Report on the safety of the national rail network



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A. Foreword

The annual report on the safety of the national rail network in 2009 meets the requirement for EPSF to supply the information specified in Section 17 of Decree 2006-1279 of 19 October 2006:

"Before 30 June of each year, the infrastructure manager and the railway undertakings shall send to EPSF a report on safety for the previous calendar year. From this information EPSF shall prepare a report on the safety of railway traffic and send this before 30 September to the Ministry responsible for transport, to the Land Transport Accident Investigation Agency and the European Railway Agency".

This report analyses the overall level of safety in the railway system from trends which can be seen in the common safety indicators (CSI) since 2006. The summary of the initiatives introduced by the railway undertakings and the infrastructure manager that aim to improve the safety performance as well as the assessments made by EPSF during monitoring activities complete this analysis for 2009.

B. Introductory Section

1. Introduction to the report

2009 was marked for EPSF by the regrouping of all its services on the same site at 60 rue de la Vallée at Amiens. Although the staff needed to adapt to this move and some modifications were necessary in its internal organisation, it did not affect the work carried out by the agency.

The French Railway Safety Authority [*Établissement Public de Sécurité Ferroviaire*] has continued during 2009 the initiatives already begun in the fields concerning:

- human resources, by the installation of the single staff delegation (staff representatives and enterprise committee);

- the "Quality" initiative, by the publication of a "Quality" manual, describing the management of the different processes, among which was the monitoring of the safety level;

- the feedback on "systems", by continuing with the organisation of quarterly meetings with all the railway operators with the aim of sharing information to improve safety;

- international relations by continuing to participate in the "peer reviews" initiative between ANS and the preparation of their "geographical" and thematic extension.

The "ORTF" law (law 2009-1503 of 8 September 2009 on the Organisation and Regulation of Rail Transport) has continued the adaptation of the French railway sector. In particular it has created the Railway Regulation Authority (ARAF) [*Autorité de régulation des activités ferroviaires*], the Directorate of Railway Traffic (DCF) [*Direction de la circulation ferroviaire*] and has planned the introduction of Close Railway Operators (OFP) [opérateurs ferroviaires de proximité]. This has led EPSF to make major changes in the safety authorisations of the French Rail Network (RFF) [*Réseau ferré de France*] (the infrastructure manager) and of SNCF-GID (the deputy infrastructure manager).

This document is addressed to:

- the Ministry of Ecology, Energy, Sustainable Development and the Sea responsible for green technologies and negotiations on climate;
- the European Railway Agency;
- the Land Transport Accident Investigation Bureau (BEA-TT);
- the Railway Undertakings (RUs)
- the infrastructure manager (IM) (French Railway Network).

It is available on EPSF website at the following address: <u>http://www.securite-ferroviaire.fr/</u>

The information contained in this report will be used by the European Railway Agency to prepare its biennial report on safety performance.

2. Information on the network and changes in the railway sector

The network comprises 29 466 km of lines in operation on 31 December 2009, of which 47.2% are fitted with an automatic protection system for trains:

- 1 884 km of lines fitted with track-to-train communication (TVM), a method of signalling that is used on high speed lines;
- 16 000 signals fitted with speed control by beacons (KVB);
- 1 875 km of single track lines fitted with computer assisted block sections (CAPI).

Approximately 26 500 pieces of track equipment situated on the main lines enable the operation of the whole of the RFN.

The map of the RFN is attached as Annex A.1.

The essential characteristics of the infrastructure manager and of the RFN are given in Annex A.2.

Some information on the certificates and licences:

-> A safety certificate was issued on 4 March 2009 to the TSO company, bringing to 11 the number of safety certificates issued by EPSF since its creation.

-> Six railway undertakings (VFLI, Colas Rail, CFL Cargo, TSO, SNCF, and ECR) had their safety certificates amended:

- for extensions of route, itineraries and/or traffic;
- for a change in their general organisation;
- for changing to the Part A and Part B "format".
- -> Two safety certificates have been renewed for undertakings registered under Section 4.1 of the SNCF specification in accordance with the provisions of the decree 2006-1279. They concern:
 - CFTA, for the operation and maintenance of two lines in Brittany: Guingamp/Carhaix and Guingamp/Paimpol;
 - the Compagnie du Blanc-Argent, for the operation and maintenance of the line Salbris/Luçay-Le-Mâle, in Sologne.

The list of railway undertakings is given in Annex A.2.2.

-> A modification of the safety licences for the Infrastructure Manager, RFF, and of SNCF GID was issued on 22 December 2009 following the reorganisation of the "Infrastructure" branch of SNCF (deletion of the regional infrastructure level), and due to changes arising from application of the law on the organisation and the regulation of rail transport, in particular the creation of the Directorate of Railway Traffic.

> Three licences for training centres have been issued to the Kéolis Regional Institute (IKR). These were for the Loire Centre and the campuses of Béziers and Nancy/Strasbourg of SNCF. EPSF also granted two licence extensions to the Euro Cargo Rail training centre and the Lyon campus of SNCF and renewed the licence of seven SNCF centres and one Eurotunnel centre.

On 19 February 2009 EPSF lifted the suspension of the licence of the IFTIM-Entreprises railway professional training centre which was issued on 17 March 2008.

In total, 36 training centres had a valid licence at 31 December 2009.

-> Finally two licences have been issued on the basis of an approved organisation (OQA):

- Bureau Veritas;
- Railway Approvals Limited (RAL).

In total, four qualified organisations had a licence valid at 31 December 2009. In addition to the two previously mentioned, these were:

- CERTIFER;
- TÜV Rheinland.

3. Summary – General trend analysis

Several serious accidents occurred in 2009 which gave rise to an investigation by BEA-TT:

- the collision of a coach and a TER train on a level crossing at Nevers (58), on 3 February 2009 (three people slightly injured):
- a group of people hit by an RER Line B trainset near the stade de France (93) on 7 March 2009 (two dead, three seriously injured, one slightly injured);
- the collision of two freight trains in Livernan tunnel (16), on 20 May 2009 (one person seriously injured, one person slightly injured);
- an agricultural tractor hit by a Corail train at Boisseuil (87), on 3 July 2009 (two people seriously injured, 13 slightly injured);

- the collision of a heavy lorry with a freight train on a level crossing at Laluque (40), on 25 September 2009 (nobody hurt);
- the derailment of tank wagons carrying dangerous materials in Orthez station (64), on 24 November 2009 (nobody hurt);
- the derailment of an RER Line C trainset following a road accident at Choisy-Le-Roi (94), on 20 December 2009 (39 people slightly injured).

Four events on the main line were also recorded:

- the loss of an axle box from TGV 6136 running on the South East high speed line on 16 April 2009;
- the derailment of 3 coaches of a passenger train when it hit a rockfall after the collapse of a retaining wall on the Montréjeau-Gourdan line at Luchon, on 26 April 2009 (nobody hurt);
- the derailment of a passenger train following a collision with a retaining wall that had collapsed on the Marseilles to Lyon Part-Dieu line, on 18 September 2009 (seven people slightly injured);
- the derailment of three STVA car carrying vehicles on the Vitry-le-François line at Toul, on 22 December 2009 (nobody hurt).

As far as the level of traffic was concerned the number of million train-km in 2009 was 6% less than in the previous year. After the successive increases mentioned in the reports of 2007 and 2008, the traffic in train-km is now close to the level of 2006. The passenger traffic expressed in billions of passenger-km has increased by more than 9%. The freight traffic expressed in tonne-km has declined by 15% with respect to 2008.

The number of accidents (that is to say significant accidents in accordance with the definition used from 2009 for the common safety indicators specified in Annex C.2) has increased by 3% compared with 2008. The rate of accidents per million train-km has been greatly affected by the reduction in traffic and has increased from 0.3 to 0.33.

Regarding the injuries suffered by people in accidents, it can be stated that there was:

- a reduction of 18.3% in the number of deaths compared with 2008;
- a big increase in the number of people seriously injured compared with 2008 for the categories "users of level crossings" and especially "trespassers". (The definitions of these categories of people are given in Annex C.2).

Nevertheless, based on the traffic the number of people seriously injured was considerably below the figures recorded in 2006 and 2007.

The detailed information in the analysis of the trends is given in Chapter D point 2.

C. Organisation of the French Railway Safety Authority -EPSF

1. About the organisation

2009 has seen a slight increase in the staff of EPSF. On 31 December 2009 EPSF had 99 staff. The staff is divided between two technical directorates, 'Authorisations and Monitoring' and 'Reference Systems and Europe' and one cross-cutting directorate, the General Secretariat. The Communication Manager responds directly to the Director General.

On the organisational plan, the most important event was the grouping of all the services in the headquarters building in Amiens. This required a certain amount of adaptation to maintain and develop the activities. The technical directorates are briefly described below.

The Directorate for Authorisations and Monitoring

This directorate contains two sections composed of 29 and 30 members of staff.

->The Authorisations Department

This section carries out the following tasks:

- appraisal of applications and issue of certificates, licences and safety certificates, certificates for training centres and approved qualified organisations, as well as authorisations to put into commercial service;
- preparation and updating of the vehicle register;
- finalisation of mutual recognition agreements for the acceptance of rolling stock;
- publication of guides for the preparation of applications, in order to simplify and accelerate the authorisation procedures and to facilitate the work of the applicants.

->The Monitoring Department

This section carries out the following tasks:

- checking the introduction of the authorisations issued by EPSF, certificates, licences and new systems to see that they comply with the conditions under which they were granted, by carrying out audits and inspections;
- monitoring the level of safety of RFN by following up the safety indicators and incidents or accidents, and issuing any alerts that may be necessary;
- organisation of the feedback of "safety system" experience by the publication of a monthly note of information on the incidents that have occurred and by the organisation of quarterly meetings of all the operators authorised to run on the RFN;
- publication of the annual report on safety.

The Directorate for Reference Systems and Europe

This Directorate has one section and a support centre composed of 10 and 8 members of staff respectively.

->The Reference Systems Department

The activities entrusted to this section correspond to the tasks allocated to EPSF in the field of regulations:

- support for the preparation and the development of the regulations;
- analysis of the "Article 10" texts published by RFF;
- preparation and publication of recommendations to do with standards.

-> The Europe Department

This support section, having activities that are essentially across the board, has the job of supporting the consistency and the effectiveness of the action of EPSF for the international questions and assisting, advising and facilitating the activities of the three other sections, as well as those of the ministry and of the railway sector in this domain.

The organisation of EPSF is set out in Annex B1.

2. Relations between EPSF and its principal partners

Beside the European Railway Agency and the other national safety authorities (ANS), the national entities with which EPSF is in regular contact are given in Annex B.2 and are listed below:

- The Directorate General for Infrastructures, the Sea and Transport Directorate of Transport Services (DST) of the Ministry of Ecology, Energy, Sustainable Development and the Sea which supervises EPSF and carries out the railway-safety and group missions and manages the railway regulations for which the State is responsible.
- the Land Transport Accident Investigation Bureau. EPSF monitors the introduction of the recommendations put forward in the reports of BEA-TT. This information is necessary to enable it to prepare the annual report on its activity;
- the Dangerous Materials Transport Task Force (MMD);
- The Directorate for Civil Defence and Security (DDSC) which is consulted by EPSF on the safety definition dossiers (DDS), preliminary safety dossiers (DPS) and safety dossiers (DS) which are sent to it with a view to getting new systems or new infrastructure authorised and introduced into commercial service;
- the Rail Activities Monitoring Task Force (MCAF).

D. The development of railway safety

1. Initiatives for improving safety performance

1.1 The French Railway Safety Authority [Établissement Public de Sécurité Ferroviaire]

In 2009 it was possible to consolidate the activities of EPSF initiated in 2008 and to develop some new ones, in particular:

- organisation of four "feedback" meetings: the annual seminar held in January 2009 that had the theme "*le REX du REX*" [The feedback of the feedback] started the programme of these feedback meetings. Each of the four meetings, held in January, April, June and October were attended by representatives of all the RUs authorised to run on the RFN, the infrastructure manager (RFF) and the deputy infrastructure manager (SNCF-GID), as well as representatives of MEEDDM and BEA-TT. The themes dealt with during these feedback meetings, resulted in useful discussions and several of them have led to recommendations of good practice or contributed to developments in the regulations which are in progress;
- organisation of four safety meetings EPSF/RFF/SNCF-GID/DST which have enabled firstly, a quarterly monitoring of the safety level on RFN through the development of common safety indicators, and secondly discussion on the measures to be taken or already taken following accidents or incidents;
- publication of two rolling stock acceptance specifications (SAM), one on the braking performance of rolling stock on lines fitted with TVM (SAM F 018) and the other on the servo-control of traction to braking (SAM F 503). Twelve other documents (SAM and SAMI) were being prepared at the end of 2009 for publication in 2010;
- preparation of the guide for the application of the agreement for mutual recognition of the authorisations for rolling stock in France and Germany;
- signature of mutual recognition agreements for;
 - wagons between Switzerland / France and Spain / France,
 - locomotives and rolling stock between Switzerland / France and Spain / France,
 - the addition of Holland to the agreement between Belgium / France / Luxembourg for wagons,
 - the addition of Switzerland to the agreement between Belgium / Holland / France / Luxembourg for locomotives and passenger rolling stock;
- drafting of guides:
 - for the use of applicants for the approval of experts or qualified organisations,
 - for obtaining a safety certificate for a set of services on the RFN (version 2),
 - on the conditions of authorisation for the introduction into commercial service of a project on RFN (version 2),
 - to assist the preparation of the RSE for the attention of the port authorities,
 - for the future OFPs, this work has now started;
- introduction of a new database ("safety" events of RFN) which will provide improved performance for the recording capacity and functionality for its operation;
- publication of a recommendation to test the brake test after starting freight trains;
- active participation in the work associated with "peer reviews" within ERA and in the course of reviews of the ANSs.

1.2 The infrastructure manager (RFF and SNCF-GID)

- Some important projects that had already been started previously or were launched in 2009, for which RFF is the promoter, should have a significant effect on the level of safety. They are listed below;
 - The East European high speed line phase 2
 - EPSF has approved the preliminary safety file for this second phase excluding the Saverne tunnel for which an additional file will be presented to EPSF as soon as the technical solution has been decided. The service introduction of the second phase covering the section from Baudrecourt to Vendenheim is planned for mid 2015.
 - ERTMS level 1, draft for the European corridors
 The preliminary safety file was presented to EPSF and approved in 2009. The objective of this phase of the project is the introduction to service in 2012 of two pilot lines: from the Luxembourg frontier to Thionville and the Belgian frontier to Longuyon.
 - ERTMS level 2 on the east European high speed line After the tests carried out in 2009, a target version to be put into commercial service should be available in 2010.
 - the Rhine-Rhône high speed line
 - The opening of this new 142 km long interoperable line situated between Villers-les-Pots in the département of Côte d'Or and Petit-Croix near Belfort, is planned for December 2012. The civil engineering and structural work was completed in 2009 and the work of installing the railway equipment is now in progress.
 - The Haut-Bugey line
 The work of modernisation and electrification is in progress on the 65 km long
 Haut-Bugey line which links Bourg-en-Bresse to Bellegarde-sur-Valserine. The introduction of commercial operation is planned for December 2010.
 - The PAI 2006 or PAI NG As part of the replacement of signal boxes by a new generation of computerised boxes developed since 2006, an initial authorisation to introduce commercial operation (AMEC) was issued in 2009 by EPSE for Longueau signal box which is of
 - boxes developed since 2006, an initial authorisation to introduce commercial operation (AMEC) was issued in 2009 by EPSF for Longueau signal box which is of the PIPC 2006 type. The Mont-Cenis tunnel (Fréius)
 - The Mont-Cenis tunnel (Fréjus)
 This project is to do with the modernisation of the signalling on the line and in the station at Modane: introduction of an automatic block with the introduction into commercial operation planned for December 2010 and installation of a control system for train running which will be put into service at a later date.

In the field of research, some activities carried out by RFF are connected to the improvement of safety in the railway system. Part of this work is being done by the SNCF Directorate of Innovation and Research. These projects concern:

- improvement of the monitoring and inspection of existing railway infrastructures. The following projects have been completed in 2009:
 - the heating of the catenary,
 - the monitoring of the insulation of signalling cables;
- research into new methods of renewal or maintenance of the railway infrastructure by strengthened structures or parts. The projects completed in 2009 are:
 - standards of maintenance of the geometry for speeds above 300 km/h,
 - electric injection to remake the seal of railway bridge rails;
- the protection of railway installations against phenomena or external effects such as the fall of rocks or the intrusion of computer viruses. Some projects are in progress as for example:
 - the building of testing stations for devices to protect against rock falls,
 - the detection of rock falls.

RFF has launched a research project "Roles and tasks of the functions train running and regulation of today". This project will include the changes expected in the French railway system in the next 30 years as, for example, the opening of the system to competition of the freight and passenger RUs, the impact of even interval services, the generalisation of ERTMS, etc. This is a project in two phases, the first of which consists of proposing a new vision of how the railway will be operated, and the second consists of determining the strategy to change the current operation to that imagined.

1.2.1 Investments in network renewal

EUR 1 034m has been allocated in 2009 for the renewal of 956 km of standard track and 230 points and crossings. The work carried out on the lines in groups UIC 1 to 6 enabled modernisation to be carried out on the busiest lines of the system, as well as the elimination of tracks fitted with concrete sleepers with corroded crossbars to be continued. The volume of renewals has reached a historic level on the lines of groups UIC 7 to 9.

The amount of investment on renewal of structures and earthworks increased to EUR 153m in 2009 which enabled the following projects to be completed:

- the replacement of the metal decking on 36 bridges;
- structural renovation work in 20 tunnels of which 9 involved strengthening the concrete arch;
- the strengthening of the brickwork or the concrete of 20 bridges;
- the rebuilding of 4 bridges;
- the consolidation of 112 earthworks.

EUR 150m was allocated in 2009 for the renewal of signalling installations. This sum, which is 50% more than 2008, enabled the following work to be done;

- the introduction of a computer controlled signal box at Longeau station;
- some operations now being carried out (Lyon, section of line from Dijon to Blaisy, Villeneuve St George, Castelnaudary, Sedan);
- 13 operations being prepared (Invalides, Lyon-Guillotière, Lyon, Lyon Perrache, Réding and Sarrebourg, Jarville, Somain/Lourches, Le Bourget, Nîmes, Paris gare de Lyon, section Chalon/Macon, Metz town, Onville/Novéant).

As far as communication equipment is concerned an initial sum of EUR 3.7m has been allocated for the renewal of telephone switch boards in order to improve the availability of railway operating telephone connections. A second sum of EUR 5.5m enabled 90 km of overhead lines subject to vandalism to be eliminated: these lines have been replaced and the associated circuits restored. In order to increase safety in tunnels, a study of the fire properties of copper cables has been carried out which should enable a decision to be taken on how the installations can be adapted to the standards.

1.2.2 Prevention of individual accidents

The implementation of the policy of improving the safety at level crossings, defined in 2008 by the Secretary of State for Transport has been continued in 2009 and involved:

- the abolition of six level crossings which gave cause for concern for a total of EUR 11m (110 projects to abolish level crossings were in progress at the end of 2009);
- the signature of 35 financial agreements, basically devoted to projects to abolish level crossings between the State and the local communities for a total of EUR 65m;
- actions to bring up to current standards and improve the safety at level crossings for a total of EUR 7.8m;
- as part of the national proceedings for level crossings, RFF working together with the State, SNCF-GID and the local communities, is continuing its programme of experimenting with equipments that are designed to improve the safety of level crossings. In particular, the study of a new type of colour light to improve safety at level crossings fitted with a St Andrew's cross has been continued in 2009.

As part of the campaign to prevent trains hitting people crossing the tracks in stations, 136 stopping points have been fitted with pictograms or simple alterations and five grade separation crossings have been put in (footbridge or underground passage). Regarding the prevention of trains striking people when they are crossing lines away from stations, the introduction of the new policy of demarcation of the lines of the system began in 2009. The initial phase involved drawing up a list of the zones at risk. Finally efforts to prevent trains striking people have been continued, firstly by the introduction of a new work regulation (applicable in July 2009) and, secondly by investment in devices to help people cross the tracks.

1.2.3 Prevention of railway accidents

In order to reduce the number of events connected to operating errors, RFF has continued the activities begun in 2008 to:

- add interlocks to certain signal boxes;
- look for a better method to control the arrival of trains in sidings;
- create zone counters.

Also in order to prevent driving errors, the installation of KVB speed control beacons has been examined case by case on some violet squares, as well as the device called "time out" on the board system in Ile-de-France.

1.2.4 The prevention of risks connected to the carriage of dangerous goods and improving the security of dangerous goods transport sites

The programme for improving the security of the sites used for the carriage of dangerous goods continued in 2009. In application of the Decree No 2007-700 of 3 May 2007, six studies of dangers concerning the sites of Woippy, Sibelin, Perrigny (Dijon), Somain, Miramas and Villeneuve-St-Georges have been sent to the responsible authorities. A study of the dangers requested by the Chief of Police for the region of the site of Soquence has been carried out following the draft design for a stadium close to the RFN.

Other operations have been started or are in the study phase. They concern, in particular, the modernisation of the fire system and the introduction of an audible alert and a lighting system for the Miramas site, as well as the improvement of the safety of Villeneuve-St-Georges marshalling yard by extending the upper footbridge.

1.2.5 Tunnel safety improvements

On the 31 tunnels included in the programme for the improvement of safety undertaken since 2000, only the work on the Franco-Swiss Mont d'Or tunnel remains to be done and should be completed in 2010. In addition to this programme, work has been carried out in Cagnard tunnel at Valence and at la Colombière. For the former, this involved the installation of a modified fire alarm system, and for the latter the installation of a water supply system.

1.2.6 Environmental safety improvements

RFF has drafted two documents regarding the safety and the security of the environment. The first is to do with the method of managing areas where RFN is close to SEVESO sites, and the second the process of managing land where RFN is close to built-up areas. This latter document enabled the analysis procedure to be structured following the accident at the Stade de France. Also a diagnostic approach for sensitive railway sites has led RFF to suggest to the ministry a plan of action to improve the situation.

1.2.7 Increased awareness about the impact of security on rail safety

The increase in the theft of metals in 2009, the discovery of thefts from traction energy sub-stations and thefts of emergency accumulators at level crossings have led to the commencement of two studies on the safety of the infrastructure.

- a study of substitute materials and the introduction, in particular, of detection in order to combat the theft of line cables;
- a study of a detection device and the development of innovative solutions to repair membranes.

EUR 4.2m was allocated in 2009 to making safe 17 sub-stations, 19 storage areas and two unmanned halts (PANG).

The safety plans of four railway undertakings that carry dangerous goods were validated by RFF in 2009. Also 31 files to initiate particular SNCF protection plans have been validated and presented to the Chiefs of Police of the zone.

1.3 Railway undertakings

1.3.1 SNCF

SNCF has undertaken a number of studies in 2009 aimed at optimising the operation of the railway system, the most important of these are:

- the use of the radio alert in dense areas;
- the operation in case of failure of the train-track radio
- the running of sweeping trains on the high speed lines.

The investment in rolling stock mainly concerned the fitting of control systems, making driving cabs more ergonomic and improving the safety of door operation.

- The "TGV Réseau" trainsets for the Paris / Lyon / Turin route will be fitted and operational for running with the train running control system (SCMT) in 2010 following a delay due to the approval on the Italian system.
- The deployment of the ERTMS on the Thalys trainsets is now in progress, the system has been operational since the opening of the high speed lines HSL (Holland), L3 and L4 (Belgium) on 13 December 2009. The whole of the fleet of TGV trainsets for Paris, Brussels, Amsterdam and Paris, Brussels, Cologne and Amsterdam will be fitted in 2010.
- All the trainsets of the TGV Réseau du Technicentre Est Européen are fitted with Mémor2+, thus permitting them to run in Luxembourg.
- The alarm signal with inhibitable braking (SAFI) is effective on all TGVs with the exception of the Eurostar and NOL (North of London) trainsets which have been fitted although the equipment has not been put into service.
- In the project to improve the control of the TVM system (KARM), the modifications were carried out in two phases, an operation of pre-cabling then the fitting of the KARM module. The cabling modifications have been done on all the TGV trainsets. The fitting of the modules should be done by the end of 2010.
- The 80 BB 67200 allocated to run on the high speed lines will be fitted between 2009 and 2012 with KVB/GPS, guaranteeing that the signalling device fitted on board is effectively active.
- Àt the end of December 2009, 35% of the Transilien fleet was fitted with a new version of the KVB now being deployed.
- The operation of the doors has been modified on the Z2N (Z20500) trainsets to keep them locked should the passenger alarm (SAI) be activated as soon as the speed reaches 10 km/h during acceleration and 6 km/h during deceleration. At the end of 2009, 41% of the fleet of Z2N/Z20500 had been modified. Also in 2009, 11% of the Z2N fleet has been fitted with equipment that unlocks the doors at 3 km/h.
- The replacement of the door joints on the Z2N and VB2N trainsets by hard joints on the whole of the height of the door leaf will be applied generally from 2010, following various accidents to people that occurred in 2009.
- Bearing in mind the diversity of the operation of the doors of the TGV trainsets, and the necessity of making them comply with the regulations, standardisation of the procedures and

reduction in the time it takes them to close, modifications began at the end of 2009, in particular with the introduction of door management by lines.

- Deployment of 120 light driving simulators to traction and freight depots to enable the continuing training and development of professional practices, in particular when faced with rare procedures.
- A project to replace ATEC analogue recorders by MESTA digital recorders that enable the complete verification of the recordings with the help of the tool AIDA (computerised assistance in the analysis of the ATESS recordings) is being finalised.

Some research and development work has been undertaken or continued on the following studies and projects:

Study of side winds

The AeroTRAIN project, in conjunction with various railways and European constructors started in June 2009. The object of a lot of work devoted to side winds was to:

- determine some reference graphs for conventional and high speed rolling stock;
- assess the capacity of the digital simulation to determine the aerodynamic loading experienced by a train subjected to side winds;
- estimate the limits of validity of tests in a wind tunnel to design an embankment.
- Improvement of the detection of running gear defects
 - Some detectors to assess the circularity of wheels are today installed on three sites situated on the high speed line. Successive passages on the sites enable the state of each of the wheels to be monitored and to initiate corrective measures as necessary (reprofiling or removal) on the wheelsets that require attention. Five other sites are being fitted and should be operational in 2010.
- A projected inspection system for running gear in operation (SCORE)

The study is based on the specification of an on-board measuring system to help diagnose and monitor in service which could:

- improve the knowledge of the behaviour of running gear in service;
- detect, in real time, the early warning signs of failures so that they can be given maintenance attention.
- Research on the behaviour of high speed rolling stock in the presence of snow.
- The object of this study is to:
 - put forward design arrangements for high speed rolling stock that has to run in snowy weather;
 - to arrest the build up of snow and the formation of ice under the body;
 - to better control the effects of falls of blocks of ice and better manage the process of introduction of speed restrictions of railway trains;
 - to adapt the items in the maintenance schedule.

1.3.2 EURO CARGO RAIL (ECR)

The salient facts for 2009 for EURO CARGO RAIL are given below:

- a big increase in the basic training of drivers and other staff;
- new traffic and new customers;
- the delivery of new locomotives.

The actions undertaken by ECR to improve its performance in the field of safety are:

- The re-writing and introduction of its SGS (Safety Management System): In 2009, ECR reorganised its safety management system with the object of providing a reference SGS on RFN. All the managers involved in safety have been trained in the SGS during four training sessions.
- Investments in rolling stock:
- 15 type BR 186 locomotives;
- 1 type G 2000 locomotive;
- 1 type G 1000 locomotive.

- The carrying out of 18 internal safety audits;
 - Nine audits carried out in the operational and support units of ECR;
 - Five audits at ECR's sub-contractors;
 - Four subject audits.
- The organisation of the feedback system REX This resulted in the production of 13 REX leaflets and a document describing the introduction of the feedback system.
- Some directions
 The determination of directions and objectives for 2009 affecting all the entities of ECR
 (Directorate, support groups and operational units) in the management of safety, as well as
 the desire to introduce a proactive safety system.
- The introduction of a safety actions plan The safety actions plan is the result of the introduction of the defined objectives. This plan contains 48 action leaflets of which four are renewals of actions from previous years.

1.3.3 VEOLIA CARGO France (VCF)

The railway undertaking VEOLIA CARGO France was renamed by EUROTUNNEL on 1 December 2009 to become EUROPORTE France (EPF) from this date. In this new configuration, the national safety support group of VEOLIA Transport will carry out the service of safety management for EPF for a period of a year starting from 1 December 2009.

In 2009, VCF saw an increase in its activity, due in part to the starting up of new traffics, which has not had much effect on the total number of kilometres run. This figure remained almost the same in 2009 as in 2008. The fleet of locomotives has increased by 18% compared with 2008. Also the number of operators (including the sub-contractors) increased by about 8% compared with 2008.

Some actions have been taken in 2009 with the objective of improving the performance of the undertaking in the following areas:

- organisation of the REX initiative:
 - publication of safety information on the subjects of driving, staff on the ground, methods and procedures and rolling stock;
 - distribution and presentation of the REX instruction leaflets;
 - monitoring the improvement of the operation of the REX
- monitoring and inspection:
 - introduction of a monitoring of the frequency of travel on line and on sites;
 - continuation of the initiation of reinforced action plans for individuals (PIAS).
- training:
 - deployment of mobile simulators in the agencies;
 - organisation of continuing training days "Rare procedures" on the ground.
- quality safety actions plan (PAQS):
 - 75% completed at the end of 2009 and report of the actions not completed in 2010.
- safety meetings:
 - monitoring safety meetings in agencies and in Directorates.
- internal inspections:
 - 3 audit themes (the management of safety, the carrying out of a traffic and the sheet of applied service) for which 17 entities have been audited;
 - a theme of inspection (the manufacture of a train) for which three entities have been inspected including one sub-contractor.

1.3.4 VFLI

The knowledge of the safety procedures and safety management system has been consolidated for the managers and the operators. Also the use of computer tools has been consolidated for the fields of the documentation management system and the monitoring plan.

1.3.5 COLAS RAIL

As part of the inspection plan, Colas Rail has decided to increase the number of checks on the least experienced drivers.

Also, Colas Rail has decided to considerably increase the number of times inspectors ride with operators involved in incidents, even minor ones.

1.3.6 SNCB

The "REX" process has been developed during 2009 and describes the organisation which enables all the staff to know about and to follow all the corrective actions.

The development of the control system based on the "Conquas" (quality checks) has been continued so that it could be applied to the reciprocal checks of the consignments in international traffic.

1.3.7 CFL Cargo

The steps to improve the safety and the quality of service have been continued during 2009 by the introduction of resources dedicated to the service of trains of CFL Cargo on the RFN, in particular:

- CFL Cargo has renewed and adapted its fleet of vehicles by the progressive introduction of 540 new flat wagons, at the rate of 20 wagons per month starting in May 2009.
- The activity of its staff has been strengthened on the RFN by the introduction of its own operators (abandonment of the sub-contracted operations on the ground at Hagondange station).
- A Lorraine platform of activities on the ground of CFL Cargo has been created in Hagondange station. Some radio equipment, as well as radio frequencies, have been acquired on various sites where CFL Cargo staff carries out operations on the ground. Some computer equipment has been acquired to operate with the tape recorders of motive power units. A study for the protection of the isolated worker is currently being done (alert by GPS location).

1.3.8 EUROPORTE 2

Since 1 December 2009, EUROPORTE 2 has become EUROPORTE Channel (EPC). Various actions to improve the safety listed in the 2009 action plans have been carried out in the areas of sub-contracting, wagon exchanges with partners and recognition of the ability to transport (RAT).

1.4 BEA-TT

Six investigation reports from BEA-TT which resulted in recommendations have been published in 2009. They concern:

- The runaway of VEOLIA freight train 467473, which occurred on 26 April 2008 at Montauban (82) (published on 16 January 2009);
- the railway collision which occurred on 11 October 2006 at the Franco-Luxembourg frontier at Zoufftgen (published on 28 February 2009);
- the collision between a TGV and an exceptional train which occurred on 19 December 2007 at level crossing 34 at Tossiat (01), (published on 3 April 2009);
- the collision between a TER train and a heavy lorry on level crossing No 11 at Saint-Médard-sur-Ille (35), on 26 November 2007 (published on 11 December 2009);
- the collision between a TER train and a heavy lorry on level crossing No 19 at La-Roche-en-Brénil (21), on 7 July 2008 (published on 14 December 2009);
- the striking of a group of people by a RER Line B trainset, on 7 March 2009 near the Stade de France (93), (published on 15 December 2009).

Among the recommendations put forward by BEA-TT, the following should be mentioned:

- Four recommendations in the investigation report of the incident in Montauban station, which aim to impose the professional practices of the various operators of the railway undertakings and more accurately specify the conditions for the preparation of trains;
- 21 recommendations in the investigation report into the collision at Zoufftgen, five of which were addressed to SNCF and RFF, and one recommendation to EPSF;
- Seven recommendations in the report concerning the striking of people by a RER trainset, which were addressed to the Chief of Police of Seine-Saint-Denis, the consortium of the Stade de France, SNCF, RFF and the Directorate for Civil Defence and Security.

Several other serious accidents occurred in 2009 which resulted in an investigation by BEA-TT:

- the collision of a coach and a TER train on a level crossing at Nevers (58), on 3 February 2009 (three people slightly injured):
- the collision of two freight trains in Livernan tunnel (16), on 20 May 2009 (one person seriously injured, one person slightly injured);
- an agricultural trailer hit by a Corail train at Boisseuil (87), on 3 July 2009 (two people seriously injured, 13 slightly injured);
- the collision of a heavy lorry with a freight train on a level crossing at Laluque (40), on 25 September 2009 (nobody hurt);
- the derailment of tank wagons carrying dangerous materials in Orthez station (64), on 24 November 2009 (nobody hurt);
- the derailment of an RER Line C trainset following a road accident at Choisy-Le-Roi (94), on 20 December 2009 (39 people slightly injured).

2. Detailed information on the analysis of the trends

The analysis of the trends is based on the common safety indicators defined and listed in Annex C. In accordance with Annex 1 of the European Directive 2004/49 amended by the European Directive 2009/149EC, the indicators of accidents given in 2.2 concern the significant accidents. These significant accidents identified and recorded since 2007, have been added to the charts in Annex C in the format specified by the ERA (where data is available, the value given for a year corresponds to the average of the indicators for the last four years. The objective in the long term is to calculate the figures for the last five years).

In addition some modifications have been made in order to take into consideration new facts or errors of classification discovered after the publication of the 2008 report.

2.1 Performance overview

-> The number of accidents per million train-km has increased with respect to 2008, from 0.30 to 0.33. The reduction of 6% of the traffic in train-km has had a big impact on the accident rate together with an increase in the number of significant accidents which corresponds to five additional events in 2009.

-> The number of deaths per million train-km is less than in 2008 and has fallen from 0.17 to 0.15. The big decrease in the number of deaths (-17) explains this result.

-> The number of seriously injured people per million train-km has increased with respect to 2008, from 0.07 to 0.12. This rise is the result of the increase in the number of injuries for the categories "users of level crossings" (+8) and particularly "trespassers" (+15).

-> The number of precursors per million train-km has slightly increased with respect to 2008, from 1.67 to 1.7, but remains identical to that in 2007. This is shown on the diagram of Annex C by a stabilisation of the level of this indicator after the strong tendency to decline seen in the past.

2..2 Breakdown of accidents by type

-> The number of collisions per million train-km is slightly less than in 2008 and has fallen from 0.014 to 0.013.

-> The number of derailments per million train-km is identical to that in 2008 (0.027 derailments per million train-km).

-> The number of accidents on level crossings per million train-km has increased compared to 2008 and has risen from 0.077 to 0.097.

-> The number of accidents to people caused by moving rolling stock per million train-km has increased compared to 2008 from 0.092 to 0.125.

-> The number of rolling stock fires per million train-km has increased compared with 2008 from 0.007 to 0.03. This is the biggest increase (+12) found among the various types of accident. As mentioned in paragraph G.1.1.2, there is a marked tendency to start with events collected in the database of incidents of EPSF. This conclusion was the subject of a letter to the railway undertakings concerned in order to ask them for their analysis of the causes of this deviation and the actions taken to resolve this problem.

-> The number of other accidents per million train-km is slightly less than in 2008 and has fallen from 0.085 to 0.048.

2.3 Fatalities and serious injuries

On the whole the graphs in Annex C show a falling trend for fatalities and serious injuries per million train-km for each category of person. Nevertheless, as far as serious injuries are concerned, the number of level crossing users has increased compared with 2008 from 0.026 to 0.043. As far as trespassers are concerned, in spite of the big increase (+15) found in 2009, the number of serious injuries per million train-km continues to decline after those of 2007 and 2008.

-> The distribution of the fatalities in percentage by category has only changed a little overall. Passengers made up 9.28% of the deaths in 2009 against 10.75% in 2008. The proportion of the staff (including the sub-contracting companies) decreased from 2.15% to 1.32%. The great majority of the fatalities (88.16%) were as in previous years, associated with users of level crossings and trespassers.

-> The distribution of serious injuries has been modified with a reduction in the proportion of passengers (35% in 2008 against 22.95% in 2009) and staff (10% in 2008 against 4.92% in 2009). The proportion of trespassers seriously injured has increased from 15% in 2008 to 34.43% in 2009. Only the proportion of level crossing users seriously injured has remained stable at 35% in 2008 compared with 36.07% in 2009.

2.4 Accident precursors

-> The number of broken rails per million train-km was slightly up compared with 2008 (from 0.571 to 0.583). However this figure is less than those recorded in 2006 and 2007. As a result, the trend of this indicator seen in Annex C is going down.

-> The number of track buckles per million train-km is less than in 2008. At 0.323 track buckles per million train-km, it is the lowest figure since the beginning of records of the common safety indicators in 2006. The number of track buckles per line-km confirms this conclusion with a reduction of 15% of the rate compared with 2008.

-> The rate of signal faults per million train-km was slightly up compared with 2008 (from 0.512 to 0.562). This rate, which breaks the continuous reduction observed since 2006 stabilises the trend observed in Annex C around 0.54 signalling faults per million train-km.

-> The number of signals passed at danger per million train-km has increased compared with 2008 from 0.229 to 0.236. The slight increase (+6) in the absolute figure, or barely more than 2% is nevertheless increased by the reduction of 6% in the traffic. This conclusion, which does not enable the trend already observed since 2006 to be modified, shows a continued increase in this type of event. In spite of the results presented throughout 2009, in particular at the quarterly feedback meetings on the subject of signals passed at danger on the main line the conclusion drawn on this precursor reminds all of the vigilance that needs to be put on this type of event.

-> There were no events that came within the definition of wheel fractures in 2009. Two axle fractures occurred in 2008 against one in 2009.

E. Significant changes in the legislation and regulations

Law No 2009-1503 of 8 December 2009 regarding the organisation and the regulation of rail transport

Date of entry into force: 10 December 2009.

This law created the Regulatory Authority for Railway Activities (ARAF), the Directorate of Railway Traffic (DCF), Directorate of the SNCF in charge of the management of traffic and train running, and provides for the introduction of the Close railway operators (OFP). It also transposes the Directive 2007/59/EC of the European Parliament and Council regarding the certification of drivers who drive locomotives and trains on the railway system of the Community.

Order of 29 May 2009 regarding the carriage of dangerous goods by land

Date of entry into force: 1 July 2009.

This order specifies the arrangements applicable to the carriage of dangerous goods by "road, rail and inland waterway in France including operations of loading and unloading, transfer from one mode of transport to another and at stops necessitated by the transport circumstances". It includes in the Annex:

- the regulations concerning the carriage by rail of dangerous goods (RID);
- the description of the arrangements applicable, in particular the respective tasks of the various parties involved.

Order of 22 December 2009 amending the order of 30 July 2003 regarding the conditions of physical and professional suitability and the training, the assessment of the professional competence and the authorisation to exercise safety functions on the national rail system Date of entry into force: 7 January 2010.

The order was amended in order to fix new conditions for the trainers. It also specifies the arrangements for staff at the work sites.

Order of 17 June 2009 regarding work on the infrastructure of the national rail network amending the order of 23 June 2003 regarding the safety regulations applicable on the national rail network

Date of entry into force: 6 July 2009.

This order revises the list of the texts of regulations applicable to the national rail network, by amending five texts approved by ministerial decision.

F. Changes in safety certification and approval

1. Effect of changes in the regulations

1.1 Issue of safety certificates in accordance with Article 10 of Directive 2004/49/EC

Pursuant to Article 68 of Decree 2006-1279 of 19 October 2006 on rail traffic safety and the interoperability of the railway system, since 1 May 2007 all new or amended safety certificates have been issued in accordance with Article 10 of Directive 2004/49/EC.

The Order of 14 April 2008 on requirements for rail safety certificates was published in the Official Journal of the French Republic of 3 May 2008. This Order, required by Article 24 of the above mentioned Decree, lays down practical procedures for issuing, amending and renewing safety certificates based mainly on Commission Regulation EC 653/2007 of 13 June 2007 on the use of a common European format for safety certificates and application documents.

1.2 Issue of safety approvals in accordance with Article 11 of Directive 2004/49/EC

Pursuant to Article 68 of Decree 2006-1279 of 19 October 2006 on railway traffic safety and the interoperability of the railway system, the infrastructure manager (RFF) and the deputy infrastructure manager (SNCF) had until 31 October 2007 to file their application for approval.

These two bodies complied with this provision and received their safety approvals on 27 February 2008.

1.3 National safety rules for railway undertakings and infrastructure managers

State regulations (laws, decrees, orders) are available on the site <u>www.legifrance.gouv.fr</u> and EPSF website: <u>www.securite-ferroviaire.fr</u>.

The operating safety regulations applying to railway undertakings (consisting of the texts required by the Order of 23 June 2003, amended by the orders of 7 December 2006, of 12 August 2008 and 17 June 2009, regarding the regulations applicable on the national rail network and texts produced by the infrastructure manager under Article 10 of Decree 2006-1279) are supplied to them on request by the infrastructure manager RFF on CD-Rom.

2. Numerical data

In 2009 safety certificates were issued or amended for six undertakings: CFL-CARGO, COLAS RAIL, ECR, SNCF, TSO and VFLI.

The numerical data are given in Annex E.

3. Procedural aspects

3.1 Part A safety certificates

Six requests for new or amended certificates were granted during 2009. One of these requests was made in 2008.

3.2 Part B safety certificates

Nineteen requests for new or amended certificates were granted during 2009. Two of these requests were made in 2008.

3.2.1 Main reasons for updates or amendments

The main reasons for updates or amendments were as follows:

- to conform with Directive 2004/49/EC (Part A and Part B file);
- traffic on new sections of the national rail network line;
- authorisation to transport new classes of dangerous goods;
- modifications to operations at organisational level.

3.2.2 Cost of issuing a certificate

There is no charge for services relating to the appraisal of an application for a safety certificate.

3.2.3 Feedback on appraisal of dossiers

No particular difficulty has been noted. Certificates have generally been issued in times considerably less than the legal limit.

3.3 Safety approvals

The infrastructure manager and deputy infrastructure manager have held their approval since 27 February 2008.

These approvals were amended on 22 December 2009 following the reorganisation of the deputy infrastructure manager, in particular following the creation of Directorates of Railway Traffic, of Maintenance, and of Production territories within the Directorate of Industrial production.

G. Supervision of infrastructure managers and railway undertakings

1. Description of the supervision of infrastructure managers (IM) and railway undertakings (RUs)

1.1 Safety checks and monitoring

1.1.1 Checks

50 checks, made up of 34 audits and 16 inspections, were carried out on the national rail network in 2009.

32 of these checks were audits of the "systematic type" programmed according to the following rules:

- All the RUs that have a safety certificate to run on the RFN, as well as the RFF and the SNCF-GID, receive at least an annual audit. These audits are designed in such a way that over a period of five years they cover all the subjects and files associated with the certificates and approvals issued.
- The newly authorised RUs or IM, as well as those of the new systems which offer the most significant issues regarding safety, receive a systematic audit in the second part of the year which follows their issue or authorisation. The same applies to the qualified experts or organisations (EOQA), provided that they have produced at least one file to enable the conformity of application and the efficiency of their organisation to be assessed.
- In the case of an initial approval which is limited to two years, training centres are checked for the first time between six and 18 months after the date of approval and after the initial courses have been run. This check, the monitoring of the introduction of the corrective actions and a possible inspection of completion enables an opinion to be given on the subjects laid down in the order of 30 July 2003 on the extension to five years of the initial authorisation. After this probationary period, the training centres are checked every 30 months on average.

The inspections, as well as two audits (called "temporaries"), have been carried out consecutively with the analysis of the events that occurred on RFN, or even following the identification of particular problems that appeared during the previous checks. In addition, the accident that occurred on the Italian network at Viareggio on 29 June 2009 led to inspections being carried out in rolling stock maintenance depots situated in France.

1.1.2 Monitoring

The monitoring of the level of safety is done by studying the two types of information received by EPSF:

- the events that occurred on the national rail network for which EPSF is informed, by asking, if need be, for a report in accordance with Article 16 of Decree No 2006-1279 of 19 October 2006;
- the common safety indicators as well as other indicators which are peculiar to it (special indicators).

In 2009, more than 9,000 events were recorded in EPSF database or an average of 750 events per month. These figures correspond to an increase in the volume of information with respect to 2008, explained by an increase in the number of sources of information.

The analysis of these events resulted in the issuing of eight alerts resulting from:

- 4 checks called temporary (1 audit concerning level crossings and 3 inspections regarding co-activity, charging defects and train depart procedures).

- 4 letters addressed to the railway undertakings concerned on subjects such as incidents on rolling stock and the degradation of the infrastructure.

Moreover the triggering of these alerts, the monitoring carried out on the national rail system was achieved by:

- the holding of four meetings at quarterly intervals between EPSF, RFF/SNCF-GID and DST;
- the holding of four quarterly feedback meetings between EPSF, the RUs, the RFF/SNCF-GID, BEA-TT and DST. These meetings were part of the initiative set up in 2007 on the sharing of good practices and the identification of weak points;
- the distribution of 12 monthly newsletters on the most significant incidents that occurred on the national rail network.

1.2 Aspects of surveillance / sensitive points to be monitored

-> Initial and continuous training and organisation of the operators

-> Documentation imposed by Article 29 of the aptitude order of 30/07/03 (register, authority cards)

- > Authorisation of staff
- -> Non-observance of the organisation described in the file associated with the safety certificate
- -> Checks (also the checks on the sub-contractors)
- -> Management of documentation

-> Sub-contracting (absence of contracts, selection of the suppliers, absence of formalised instructions, etc.)

2. Annual reports from infrastructure managers and railway undertakings

All the annual reports of the IM and the RUs had been sent to EPSF before the deadline of 30 June 2010.

3. Checks carried out in 2009

3.1 Number of audits of RUs/IM carried out in 2009

	RFF/SNCF-GID	RU	Training centres	Others
Number of audits planned	5	9	14	4
Number of audits carried out	7	9	14	4

3.2 Number of inspections of RUs/IM carried out in 2009

	RFF/SNCF-GID	RU	Training centres	Others
Number of inspections carried out	3	12	0	1

4. Measures taken as a result of inspections

In 2009, the 50 inspections carried out by EPSF resulted in a list of 106 points requiring attention and 252 discrepancies, of which less than 1% were contested by the entities audited.

These discrepancies break down into:

- 33 serious situations (malfunctions that might cause an accident in the very short term);
- 107 major discrepancies (malfunctions that might cause an accident in the short term);
- 112 reservations (malfunctions that might cause an accident in the medium term);

Serious situations and major discrepancies require immediate preventative measures. For all malfunctions found, EPSF requires corrective or preventative measures to be taken within suitable deadlines, and insists on the necessity of generalising the corrective measures required for the whole of the entity audited, and not just on the single site visited.

At 31 December 2009, 87% of the curative and corrective actions, set up following differences identified have been carried out to their conclusion. This is an improvement with respect to 2008, for which the percentage was 70%.

Finally, if necessary, re-inspections enable the introduction of the agreed action and the effectiveness of the result to be checked on site.

H. Conclusions

The level of safety on the national rail network has remained satisfactory in 2009. In particular, the number of fatalities or injuries directly attributable to a malfunctioning of the railway system has continued to fall for the last three years. However, the continued increase over the last two years of the number of accidents per million train-km needs to be addressed. Indeed, the fact that fortunately, this trend does not result in an increase in the number of victims in these accidents is due to a large extent to the capacity of the railway system to recover because of the good functioning of the different loops of recovery introduced. An initial conclusion from these performance figures is, therefore, that it is definitely necessary to maintain the consistency of the railway system and its ability to reduce, and often eliminate, the consequences of the accidents.

But a second conclusion is that, in order that these loops are not put under too much stress to which they cannot always respond effectively, it is essential that each railway operator introduces the measures necessary to reduce the number of accidents within his responsibility and ensure, as specified in the regulations, the safety of operations of the parts of the railway system placed under his control.

In this regard the 2009 results identified several weak points.

- The rising trend in the rate of passing signals at danger since 2006; in 2009 more than half of these cases involved passing the point protected.
- Two main line derailments due to defects in the infrastructure (mudslides) which, in conjunction with other worrying events and because of the result of audits carried out in the first quarter, put RFF and SNCF-GID on alert. Arising from this alert, a project to improve the level of safety of the infrastructure of the national rail network was proposed in January 2010 jointly by RFF and SNCF GID. This action plan, which affects the maintenance of the network, was specifically monitored, in particular, during the quarterly progress meetings organised by EPSF.
- A derailment on the main line due to a hot box on a wagon, as well as the loss on line of an axlebox from a TGV, which confirmed the preceding alerts on the maintenance problems of rolling stock. Thus the number of incidents concerning wheelsets has more than tripled between 2008 and 2009. It is appropriate, therefore, and the rolling stock events during the first quarter of 2010 confirm, that increased attention should be given, firstly to the observance of the maintenance rules and their operational schedules, and secondly to the quality of technical examinations and unit exchanges.
- The worrying increase in fires on board rolling stock since the beginning of 2009 which resulted in an alert issued by EPSF to SNCF (RU). The number of fires recorded has practically doubled compared with 2008. This increase is basically due to fires affecting motive power units and TGV trainsets. The critical nature of this type of incident merits special treatment. The result of the actions initiated by SNCF (RU) to reduce the number of events will be closely monitored by EPSF.
- The persistence of significant differences measured during several audits and inspections in fields which are quite sensitive, such as the training and authorisation of the operators, the management of documents and the inspections.

It is therefore appropriate that all railway operators take steps to resolve these problems. EPSF will make its contribution by carrying out its responsibilities, in particular in the following fields:

In its monitoring activities by applying flexibility and diversification in its targeted and specific checks with samples of 'certain activities on the ground' on organisations or procedures which may become weak links or degrade the level of safety. The monitoring (time, relevance, effectiveness of the measures taken) of the reports requested from the railways involved in the case of an incident requiring more information on the causes, will be vigorously pursued. Moreover the sharing of experience, as well as the discussions of good practice, will be continued in 2010 by means of quarterly feedback meetings and the publication of a monthly newsletter on the incidents for all the railway people involved.

- In the field of safety documentation by continuing to publish recommendations, of which one
 on the subject of co-activity in order to improve the necessary consistency between the local
 operating instructions (CLE) and the local operational instructions (CLO). EPSF will also
 contribute to the writing of the texts of regulations, for example, through its participation in
 the work on the definition of "simple safety installations".
- in the field of authorisations, revisions of the existing guides and instructions are planned for 2010, as well as the publication of new guides (OFP safety authorisation for the management of the infrastructure). Others will be launched, in particular the guide on how to obtain a driver's licence and a guide concerning authorisations in the context of a port.
- In Europe, EPSF will continue to:
 - participate in a supporting way in the work of ERA, in particular that connected with the "peer review" initiative, as well as in the work of ILGGRI and its sub-group "regulatory";
 - organise two annual meetings open to external partners in order to exchange and distribute European information;
 - strengthen links with existing partners, start and intensify relations with the Italian and Spanish ANSs and organise staff exchanges with the ORR;
 - encourage the experts participating in the ERA working groups, to prepare summary documents, to organise mirror groups and draw up common positions.

The institutional changes (creation of ARAF and DCF), the development of new railway services on the network (creation of OFPs, opening international passenger transport to competition) and modifications of the legislation (driver's licence, new system for the management and maintenance of rolling stock) will also have a big impact on the activities of EPSF and the implementation of its tasks. In order to do this, EPSF must develop its skills and increase them in the areas that are evolving.

Finally, even though this problem is not due to a failure of the railway system, it is necessary to mention that the biggest cause of deaths or serious injuries is basically due to the carelessness of people who find themselves on railway premises. There are, therefore, reasons to improve the security of railway premises, to support the actions or campaigns that provide information on the dangers which are present, and to involve all the people concerned in safety if demonstrations are organised on sites close to railway lines.

The number and the diversity of the people who make up the railway community in RFN have increased during 2009. It has not involved a reduction in the level of safety but the example of co-activity on numerous sites or the question of the shunting of the "simple installations" are the perfect illustration of new weak points which should be addressed. More generally, the multiplication of the interfaces will require ever greater vigilance in order to preserve the consistency of a railway system within which each company involved must fully play its part as far as safety is concerned. EPSF, through its operations and sources of information, will continue in its role as a caretaker of this process so as to maintain and, where possible, make efforts to improve the level of safety on the national rail system.

Annex A: Information relating to the network and to changes in the railway sector



A.1: Map of the national rail network (RFN)

A.2: List of railway undertakings and the infrastructure manager

A.2.1: Infrastructure Manager

Name	Web address:	Safety	Date of
Postal address Link to the reference document		authorisation	commencement of
	of the system	number/date	commercial
			activity
RFF	www.rff.fr	27/02/2008	July 1997
92, avenue de France			
75648 Paris Cedex 13	rff-document-de-reference.eu		

km of line by gauge	 29 466 km of standard gauge line with the exception of: 166 km of metre gauge; a few km of 1.68 m gauge track to connect with the Spanish system.
km of electrified line by type	 15 486 km of electrified line of which: at 1 500 volts dc: 5 886 km; at 25 000 volts ac: 9 478 km; by third rail and other systems: 122 km.
km of double and single track	 16 541 km of double track lines of which: 1 884 km of high speed line; 14 657 km of double track line and in addition; 12 925 km of single track line.
km of high speed lines	1 884 km of high speed lines
% km of lines using an ATP system	47.2%
Number of level crossings	18 459
Number of signals	About 40 000

A.2.2. Railway undertakings

Name	Postal address Web address	Safety certificate A-B 2004/49/EC number/date	Date of start of commercial activity	Type of traffic
RAIL4CHEM	Schûtzenbahn 60 D-45127- Essen – Germany www.rail4chem.com	Safety certificate 2001/14 CE	No commercial service	/
SNCB	80, rue des 2 Gares B170 Bruxelles - Belgium www.bcargo.be	A : reputedly acquired B: FR 12 2008 0012	11/12/2006	Freight
CFL	9, place de la Gare, L-1616 Luxembourg www.cfl.lu	Safety certificate 2001/14 CE	19/12/2006	Freight
VEOLIA CARGO	15, rue des Sablons 75016 Paris - France www.veolia-cargo.com	A: FR 11 2008 0001 B : FR 12 2008 0010	13/06/2005 under certificate CFTA CARGO	Freight
ECR	60, avenue Hoche 75008 Paris - France www.eurocargorail.com	A: FR 12 2009 0023 B : FR 12 2009 0024	13/06/2006 under certificate EWSI	Freight
COLAS RAIL	3, rue des Beaunes 78400 Chatou - France www.colasrail.com	A: FR 11 2009 0007 B : FR 12 2009 0015	08/01/2007 under certificate SECO RAIL	Freight
SNCF	34, rue du Cdt Mouchotte 75699 Paris - France www.sncf.com	A: FR 11 2009 0021 B : FR 12 2009 0022	Before the issue of the certificate	All types
VFLI	6, rue d'Amsterdam 75009 Paris - France www.groupe-vfli.com	A: FR 11 2009 0010 B : FR 12 2009 0025	04/10/2007	Freight
EUROPORTE 2	37, rue des Mathurins 75008 Paris - France www.eurotunnel.com	A: FR 11 2007 0006 B : FR 12 2008 0011	26/11/2007	Freight
CFL CARGO	11, boulevard Kennedy L-4170 Esch sur Alzette Luxembourg www.cflcargo.lu	A : reputedly acquired B: FR 12 2009 0016	04/02/2008	Freight
TSO	Chemin du Corps de Garde 77501 Chelles - France www.tso.fr	A: FR 11 2009 0002 B : FR 12 2009 0012	29/07/2009	Freight

Name	Number of	Number of	Number of	Number of	Volume of	Volume of
	locomotives	diesel railcars,	coaches/	drivers	passengers	freight
		electric	wadons	safety teams	carried	carried
		multiple units	Jungene			
RAIL4CHEM	/	/	/	/	/	/
SNCB	22	/	/	35	/	162 million
						tonne.km
CFL		List o	f services carri	es out by CFL-C	ARGO	
VEOLIA CARGO	32	/	199	172	/	751 548 million
						tonne.km
ECR	119	/	2 000	473	/	2 985 billion
						tonne.km
COLAS RAIL	26	/	413	67	/	1 197 million
						tonne.km
SNCF	2 620	2 867	16 426 /	15 786	83,28 billion	28.38 billion
			40 000		passenger-km	tonne.km
VFLI	64	/	287	60	/	957 672 million
	_	,			,	tonne.km
EUROPORTE 2		/	0	20	/	184 /16
		,	1.000	40	,	tonnes.km
CFL CARGO	25	/	1 200	18	/	67 948 million
						tonne.km
TSO	2	/	243	0	/	20 086 tonne.km

Note: The names of railway undertakings used in these tables are those appearing on the safety certificate at 31/12/2009.

Annex B: Organisation Chart of the French Railway Safety Authority

B.1 Figure: internal organisation



B2 Figure: Relations between EPSF and its principal partners



Annex C: Common safety indicators

C.1 Common safety indicators - data

As mentioned in D.2, where data is available, the value given for one year corresponds to the average of the indicator for the last four years, the long term objective is to calculate the average for the last five years. For example, in the case of indicators available since 2006, the data are calculated in the following manner:

- year 2006 values related to 2006
- year 2007 values related to the average of 2006 and 2007
- year 2008 values related to the average of 2006, 2007 and 2008
- year 2009 values related to the average of 2006, 2007, 2008 and 2009

Overview of performance

N10: Number of accidents per million train-km

TK10: Number of deaths per million train-km







TK10 : Nombre relatif de tués par million de trainkm



I10: Number of precursors per million train-km

I10 : Nombre relatif de précurseurs par million de train-km



Total costs in million Euro per million train-km



Not available



Reminder: in the case of indicators available since 2006, the data are calculated in the following manner:

• year 2006 - values related to 2006

Nombre relatif aux accidents

- year 2007 values related to the average of 2006 and 2007
- year 2008 values related to the average of 2006, 2007 and 2008
- year 2009 values related to the average of 2006, 2007, 2008 and 2009

Accidents présentés par type



Mombre relatif aux accidents significatifs



N14 : Nombre relatif d'accidents de personnes



N15 : Nombre relatif d'incendies de matériel roulant par million de train-km





N16 : Nombre relatif d'accidents autres par million de train-km



Accidents by type

Relative number of accidents

N11: Number of collisions per million train-km

N12: Number of derailments per million train-km

N13: Number of accidents on level crossings per million train-km Relative number of significant accidents

N14: Number of accidents to people caused by rolling stock in motion per million train-km

N15: Number of rolling stock fires per million train-km

N16: Number of other accidents per million train-km Reminder: in the case of indicators available since 2006, the data are calculated in the following manner:

- year 2006 values related to 2006
- year 2007 values related to the average of 2006 and 2007
- year 2008 values related to the average of 2006, 2007 and 2008
- year 2009 values related to the average of 2006, 2007, 2008 and 2009

Morts répartis par type de personne impliqué







UK10 : Nombre relatif de personnes non autorisées tuées million de train-km







OK10 : Nombre relatifs de personnes autres tuées par million de train-km



Deaths by type of person involved

PK10: Number of passengers killed per million train-km Pk20: Number of passengers killed per million passenger-km SK10: Number of employees killed per million train-km LK10: Number of level crossing users killed per million train-km UK10: Number of trespassers killed per million train-km OK10: Number of other persons killed per million train-km Reminder: in the case of indicators available since 2006, the data are calculated in the following manner:

- year 2006 values related to 2006
- year 2007 values related to the average of 2006 and 2007
- year 2008 values related to the average of 2006, 2007 and 2008
- year 2009 values related to the average of 2006, 2007, 2008 and 2009









PS20 : Nombre relatif de voyageurs blessés par



SS10 : Nombre relatif d'employés blessés par million de train-km



Injuries by type of person involved

PS10: Number of passengers injured per million train-km PS20: Number of passengers injured per million passenger-km SS10: Number of employees injured per million train-km

OS10 : Nombre relatif de personnes autres blessés par million de train-km



LS10: Number of level crossings users injured per million train-km US10: Number of trespassers injured per million train-km OS10: Number of other persons injured per million train-km

As a reminder, for indicators available since 2006, the data are calculated as follows:

- year 2006 values related to 2006
- year 2007 values related to the average of 2006 and 2007 .
- year 2008 values related to the average of 2006, 2007 and 2008 .
- year 2009 values related to the average of 2006, 2007, 2008 and 2009 .

Précurseurs d'accidents



signaux franchis fermés par million de train-km 0,40 0,35

N14 : Nombre relatif de franchissements de







N15 : Nombre relatif de roues cassés sur du matériel roulant en service par million de train-km



N13 : Nombre relatif de pannes de signalisation par million de train-km



N16 : Nombre relatif d'essieux cassés sur du matériel roulant en service par million de train-km



Precursors of accidents

N11: Number of broken rails per million train-km

N12: Number of track twists per million train-km

N13: Number of signalling failures per million train-km

N14: Number of signals passed at danger per million train-km

N15: Number of broken wheels on rolling stock in service per million train-km

N16: Number of broken axles on rolling stock in service per million train-km

Reminder: for indicators available since 2006, the data are calculated as follows:

- · year 2006 values related to 2006
- year 2007 values related to the average of 2006 and 2007
- year 2008 values related to the average of 2006, 2007 and 2008
- year 2009 values related to the average of 2006, 2007, 2008 and 2009

Sécurité technique de l'infrastructure et sa mise en œuvre, management de la sécurité











■ Nombre total de PN ■ Nombre total de PN sur ligne exploitée







Nombre total de PN IN Nombre total de PN sur ligne exploitée

Technical safety of the infrastructure and its implementation, safety management

Percentage of lines in service fitted with an automatic train protection system (ATP)

Percentage of train-km using operational ATP systems

Not available

Total number of level crossings (PN)

Total number of level crossings Total number of level crossings on line operated

Number of kilometres of line

Percentage of the number of internal audits carried out compared with the number of audits required

Number of level crossings per km of line Total number of level crossings Total number of level crossings on line operated

C.2 Definitions used in the annual report

C.2.1: Definitions linked to types of accident:

-> Significant accident

Any accident involving at least one railway vehicle in movement and causing the death or serious injury of at least one person or significant damage to rolling stock, tracks, other installations or the environment (material damage of more than EUR 150 000), or serious disturbances to train running (suspension of railway services on a main line for six hours or more). Accidents that occur in workshops, storerooms and depots are excluded.

-> Collision

Accident occurring on the national rail network, resulting principally in an impact within the clearance gauge, between a part of a train and:

- a part of another train (front to front, front to end or side collision);
- fixed infrastructure parts (buffers, etc.);
- shunting rolling stock;
- any object (excluding animals) temporarily present on or near the track (except items lost at level crossings from vehicles or users of the level crossing).

A collision occurring during a derailment is counted as a collision.

-> Derailment

Accident occurring on the national rail network, with the main consequence that at least one wheel of a train leaves the rails.

-> Level crossing accident

Significant accident occurring on the national rail network, the main consequence of which is a collision, at a level crossing, of at least one railway vehicle and:

- one or more crossing vehicles;
- other crossing users such as pedestrians or other objects temporary present on or near the track (if lost by a crossing vehicle or user).

->Accidents to persons caused by moving rolling stock

Accident, not on a level crossing, involving one or more persons who are hit either by a railway vehicle or by an object attached to, or that has become detached from, the vehicle. Persons who fall from railway vehicles are counted in this indicator.

-> Fire in rolling stock

Accident occurring on the national rail network requiring intervention by the fire service, the main consequence of which is a fire and/or explosion occurring in a railway vehicle (including its load) when running between the departure station and the destination, including when stopped at the departure station, the destination or intermediate stops, as well as during shunting operations.

Other accidents

->Accident occurring on the national rail network, which is not classed as a train collision, train derailment, level crossing accident, accident to persons struck by rolling stock in motion or fire in rolling stock.

C.2.2: Definitions linked to the human consequences of accidents

-> Fatality

Any person killed outright or dying within 30 days as a result of a railway accident, excluding suicides.

Serious injury

-> Any person injured who was hospitalised for more than 24 hours as a result of a railway accident except for attempted suicide.

-> Passenger

A person, excluding members of the train crew, who travels by rail, including any person attempting to board or alight from a train in motion.

-> Staff of any company including sub-contractors

A person whose employment is in connection with a railway and is at work at the time of the accident. This includes train crews and persons handling rolling stock and infrastructure installations (including managers and staff of sub-contractors).

-> Level crossing user

A person using a level crossing by any means of transport or on foot.

-> Trespasser

A person present on railway premises where such presence is forbidden, with the exception of level crossing users.

-> Others

Persons who are not passengers, staff of any railway undertaking including sub-contractors, level-crossing users or trespassers on railway premises.

C.2.3: Definitions linked to precursors

All precursors are reported, whether or not they lead to an accident. The precursors which lead to an accident are included in the CSI for precursors. If they are significant, the accidents that occurred are also included in the CSI for accidents.

-> Broken rail

Any rail which is separated into two or more pieces or which exhibits a gap in the running surface more than 60 mm in length where the two following criteria are met:

- the gap is more than 10 mm in depth;
- the residual width of the rail head, measured on the running surface, is less than 30 mm.

-> Track buckle

Faults related to the continuity and the geometry of the track, requiring track closure or immediate reduction of the maximum permitted speed to maintain safety.

-> Signalling fault

Any failure of a signalling system (either to infrastructure or to rolling stock) resulting in signalling information which is less restrictive than that required.

-> Signals passed at danger

An event where a train passes a signal at danger without authorisation. Cases in which, for any reason, the signal is not turned to danger in time to allow the driver to stop the train before the signal are not included.

-> Broken wheel

Fracture affecting the essential parts of the wheel.

In 2008, broken wheels were counted only when they could cause a derailment or collision.

-> Broken axle

Fracture affecting the essential parts of the axle.

In 2008, broken wheels were counted only when they could cause a derailment or collision.

Annex D: Significant changes in the legislation and the regulations

These changes are given in section E.

Annex E: Changes in safety certification and approval – Numerical data

E.1 Safety certificates issued in accordance with Directive 2001/14/EC

Number of safety	With licence issued in France	17
certificates issued in 2009	With licence issued by another Member State	2

E.2 Safety certificates issued in accordance with Directive 2004/49/EC

		New	Updated / amended	Renewed	RU
E.2.1. Number of valid Part A safety certificates registered during 2009	With licence issued in France	1	5		TSO ECR (x2) COLAS RAIL VFLI SNCF
	With licence issued by another member State				
		New	Revised / amended	Renewed	RU
E.2.2. Number of valid Part B safety certificates valid, registered during 2009	With part A issued in France	1	16		COLAS RAIL (x2) ECR (x2) SNCF TSO (x2) VFLI (x10)
	With Part A issued by another member State		2		CFL CARGO (x2)

			А	R	Ι	RU
E.2.3. Number of	With licence	New certificates				
applications for Part A	issued in	Certificates revised /	5			COLAS RAIL
safety certificates,	France	amended				ECR (x2)
registered during 2009						VFLI
						SNCF
		-				
		Certificates renewed				
	With licence	New certificates				
	issued by	Certificates revised /				
	another	amended				
	member State	Certificates renewed				

			Α	R		RU
E.2.4. Number of applications for Part B safety certificates, registered during 2009	lumber of ions for Part B ertificates, ed during 2009	New certificates Certificates revised / amended	15			COLAS RAIL (x2) ECR (x2) SNCF TSO VFLI (x9)
		Certificates renewed				
	With Part A	New certificates				
	issued by another member State	Certificates revised / amended	2		2	CFL CARGO (x2) CROSSRAIL BENELUX TRENITALIA
		Certificates renewed				

A = Application accepted, the certificate has already been issued

R = Application rejected, no certificate has been issued

I = The matter was still under consideration at 31 December 2009

E.3 Safety approvals in accordance with Directive 2004/49/EC

	New	Updated / amended	Renewed
E.3.1. Number of valid safety approvals held during 2009 by infrastructure managers recorded in your Member State		2	

		A	R	I	IM
E.3.2. Number of safety approval applications submitted during 2009 by infrastructure managers recorded in your Member State	New approvals				
	Updated / amended approvals	2			RFF SNCF
	Renewed approvals				

A = Application approved, approval already issued

R = Application refused, no approval issued

I = The matter was still under consideration at 31 December 2009

E.4 Procedural aspects - Safety certificates Part A

		Railway undertaking	New	Updated / amended	Renewed
Period of time, after receipt of all necessary information, between receipt of an application and final issue of a safety certificate Part A during 2009 for railway undertakings which hold:	a licence issued in France	TSO	119 days		
		COLAS RAIL		119 days	
		ECR		73 days	
		ECR		56 days	
		SNCF		119 days	
		VFLI		119 days	
	a licence issued by another Member State				

E.5 Procedural aspects - Safety certificates Part B

		Railway undertaking	New	Updated / amended	Renewed
Period of time, after receipt of all necessary information, between receipt of an application and final issue of a safety certificate Part B during 2009 for railway	a Part A issued in France	TSO	119 days		
		TSO		66 days	
		COLAS RAIL		119 days	
		COLAS RAIL		39 days	
undertakings which hold:		ECR		73 days	
		ECR		56 days	
		SNCF		119 days	
		VFLI		80 days	
		VFLI		62 days	
		VFLI		119 days	
		VFLI		54 days	
		VFLI		82 days	
		VFLI		112 days	
		VFLI		113 days	
		VFLI		61 days	
		VFLI		104 days	
		VFLI		53 days	
	a Part A issued by another Member State	CFL CARGO		53 days	
		CFL CARGO		63 days	

E.6 Procedural aspects - Safety authorisations

		Infrastructure Manager	New	Updated / amended	Renewed
Period of time, after receipt of all the necessary information, between receipt of an application and final issue of a safety authorisation during 2009 for an infrastructure manager:	issued in France	RFF		14 days	
		SNCF		14 days	
	issued by another member State				

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