établissement public de sécurité ferroviaire

Report on the safety of the national rail network

2007

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A. Foreword

The 2007 annual report on the safety of the national rail network has been drawn up in accordance with Article 18 of Directive 2004/49/EC and its incorporation into French law in Article 17 of Decree 2006/1279 of 19 October 2006.

The structure of this report complies with the recommendations of the European Railway Agency. It was produced using information supplied by parties involved in the rail system, particularly information supplied by the railway undertakings (RUs) and the infrastructure manager (IM) in their own reports on safety.

The objectives of this report are to provide information required by various statutory texts on the level of safety in the railway system, to highlight the main changes in relation to the previous year and to analyse the causes of these changes. A further objective is to point out areas of weakness detected by the EPSF (Etablissement Public de Sécurité Ferroviaire – French rail safety authority) and to indicate what actions should be taken to improve the overall safety level of the railway network.

B. Introductory section

1. *Introduction to the report*

This annual report on the safety of the rail network is the third presented by the EPSF but the first report on a full year of operation of the EPSF.

2007 has been, for the French rail safety authority (EPSF), a year of consolidation of its structures and operational methods and in particular of:

- putting in place the remaining human and technical resources which will enable it to carry out its missions in full;
- the introduction of a quality procedure concerning its major processes;
- organisation of system feedback involving the various players in the railway system in order to ensure that its consistency continues;
- increased exchange of information and good practice with other national safety authorities and the European Railway Agency (ERA).

2007 was also the first year of implementation of Decree 2006-1279 relating to railway traffic safety and the interoperability of the rail system which completed the incorporation into French law of Directive 2004-49. The RU SNCF also obtained its safety certificate, and the RFF (Réseau Ferré National) and SNCF-GID (deputy infrastructure manager) submitted their application for approval within the deadlines laid down in this Decree.

This report includes activities relating to the safety of railway undertakings and the infrastructure manager, all of which delivered their reports on safety before 30 June 2007 in accordance with Decree 2006-1279.

This report will be sent to:

- the Ministry of Ecology, Energy, Sustainable Development and Town and Country Planning;
- the European Railway Agency, which will publish it on its public website;
- the Land Transport Accident Investigation Bureau;
- the Railway Undertakings;
- the Infrastructure Manager.

It will be available on the EPSF public website.

The information given in this report will be used by the European Railway Agency in drawing up its twice-yearly report on safety performances.

2. *Information relating to the network and to changes in the railway sector:*

The national rail network comprises 29,973 km of lines in operation, of which 50.59% are electrified and 58.50% have an automatic traffic protection system (KVB [beacon speed control], TVM [track-to-train communication]).

The first phase of the East European high-speed line (Vaires – Baudrecourt) was added to the existing network on 10/06/2007, bringing the total length of the RFN high-speed lines to 1,884 km. All these lines are equipped with the speed control system with cabin display (TVM).

A map of the national railway network is given in Annex A.1 and some essential characteristics of the Infrastructure Manager are given in Annex A.2.1.

Four railway undertaking obtained their safety certificates in 2007:

- SNCF on 28 June 2007;
- VFLI on 13 October 2007;
- EUROPORTE2 on 29 October 2007;
- CFL-CARGO on 13 December 2007.

Three railway undertakings obtained amendments to their safety certificates because of an extension of their operation on the national rail network: EURO CARGO RAIL (ECR), VEOLIA CARGO France and the SNCB.

Out of ten railway undertakings possessing a safety certificate in 2007, only eight undertakings carried on commercial activity during that year.

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

Four new training centres have been approved: 3 are linked to the RU SNCF and one to the RU ECR.

3. *Summary – General trend analysis*

The level of safety of traffic on the national rail network overall is good, in spite of unfavourable changes in some indicators.

2007, like 2006, was marked by some serious accidents:

- on 5 April 2007 the Château-Thierry/Paris train struck, at low speed, a buffer in Paris Est station resulting in 58 people being slightly injured;
- on 26 November 2007 40 people were slightly injured after the collision of a TER (regional express train) and a road vehicle at the Saint-Médard-sur-Ille (35) level crossing;
- on 19 December 2007 at Vavrette-Tossiat (01) station a collision between a TGV and an abnormal load on a level crossing resulted in one dead and 34 slightly injured.

The number of accidents (according to the definition given in Annex C2) has fallen by 4.2% in relation to 2006, and the number of accidents (excluding 'other' accidents) is practically equal to the average annual number of accidents (excluding suicides and other accidents) since the year 2000.

The consequences of these accidents were also less than in 2006, namely:

- **the number of people killed (excluding suicides) fell by 17%;**
- **the number of people injured also fell, but much more significantly, by around 34%.**

The increase in traffic occasioned by new railway undertakings entering the national rail network had no noticeable affect on the level of safety. Nor was there any accident due to several railway undertakings working together at certain sites, and incidents were infrequent. The updating by the deputy infrastructure manager of local operating instructions and their recognition by the railway undertakings certainly contributed to this.

Detailed trend analysis data are given in Chapter D, point 2.

In 2007, the EPSF carried out in full its mission to monitor the participants and the level of safety of the railway system. Thirty-nine checks (audits or inspections) were carried out in all types of organisation (infrastructure managers, railway undertakings or training centres). The significance of deviations noted varied considerably; some of them required immediate protective measures to be taken, and for all of them corrective or preventive measures were identified. The implementation of these measures is systematically monitored by the EPSF.

4. *The safety directive*

These texts are covered in section E.

C. Organisation of the EPSF

1. *Introduction to the organisation*

The EPSF had 92 employees as at 31 December 2007, a considerable increase over the course of the year.
The structure of the EPSF did not change in 2007; the establishment includes two technical directorates, 'Authorisations and Monitoring' and 'Reference Systems and Europe' and one cross-functional directorate, the 'General Secretariat'.
A quality procedure was undertaken at the beginning of 2007 with the aim of clarifying and formalising the operational methods of the establishment in accordance with standard ISO 9001/2000. The major processes of EPSF, together with their associated procedures, have been drawn up and published internally. This quality procedure is based on existing structures.

The missions and composition of the two technical directorates are given below.

The Authorisations and Monitoring Directorate
This directorate comprises two departments, 'Authorisations' and 'Monitoring', composed of 5 and 8 technical divisions, respectively.

The Authorisations Department:
The missions of this department are as follows:

- appraisal and issue of safety certificates and safety declarations, safety approvals and training centres, commercial authorisations to operate (system and control, tractive stock, wagon stock, exceptional traffic);
- registration of rolling stock in a database;
- publication of guides for external use.

The Monitoring Department:
The missions of this department are as follows:

- checks (audits and inspections) that authorisations issued by the EPSF, certificates or approvals, are being implemented under the conditions on which they were awarded;
- monitoring the level of safety by following up accidents and incidents which occur on the national rail network and triggering any necessary alerts;
- monitoring safety indicators and organising 'safety system' feedback for all operators authorised on the national rail network;
- publication of a monthly briefing note on incident statistics;
- publication of the annual safety report.

The Reference Systems and Europe Directorate

This directorate comprises two departments, 'Reference Systems' and 'Europe', composed of 3 and 2 divisions, respectively.

The Reference Systems Department:

The missions of this department are as follows:

- participation in drawing up State regulations, issuing notices and proposals;
- checking the operating documentation of the national rail network;
- drawing up and publishing reference documents which are equivalent to recommendations.

The Europe Department:

The missions of this department are as follows:

- steering French expertise within work groups for the European Railway Agency (ERA);
- organising partnerships with other national safety authorities;
- contributing to the development of mutual recognition by these national safety authorities and the ERA.

The organisation of the EPSF is set out in **Annex B.1**

2. *Relations between the EPSF and its principal partners*

The organisations with which the EPSF has the most important relationships are listed below:

- the Directorate General for the Sea and Transport – Rail and Public Transport Directorate (DTFC) of the Ministry of Ecology and Sustainable Development, which supervises the establishment [the EPSF] and carries out the missions assigned to the State in relation to railway safety;

- the Land Transport Accident Investigation Bureau (BEA-TT);

The EPSF has regular exchanges with the BEA-TT on incidents and accidents which have occurred on the national rail network; it monitors the implementation of its recommendations by railway undertakings and the infrastructure manager, and sends it the necessary information for the production of its annual report;

- the Office for the Transport of Dangerous Materials (MMD);

- the Directorate for Civil Defence and Security (DDSC);

The EPSF consults it on dossiers relating to safety definition (DDS), preliminary safety dossiers (DPS) and safety dossiers (DS) for new systems or new infrastructures which are sent to it for the purpose of obtaining a commercial authority to operate.

- the body responsible for monitoring rail activities (MCAF).

A diagram showing EPSF's relations with other national organisations is given in **Annex B.2** (the names of the various organisations are those current in 2007).

D. The development of railway safety

1. *Initiatives aimed at improving safety performances*

1.1 The French rail safety body (Etablissement public de sécurité ferroviaire – EPSF)

The principal actions and initiatives undertaken by the EPSF during 2007 are given below.

- Introduction of a feedback system:
  Meetings for exchange of information between the EPSF and the principal players in the rail system (ministry responsible for transport, BEA-TT, IM and RUs) are organised at quarterly intervals. Their purpose is the sharing of problems, feedback and good practice relating to safety by players in the system. Two meetings were organised in 2007.
- Publication of ten specifications for acceptance of rolling stock. Nine others were in the process of completion, three of which concern specifications for acceptance of infrastructure equipment.
- Publication of guides to applications for authorisations, setting out the form of dossiers and the information required by the EPSF, to provide the undertakings concerned with information on the regulatory requirements and the means for complying with them.
- Setting up a quality procedure, formalising the major EPSF processes. This contributes to the transparency of its actions and the legitimacy of its requirements in relation to safety.
- Leadership of seven national mirror groups dedicated to safety, to the ERTMS and to revision of Technical Specifications of Interoperability (operation, wagons, rolling stock and infrastructure). These groups meet every one to two months, bringing together representatives of the ministry of transport, EPSF experts and the whole profession.
- Finally, continuing exchanges with other national safety authorities, particularly for the drawing up of mutual recognition agreements. The EPSF also participates, with 5 other national safety authorities (Great Britain, Germany, Norway, Czech Republic and Lithuania) in 'peer reviews', a procedure which it helped to launch, and which involves sharing and comparing authorisation procedures between national safety authorities.
  A draft protocol aimed at exchanges of EPSF agents with the German federal railway authority (EBA) has been drawn up and another, with England, is in progress.

1.2 The infrastructure manager (RFF and SNCF)

At the time of their application for approval, the infrastructure manager and the deputy infrastructure manager carried out an in-depth study of their safety management system (SMS), their respective areas of responsibility and their operating methods, particularly in relation to control and reporting.

The principal actions carried out in 2007 by the RFF to improve safety on the existing network concerned the following fields:

- prevention of accidents on level crossings (removal of worrying level crossings, upgrading and improving safety, experiments). Three experiments ended in 2007 and are currently being deployed: installation of variable message signs and

traffic islands, the introduction of large-diameter red flashing lights, automated speed detection and sanctions system for car drivers;
- prevention of collisions with persons outside stations (installation of approximately 100 km of fencing);
- crossing tracks in the station (putting in place 10 pictograms and constructing 3 grade-separated crossings);
- making tunnels safe (the planned works have been completed in 26 of the 31 tunnels considered 'sensitive');
- initiation of danger analyses for the purpose of producing special response plans (PPI) at sites for transport of dangerous goods;
- initiation of a specific investment programme in safety of the national rail network infrastructure for an amount of EUR 12.4 m (making substations and storage sites safe and separation of sites which operate with platforms with some unmanned stopping points).

Projects were launched in 2007 in accordance with the requirements of Decree 2006-1279. This concerns:
- dossiers relating to safety definition (DDS) for the South Europe Atlantic high-speed line, the Nîmes-Montpellier loop line and the Charles De Gaulle Express link;
- the preliminary safety dossier (DPS) for the future Bellegarde station, as part of the Haut-Bugey modernisation project;
- safety dossiers (DS) for the East Europe high-speed line and Marseille/Aix line.

Implementation of the plan for renovation of the network is continuing: this plan was decided upon as a result of the audit on the state of the network carried out by the Lausanne Ecole Polytechnique Fédérale, with EUR 596 m dedicated to it in 2007. A system has been defined of assessing the state of lines in groups IUR 7 to 9 AV, so that it is possible to anticipate the adjustments which become necessary because of changes to the condition of the lines.

1.3 Railway Undertakings

1.3.1 RU SNCF

Investments have been made in rolling stock, essentially to improve passenger safety and also to facilitate interoperability. This principally involves:
- location of door-opening indicator lights on the sides of Transilien rolling stock;
- queue management for the doors of Z2 rolling stock;
- inhibiting the control for emergency opening of doors while travelling;
- continuation and completion of the programme for modification of X72500 train sets in order to avoid fires;
- tightening the control for setting the TGV cabin indicator lights (KARM project).
- fitting the BB 36300s with the train control system (SCMT) for the purpose of interoperability with Italy;
- equipping TGV train sets on the Paris Lyon Turin network with the train control system (SCMT);
- equipping the TGV train sets on the Paris Brussels Amsterdam and Paris Brussels Cologne Amsterdam routes with the ERTMS;
- equipping the train sets on the TGV Est network with MEMOR2+ (for operation to Luxembourg);
- continuing the KVB programme; at the end of 2007, 6079 traction units had been equipped with KVB, including all the rolling stock allocated to Ile de France;
- fitting the emergency brake override on TGVs (in progress);
- equipping the suburban Paris St Lazare trains as single operator units.

In addition, 66 stations have been equipped with platform signs reminding passengers that it is prohibited to climb down to the tracks.

The undertaking has developed a tool, 'FER' (Formalisation de l'Evaluation des Risques – systematisation of risk assessments), which combines occupational risk assessments to produce a single document. At the end of 2007, 80% of establishments with freight operations had carried out risk analyses.

Particular attention has been paid to examination of the organisational and human factors in inquiries and feedback on accidents and incidents, and the necessary training has been given.
Actions targeted at managing interfaces between the various parties involved have been carried out with operators.

Finally, research and development has been undertaken on the following subjects:
- use of virtual reality to train commercial department staff: this encourages learning by simulation;
- the effect of staggered shifts or shift work on decreased attention and vigilance and on operator fatigue;
- automated processing of driving information recorded by digital recorders in order to improve knowledge and treatment of safety events;
- a 'positioning aid module' system ['Module d'Aide au Positionnement' – MAP]. This is in the process of development and is intended to carry out the driver's functions by announcing to him in advance the 'critical points' to which he must pay particular attention.

1.3.2 RU EURO CARGO RAIL (ECR)

In 2007, ECR's main efforts were directed at effective implementation of its safety management system as part of an extremely rapid development of its activity on the national rail network.

1.3.3 RU VEOLIA CARGO France

In order to adapt its organisation to the development in its traffic, VEOLIA CARGO France has had to create two new agencies (north and south-west).

Safety measures have been taken in the following sectors:
- raising awareness of operators (publication of safety information to agencies, accompanying notes on this safety information for operators, continuous training programme);
- feedback (processing national safety information, creation of local safety information sheets);
- processing train operation events (introduction of ATESS monitoring, introduction of SEC safety sheets for analysis of ATESS cassettes, sending sheets to highly-qualified persons in the field for additional analysis).

1.3.4 For the other RUs: SECO-RAIL/GROUPE VFLI/CFL CARGO/CFL/B-CARGO

These undertakings began their railway operations during 2007, and their main safety measures focused on implementation of their safety management systems.

2. *Detailed trend analysis data*

The number of accidents per million train kms fell from 0.85 in 2006 to 0.78 in 2007, a drop of 8%.
Similarly, the numbers of dead and injured per million train kms fell respectively from 0.20 to 0.16, a drop of 20%, and from 0.14 to 0.09, a drop of 35%.

Annex C – performance overview – gives the values for these indicators.

Incident analysis: (see Annex C – accidents presented by type):

The decrease in the number of accidents (excluding suicides) in relation to traffic, 8.2%, results from a drop of 4% in the number of accidents and a rise of 4% in traffic.

- The number of individual accidents caused by moving rolling stock (excluding suicides, i.e. falls from trains and collisions excluding level crossings) was identical to the previous year and represents 18% of the total number of accidents.
- The number of collisions and derailments has risen, but this is mainly due to a change in the statistical data scope on derailments and collisions which occurred between 2006 and 2007. Some derailments on tracks in service which were not previously included in the data are now included.
  The number of collisions represents 21% of the total number of accidents and the number of derailments represents 16% of the total number of accidents.
- The number of accidents at level crossings has fallen and represents 28% of the total number of accidents.
- The number of fires in rolling stock has also fallen and represents 9% of the total number of accidents.
- Finally, events covered by 'other accidents' represent 8% of the total number of accidents.

The number of suicides or attempted suicides has fallen, but still represents a number equal to that for accidents.

Analysis of distribution of deaths: (see Annex C – distribution of deaths by category):
The trend was down for the number of deaths per million train km for all categories: passengers, level crossing users, unauthorised persons and personnel.
The trend was also down for the number of deaths per thousand million of passenger kms.

The total number of deaths fell by 17% from the previous year.

The distribution of deaths as a percentage per category is as follows:
- 46% for level crossing users;
- 40% for unauthorised persons on tracks and others;
- 11% for passengers;
- 3% for personnel of all undertakings, including subcontractors.

Analysis of distribution of injured: (see Annex C – distribution of injured by category):

The total number of injured fell by more than 34% in relation to 2006.
The trend was down for the number of injured per million train kms for all categories.
The trend for the number of injured per thousand million of passenger kms also fell in relation to 2006.

The distribution of injured as a percentage by category is as follows:
- 52% for unauthorised persons on the track and others;
- 22% for passengers ;
- 15% for level crossing users;
- 11% for personnel of all undertakings including subcontractors.

Analysis of accident precursors: (see Annex C – accident precursors)

For the infrastructure:

Concerning distortions of the track, an improvement was noted in the indicators for lines in IUR groups 1 to 6 together with high-speed lines. However, for lines in IUR groups 7 to 9 a deterioration was noted, reflecting the condition of the tracks in these IUR groups on the national rail network.

The number of broken rails has fallen. This change is the result of several factors:
- improvement in preventive maintenance;
- the quality of steel used;
- the fall in traffic on some lines.

The number of interruptions which affected safety fell slightly; this confirms the general downwards trend noted since 2004. This fall masks an increase in incidents calling into question equipment and the significant increase in interruptions due to malicious acts.

For RUs (and the IM for the train traffic for which it is responsible):

The number of signals passed at danger in 2007 was slightly below that for 2006. This result is below the average for the past ten years but with a different distribution by types of danger signals passed. In 2007, the number of stop signals and absolute stop markers passed with occupation of the protected section was clearly rising. In 2006, for 10% of stop signals passed there was occupation of the protected section. In 2007, this percentage was 26%, a very worrying increase.

In 2007, two axle breakages were recorded, one of which gave rise to a spectacular derailment with no consequences other than material damage.

Technical safety of the infrastructure and its implementation, safety management
The IM had scheduled 44 audits, all of which were carried out.

E. Important changes in legislation and the regulations

An account of the important changes in legislation and the regulations which concern the railway system.

Decree 2007-1867 of 26 December 2007 relating to port railways, amending the Maritime Ports Code.

Date of entering into force: 30 December 2007.

This decree states the missions of the EPSF concerning port railways. These are new regulations. The decree sets the conditions for obtaining approval and the safety certificate for port railways.

Order of 21 December 2007 relating to approval by experts or bodies authorised to evaluate the design and construction of railway systems or subsystems, either new or substantially modified.

Date of entering into force: 17 January 2008.

This order states the conditions for approval by experts or authorised bodies. These are new regulations.

The order defines the criteria for approval by an expert or body acting as an independent, objective third party in the authorisation process.

Order of 31 December 2007 relating to authorisations for the construction and commercial operation of railway transport systems or subsystems, either new or substantially modified.

Date of entering into force: 28 February 2008.

This order states the process introduced for authorisation of new or substantially modified systems. This is an amendment of the existing regulations.

The order defines the process and the documents which must be supplied by a promoter for the authorisation of a new or substantially modified system.

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

Appraisal of applications for safety certificates in implementation of Directive 2004/49/EC began on 19 October 2006 (for part A and part B), the date of publication of Decree 2006-1279 relating to safety of railway traffic and interoperability of the rail system.

In implementation of the provisions of Article 68 of the aforesaid decree, applications for amendment or renewal of a safety certificate issued in implementation of Directive 2001/14/EC were acceptable up to 1 May 2007.

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

The date of issue of Decree 2006-1279 relating to safety of railway traffic and interoperability of the rail system was 19 October 2006, and in implementation of the provisions of Article 68 of this decree, the infrastructure manager (RFF) and the deputy infrastructure manager (SNCF) had until 31 October 2007 to submit their application for approval.

1.3 National safety rules relating to railway undertakings and infrastructure managers

State regulations (Laws, Decrees and Orders) are available on the website www.legifrance.gouv.fr and on the EPSF website www.securite-ferroviaire.fr.

Safety regulations for operation which are enforceable against railway undertakings are supplied to them on request by the infrastructure manager RFF in the form of a CD-ROM.

2. *Numerical data*

In 2007, seven railway undertakings achieved the amendment or issue of their safety certificates: EURO CARGO RAIL, VEOLIA CARGO France, SNCB, SNCF, VFLI, EUROPORTE2 and CFL-CARGO.

The numerical data are given in Annex E.

Issue of commercial operation authorisations

- 4 authorisations to operate systems were issued; these concern:
    - the Bettembourg-Le Boulou rolling motorway;
    - the East European high-speed line from Vaires to Baudrecourt;
    - the reduced ERTMS/TVM (track-to-train communication) bi-standard;
    - the change of type of traction without stopping in high capacity rail cars.
- 6 authorisations concerning tractive stock were issued: AGC bibi, BB 475 000, BB 460 000, TGV POS, ICE3 MF and G 2 000.
- 6 authorisations concerning wagon stock were issued for new wagons, including the Modalhor NA wagon.
- Authorisations following substantial modifications concerned 11 wagons and the B6DU75-78 coaches (Corail).
- 150 exceptional traffic authorisations were granted for test purposes.

3. *Procedural aspects*

3.1 Safety certificates, part A

Three successful applications were made during 2007.

3.2 Safety certificates, part B

Thirteen successful applications for new or amended certificates were made in 2007.

3.2.1 Main reasons for updating or amendment:

The reasons for which part B of previously-issued safety certificates required updating or amendment were as follows:

- traffic on new lines,
- new type of goods transported,
- new type of rolling stock used,
- amendment to subcontracting contracts,
- setting up of partnerships.

3.2.2 Cost of issue of a certificate:

The services relating to appraisal of an application for a safety certificate are not invoiced.

3.2.3 Feedback on appraisal of dossiers:

Feedback meetings have been arranged since 17/10/2007, at quarterly intervals, to which all railway undertakings, the infrastructure manager (RFF) and its deputy (SNCF) are invited. Participants may discuss their problems at these meetings.

3.3 Safety approval

In implementation of the provisions of Article 68 of Decree 2006-1279 of 19 October 2006 relating to safety of railway traffic and the interoperability of the railway system, the infrastructure manager (RFF) and the deputy infrastructure manager (SNCF) filed their application for approval on 30 October 2007.

The application underwent appraisal during 2007 and their approval was issued on 27/02/2008.

G. Supervision of infrastructure managers and railway undertakings

1. *Description of supervision of infrastructure managers and railway undertakings*

1.1 Checks and monitoring in relation to safety

1.1.1 Checks:

The EPSF carried out 31 audits and 8 inspections in 2007; some checks covered several undertakings.

These checks, audits and inspections were carried out by experts from the Monitoring Department.

According to the results listed above the average load per audit in 2007 was 81 auditor days.

1.1.2 Monitoring:

There are two parts to safety monitoring: monitoring incidents which have occurred on the national rail network and of which the EPSF is informed and monitoring safety indicators, including common safety indicators (CSIs).
Events relating to safety which have occurred on the national rail network are recorded in the EPSF database (7000 entries at the end of 2007). For events which the EPSF considers to be worrying, it requests additional information or dossiers including incident analysis and the measures take to avoid a recurrence.
From an analysis of events in the database it is possible:

- to define priority themes for checks,
- to draw up the agenda for meetings arranged by the EPSF with the IM or the RUs,
- to produce a monthly memo on the incidents, which is distributed to the ministry responsible for transport, the BEA-TT (Land Transport Accident Investigation Bureau), the RUs and the IM.

Three checks in 2007 were the result of alerts from the database (train braking, training and authorisation of safety operators).
Monitoring of indicators makes it possible to monitor the safety level of each of the players in the railway system.
The EPSF has requested the IMs and RUs to provide it, at the beginning of each quarter, with the common safety indicator values and with the values of other safety indicators specific to themselves for the previous quarter.

1.2 Aspects of surveillance/sensitive points to be monitored

All railway undertakings which had been in operation for more than 6 months, the infrastructure manager and the deputy infrastructure manager, were checked at least once during 2007.

Out of 28 approved training centres, 11 were checked in 2007, i.e. 39%.

These checks made it possible to detect malfunctions which differ considerably in their nature and gravity between one audit and another and one undertaking and another, but a certain number of malfunctions are common to all undertakings.
These concern:

- authorisation of operators ;
- document management;
- the inspection and audit system, including that relating to subcontracted safety operations;
- the definition and monitoring of the implementation and effectiveness of corrective measures taken to remedy identified malfunctions;
- protection of personnel against risks linked to railway operations.

For training centres, malfunctions concerned the selection of trainers and control of training within undertakings.

These checks also made it possible to record efficiently-managed areas, which were different from one undertaking to another. Like malfunctions, these points are recorded in the EPSF inspection reports.

2. *Annual reports from infrastructure managers and railway undertakings*

All railway undertakings and the infrastructure manager delivered their annual safety reports for 2007 before 30 June 2008. Each report was the subject of a presentation to the EPSF, during which the actions taken on the BEA-TT (Land Transport Accident Investigation Bureau) recommendations were stated.

3. *Number of inspections of RUs/IMs carried out in 2007*

	RUs	IMs/deputy IMs	Training centres
Number of inspections planned	1		
Number of inspections carried out	8		

Note: an inspection may involve several organisations.

4. *Number of audits of RUs/IMs carried out in 2007*

	IMs/deputy IMs	RUs	Training centres
Number of audits planned	16	6	9
Number of audits carried out	16	6	9

Note: an audit may involve several organisations.

5. *Measures taken as a result of inspections*

173 deviations were recorded during the 39 inspections carried out by the EPSF in 2007. These deviations break down into:

- 27 serious situations (malfunction which may cause an accident in the very short term),
- 58 major deviations (malfunction which may cause an accident in the short term)
- 88 reservations (malfunction which may cause an accident in the medium term)

The serious situations and major deviations require protective measures to be taken immediately; for all malfunctions, the EPSF insists that corrective or preventive measures are taken and monitors the implementation of these (implementation and observance of deadlines).
The percentage of deadlines met for implementation of curative and corrective measures at the end of 2007 was 79%.

The ratio of the number of non-disputed deviations to the number of deviations recorded is another indicator monitored by the EPSF; its value for 2007 was 99%.

H. Conclusions

2007 was the first year of full operation of the EPSF and it was essential to consolidate the first results obtained in 2006 by quality assurance in our operational methods, in order to contribute to maintaining the level of safety and to ensure consistency in the railway network without, however, hindering its development (arrival of new operators, commissioning of new systems).

In 2008 the EPSF will concentrate its efforts on four areas:

→ internally, by strengthening skills and resources in order to prepare for changes in its missions and their scope. This particularly concerns issue of safety approvals and certificates for port railways, allocation of licences to operate, the setting up of a database for registration of stock and increased use of the system for monitoring and inspecting system safety.

→ nationally, organisation and control of 'system' feedback must be put on a formal basis. The EPSF initiated the procedure in 2007. All players in the railway system agree that it is needed and all recognise the legitimacy of the EPSF's role in leading it. The drawing up of formal rules for this system feedback procedure will ensure that it continues and is able to develop effectively.

→ in Europe, focus on exchanges with other national safety agencies and the ERA is always a priority for the EPSF. This involves in particular:

- procedures for mutual recognition relating to tractive stock and freight and passenger stock; the exchanges involve Italy, Switzerland, Belgium, Luxembourg, Germany and the Netherlands;
- participation in 7 ERA work groups;
- participation in the experimental 'Peer Reviews' with 5 other national safety agencies.

→ more generally, the EPSF will endeavour to develop working relations which are as 'upstream' as possible with the players in the railway system in order to forestall any difficulties and improve mutual understanding.

With regard to monitoring, the increase in the number of signals passed at danger with occupation of the protected section is worrying. The reasons for this increase, which began in 2006, are being analysed by the RUs and the IM. The number could be limited by a targeted extension of beacon control installations**.**

Upgrading of the network continues. The associated works impose specific operating restrictions, with installations frequently being used under abnormal operating conditions. Under these conditions, the skill of operators and a high level of surveillance are essential to guarantee that safety levels are maintained. The sustained pace of the upgrading works does not yet, however, make it possible to reduce some operating restrictions which, associated with specific surveillance, remain essential to guarantee the safety of traffic on the oldest lines.

Finally, in spite of the revision of the system for controlling traffic safety involving wagons, the concern expressed in the 2006 report on monitoring wagon maintenance remains an important matter.

In conclusion, it should be noted that the opening up of the network continued in 2007 without any major incidents being attributed to this change. However, both the change in certain indicators and the data recorded during EPSF inspections show that some undertakings are having difficulty in managing safety under conditions where their traffic is significantly increasing. This matter has been, and will continue to be, the subject of particular surveillance by the EPSF.

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

A.1: Map of the national rail network, the infrastructure (Réseau Ferré National – RFN)

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

A.2.1: Infrastructure Manager

Name	**Address**	**Website/link to network document**	**Safety approval (number/date)**	**Start date of commercial operation**	**Total length/gauge of lines** (kms of lines)	**Length/voltage of electrified lines** (kms of lines)
Réseau Ferré de France RFF	92, avenue de France 75648 Paris Cedex 13	www.rff.fr	27/02/2008	July 1997	29,213 km (gauge 1.435m) 165 km (gauge 1.000m)	15,164 km including 5,904 km at 1,500V 9,138 km at 25,000V 122 km with 3rd rail

Name	**Address**	**Total length of double and single track lines** (kms of lines open to commercial traffic)	**Total length of high-speed lines (LGV) (1)**	**ATP equipment (2) used kms of lines**	**Number of level crossings (PN) (3)**	**Number of signals**
Réseau Ferré de France RFF	92, avenue de France 75648 Paris Cedex 13	29,973 km including 16,461 kms of double track (DV) (4) and more	1884 km	17,536 km including 1798 km track-to-train communication (TVM) (6)	14,651 level crossings	Approx. 40,000

Réseau Ferré de France (RFF) delegates to SNCF-GID (the deputy infrastructure manager) maintenance work, operation of the network and investment in the network.

(1) LGV: high-speed line
(2) ATP: automatic train protection
(3) PN: level crossing for motor vehicles on lines open to traffic
(4) DV: double track
(5) VU: single track
(6) TVM: track-to-train communication

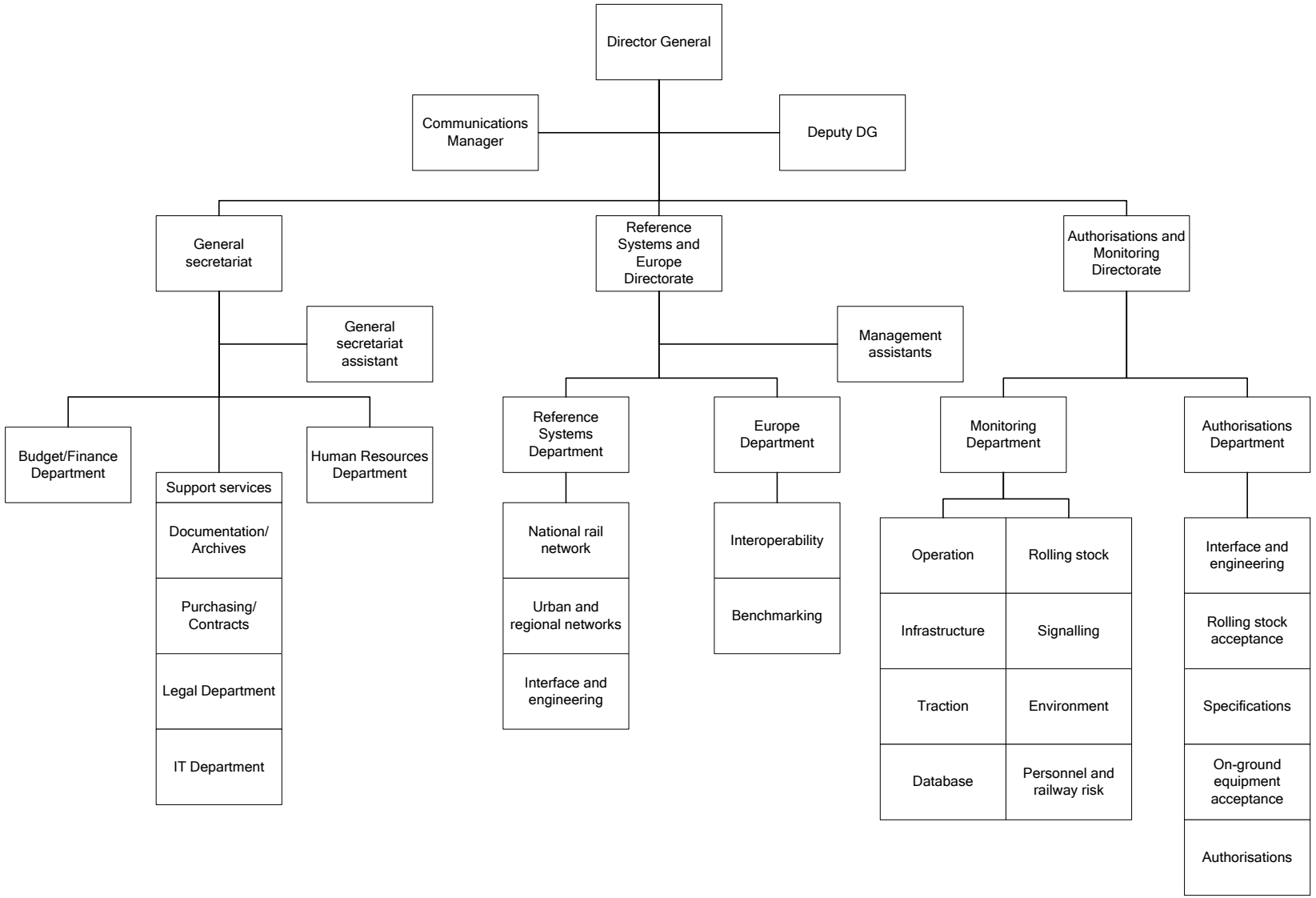
A.2.2: Railway undertakings

Name	**Address**	**Website/link to network reference document**	**2001/04/EC Safety certificate (number/date)**	**2004/49/EC Safety certificate A-B (number/date)**	**Start date of commercial operation**	**Type of traffic**	Number of locomotives	Number of rail cars and motor-coach trains	Number of coaches/ wagons	Number of drivers, safety teams	Volume of passenger transport	Volume of goods transport
RAIL4CHEM	Schûtzenbahn 60 D-45127-Essen Germany	www.rail4chem.com	EQUT 0600188A 27/01/2006		No commercial service		---------	----------	----------	----------	----------	----------
B-CARGO	80, rue des 2 gares B_170 BRUSSELS BELGIUM	www.bcargo.be	EQUT0600333A 03/02/2006	Part A: FR1120070002 Part B: FR1220070002 05/07/2007	11/12/2006	All types of freight	12	----------	150	40	----------	40.2 million Tonnes/km
CFL	9, place de la gare L-1616 Luxembourg LUXEMBOURG	www.cfl.lu	EQUT0600834A 29/03/2006		19/12/2006	All types of freight	35	----------	711	18	----------	4,936,704 Tonnes/km
VEOLIA-Cargo France	15, rue des Sablons 75016 PARIS FRANCE	www.veolia-transport.com		Certificate: 28/11/2006 Part A: Fr1120080001 Part B: FR1220080001 10/01/2008	13/06/2005	All types of freight	22	----------	0	38	----------	408 million Tonnes/km
ECR	60, avenue HOCHE 75008 PARIS FRANCE	www.eurocargorail.com	Certificate: 01/12/2006		01/12/2006	All types of freight	65	----------	1608	155	----------	1.27 thousand million Tonnes/km
SECO-RAIL	3, rue des Beaunes 78400- CHATOU FRANCE	www.seco-rail.com	Certificate: 01/12/2006		08/01/2007	All types of freight	20	----------	198	59	----------	827,620 Tonnes/km

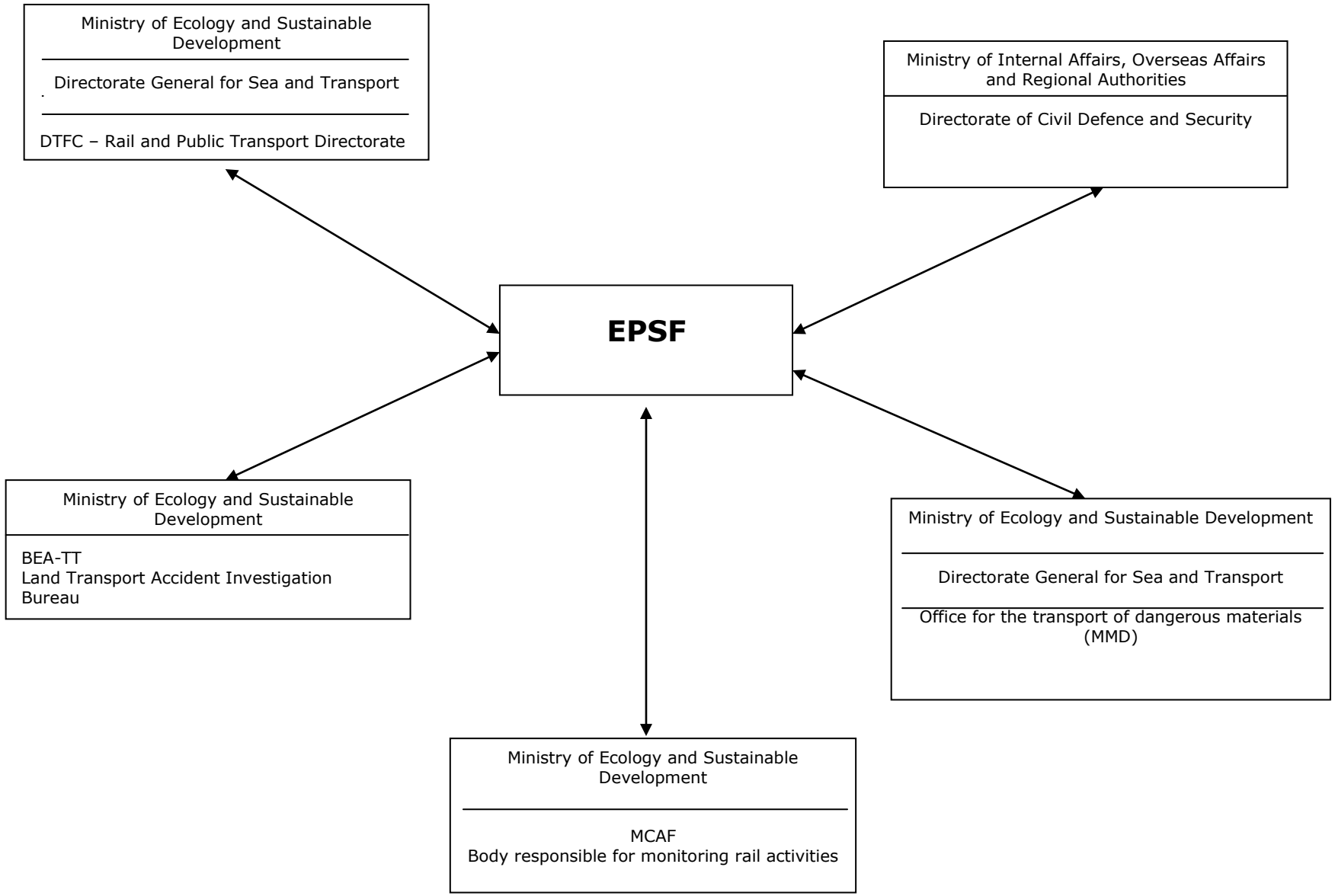
Name	Address	Website/link to network reference document	2001/04/EC Safety certificate (number/date)	2004/49/EC Safety certificate A-B (number/date)	Start date of commercial operation	Type of traffic	Number of locomotives	Number of rail cars and motor-coach trains	Number of coaches /wagons	Number of drivers, safety teams	Volume of passenger transport	Volume of goods transport
SNCF	34, rue du commandant MOUCHOTTE 75699 PARIS Cedex 14 FRANCE	www.sncf.com		Part A: FR11200700001 Part B: FR12200070001 28/06/2007	Before 2006	All types	2931	2613	15740 / 90640	13275	80.54 thousand million passengers/ km	40.63 thousand million Tonnes/km
VFLI	6, rue d'AMSTERDAM 75009 PARIS	www.vfli.com		Part A: FR1120070004 Part B: FR1220070005 03/10/2007	04/10/2007	All types of freight	11	----------	257	33	----------	4,384,704 Tonnes/km
EUROPORTE 2	37, rue de MATHURINS 75008 PARIS FRANCE	www.eurotunnel.com		Part A: FR1120070006 Part B: FR1220070007 29/10/2007	26/11/2007	All types of freight	0	----------	0	21	----------	1,491,492 Tonnes/km
CFL-CARGO	11, boulevard KENNEDY L-4170 ESCH SUR ALZETTE Luxembourg	www.cflcargo.lu		Part B: FR1220070008 13/12/2007	12/12/2006	All types of freight	All services on the national rail network carried out on behalf of CFL					

Annex B: Organisational diagram for the French rail safety authority (établissement public de sécurité ferroviaire – EPSF)

B.1 Diagram: internal organisation



B.2 Diagram: relations between the EPSF and its principal partners

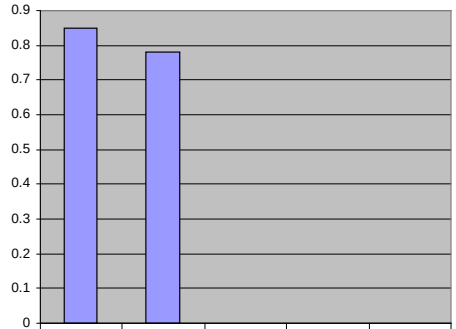


Annex C: Common safety indicators

C.1 Common safety indicators – data

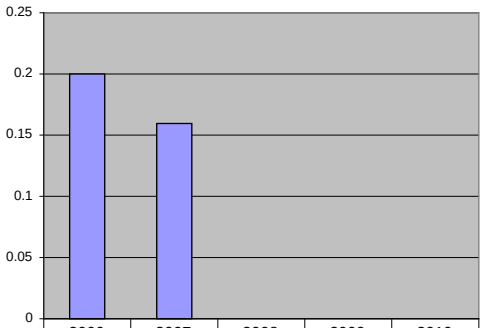
Overview of performances

Total number of accidents per million train kms



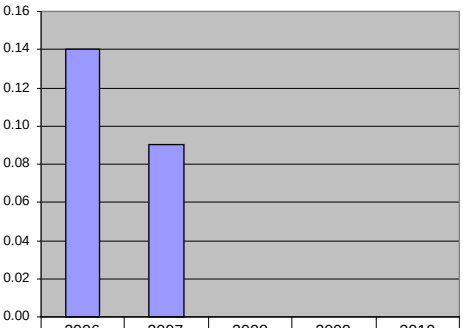
	2006	2007	2008	2009	2010
Total number of accidents per million train kms	0.85	0.78			

Total number of deaths per million train kms



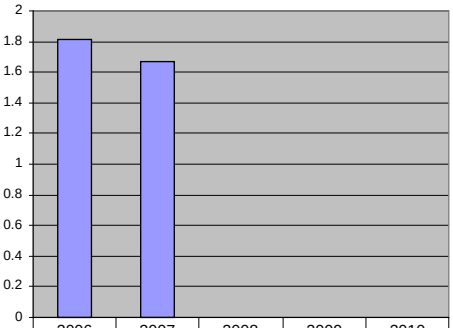
	2006	2007	2008	2009	2010
Total number of deaths per million train kms	0.2	0.16			

Total number of injured per million train kms



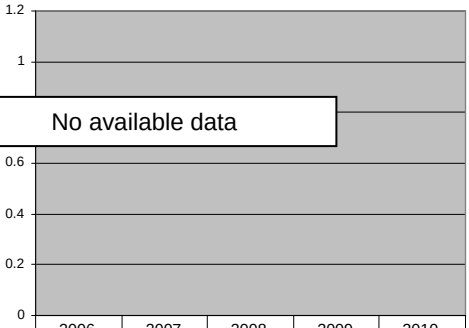
	2006	2007	2008	2009	2010
Total number of injured per million train kms	0.14	0.09			

Total number of precursors per million train kms



	2006	2007	2008	2009	2010
Total number of precursors per million train kms	1.81	1.67			

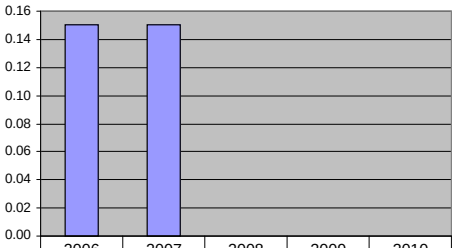
Total cost in millions of EUR per million train kms



	2006	2007	2008	2009	2010
Total cost in millions of EUR per million trains kms					

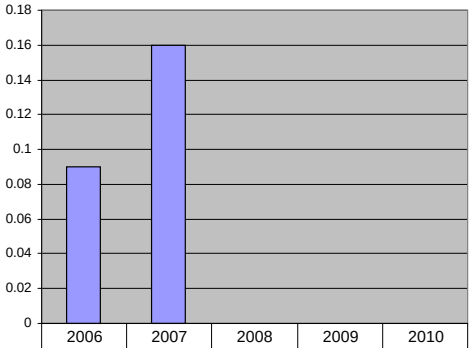
Accidents presented by type

Total number of accidents to persons caused by moving rolling stock per million train kms



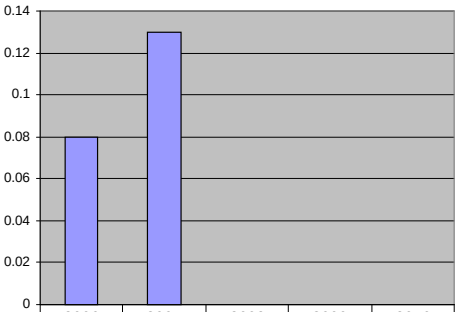
	2006	2007	2008	2009	2010
Total number of accidents to persons caused by moving rolling stock per million train kms	0.15	0.15			

Total number of collisions per million train kms



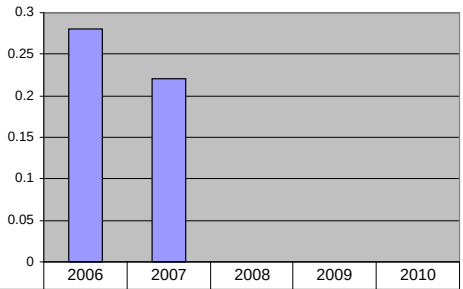
	2006	2007	2008	2009	2010
Total number of collisions per million train kms	0.09	0.16			

Total number of derailments per million train kms



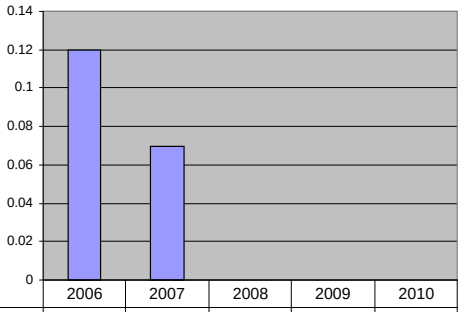
	2006	2007	2008	2009	2010
Total number of derailments per million train kms	0.08	0.13			

Total number of level crossing accidents (including pedestrians) per million train kms



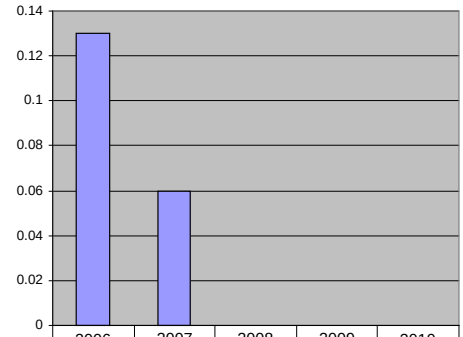
	2006	2007	2008	2009	2010
Total number of level crossing accidents (including pedestrians) per million train kms	0.28	0.22			

Total number of fires in rolling stock per million train kms



	2006	2007	2008	2009	2010
Total number of fires in rolling stock per million train kms	0.12	0.07			

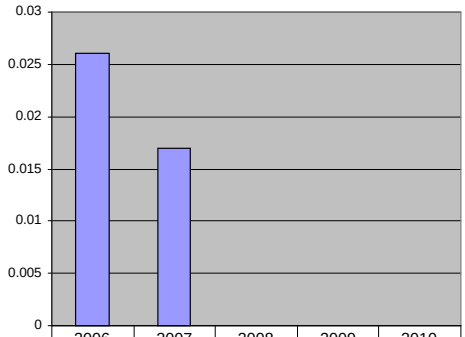
Total number of other accidents per million train kms



	2006	2007	2008	2009	2010
Total number of other accidents per million train kms	0.13	0.06			

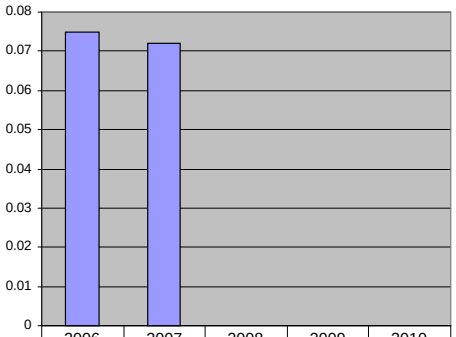
Distribution of deaths by category: passengers, level crossing users, unauthorised persons, personnel of any undertaking including subcontractors, others.

Number of deaths per million train kms: passengers



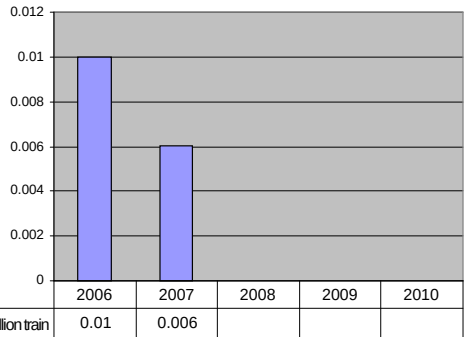
	2006	2007	2008	2009	2010
Number of deaths per million train kms: passengers	0.026	0.017			

Number of deaths per million train kms: level crossing users



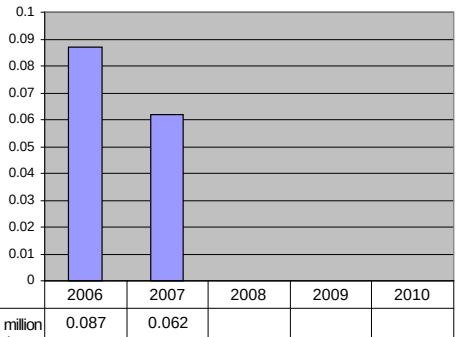
	2006	2007	2008	2009	2010
Number of deaths per million train kms: level crossing users	0.075	0.072			

Number of deaths per million train kms: personnel (including subcontractors)



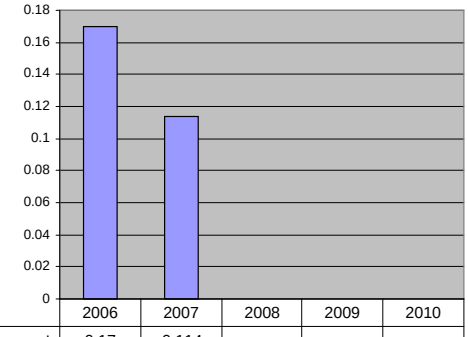
	2006	2007	2008	2009	2010
Number of deaths per million train kms: personnel (including subcontractors)	0.01	0.006			

Number of deaths per million train kms: unauthorised persons and others



	2006	2007	2008	2009	2010
Number of deaths per million train kms: unauthorised persons and others	0.087	0.062			

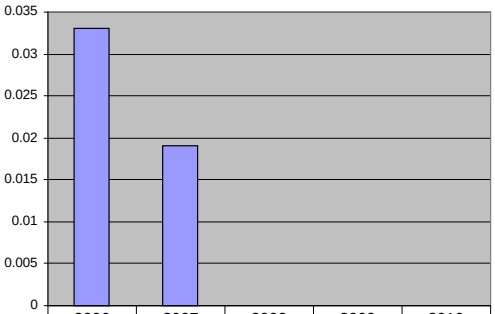
Number of deaths per thousand million passenger kms: passengers



	2006	2007	2008	2009	2010
Number of deaths per thousand million passenger kms: passengers	0.17	0.114			

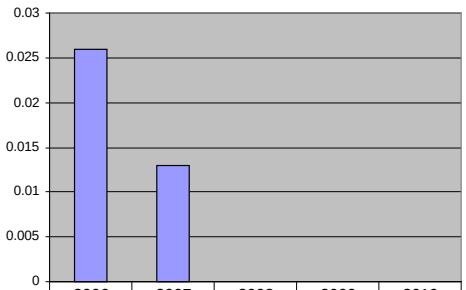
Distribution of injured by category: passengers, level crossing users, unauthorised persons, personnel of any undertaking including subcontractors, others.

Number of injured per million train kms: passengers



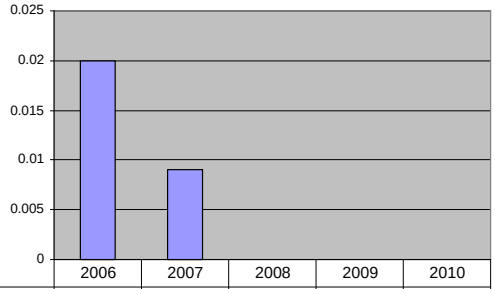
	2006	2007	2008	2009	2010
Number of injured per million train kms : passengers	0.033	0.019			

Number of injured per million train kms: level crossing users



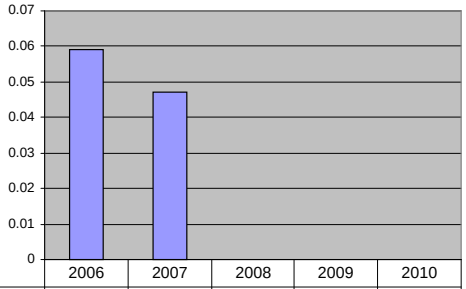
	2006	2007	2008	2009	2010
Number of injured per million train kms: level crossing users	0.026	0.013			

Number of injured per million train kms: personnel (including subcontractors)



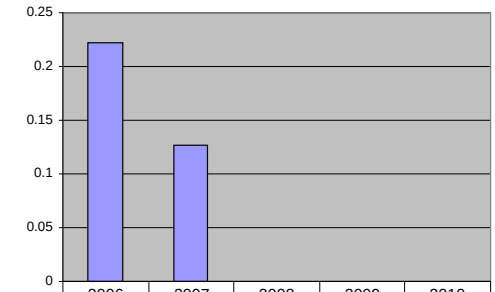
	2006	2007	2008	2009	2010
Number of injured per million train kms: personnel (including subcontractors)	0.02	0.009			

Number of injured per million train kms: unauthorised persons and others



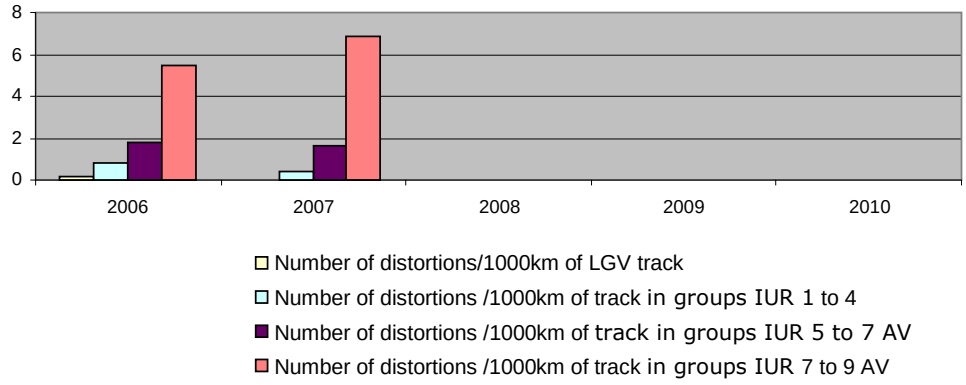
	2006	2007	2008	2009	2010
Number of injured per million train kms: unauthorised Persons and others	0.059	0.047			

Number of injured per thousand million passenger kms: passengers

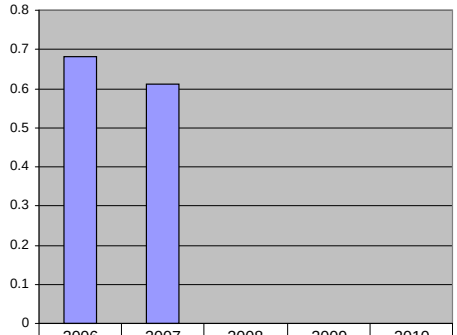


	2006	2007	2008	2009	2010
Number of injured per thousand million passenger kms: passengers	0.222	0.127			

Number of distortions of the track per 1000 km per type of track

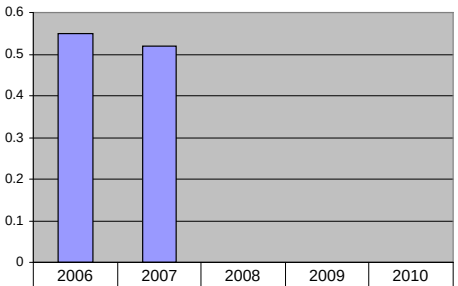


Number of broken rails per million train kms



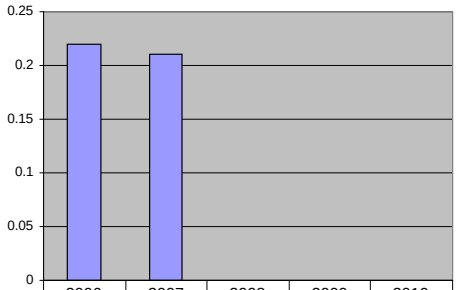
	2006	2007	2008	2009	2010
Number of broken rails per million train kms	0.68	0.61			

Number of signalling breakdowns (incidents affecting safety) per million train kms



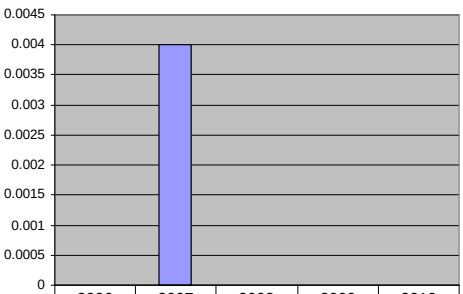
	2006	2007	2008	2009	2010
Number of signalling breakdowns (incidents affecting safety) per million train kms	0.55	0.52			

Number of stop signals passed per million train kms



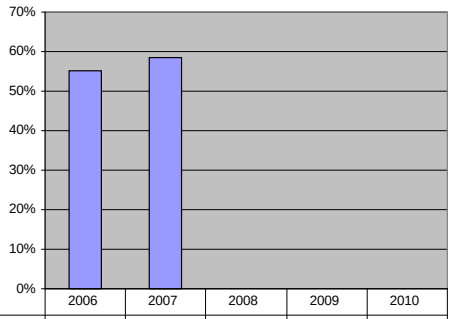
	2006	2007	2008	2009	2010
Number of stop signals passed per million train kms	0.22	0.21			

Number of broken axles and wheels on rolling stock per million train kms



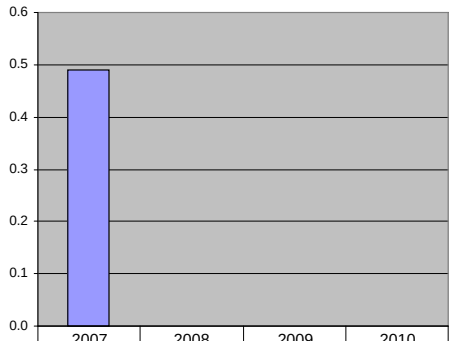
	2006	2007	2008	2009	2010
Number of broken axles and wheels on rolling stock per million train kms	0	0.004			

Percentage of track with automatic train protection



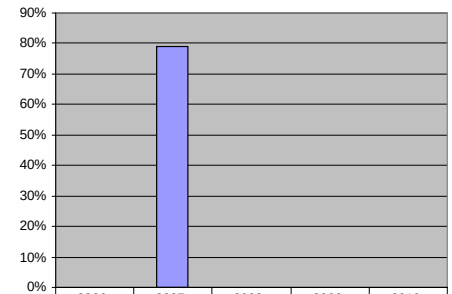
	2006	2007	2008	2009	2010
Percentage of track with automatic train protection	55.1%	58.5%			

Total number of level crossings per km of track



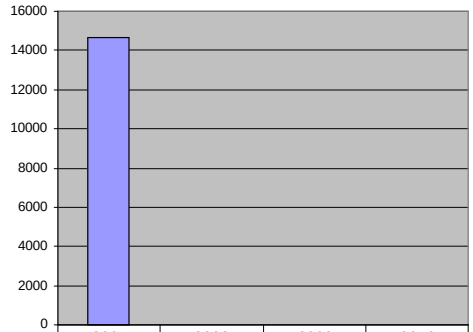
	2007	2008	2009	2010
Total number of level crossings per km of track	0.49			

Percentage of trains using the tracks with automatic protection



	2006	2007	2008	2009	2010
Percentage of trains using the tracks with automatic protection	nc	79.1%			

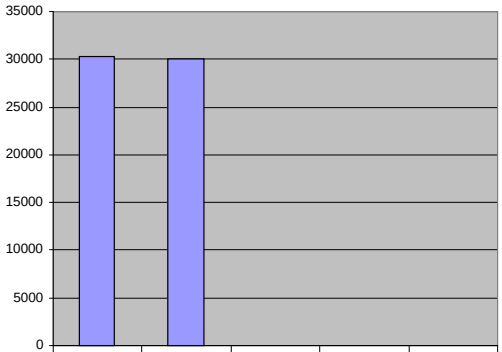
Total number of level crossings



	2007	2008	2009	2010
Total number of level crossings	14651			

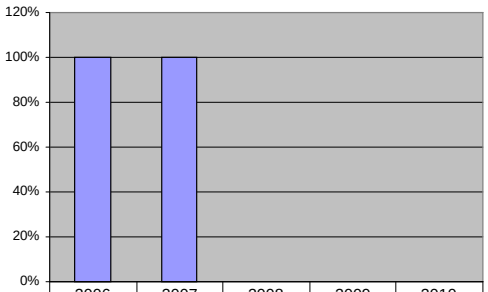
Technical safety of the infrastructure and its implementation, safety management (continued)

Number of km of track



	2006	2007	2008	2009	2010
Number of km of track	30283	29973			

Number of internal audits carried out/ number of audits required



	2006	2007	2008	2009	2010
Number of internal audits carried out/number of audits required	100%	100%			

Note: This ratio concerns internal audits of the deputy infrastructure manager.

C.2 Definitions used in the report

Type	Conditions
Accidents	An undesirable, unintentional and unforeseen event, or a particular series of events of this nature, having harmful consequences; accidents are broken down according to the following types: collisions, derailments, level crossing accidents, accidents to persons caused by moving rolling stock, fires and others.
Collisions	On the open track: all. In the station (including marshalling and service tracks): if serious consequences.
Derailments	On the open track: all. In the station (including marshalling and service tracks): if serious consequences.
Accidents at level crossings (PN)	Collisions between railway traffic and level crossing user (including pedestrians): all. Other cases: if serious disruption.
Individual accidents (members of staff, passengers or other persons), caused by moving railway vehicles: falls, collisions (including coupling operations)	If there are personal injuries.
Fires in train (if attended by fire brigade)	Train carrying passengers: all. Other traffic: if serious damage.
Personal injury = Death or serious injury • Any person (member of staff, passenger or other person) **killed outright or dying within 30 days following the railway accident** must be counted as **killed** (European definition applied since 2004)**;** • Any person for whom the seriousness of his or her injuries has resulted in **hospitalisation for more than 24 hours** must be considered to be **seriously injured** (European definition applied since 2004)**.**	
Member of staff: employee in service or contractor (European definition applied since 2004) **Passenger:** person in possession of a ticket to travel **Other person:** any other person	

Annex D: Important changes in 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 certificates issued in 2007	With licence issued by France	0
	With licence issued in another member State	0

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

		New	Updated/ amended	Renewed	RU
E.2.1. Number of valid safety certificates **part A** recorded in 2007	With licence issued by France	3	–	–	SNCF VFLI EUROPORTE2
	With licence issued in another member State	–	–	–	–

		New	Updated/ amended	Renewed	RU
E.2.2. Number of valid safety certificates **part B** recorded in 2007	With part A issued in France	3	–	–	SNCF VFLI EUROPORTE2
		–	7	–	VFLI ECR (4 times) SECO RAIL VCF
	With part A issued in another member State	1	–	–	CFL CARGO
		–	2	–	B-CARGO (twice)

			A	R	I	RU
E.2.3. Number of applications for safety certificates **part A** recorded in 2007	With licence issued by France	new certificates	3	–	–	SNCF VFLI EUROPORTE2
		updated/amended certificates	–	–	–	–
		renewed certificates	–	–	–	–
	With licence issued in another member State	new certificates	–	–	–	–
		updated/amended certificates	–	–	–	–
		renewed certificates	–	–	–	–

			A	R	I	RU
E.2.4. Number of applications for safety certificates **part B** recorded in 2007	With part A issued in France	new certificates	3	–	–	SNCF VFLI EUROPORTE2
		updated/amended certificates	7	–	–	VFLI ECR (4 times) SECO RAIL VCF
		renewed certificates	–	–	–	–
	With part A issued in another member State	new certificates	1	–	–	CFL CARGO
		updated/amended certificates	2	–	–	B CARGO (twice)
		renewed certificates	–	–	–	–

A = application approved, the certificate has already been issued

R = refused applications, no certificate has been issued

I = the matter was still pending as at 31/12/07

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 2007 by infrastructure managers recorded in your member State	0	–	–

		A	R	I	RU
E.3.2. Number of safety approval applications submitted during 2007 by infrastructure managers recorded in your member State	new approvals	–	–	2	RFF Deputy IM
	updated/amended approvals	–	–	–	–
	renewed approvals	–	–	–	–

A = application approved, the certificate has already been issued

R = refused applications, no certificate has been issued

I = the matter was still pending as at 31/12/07

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 2007 for railway undertakings which hold:	a licence issued by France	SNCF	3 months and 21 days	–	–
		EUROPORTE2	3 months and 4 days	–	–
		VFLI	2 months and 9 days	–	–
	a licence issued by another member State	–	–	–	–

E.5 Procedural aspects – Safety certificates part B

		Railway Undertaking	New	Updated/amended
Period of time, after receipt of all necessary information, between receipt of an application and final issue of a safety certificate **part B** during 2007 for railway undertakings which hold:	With part A issued in France	SNCF	3 months and 21 days	
		EUROPORTE2	3 months and 4 days	
		VFLI	2 months and 9 days	1 month and 1 day
		EURO CARGO RAIL		16 days 16 days 6 days 2 days
		SECO RAIL		20 days
		VEOLIA CARGO FRANCE		22 days
	With part A issued in another member State	CFL CARGO	3 months and 24 days	
		B CARGO		2O days 1 month and 20 days

E.6 Procedural aspects – Safety approvals

Not applicable to 2007