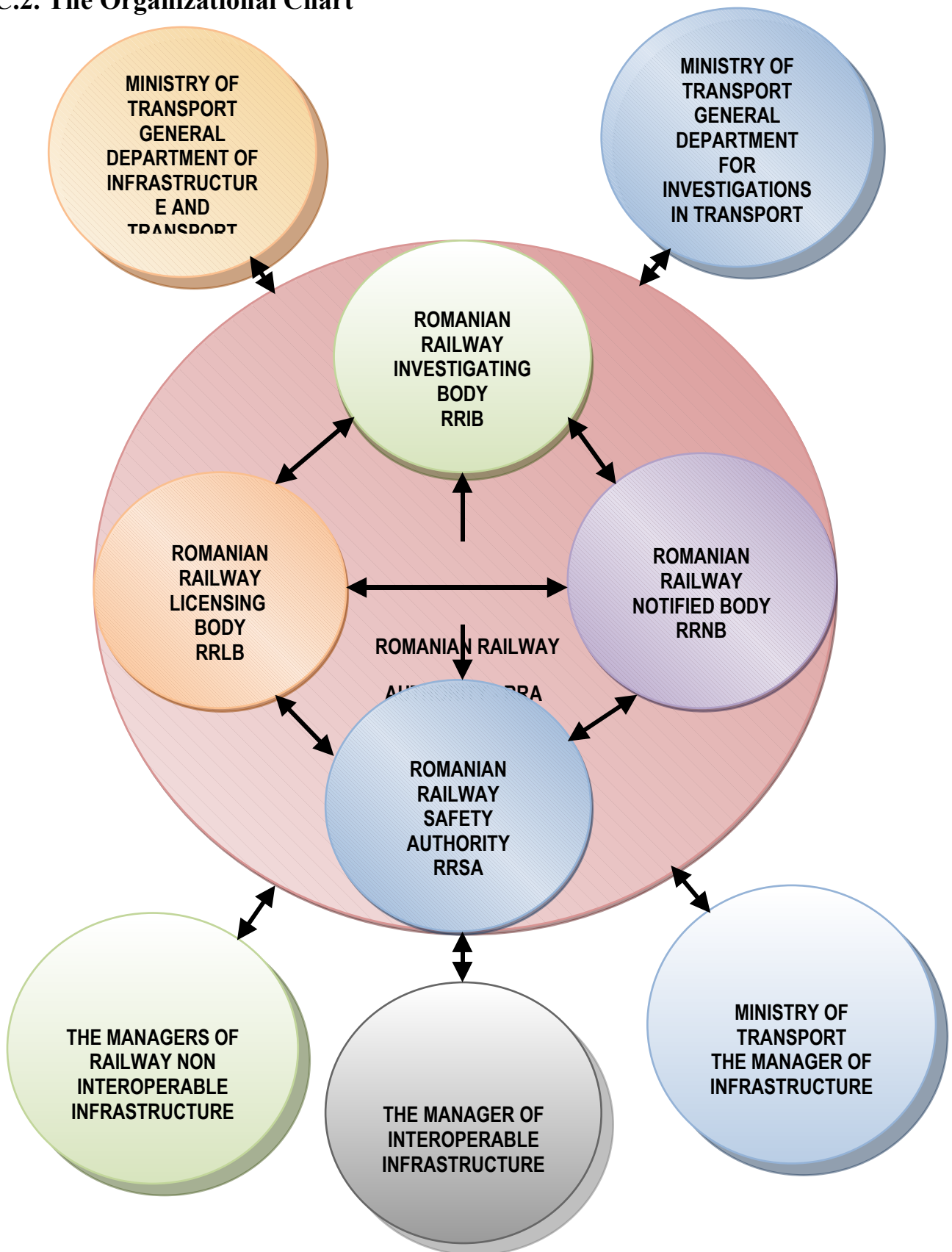


In 2008 OIFR had the following structure:

- a. Department for the Investigation of the Railway Accidents and Incidents, consisting in:
  - 1 head of department;
  - 1 investigator at the head office;
  - 2 territorial investigators.
- b. Department for Investigation of the Technical failures of the Structural Subsystems and of the Interoperability Constituents, consisting in:
  - 1 head of department;
  - 4 investigator at the head office;
  - 1 territorial investigators.

In 2008 the management of OIFR was ensured by the its Management Board, whose president is the manager of OIFR.

### C.2. The Organizational Chart





## D. INVESTIGATION PROCESS

### D.1. Basis of the investigation independence

According to the provisions of the chapter V, art. 21, paragraph 1 of the Law 55/2006 concerning the railway safety, Romanian Railway Investigating Body is independent in the organization, legal structure and decisions making of any infrastructure administrator, railway undertaking, body in charge with the tariffs, allocation body and notified body, as well as of any part whose interests could be come in conflict with the tasks given to Romanian Railway Investigating Body.

Romanian Railway Investigating Body is independent from the functional point of view of Romanian Railway Safety Authority and of any regulation authority from the railway field.

The Law 55/2006 concerning the railway safety stipulates too that, through Romanian Government Decision, Romanian Railway Investigating Body can receive other tasks concerning the investigation of other events than the railway accidents and incidents, but only if these investigations does not compromise its independence.

Being an independent body, with competences only in establishing the causes and the circumstances of the railway accidents or incidents occurrence, investigation having the juridical status of administrative paper, Romanian Railway Investigating Body does not establish the guilties or responsibilities of any type.

The issues concerning the legislation infringements, as well as those of prosecution, are incumbent on other public institutions with competences in this field. Romanian Railway Investigating Body, through its tasks, does not influence the activity of other institutions.

### D.2. Institutions involved in investigations

During the analyzed period of time, Romanian Railway Investigating Body, seizing upon the prerogatives art. 20(4) from the Law no. 55/2006 concerning the railway safety, ended an investigation report with the help of a public institution (Politechnics University - Centre for Researches and Examinations Eco-Metallurgical-ECOMET) that has the material basis and the specialists with the proper professional training necessary to achieve the proposed objectives in one of the investigation on the metallographic analysis.

### D.3. Investigation process

Romanian Railway Investigating Body carries out investigations of the serious accidents occurred in the railway field in order to improve the railway safety and to prevent the accidents.

At the same time, Romanian Railway Investigating Body can investigate also those railway accidents and incidents (others than those serious), that in slight different conditions could lead to serious accidents, including the technical failures of the structural subsystems or of the interoperability constituents from the railway transport system.

For each accident or incident, Romanian Railway Investigating Body provides the resources necessary to perform the investigation. The resources can be from inside or outside of Romanian Railway Investigating Body, according to the type of the investigated accident or incident.

The investigation is as open as possible, so all parties can be listened to and have access to the results. The infrastructure administrator and the involved undertakings, Romanian Railway Safety Authority, victims and their relatives, the owners of the damaged effects, manufacturers, involved emergency services and the representatives of the staff and the users are informed on the investigation and its course, giving the possibility to present its opinions and points of view concerning the investigation and having the possibility, upon request, to comment on the information from the reports projects.

Romanian Railway Investigating Body ends its investigations at the accident place as soon as possible in order to allow the infrastructure administrator to repair the infrastructure and to restart the transports.

In order to achieve this purpose, there is necessary a flexible politics that allow to develop a teritorial staff structure, with head offices in the railway counties and having the necessary logistics that permit quick movements. From this point of view, for the moment, as we above present, Romanian Railway Investigating Body had not spent all available means in order to achieve this objective.

The investigations end with the drawing up of the investigation reports, where can be found the causes and the circumstances of the railway accidents and incidents occurrence and contain, if necessary, safety recommendations.

If necessary, in order to achieve our proposed objectives in the investigation, we ask for the help of specialists from other fields.

During the analyzed period, the issued recommendationd were sent to Romanian Railway Safety Authority, Romanian Railway Notified Body, railway undertakings, infrastructure administrator. No safety recommendation was issued for other Romanian authorities.

## **E. Investigations**

### **E.1. Overview on the ended investigations, trends identification**

During the year 2008, 5 investigations reports were ended, 4 of them being investigation reports started in 2007, and one started and ended in 2008.

Also, in the year 2008 4 investigation actions were started, but ended in 2009.

One presents below a synthetic situation concerning those 5 investigation reports ended in 2008:

**E.1.1.** *Investigation report on the railway accident from the 22nd of February 2007 in the railway county Galati, on the track section Ploiesti Sud – Buzau, consisting in the derailment of 2 wagons from the formation of the freight train no. 60373 ( belonging to the railway undertaking CTF SA) over the switch no. 9 from the movement halt Cricov.*

*The investigation report of this railway accident was ended on the 12th of February 2008 .*

**Causes of the railway accident** were established as follows:

#### **Direct cause**

- Change of the pair of wheels gauge following the cross displacement of the tyre from the wheel 5 of the wagon no. 88536657717-3 (the last but one of the train), it led to the derailment of the respective axle on the switch no. 9 from the halt Cricov.

#### **Underlying causes**

- Loosening of the tyre from the wheel no. 5 of the wagon no.88536657717-3 (the last but one from the train), leading to its turn on the wheel rim and the polishing of the fastening ring;
- During the technical inspections at the formation and arrival, the specific regulations in force were not met, so the railway staff did not ensure the restoration of the marks on the outside of the tyred wheel, in 4 points being at 90<sup>0</sup> one against the another one, respectively did not take out the wagon from the traffic when the working point Ploiesti had not the necessary equipments in order to perform these operations.

#### **Elements that contributed to the railway accident occurence**

- The decreasing in time of the fastening forces between the tyre and the wheel rim following the crushing of the defects from those 2 contact surfaces, as a result of the thermal and mechanical stresses, appeared in the axle operation (the axle is 31 years old);
- Thermal efforts generated in the tyre as result of the brakings from the operation of the respective wagon.

**Safety recommendations** issued during the investigation of this railway accident were the following:

- In the next period will be scheduled a control at the railway freight undertakings when will be checked the organization of the technical inspection of the freight trains. If in this situation one finds cases in which the organization of the trains inspection does not allow the undertaking staff to identify all the cases with loosened or turned tyres against the wheel rim and the analysis of these cases according to the specific regulations in force (Instructions concerning the technical inspection and the maintenance of the operated wagons – no. 250, approved by Minister of Transports, Constructions and Tourism's Order no. 1817/26.10.2005), one will ask from these undertakings to re-examine the organization of the trains inspections, so this activity allow to find out all the freight wagons that have this failure.
- The analysis of the possibility to limit the use of the pairs of wheels provided with tyre at a number of intervals between 2 periodic repairs (RP) performed at the wagons.
- The present regulations concerning the repair and maintenance of the pairs of wheels provided with tyre will be amended with the methodology for taking under observation these pairs of wheels, both in operation and at the maintenance and at repair shops during all period of use, so at any time one can know the date and the shop where the tyre was fit up on the wheel.
- The railway freight undertakings will take care that all the wagons with double mark of the tyre position against the wheel rim by punching with mandrel be taken out of traffic for replacing the respective pairs of wheels.

**E.1.2.** *Investigation report of the railway accident occurred on the 22nd of February 2007, in the railway county Cluj, in the railway station Dej Triaj consisting in the derailment of a group of 8 wagons, starting with the 6th from the locomotive, of the freight train no. 42612, belonging to SNTFM „CFR Marfa” SA.*

*The investigation report of this railway accident was ended on the 12th of February 2008.*

**The causes of the railway accident** were as follows:

**Direct cause is the cumulation of underlying causes**

The railway accident consisted in the derailment of the first axle of the wagon no. 57653776 matriculated by the Ukraine railway administration. This happened because of the exceeding of the limit of derailment stability by load transfer of the first wheel, connected with the falling of the contact point between the flange of wheel and the lateral active surface of the rail (lip) (at the first wheel running on the curve of the switch), this led to the climbing of the rail from the right side and the falling of the left wheel inside the track).

**Underlying causes**

- Chocking of the track bed in the derailment region leading to un-controlled settlements of the broken stone bed and appearance of free spaces between the inner underneath surface of the sleeper and the track bed;

- When the plan for the maintenance of the lines and switches was approved, there was no realistic stipulation concerning the possibilities to supply with materials and to ensure the labour .
- At the end of the year 2006 there was no realistic analysis of the services because the resulted situation presented clearly that:
  - the quantity of new track parts, necessary to replace those out of order, was not provided, this is proved by the works that indicate the degradation of some track parts . Ex. sleepers - the work „ track gauge rectification” where the achievements are more over the planed necessary according to the Instruction no. 300 or to the inventory;
  - the works that prove the deterioration of some track parts, as sleepers, are performed more over the planed or necessary for planed according to the Instruction 300 – ex. work „track gauge rectification „;
  - comparing the quantities of planed works with the quantities of performed works is found out that in some cases there is no connection between these two data groups as at the final result expressed in conventional km;
  - at the chapter replacement of special sleepers on the points and crossing for 2006 small quantities against the necessary were supplied.A similar situation was found out at the broken stone.
- From the analysis of the documents of the District 4 Dej Marshalling, concerning the establish of the necessary labor for 2007 was found out that in order to cover those 61,228 conventional km planed for the maintenance of the track section, can be used only 50%.
- The services, for whose performance is necessary to use qualified staff, were carried out using unqualified staff, its percentage in the subunit structure staff being between 53% - 65%, exceeding much the maximum percentage of 5%;
- Through a realistic analysis of the labor from the Track section L7 Dej was found out that the real number of the necessary workers for line maintenance and repair (calculated in accordance with the inventoried works) is 335, over 290 as result from the calculation made in accordance with the stipulation of the Instructions no. 300/1972. At the end of the year 2007 the track section had effectively 90 workers.
- Keeping the unsuitable sleepers in the track switches is not accepted by the Instructions no. 314/1989, chapter II, art. 15, point 11. The instruction provision stipulates that, after exceeding the deadline of 12 months of keeping unsuitable sleepers, the only safety measure should be the closing of the traffic on these switches;
- Exceeding of the deadline for the instructional replacement on the track of the unsuitable special sleepers on the switches is one of the causes that led to the situation where an important percentage of the railway events and accidents happen especially on the switches;
- The lack of the centre casting lubrication against the Ukraine and Roumanian regulations that had a contribution to the prevention of the suitable turn of the bogie in curve;
- The width of the tyre from the wheels of the first wagon bogie with 3 mm under the minimum value from the annex 5, point from the PPV.

#### **Factors that had a contribution**

- Difficult draining of the water from the rainfalls;
- The leakage of the purverulent goods from the wagons.

**Safety recommendations** issued during the investigation of this railway accident were the following:

- Finding out of the funds in order to ensure a draining system in the railway stations and marshalling yards;

- Revision of the Instruction no. 300/1972 in order to achieve the real establishment of the track maintenance and repair;
- Re-analyzing of the possibilities of the lines maintenance and repair subunits to perform specific works, by the connection of the existing labor and the conventional km for maintenance and repair;
- Re-analyzing of the staff structure used in the line maintenance and repair (at the track section and railway suppliers) in order to ensure the number of qualified and unqualified staff (artisans I, artisans II and unqualified worker);
- Re-assessment of the sleepers inventory in order to draw up a plan for the unsuitable sleepers replacement and to establish the necessary running conditions.
- During the next meeting between the representatives of SNTFM CFR Marfa SA and the representatives of the Ukraine Railways, they will be required to meet with the provisions on centre casting lubrication during the move of the wagon on wide gauge.
- SNTFM CFR Marfa SA will take from the Ukraine Railways only the wagons whose axles meet with the provisions of the annex 5, point 2.3 from PPV.

**E.1.3.** *Report for the investigation of the railway accident occurred on the 13th of December 2007 at the entrance in the railway station Comarnic consisting in the derailment of the first bogie of the locomotive EA 250, being hauled by the passenger train no. 1641.*

*The report for the investigation of this railway accident was ended on the 18th of November 2008.*

**The causes of the railway accident** were established during the investigation as follows:

**Direct cause** of the railway accident is the climbing of the right wheel of the axle no. 6, the first running on the curved point, on the deflecting section of the switch 7 of TJD 7/11 in the conditions of cumulating the next situations and deviations being at the operating tolerances limits:

- The curved point being at upper limit of wear that can be taken for a indenture leadin to the danger that the tyre lip climb the rail.
- The right stock rail being at the lateral and vertivcal wear limt can not protect the point of curved switch tongue from the action of the tyre lip of the first wheel.
- The cross level of the track indicates that the running surface of the curved point is with 166 mm under the level of the curved stock of rail of the switch no. 7 on the outside of the curve with the radius  $R=190$  m, interfered with a track torsion value of 8 mm (basiis of 2,5 m).
- Damaging of the fastening of the curve outer rail on the deflecting section of the switch 7 because of the putting of the polyethylene plates on the outside of the curve, between the metallic plates and the sleepers.
- Locomotive running in a ramp of 17,32 ‰ in the conditions of the increase of active power loss, with a speed of 28 km/h close to the running maximum speed in a curve with a radius of 190 m without cant of the track..
- During the measurement of the geometrical elements of the locomotive axles, the distance between the outside faces of the tyres lips ( quote E) of the first axle had a value of 1411,5 mm, because of the wear of the tyres lips up to the value of 26,5 mm. These values could allow, in the conditions of some counter-cant of the outer rail and track torsion, running on the active part of the rail under an angle that permit the climbing by the tyre lip from the right wheel in the direction of traffic on the point (from the right) without the tytre of the left wheel leave the running surface (one did not fiind traces of derailment on the left side between the point and the check rail).



**Underlying causes**

- Non performance of all inspections in order to establish the switches situation, that the District Head has to perform according to the provisions of the art. 26 of the Instruction 323/19965 for the district permanent way inspector in charge with the track maintenance (lack of measurement of the troughs and parts wear TJD 7/11).
- Following the measurement of the switch there is no record in the switch inspection book concerning the values that exceed the accepted tolerances.
- The complete technological process is not performed during the inspections of the hidden parts of the switches, this results from the measurements of the inspection book at the works end and indicate exceeding of the tolerances at the cross level and gauge.
- Performance of some works for the removal of the failures found out following the measurements performed with the testing and recording car without the complete meeting with the all steps of the technological process and without the performance of the complete inspections.

**Primary causes** that led to the railway accident occurrence are in connection with the regulation and application framework of the railway safety management system concerning the maintenance and repair of the switches that have the next failures:

- The permanent decrease of the technological and theoretical knowledge of the staff with responsibilities in traffic safety, as a result of the change of the generations without a long term plan. So appeared the situation where in the book for the inspection of the district switches be done a confusion between the tolerance at the across level on a points and crossing from an arrival – dispatching line ( $\pm 5\text{mm}$ ) and the accepted value of the track position in the plan ( $\pm 10\text{mm}$  for  $V \leq 50\text{km/h}$ ).
- Keeping the metallic parts of the switches in the track up to the wear limit.

**Safety recommendations** issued during the investigation were as follows:

- Performance of an analysis on the wear situation of the metallic parts of the switches involved in the passengers transport from the direct and arrival – dispatching lines, in order to establish a priority on the order and the opportunity of their replacement.
- Performance of an analysis on the possibilities to keep and improve the technical and practical abilities of the staff responsible with the management, maintenance and repair of the switches, by training.
- Re-analysis of the opportunity to establish some further works and a more severe monitoring system of the switches whose use is to increase because of the traffic increase as a result of the closing of some running directions imposed by the technological process of some up-dating or rehabilitation works at railway lines and stations.

**E.1.4.** *The railway accident occurred on the 15<sup>th</sup> of December 2007, in the railway county Timosoara, between the railway stations Milova and Conop, consisting in the derailment of the wagon no. 88536656718 ( the 9<sup>th</sup> from the locomotive ) from the formation of the freight train no. 50366. The investigation report was ended on the 16<sup>th</sup> of September 2008.*

**Causes of the railway accident****Direct cause**

- Change of the pair of wheels gauge following the cross displacement of the tyre of the wheel no. 2 from the wagon no. 88536656718-2, it led to the derailment of the respective axle between the railway stations Milova and Conop, at the km 586+310.



**Underlying causes**

- Loosening of the tyre of the wheel 2 from the wagon no. 88536656718-2 (the 9<sup>th</sup> from the locomotive), leading to its turn on the wheel rim and the polishing of the fastening ring.

**Factors with contribution** to the railway accident occurrence:

- Decrease in time of the fastening forces between the tyre and the wheel rim as a result of the crushing of the defects from the 2 contact faces, as a result of the thermic and mechanic stresses appeared in the axle operation ( the axle is 30 years old).
- The thermic efforts introduced in the tyre of the wheel as the result of the braking from the respective wagon operation.
- During the technical inspections at the forming and arrival, the specific regulations in force were not met, so the railway staff did not replace the missing parts and did not notify the wagon.

**Safety recommendations** issued during the investigation of this railway accident were as follows:

- Romanian Railway safety Authority – ASFR will schedule in the following period of time a control at the railway freight undertakings when is checked the organization of the technical inspection of the freight trains.

On this occasion, it will be found out cases where the organization of the trains inspection does not allow to the undertaking staff to detect all the cases of wheels with the loosened or turned tyre against the wheel rim and the analysis of these cases according to the specific regulations in force (Instructions concerning the operated wagons technical inspection and maintenance – no. 250, approved through the Minister of Transports, Constructions and Tourism’s Order no. 1817/26.10.2005), the railway undertakings will be asked to review the organization of the train inspection activity, so this activity allow the detection of all freight wagons with this type of failure.

- Romanian Railway Safety Authority – ASFR, together with Romanian Railway Notified Body – ONFR, economic companies producers or repairers of rolling stock and with the economic companies that own rolling stock will analyze the possibility to limit the use of the pairs of wheels provided with tired wheels at a given number of years that not exceed the wagon length of life.
- Romanian Railway Safety Authority – ASFR will analysis the present regulations concerning the repair and the maintenance of the pairs of wheels provided with tired wheels and will amend them with the methodology for the monitoring of those wheels, both in operation and at the maintenance and repair shops during all the use period of time, so any time can be known the date and the unit where the tyre was fitted on the wheel.

**E.1.5.** *Serious railway accident occurred on the 5<sup>th</sup> of February 2008 on the non-interoperable track section Odorhei-Vanatori, belonging to the non-interoperable infrastructure manager SC RC-CF TRANS S.R.L. Brasov by breaking away the locomotive DHC 624 belonging to SNTFC “CFR Calatori” SA – Brasov Depot from the railway station Odorhei, accident that was followed by the death of the driver. The report for this railway accident was ended on the 16<sup>th</sup> of September 2008*

**Causes of the railway accident** were established as follows:

**Direct causes**

- The unsuitable stop of the locomotive by the operation of the control switchgroup on the level 1 instead the level 0 and putting back of the reverser from the level “ahead” to the level 0 after the complet stop.
- Lack of ensuring against the locomotive moving during the stopping of the driver (the driver leave the locomotive without fasten the hand brake);
- The driver left, without meet the instructions, the locomotive, the situation where the locomotive had one driver, and when he had to stop the Diesel engine and to notify the foreman shunting and to ask for his presence in the driver’s cab, activities that were not met by the driver.
- The non-observance of the labor labour protection norms, respectively the non-observance of the art. 9, paragraph (1), letter s) from the Instructions for the activity of the locomotive staff no. 201/2007, respectively art. 20, lettersk, l, r from the own Regulations and Instructions concerning the labour protection.

#### **Underlying causes**

- Locking in the level “Open” of the lever for the operation of the release valve of the air from the brake cylinder at the use of the automatic brake, using an improvised splint pin, this led to the putting out of order of the safety and vigilance equipment (DSV) and of the equipment for automatic control, punctually of the speed.
- The unsuitable technical situation of the release valve of the air from the brake cylinders of the locomotive of the Diving Point A by the replacement of the splint pin with a screw that increased the clearance in the turn point, that is the space between the outer shoulder of the casing and the lever bill.

**Primary causes** that led to the serious railway accident occurrence are in the connection with the framework for regulation and application of the safety management system concerning the traction activities that have the next problems:

- There were performed technical interventions in operation or at the repairs without the approval of the manufacturer or of the designer at the release valve, that did not allow its artisanal locking with a improvised splint pin. This deviation was not observed and removed during the compulsory technical inspections or during the activity controls.
- There were no corrective actions stipulated the own regulations for the non-justified taking out of operation of the safety, vigilance and punctual control equipments of the speed, in the shunting activity.
- The wrong work system was not identified and the shunting activity was performed with constructive change at the valve for the release of the air from the brake cylinders, this led to the cancellation of the braking effect when the safety, vigilance and automatic control systems became active.
- No emergency braking in the shunting activity was analyzed and made evident (according to the own regulations), this led to the lack of identification of the wrong work systems concerning the operation of the safety, vigilance and punctual control system of the speed.
- The intentional mechanic locking with a improvised splint pin in the level “open” of the operation lever of the valve for the release of the air from the locomotive brake cylinders can be noticed on the speedometer record by indicating the coming into operation of the equipment for the punctual control of the speed (ARMATURES) without decreasing to 0 the speed curve, in the situation of the running of the individual locomotive.
- Equipment DSV on the locomotive DHC 624 is not designed so, the equipment IVMS on the locomotive allow a separated record, from which result if this equipment was taken out of operation or if coming into operation because of the lack of handling.

**The recommendations** issued during the investigation of this railway accident were the next:

- Retraining of the locomotive staff concerning the conditions in which is accepted to leave the staying locomotive and the actions necessary to be taken in the one driver situation.
- Retraining of the locomotive staff with the labour protection norms concerning the prohibition of the locomotive boarding when it is running.
- Training of the locomotive staff concerning the consequences of the permanent locking of the operation lever of the valve for the release of the air from the locomotive brake cylinders, by any non-instructional method;
- Urgent technical inspection of the valve for the release of the air from the brake cylinders from all the locomotives and the removal of the problems so one meets the operation project.
- Improvement of the safety management system through:
  - Regulation of the making evident and analysis of all emergency braking from the shunting activity;
  - Regulation of the way to correct the staff misconducts in the situation of unjustified putting out of operation or non-instructional voluntary locking of the safety, vigilance and control equipments of the speed, in the shunting activity;
  - Identification of wrong work systems in the shunting activity with the safety, vigilance and automatic control systems of the speed from operation or non-instructional voluntary locked by the analysis and compulsory investigation of all cases of record of the coming into operation of the vigilance equipment without decreasing to 0 the speed curve, in the situation of the running of the individual locomotive;
  - The real establish by the job sheet the tasks concerning the downloading, reading and analysis of the speedometer records as well as the removal of the non-conformities found out during this occasion.
- Establishment of the opportunity as the equipment IVMS on board allow a special record from which result if this equipment was put out of operation or if come in operation because of the lack of handling.
- Establishment of the opportunity of a constructive change of the valves for the release of the air from the brake cylinders from all the locomotives type DHC, so one can not use improvised systems from blocking these valves on the level “open”.

## **E.2. Investigations started in 2008**

In 2008 Romanian Railway Investigating Body started too 4 investigations, ended during 2009, for the following railway accidents and incidents:

1. Railway incident occurred on the 13<sup>th</sup> of March 2008, in the railway county Craiova, in the halt Zavideni consisting in the breaking of the axle journal of the wheel no. 5 from the wagon no. 31535494306-2 ( the 6<sup>th</sup> from the locomotive ) belonging to the freight train no. 41651, owned by SNTFM “CFR Marfa” SA.  
The investigation report was ended on the 12<sup>th</sup> of May 2009.
2. The railway serious accident occurred on the 10<sup>th</sup> of May 2008 in the railway county Bucuresti, in the halt Valea Calugareasca, consisting in the derailment of the first 4 wagons from the passenger train no. 1661, belonging to SNTFC “CFR Calatori”, from this accident resulted 1 dead person and slight injury of 3 other passengers and of the conductor.  
The investigation report was ended on the 8<sup>th</sup> of May 2009.
3. The railway accident occurred on the 26<sup>th</sup> of May 2008, in the railway county Cluj, in the halt Mogosni, consisting in the derailment of the locomotive EA 826, that hauled the passenger train no. 4483, belonging to SNTFC “CFR Calatori” SA.

The investigation report was ended on the 12<sup>th</sup> of January 2009.

4. Railway incident occurred on the 16<sup>th</sup> of December 2008 in the railway county Constanta, in the railway station Basarabi consisting in the stopping of the passenger train no. 8205 on the switch no. 9 operated on the deflecting section with access to the line 1, occupied by the train 8018.

The investigation report is under ending.

## F. RECOMMENDATIONS

### F.1. Brief revision and recommendations presentation

By the issued recommendations, Romanian Railway Investigating Body wished to improve the railway safety and to prevent the accident.

The safety recommendations were sent to Romanian Railway Safety Authority in order to notify Romanian Railway Investigating Body about the taken or planed measures

Current no.	Train/ involved rolling stock		Railway event place			Number of the investigation decision	Date of the report publication	Type of the railway event
	Train no.	Train type	place	date	hour			
1	60373	freight	Halt Cricov	22 <sup>nd</sup> of February 2007	18,26	1	The 12 <sup>th</sup> of February 2008	Derailment of 2 wagons
The freight train no. 60373 belonging to the railway undertaking Compania de Transport Feroviar Bucuresti SA run between the railway stations Ploiesti Triaj and Catusa. At the running on the direct line III from the halt Cricov the last two wagons from the train formation derailed. The train consisted in 27 empty wagons. The axle no. 3 from the last but one wagon of the train was found at about 60 m from the last wagon of the train with the wheel no. 5 having the tyre displaced axially against the wheel rim obliquely.								
Issued recommendation						4		
accepted recommendations						1		
2	42612	freight	Railway station Dej Triaj	The 22 <sup>nd</sup> of February 2007	4,10	2	The 12 <sup>th</sup> of February 2008	Derailment of 8 wagons
At the entrance in the railway station Dej Triaj, on the line no. 4A of the freight train no. 42616, belonging to the railway undertaking Societatea Nationala de Transport Feroviar de Marfa "CFR Marfa" SA, at the running over the switch no. 47A, in the connection rails area, derailed 8 wagons, starting with the 6 <sup>th</sup> wagon from the locomotive. The train consisted in 32 transposed wagons, matriculated in Ukraine ( Indicative UZ) loaded with vinyl chloride. The train speed at the moment of the derailment was 13km/h								
Issued recommendation						7		
accepted recommendations						2		

3	1641	passenger	Railway station Comarnic	The 13 <sup>th</sup> of December 2007	23,15	3	The 18 <sup>th</sup> of November 2008	Derailment of a locomotive		
		At the entrance of the passenger train in the railway station Comarnic, at the running over the switch no. 7 ( from TDJ content no. 7/11) operated on “deflecting “ position, derailed the first bogie of the locomotive, at a speed of 27 – 28 km/h								
		Issued recommendation					3			
		accepted recommendations					-			
4	50366	freight	Railway station Milova-halt Conop, line II	The 15 <sup>th</sup> of december 2007	21,20	4	The 16 <sup>th</sup> of September 2008	Derailment of one wagon		
		The freight train no. 50366, belonging to the railway undertaking SC UNIFERTRANS SA was dispatched from the railway station Episcopia Bihor to the railway station Plopsoru. The train consisted in 25 wagons. Between the railway station Milova and the halt Conop, on the line II, km 585+210, derailed the 9 <sup>th</sup> wagon from the locomotive because of the displacement of the wheel of the tyre no. 2 on the wheel rim								
		Issued recommendation					3			
		accepted recommendations					1			

Individual locomotive DHC 624	freight	Railway station Odorhei	The 5 <sup>th</sup> of February 2008	12,06	5	The 16 <sup>th</sup> of September 2008	Serious accident-one dead person
	<p>The locomotive DHC 624 , hired by the railway undertaking SC REGIOTRANS SRL Brasov from the railway undertaking SOCIETATEA DE TRANSPORT FERROVIAR DE CALATORI "CFR Calatori" SA, performed shunting operations in the railway station Odorhei in order to haul a group of 8 wagons from the line 3 and their shunting on the railway industrial line, belonging to the company SC FAMOS SA Odorheiu Secuiesc. The locomotive driver was an employee of the railway undertaking SC-CF TRANS SRL Brasov. The shunting plan stipulated that the locomotive DHC 624 exit from the line 3 to the end Y, run on the line 4 to the end X and then enter again on the line 3 in order to couple the first wagon of the group of 8 wagons. During the Shunting operations, from unknown reasons, the driver stopped on the line 4 of the railway station and left the locomotive, infringing the instructional provisions concerning the procedures mandatory to be respected before to leave the locomotive, that is stopping of the locomotive engine, its ensuring against running and the notification of the shunting unit head. Because of the non-observance of these steps, after a stopping of 30 seconds , the locomotive started to run to the end X of the railway station, having the route to the running line, in the direction of the railway station vanatori. The driver seeing what has happened, run after the locomotive, but could not reach it, then he drove a car. At the km 29+150 he went out and tried to catch at the protection bar from the access stairs on the platform from the small cab of the locomotive. He couldn't do it because he slipped and fallen under the locomotive wheels, when his legs were cut at shank, , and after a short time he died. The locomotive was stopped with the help of the drivers of the motorized train no. 4528, belonging to the railway undertaking SC REGIOTRANS SRL Brasov, that had to leave from the railway station Odorhei at 11,30 hour, as passenger train no. 14843 to Cristur. The movement inspector ordered to the motorized train driver, to the conductor and to the head of the shunting gang from the railway station to follow the lost locomotive and to give acoustic signals, especially at the crossing levels. The locomotive DHC 624 was reached by the the motorized train, that approached its buffers from those of the locomotive and when the speed of those two vehicles were kept invariable. The motorized train driver managed to go on the locomotive and to stop it, The motorized train was stopped in the same time by the conductor</p>						
	Issued recommendation					7	
accepted recommendations					1		

## F.2. Answers from Romanian Railway Safety Authority as part of the Safety Directive requirements

For about 19 recommendations, Romanian Railway Investigating Body did not receive answer from Romanian Railway Safety Authority concerning the measures taken or planned to be taken as consequence of the recommendations