Federal Railway Authority

Report of the Federal Railway Authority

pursuant to Article 18 of the Directive on the safety of the Community's railways
(Directive 2004/49/EC, ‘Safety Directive’) on the activities of the safety authority

Annual Report 2009

Federal Railway Authority

Published by:

Eisenbahn-Bundesamt

Heinemannstraße 6

53175 Bonn

Germany

www.eisenbahn-bundesamt.de

Issue: 31.08.2010

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A.1. Scope of the report:

The Federal Railway Authority [*Eisenbahn-Bundesamt, EBA*] is the safety authority for railways in Germany and, as such is responsible for carrying out all tasks assigned to it by the 5th Law Amending Railway Legal Regulations (*Fünftes Gesetz zur Änderung eisenbahnrechtlicher Vorschriften*) of 16 April 2007, by which the Directive on safety on the Community's railways (2004/49/EC, 'Safety Directive') was transposed into national law. Corresponding to the tasks listed in Article 16 of the Safety Directive these are in detail:

- issuing licences for structural subsystems (authorising their putting into service) in accordance with the interoperability guidelines for the trans-European high-speed rail system (pursuant to Directive 96/48/EC) and the trans-European conventional rail system (pursuant to Directive 2001/16/EC),
- monitoring the operation and maintenance of subsystems and compliance with the basic requirements by the interoperability components,
- issuing commissioning licences for vehicles (to authorise putting them into service) that are not yet the subject of a Technical Specification for Interoperability (TSI),
- issuing safety certificates for railway undertakings and safety licences for rail infrastructure undertakings,
- looking at and refining rail safety law, including national safety provisions,
- registering vehicles in the National Vehicle Register.

In addition the EBA performs other tasks, such as, for example, the planning for operating equipment for the State railways, helping to finance construction work by the Federal Railway Development Act (BSWAG), work in the area of dangerous goods, activities such as the implementation of the regulation (EC) No 1371/2007 on the rights and obligations of railway passengers or the planning, approving and monitoring of magnetic levitation railways.

In accordance with section 18 of the Safety Directive this report is restricted to the activities as safety authority, in particular the development:

- of railway safety including the common safety indicators (CSI),
- of the legal framework in the area of railway safety,
- of the safety certification and authorisation as well as
- of the findings from the supervision of the railway undertakings.

The layout of the report follows a recommendation of the European Railway Agency (ERA).

A.2. Summary

The overall purpose of this report is to convey information on the performance of the Eisenbahn-Bundesamt (EBA) acting as National Safety Authority pursuant to Directive 2004/49/EC on safety on the Community's railways. This report is aimed at stakeholders in the German and European railway market and the interested public.

the EBA was founded in 1994 in the context of German railway reform as one element of this reform. When former state-railways Deutsche Bundesbahn and Deutsche Reichsbahn were transformed into the private undertaking Deutsche Bahn AG, sovereign tasks like for example, type approval of vehicles and tracks or public financing of investments were allocated to the EBA. Since 1994, the EBA has acted as an independent authority inside the sphere of the German Federal Ministry of Transport, Building and Urban Affairs. Its headquarters is located in Bonn, while most of the approximately 1 250 employees work in twelve branch offices at fifteen locations throughout Germany.

In view of the EBA's experience since 1994, it was a logical step to officially allocate the tasks of a National Safety Authority pursuant to article 16 of the Safety Directive to the EBA as well. This step was taken in April 2007 when the "Fünftes Gesetz zur Änderung eisenbahnrechtlicher Vorschriften" (Fifth law amending railway legal regulations) came into force and completed the implementation of the provisions of the Safety Directive into German law.

Parts A, B and C of this report and the related appendices contain global information on the railway system in Germany as well as details concerning legal background, tasks and organisation of the EBA. Parts D to H focus on safety related issues:

- Chapter D lists important safety measures taken in 2009, separated into measures resulting from events like accidents, from safety recommendations or from other triggers like findings during supervision activities. Furthermore, it contains a trend analysis of Common Safety Indicators (CSI). Annex C shows a table of CSIs for 2009.
- Part E of the report gives an overview of important changes in German railway legislation in 2009. The table in Appendix D reports all changes in detail.
- Chapter F deals with safety certification and authorisation; Appendix E contains figures related to this topic.
- Chapter G outlines how supervision of Railway Undertakings and Infrastructure Managers was performed by the EBA in 2009. As the process of delivering safety certificates and authorisations according to the Safety Directive will last until December 2010, the development of a supervision system with audits and inspections according to the Safety Directive is still in progress.
- In Chapter H, the application of the CSM on risk evaluation and assessment is prescribed. This application is mandatory from 2010 on; it has not been applied in Germany in 2009.

B. Introduction

General

This annual report provides information on the activities carried out by the EBA as the German safety authority for railways pursuant to the Safety Directive. It is primarily aimed at the railway sector in Germany and Europe, but also at representatives from other areas of politics, business and the press and interested members of the general public.

The EBA was founded as an independent, unitary higher Federal authority within the ambit of the Federal Ministry of Transport, Building and Urban Development (BMVBS) when the railway system in Germany was restructured in 1994. It is the inspection and licensing authority for the State railways (EdB), magnetic levitational railways and rail transport undertakings (RUs) based abroad for the territory of the Federal Republic of Germany. The EBA is now also responsible for inspecting non-federally owned railways that require a safety certificate or safety licence, as well as network inspection in accordance with Section 5(1c) of the General Railway Act (AEG).

Information on the structure of the railways

On 31 December 2009, the public rail network in Germany consisted of about 38 000 km of track, of which about 20 000 km were electrified on the standard Germany system (15 kV, 16 2/3 Hz). This track network is operated by a total of around 170 licensed public rail infrastructure undertakings. Around 32 500 km of track are operated by DB Netz AG, the largest infrastructure operator in Germany.

Over 390 public railway undertakings were licensed under Article 6 of the General Railway Act (AEG) to provide rail transport services on Germany's public rail network at the end of 2009, this corresponded to a licence pursuant to Directive 95/18/EC (2001/13/EC) on the granting of licenses to railway undertakings. Foreign rail transport undertakings also operate in Germany on the basis of a licence acquired in another Member State of the European Union in accordance with Directive 95/18/EC (2001/13/EC).

After many years of traffic growth, in 2009 for the first time the traffic carried on the German railway network declined. While the passenger traffic was more or less the same as in the previous year, the freight revenue went down significantly due to the drop in business activity. In the course of this the railway lost market share. In the modal split of the land traffic carriers the railways share fell during the year from 17.8 to 16.6%.[1]

The public railways carried 312.1 million tonnes of freight in 2009 (-15.9% compared to the previous year). The transport performance fell even more by 17.1% to 95.8

[1] Source: Bundesamt für Güterverkehr, Marktbeobachtung Güterverkehr – *[Federal Office for Freight Traffic, Market Research in Freight Traffic]* Annual Report 2009

billion tonne-kilometres.[2] For 2010 it is apparent that there is a significant recovery and the forecast for the following year shows a slight improvement in the quantity of goods carried and the performance.[3]

There has also been a slight reduction in railway passenger traffic: The number of passengers carried fell 1% within the year to 2.32 billion passengers, the transport performance decreased rather less from 81.8 to 81.1 billion passenger-kilometres (-0.8%).[4]

Appendix

A map of the railway network in Germany is attached to this report (**Appendix A.1**). Likewise on the left are lists of the licensed railway undertakings and railway infrastructure undertakings (Appendix A.2).

C. Organisation

The EBA is, as already explained in the introduction, pursuant to Article 2(1) of the State Rail Transport Management Act (BEVVG) an independent, unitary Federal authority within the ambit of the Federal Ministry of Transport, Building and Urban Development BMVBS.

The specific tasks of the EBA are laid down in detail in Article 3 BEVVG. Accordingly, the EBA is responsible for the following tasks:

1. Planning for operational equipment for the State railways,

2. Inspecting the railways,

3. Inspecting construction of operational equipment for the State railways,

4. Issuing and revoking operational licences,

5. Exercising its own authority and inspection and participation rights pursuant to other laws and regulations,

6. Preparing and carrying out agreements pursuant to Section 9 of the Federal Railway Development Act,

7. In accordance with Section 5(1g) of the General Railway Act, carrying out expert investigations into dangerous rail incidents,

8. Granting State funds to promote rail transport and to promote the combination of rail transport with other means of transport.

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[2] Source: Federal Statistics Agency, Technical series 8, Number 2, December 2009
[3] Source: Bundesamt für Güterverkehr, Marktbeobachtung Güterverkehr – *[Federal Office for Freight Traffic, Market Research in Freight Traffic]* Annual Report 2009
[4] Source: Federal Statistics Agency, Technical series 8, Number 2, December 2009

For the purposes of carrying out its tasks the EBA is divided into a Head Office in Bonn and 12 branch offices in 15 locations throughout Germany. The EBA's Head Office has four departments (Head Office services, Infrastructure, Vehicles/Operation and Finance). There are 18 subordinate units. The local tasks are carried out by five expert areas in the 12 outside offices. They are coordinated by the respective technical units. An organisational chart of the EBA as well as an overview of the locations of the branch offices is given Anhang B in .

The EBA is set up as a higher Federal authority within the purview of the Federal Ministry for Transport, Building and Urban Development and is therefore answerable to that ministry. Alongside the EBA, three other bodies have responsibilities in the railway sector in Germany:

The **Federal Railway Accident Investigation Office (EUB)** which is the Investigation office as specified in Safety Directive 2004/49/EC manages and is responsible for the investigation of accidents in accordance with Chapter V of the Safety Directive for Infrastructures for which the State is responsible**.** Managing the EUB is the responsibility of the BMVBS, while operative tasks are carried out by an investigation centre technically answerable to the BMVBS in the EBA.

The **Federal Network Agency (Bundesnetzagentur, BNetzA)**, which is a regulatory body pursuant to Directive 2001/14/EC, monitors non-discriminatory network access in Germany. The Federal Network Agency also regulates the electricity, gas, postal and telecommunications markets and is therefore organisationally answerable to the Federal Ministry for the Economy and Technology. However, specialist monitoring in the rail regulation sector is the responsibility of the Federal Ministry for Transport, Building and Urban Development (BMVBS).

Eisenbahn-Cert (EBC), which is the Notified Interoperability Body for the trans-European conventional and high-speed rail system sector pursuant to Directives 96/48/EC and 2001/16/EC, checks and certifies compliance with the European rules for interoperability components and subsystems of the rail system.

An illustrative representation of the situation on 31.12.2009 is attached to this annual report in **Appendix B.2**. An overview of the cooperation between Notified Bodies and the EBA for issuing commissioning licences for structural subsystems is given in **Appendix B.3**.

D.The development of rail safety

Initiatives to maintain/improve safety

This section contains a list of the measures decided on and taken by the EBA or transposed in Germany in 2009 to maintain or improve safety on the railways. EBA measures based on specific events such as accidents are shown in Table D.1.1. EBA measures triggered by other factors (such as findings during inspections) are shown in Table D.1.2.

Table D.1.1. Safety measures triggered by accidents/precursors to accidents

Accidents/Precursors triggering the measure			Safety measure decided on
Date	**Place**	**Description of the event**	
Several vehicle fires due to turbocharger damage in vehicles of type -RS1-			
Several in the period 01/03 – 10/09	Several places	Following a fracture of the turbocharger shaft oil penetrated into the very hot exhaust gas area and caught fire. This fire then caused the vehicle to burn.	Modifying the routine change period of the exhaust gas turbocharger (ATL) in the class of vehicles concerned, that is to say when it is announced that new turbochargers are generally available the turbochargers of all RS1 type of vehicles must be replaced at intervals of not more than 360,000 km exclusively by brand new turbochargers.
After production of a fatigue test certificate as specified in EN 13103, for Type A axles to UIC leaflet 510-1 for an axle load >20 t			
09.04.2009	St. Peter-Seitenstetten (AT)	During the investigation of the accident caused by a fractured axle on 09.04.2009 at St.Peter-Seitenstetten, (AT) the EBA learnt that the fatigue test certificate specified in EN 13103 for Type A axles to UIC-leaflet 510-1 with the dimensions to I – II as well as III with the addition "(1) Standardisation" of the Table reproduced beside the drawing in UIC leaflet 510-1, Appendix 1 cannot be used for all wagon classes with axle loads of more than 20 t.	The German railway industry was advised and a copy was sent to the European safety authorities, with the request that the fatigue strength certificates should be checked, and, if necessary, suitable measures should be taken to ensure safe railway operation. In the meantime all European railways have agreed to restrict freight wagons with these axles to an axle load of 20 t.

Missing documentation of the history and maintenance of freight wagon axles			
Various	Various	During the investigation of various axle defects (axle fractures, hot axle boxes, etc.) which caused dangerous events it was found that the documentation of the history and maintenance of wheelsets throughout the industry was inadequate.	On 23.12.2009 a general instruction was issued by the EBA which required certain information on every freight wagon wheelset to be recorded and stored in such a way that it is possible to filter all the individual data. This gives the possibility if defects are found in a certain class of wheelsets or wheelset components of being able to trace all the new wheelsets that may be affected, in order to be able to take the necessary measures to protect against the dangers.
Derailments because switches are not in the end position			
21.04.2009	Westerburg	A derailment occurred on switch 22 in Westerburg station. Westerburg station has a mechanical signalbox. During the investigation to find the cause a bolt was found on the ground by the straining wire of switch 22. This bolt belonged to the connection of the straining post of the fishplate shackle of the blocking device of the wire strainer of switch 22. A split pin should have been fitted to prevent the bolt falling out, but this was not found. As a result of the missing bolt it was possible that the switch lever took up a basic position, although the switch was not in a defined end position.	For the simplification and optimisation of the inspections on the wire strainer in mechanical signal boxes the corresponding split pins have a coloured marking.

Collision due to defective track inspection			
16.04.2009	Berlin-Karow	There was a collision in Berlin-Karow station between a passenger train running through in the direction Berlin-Blankenburg and a departing train travelling in the same direction. As a result of the collision there was a derailment of the 1st coach of the passenger train running through. The cause of the accident was incorrect route checking before the acceptance of the passenger train as well as an improper auxiliary cancellation of the route for the train.	There is no continuous automatic track free equipment on the main line in Berlin-Karow. In accordance with the regulations in Directive 408.01-09, 'Running and shunting of trains' is done on the basis of a visual track inspection. In the draft of the planning module (RiL) 819.1101 suitable requirements were included According to these in the main lines of new installations the process and safety technique clear track signalling system must be installed. In the event of considerable alterations to existing signal boxes the clear track signalling system should be planned if: • the speed on the tracks is > 120 km/h; • on tracks with a permissible speed of > 50 to 120 km/h and more than 9 trains run per hour and direction.

Table D.1.2. Safety measures with other triggers

Description of the triggers of the measures	Safety measure decided on
Damage to freight wagon wheelsets due to defective maintenance	
Reports from a transporting RUs in connection with inspection of the wagons by the EBA: Sliding traces on the axles by contact with the brake lever connector or bogie frames (brake bridges) due to inadequate maintenance. This is a systematic fault on vehicles of one owner. Previously this fault was only found on wagons with older Y bogies running in France (e.g.: Y 25 Cs, cast or welded construction). It cannot, however, be excluded, that the defect is also present in other vehicles of other owners.	The EBA has forbidden the owner to use the vehicles which showed this defect in service.
STE - Maintenance and system management using SAP/R3	
As part of the railway supervision the EBA has carried out an investigation of the oldest signal boxes on the basis of the inspections books as well as the system management using SAP/R3. This railway supervision activity was extended to “on the spot” samples and to the complete LST area (ESTW, BÜ, BZ).	The results were presented at a regular meeting between the EBA and the infrastructure operator concerned. It was clear that there was a need for action to set up a standard input and assessment system for the defect classification in respect of the maintenance tool SAP/R3.
Mixed traffic on high speed lines	
For operational reasons an infrastructure operator applied for a method with technical support to prevent freight and passenger trains passing in the tunnel section of the high speed line (SFS) from Fulda to Burgsinn. A safety decision was drawn up by the EBA, in which the possible use of the so-called conflict warning equipment was not prevented. As part of the railway supervision activity the EBA would investigate the method of running mixed traffic on the section of the high speed line concerned.	Under the so-called conflict warning equipment which should safely prevent passenger and freight trains passing in sections of the line where there are many tunnels a corresponding safety requirement level as specified in EN 50126 shall be complied with. The EBA has asked that the certificate produced should allow at least equal safety to be assessed.

Broken securing elements in switches	
During a railway supervisory investigation on switches with switch blade locking of the WKV switch clamp lock type it was found on one switch that the rivet to secure the eccentric bolt to take the clamps was broken. Also the weld seams of the rings underneath with the safety plate were cracked.	Throughout the area of the infrastructure manager all switches which have a low maintenance clamp and switch lock (WKV / WEV) will be inspected in a special investigation. The inspection interval of all low maintenance clamp and switch end locks will be reduced to two months until the safety problem is finally resolved. As part of the inspection the locks based on the approved design type shall be checked. Any type of lock that is not currently approved will be changed.
Measures to combat danger from threatening weather conditions	
The number of collisions between trains and fallen trees increased between 2003 and 2007. The measures provided by the infrastructure managers in the regulations to avoid such events no longer meet the current circumstances, since local operating facilities which can observe the weather conditions on the line, are increasingly being closed down as part of the centralisation policy. There are no methods to systematically assess storm warnings as far as railway lines are concerned.	1. A list of sections of line should be prepared on which there is a danger that trees may fall into the track when there are storms and so damage vehicles or cause them to derail. 2. It must be specified for the sections that are at risk, at which warning stages of the weather service, local operating offices should be asked to continually monitor the actual weather situation, and when the features of a critical weather situation, yet to be specified are observed (e.g. vibrations/bending of heavy branches or the complete trees) operating measures should be initiated. Stand-by staff should be called in for these observations if no local operating offices are available. 3. If in the estimation of the local operating office or the stand-by staff, the danger threatening conditions according to the specified criteria for the critical weather situations have occurred, then train drivers should at least be informed of the presence of a weather situation that threatens danger before the approval of a train journey into the endangered area. However, additional measures in accordance with the current regulations remain unaffected. 4. The railway undertakings shall be advised that the infrastructure manager will inform the train driver before authorising a journey in an endangered area, if a critical weather situation has occurred. The railway undertakings shall be responsible for issuing further instructions to train drivers for this case. The instruction of the EBA has not yet come into force.

Boarding conditions for passenger trains	
Complaints from passengers about the difference in height or distance between platform edges and vehicle floors or steps, being too large, causing a lot of accidents when boarding and alighting from stationary vehicles. This was first reported to ERA in response to an enquiry which may be related to boarding conditions.	Instruction to individual railway undertakings that with a gap of more than 35 cm between platform and vehicle in the door area the technically based departure check cannot be used and before departure a visual check must be made. Setting up of a working party with participation from the complete sector which has the task of preparing suitable measures for new vehicles to improve the boarding arrangements in accordance with the requirements of the TSI PRM.
Failure of GSM-R radio network in the area of Niederlassung West	
Due to a burst heating pipe in the Mobile Switching Centre (MSC) building the main and stand-by power supply equipment was damaged, and the function of the MSC could not be properly maintained. The result was the failure of the GSM-R radio coverage in the Niederlassung West area.	It was decided that when there is a surface failure of the GSM-R radio network the same operating replacement measures should be introduced as is the case with GSM-R radio holes caused by intermodulation.

Detailed Data Trend Analyse

Appendix 1 of the Safety Directive specifies Common Safety Indicators (CSI) for which the safety authorities should give details in their annual reports. The various categories of the CSI include:

- number of accidents;
- number of fatalities;
- number of persons injured;
- number of precursors (forerunners) to accidents;
- costs of all accidents, time spent on safety and
- technical safety of the infrastructure and its implementation and safety management.

Since 2007, the data on which the Common Safety Indicators are based are taken from the safety reports made by the railways to the EBA. The data source for 2006 was the database of hazardous incidents reported to the EBA. The scope of the accidents covered is based on Directive 2009/149/EC amending Directive 2004/49/EC of the European Parliament and the Council in respect of the common safety indicators and common methods for the criteria included in the accident cost calculation. Accordingly, only those accidents are included in which at least one moving railway vehicle is involved and in which:

- at least one person was killed or seriously injured or
- considerable damage was caused to vehicles, lines, other equipments or the environment (damage of at least EUR 150 000) or
- there were significant operational incidents (disruption to traffic on a main line for six hours or more).

As a result, the reported accident figures for 2007 et seq have fallen sharply in comparison to the 2006 and cannot in any way be compared with the 2006 values. This becomes very clear in the categories of collisions, derailments and vehicle fires. It will therefore only be possible to use the CSIs to analyse trends from 2007. The definition used for broken rails also changed in 2007. Since then broken rails which did not pose a concrete danger also need to be listed, which has led to an increase in the number of broken rails in 2007, and thereafter. As far as signals passed at danger are concerned, from 2009 for the CSI only events in connection with train running are considered, thus the number of cases of signals passed at danger has fallen sharply compared with the previous years.

The CSIs for accidents, people fatally and seriously injured were compared with the figures obtained from the Federal Statistical Office. The figures were not the same since the Federal Statistical Office considers all the public railways in Germany, while the common safety indicators in the report, as specified in Directive 2004/49/EC refer to the undertakings which require a safety certificate or safety licence. For this reason the number of accidents from the Federal Statistical Office is higher than the CSI figures given in this report.

In 2009 there was a total of 310 significant railway accidents on the railway network in Germany covered by the Safety Directive. Thus the number of significant accidents has fallen compared with the previous year (2008: 329 significant accidents, - 5.8%). There was also a further reduction in the number of accidents at level crossings and the figures in the "derailments" and "other accidents" categories also declined. There was, however, an increase in the "accidents with personal injuries, which were caused by railway vehicles in motion".

The number of people seriously injured in railway accidents in 2009 was 118, which was significantly fewer than in the previous year (2008: 156 seriously injured people, -24.4%). Of these, the number of seriously injured passengers in the year fell to 13 compared with 30 in the previous year. There was also a reduction in the number of casualties to railway employees and users of level crossings. On the other hand the number of people seriously injured in railway accidents under "trespassers" and "others" increased slightly. Over half (about 52%) of the seriously injured people were users of railway level crossings or trespassers on railway premises.

The number of people who died in railway accidents increased slightly from 164 in 2008 to 170 in 2009. Approximately 85% of the fatalities are in the category "Users of railway crossings" and "trespassers" on railway premises. A detailed consideration shows that the increase in the number of people fatally injured in railway accidents was caused by a considerable rise in the number of trespassers on railway premises. This group alone caused over 60% of the total number of fatalities. All other groups of people show constant low or slightly reduced values when compared with the previous year.

The data for the individual CSIs for the report year 2009 as well as the definitions used for the determination of the CSIs are given in **Appendix C** to this report.

Results of the safety recommendations

In 2009 two safety recommendations were issued by the Investigation Agency.

The first recommendation was based on an event with strong smoke generation in a double deck driving trailer of a local train due to a dragging auxiliary brake. The recommendation to fit a warning light in the field of view of the train driver to indicate an applied or not completely released auxiliary brake on the driving trailer has been in existence for some time. The additional recommendation that consideration should be given to moving the intake duct of the air conditioning equipment to another position has not yet been completed.

The second safety recommendation issued in 2009 was based on the results of the investigation of the derailment of a freight train due to a fractured axle resulting from a hot axlebox. The recommended exchange of riveted brass cages of the axle bearing for plastic bearing cages is at present being assessed. The second aspect, the investigation of the ability of derailment detectors or sensors to recognise hot axle bearings is at present being discussed on the European or international level in the corresponding committees of the ERA and the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID, Appendix C of COTIF). The work is not yet concluded.

Postscript to the safety recommendations mentioned in the previous year's report that have not yet been concluded:

In 2007 a safety recommendation was made by the Investigation Agency which referred to the introduction of hot box detectors (HOA). The EBA has discussed possible improvements based on the necessary distances apart, detection possibilities and basic assumptions for the temperature rise with the infrastructure managers. The draft of a new specification for hot box detectors and dragging bake equipment (FBOA) was prepared by the infrastructure manager concerned and submitted to the EBA in May 2010. The work regarding the specification is not yet concluded. Furthermore an extrapolation of the corresponding planning module is being carried out but this work also is not yet completed.

A further safety recommendation from 2007 was based on a railway accident on 20.11.2006 due to insufficient brake power of a suburban train at Berlin-Südkreuz. The certification of the infrastructure manager concerned for the modified brake equipment or brake control is ongoing. In the meantime the service runs with speed restrictions.

A 2008 safety recommendation goes back to the derailment of an ICE 3 in Cologne Main Station due to a driving axle fracture on 09.07.2008 and recommended a check of the initial data of the material specified in the design of the wheelset with respect to the fatigue strength certificate. The work resulting from this event is not yet concluded. The measures introduced after the derailment of non-destructive testing of axles for internal defects at regular intervals continues.

E. Important changes to legal and regulatory provisions

During 2009, the following changes were made to railway law in Germany:

Fourth Law Amending the General Railway Law

The fourth law amending the General Railway Law of 19.05.2009 serves for the national transposition of Directive 2007/58/EC of the European Parliament and the Council for the modification of Directive 91/440/EEC of the Council of 23.10.2007 for the development of the railway undertakings of the Community as well as Directive 2001/14/EC on the allocation of railway track capacity and the levying of charges for the use of the railway infrastructure. This Directive provides a further step in the opening up of the railway network. The opening up for cross-border passenger traffic applies from 01.01.2010. A suitable regulation to extend the right of access was put into the General Railway Law (AEG) by the legislature.

Law to adapt railway regulations to EC-Regulation No 1371/2007 of the European Parliament and the Council on the law and obligations of passengers in railway traffic

The AEG, and the railway traffic regulation (EVO), were amended by the law to adapt railway regulations to EC Directive No 1371/2007 of the European Parliament and of the Council on the laws and obligations of railway passengers of 26.05.2009. The responsibility for the job of the implementation agency as specified in Article 30 of the order (EC) No 1371/2007 was given to the responsible railway supervisory authorities. The EBA is consequently responsible for monitoring the compliance with the legal regulations regarding passenger rights for all State railways, and all railways which need a safety licence or certificate.

Sixth Law Amending Railway Regulations

The sixth law amending railway regulations of 30.07.2009 serves for the national transposition of Directive 2007/59/EC of the European Parliament and the Council for the certification of drivers who drive locomotives and trains in the railway system of the community. By means of this Directive a standard European "Train drivers certificate" will be introduced in stages. The above mentioned law provides the preconditions for carrying out the corresponding certification in Germany by amending the AEG and the Order on the charges and expenses for the office handling of the railway traffic management of the State (State Railway Fees Regulation BEGebV).

Regulation on the conditions of travelling staff in interoperable cross border railway traffic (Railway driving staff regulation - EFPV)

The regulation on the conditions of the use of travelling staff in the interoperable cross-border railway traffic of 24.08.2009 contains regulations for the transposition of Directive 2005/47/EC of the Council regarding the agreement between the Community of the European Railways (CER) and the European Transport Workers Federation (ETF) on certain aspects of the conditions of travelling staff employed in the interoperable cross-border traffic in the railway sector. This includes conditions regarding working times, rest times and rest pauses for the staff who work in cross-border trains.

Second regulation for amending the trans-European Railway Interoperability Regulation (TEIV)

The second regulation for amending the Trans-European-Railway -Interoperability Regulation of 21.09.2009 serves to introduce the decision of the Commission (2009/107/EC) of 23.01.2009 for the modification of the decisions 2006/861/EC and 2006/920/EC on the technical specifications for the interoperability of the sub-systems of the conventional Trans-European Railway System. This decision serves mainly to close the open points and correct the errors in the decision of the Commission 2006/861/EC of 28 July 2006 on the technical specification for interoperability (TSI) for the sub-system vehicle - freight wagon of the conventional Trans-European Railway System to enable the mutual recognition of the approvals of freight wagons.

Appendix D contains an overview of the amendments made to laws and regulations in the annual report year 2009 with reference to railway safety with the most important data in tabular form.

F. Development of the safety certificate and safety licence

1. National Law - Start Date - Availability of Safety Regulations

In 2007, the Safety Directive was transposed into national law by the Fifth Law Amending Railway Regulations and the Second Regulation Amending and Enacting Railway Regulations. The start date for issuing safety certificates and safety licences was the date the Fifth Law Amending Railway Regulations came into force, i.e. 21.04.2007. Up to this point, safety certificates had been issued by the Federal Railway Authority in accordance with Directive 2001/14/EC.

As national safety regulations, the provisions are applicable in accordance with the Communication from the Government of the Federal Republic of Germany to the European Commission of 25 January 2008 on relevant national safety provisions for the rail system in Germany pursuant to Article 8(2) of Directive 2004/49/EC. This Communication is available on the EBA homepage. The appendices to the Communication contain the classification of regulations in accordance with Appendix II of Directive 2004/49/EC, together with further details as per the form developed by the ERA, including links to the individual regulations.

2. Numerical data

Appendix E contains a summary of various numerical data on safety certificates and safety licences.

In 2009 the following applications were received by the EBA:

- 1 application for the issue of a safety licence
- 6 applications for the issue of a safety certificate Parts A + B
- 3 applications for the issue of a safety certificate Part B
- 23 applications for the issue of a safety certificate that only applies nationally in accordance with Section 7a(2) in conjunction with Section 7a(3) of the General Railway Act (AEG).

The application for the issue of a safety licence received in 2009 was - as all applications from the previous year also - placed by an infrastructure manager who participated on 21.04.2007 in railway operation. Under Section 38(5c) of the General Railway Act, the safety licences were therefore deemed to have been provisionally issued until a final decision was taken on the applications.

The vast majority of rail transport undertakings are already operational, and therefore hold a safety certificate under Directive 2001/14/EC that is still valid in Germany until the end of 2010 under Section 38(5a) of the General Railway Act. In accordance with Section 38(5b) AEG these undertakings had to submit an application by the end

of 31.12.2008 for a safety certificate as specified in Directive 2004/49/EC, so that the number of applications for safety certificates received in 2008 was very high and the figure for 2009 was significantly reduced.

3. Aspects of procedure

3.1.Safety certificates – Part A

Not all the information required for the Part A applications submitted in 2009 was available. The undertakings do not yet have any experience in setting up a safety management system (SMS) and still require extensive advice on understanding the European requirements. The SMS documentation submitted for the first time, therefore, generally has to be revised and supplemented in accordance with the safety authority's requirements. However, the deadline under Article 12(1) of the Safety Directive or Section 7a(6) of the General Railway Act was not exceeded in any instance. No Part A safety certificate has yet been issued under Directive 2004/49/EC, and no amendments or updates were therefore required.

Satisfying the requirements of Article 9(2) of Directive 2004/49/EC presents railway undertakings with a special challenge. In particular this is to do with the requirements arising from the corresponding ERA evaluation criteria in connection with maintenance where rolling stock of other owners is used. In order to demonstrate maintenance risk control, railway undertakings must, among other things, satisfy themselves that owners are competent at maintenance and comply with the necessary standards. Full implementation of these new requirements requires every railway undertaking to implement additional procedures, which they were not yet able to demonstrate in the year under review. As a result, the EBA was unable to issue any Part A safety certificates to these railway undertakings.

Formal feedback procedures for rail transport undertakings in connection with the process for issuing safety certificates are not required under either the Safety Directive or national legislation. However, undertakings are free to submit their views on the procedures informally. In this connection, undertakings report that a considerable amount of time and money is required to develop and set up an SMS and to draft the SMS documents required by the safety authority. A common understanding of the SMS requirements by rail transport undertakings and the safety authority is often achieved only after repeated consultation and extensive correspondence.

3.2. Safety certificates - Part B

Despite existing guidance notes, undertakings sometimes require extensive advice in order to understand the European requirements. The Part B documentation submitted for the first time, therefore, often has to be revised and supplemented in accordance with the safety authority's requirements, especially for undertakings that are new to the German market. When examining application documents for a Part B safety certificate submitted by undertakings with a licence or Part A safety certificate from another Member State, it is often clear that the processes and procedures described in the SMS are ineffective and do not produce the desired results, especially to satisfy the requirements on the German network.

The processing times specified in Article 12(1) of the Safety Directive and Section 7a(6) of the General Railways Act have not hitherto been exceeded. Part A safety certificates issued by the safety authorities of other Member States have been recognised without any problem up until now.

There is no provision for formal feedback procedures for Part B safety certificates either, although undertakings can submit their views informally at any time. In this connection, rail transport undertakings report that a considerable amount of time and money is required to draft the Part B documents required by the safety authority.

3.3. Safety approval

A manual of how to carry out the safety approval procedure in Germany has been prepared (current version 1.0 of 23.04.2009) and placed on the EBA internet site for general use. The applications received so far are still being processed, since the examination could not be completed, in particular because of missing or incomplete application documents. No definite decisions have yet been taken.

G. Inspection of rail transport undertakings and infrastructure operators

The following section explains how rail transport undertakings and infrastructure operators in Germany were inspected by the Federal Railway Authority in 2009. In 2009, there were about 170 staff available to the Federal Railway Authority for carrying out inspections in the areas described below.

Inspection of permanent-way and structural equipment (Unit 21)

Monitoring of track operators to ensure that equipment meets prescribed standards and complies with rules for the inspection and servicing of equipment is carried out by Unit 21 and Field 2 of the EBA branch offices during inspections of the permanent way and structures. Railway inspections, which are done by sampling, enable it to be established whether the General Railway Act and the associated legal regulations, as well as the recognised engineering rules are complied with during the use of the approved equipment. The main purpose of the railway inspection is to check that the rail transport undertaking meets the safety obligations laid down in Section 4(1) of the General Railway Act. General monitoring during the railway inspection is basically limited to random checks. In this respect, the Federal Railway Authority distinguishes between three kinds of monitoring in accordance with the Administrative Regulation on the Inspection of Structural Equipment (VV EA) of the structural equipment of the State railways:

a) Monitoring of undertakings

b) Monitoring of installations

c) Special monitoring

These types of monitoring are supplemented as necessary by special investigations.

The railway administration regulation on building installations is available to view or download under the following link to the EBA internet site: http://www.eba.bund.de/cln_016/nn_342570/DE/Infothek/Infrastruktur/Allg__Vorschriften/VVEA/VVEA__node.html?__nnn=true
On 8th February 2010 the VV EA removed the administration regulations on railway inspection of structures and mechanical equipment, and carrying out the technical inspections of safety in the workplace (VV TAU) which had applied up to this time. The VV EA built on the base of the VV TAU has been extended on the basis of the process orientation in order to take into account the requirements of the Safety Directive (granting of safety certificates / auditing as part of the safety management system, etc.). The process orientation also improves the possibility of a systematic assessment, based on individual types of equipment, of the maintenance organisation of the monitored railway undertakings.

The division into three parts described above is an attempt to introduce an assessment of the maintenance activity of the infrastructure operator that is as flexible and reliable as possible. The following points apply for the individual types of inspection:

a) The object of the investigation of the undertakings (UbÜ) is to see to what extent existing - partly inside the undertaking - rules for carrying out maintenance in the sense of DIN 30541 (servicing, inspection, maintenance) have been transposed and observed. It consequently assesses the maintenance organisation of the operator by looking at the offices responsible for the equipment and basically carrying out an audit of the maintenance organisation. This type of monitoring is carried out at regular intervals (about every 2 years).

b) The object based monitoring (ObÜ) is done by sampling. It enables an assessment to be made of the equipment condition on site as well as the monitoring of the staff involved in the maintenance. It is carried out by observing the inspections of the equipment. Also it is regularly done for the different types of maintenance work.

c) The EBA reserves the right in cases in which the UbÜ and/or ObÜ do not reach a clear assessment of a piece of equipment to carry out special investigations. In addition special investigations can be carried out, in particular, after accidents or exceptional events.

In the investigations carried out in 2009 no important deficiency was found in the maintenance system of the State railways, which might have led to significant safety relevant effects on the condition of the permanent way and structures. Orders to the track operators only had to be made in a small percentage of the investigations for individual equipment. The main problems lay in the area of the documentation of maintenance relevant data and activities, as well as the revision of the documentation.

Inspection of signalling, telecommunications and electrical equipment (Unit 22)

Unit 22 of the Federal Railway Authority is responsible for inspecting **S**ignalling, **T**elecommunications and **E**lectrical equipment (STE-equipment). The railway inspection is carried out in accordance with the Administrative Regulation for the Inspection of Railway Signalling, Telecommunications and Electrical Equipment (VV TAU-STE), which can be viewed and downloaded at: http://www.eba.bund.de/cln_016/nn_342570/DE/Infothek/Infrastruktur/Allg__Vorschriften/VV_TauSte/VVTauSte__node.html

The safe operational condition of railway equipment is monitored on a random sampling basis by monitoring the undertakings' maintenance organisation functionality, by the monitoring of installations and observing inspections of equipment carried out on site, and in special cases by in-depth consideration in the form of special monitoring.

STE is split into signalling, telecommunications and electrical equipment with safety tasks (safety installations) and signalling, telecommunications and electrical equipment without safety tasks (other STE). The safety installations are listed in Appendix 2S of the Administrative Regulation and the other STE in Appendix 2A.

The focus of the monitoring carried out in 2009 lay in the maintenance of the process control and safety equipment for the management of the SAP/R3 system, the investigation of switches with switch blade locking of the WKV type and vegetation control for signal sighting.

The monitoring of State railways carried out in 2009 showed no serious safety faults. Where faults were discovered that had safety implications, instructions were issued to restore safety and order in relation to the rail equipment.

Inspection of railway vehicles (Unit 32)

Unit 32 of the Federal Railway Authority is responsible for inspecting railway vehicles. The extent and methods of monitoring are driven by the need of the supervisory authority, to build up a reliable picture of the extent to which the RUs comply with all technical and legal obligations. In order to determine the extent to which rail transport undertakings meet their legal obligations under Section 4(1) of the General Railway Act in relation to the safe construction and safe condition of vehicles, the EBA uses a system-based approach. The EBA therefore carries out:

- systematic examinations of organisations and undertakings,
- systematic examinations of construction types and design series, and
- examinations of specific installations.

In the systematic examination of organisations, the procedures, responsibilities and structures set out by the State railways, applied by them and ensuring the safety of vehicles are examined to assess their likely effectiveness. When carrying out systematic examinations of construction types and series, examinations differ according to vehicle type and series.

The aim of examining specific installations is to compare the actual and desired condition of vehicles in accordance with the relevant legal provisions and recognised rules of engineering (depending on the vehicle) and the examination of process-related factors like the existence of certificates, the implementation of safety management systems in relation to the vehicle, etc.

Besides preventative vehicle inspection, inspection resulting from a cause as a reactive inspection process forms a further part of vehicle inspection. The aim of inspection resulting from a cause is to protect against dangers from individual cases if these are necessary after an investigation into the facts of a case.

In 2009 the wheelsets of ICE trains and the vehicles of the Berlin S-Bahn were the focus for defect based monitoring. In addition, in the case of the Berlin S-Bahn the defect based monitoring was linked with systematic tests of the undertaking. The maintenance of wheelsets of freight wagons after the serious accident in the Italian Viareggio was the subject of agreement and coordination. The EBA has been very much involved in this. As this priority project was not completed by the end of the report period it will be given special attention in the monitoring activity.

Operational railway inspection (Unit 34)

Unit 34 of the Federal Railway Authority is responsible for carrying out the operational railway inspection. This takes the form of an examination of an undertaking's systems (in part as an audit) and an examination of specific installations (inspection).

The examination of an undertaking's systems includes an examination of the:
1. Organisation and documentation of the safety management systems,
2. Organisation and delegation of the functions involving safety responsibilities,
3. Instructions to railway operation managers.

The examination of an undertaking's systems is usually carried out in cooperation with other EBA departments by special agreement.

A further objective of railway inspection is the assessment of how the undertakings comply with their safety management systems (SMS). This was previously done when safety problems became known or when there were significant innovations. In this connection, the inspection also examines whether rail transport undertakings are further developing their SMS to constantly make them more effective and whether they make an appropriate response, on their own initiative, to the lessons of dangerous incidents. The examination of the undertaking's systems also focuses on the railway undertakings' procedures for risk assessment and risk control. The railway undertakings are required to demonstrate their ability to assess the effects on the level of safety of any changes in their processes and to initiate suitable compensatory measures.

The individual checking (inspection) of objects extends, among other things, to the following areas:

1. Organisational units of rail infrastructure undertakings and railway undertakings responsible for planning, controlling and monitoring with implications for operational safety,
2. Organisational units of rail infrastructure undertakings and railway undertakings responsible for staff management and planning with implications for operational safety,

3. Organisational units of the railway operation managers of rail insfrastucture undertakings and railway undertakings,
4. Organisational units charged with monitoring disruption in rail services,
5. Locally manned offices for the operation of signalling equipment and installations (e.g. signal box, level crossing keeper's post),
6. Offices responsible for train formation, handling and preparation,
7. Visiting sites and travelling along sections of track on inspection journeys,
8. Visual inspections of standard and auxiliary vehicles and their loads,
9. Travelling in the cab with the driver of tractive units, driving trailers and auxiliary vehicles,
10. Travelling in passenger trains monitoring safety devices, external doors and the departure procedure,
11. Jobs within the risk area of the track relating to operational management and protection against threats to rail services.

The system checking in the form of audits is based on the systematic monitoring of the safety management systems pursuant to Article 9 of Directive 2004/49/EC. Since these requirements were only put into the national law in 2007 previous audits of the safety management systems were done before the initial granting of a safety certificate. Periodic audits of the safety management systems pursuant to Directive 2004/49/EC without particular cause during the running time of a safety certificate were not carried out in 2009. The system tests carried out previously as part of the monitoring work were only done against the national requirements.

To remedy safety-related issues, instructions were issued to rail transport and infrastructure undertakings to restore safety and order in railway operations. These instructions mostly related to the removal of situations that contravened the regulations, or to compliance with existing safety rules. In this connection it appeared that the railway undertakings had difficulties in some cases in ensuring that all the staff carried out the regulations in all situations. The violation of the rules found in railway operation were, however, generally only of minor importance from the safety point of view, so that the maintenance of the safety level by the railway undertaking was basically guaranteed.

H. Use of the common safety method (CSM) risk evaluation and assessment

The regulation (EC) No 352/2009 of the Commission of 24 April 2009 on the specification of a common safety method for the evaluation and assessment of risks pursuant to Article 6(3)a of the Directive 2004/49/EC of the European Parliament and the Council is mandatory from 01.07.2012. However, it has already been in use from 19.07.2010 for significant modifications to vehicles or structural sub-systems and those specified by Article 15(1) of the Directive 2008/57/EC or a TSI.

Even before 19.07.2010 voluntary use of the CSM risk evaluation and assessment was possible. This has not, in fact, happened in 2009 and so it is not possible to report on the experience so far. The use of the regulation (EC) No 352/2009 was discussed with representatives of the organisations of the German railway sector. The result was presented in the course of 2010.

I. Conclusions – Priorities

The monitoring and inspections of the railway undertakings and infrastructure managers carried out by the Federal Railway Authority in 2009 showed no serious safety issues. The frequency of these issues has remained fairly constant for several years, as a result of which no critical influence on the level of safety can be inferred from them. Considering the actual trend in accidents in the past years with increasing traffic flows on the German rail network, the level of safety in railway operations can be said to be steady.

Where faults were discovered that had safety implications, the Federal Railway Authority issued instructions for the proper maintenance of railway equipment and vehicles and for the safe running of operations pursuant to Section 2(4) of the Railway Construction and Operation Order. The main initiatives and measures taken by the Federal Railway Authority to maintain and improve safety standards are summarised in Section D, Part 1. Based on the findings in 2009, no specific examinations were ordered for 2010 in addition to regular monitoring with the previous priorities.

J. Appendices

APPENDIX A: Information on the structure of the railways

A.1. Map of the rail network

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A.2. Lists of rail transport undertakings and infrastructure operators

Up-to-date lists of public rail transport undertakings and rail infrastructure undertakings – as well as plenty of other information – can be found on the Federal Railway Authority website:

A.2.1. List of public rail infrastructure undertakings in Germany

http://www.eba.bund.de/cln_007/nn_204046/DE/Infothek/Eisenbahnunternehmen/EIU/eiu__node.html?__nnn=true

A.2.2. List of public rail transport undertakings in Germany

http://www.eba.bund.de/cln_007/nn_202596/DE/Infothek/Eisenbahnunternehmen/EVU/evu__node.html?__nnn=true

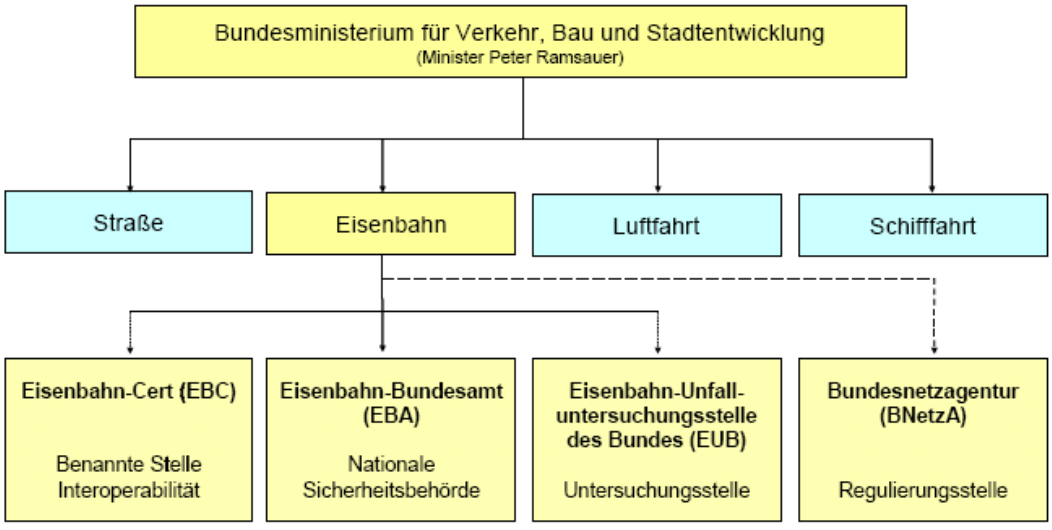
APPENDIX B: Organisational diagram

B.1.1. Diagram: Internal Organisation (as at May 2010)

<table>
<tr><td></td><td colspan="3">Gerald Hörster
President</td><td rowspan="16">Project
Noise
mapping</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Unit 91
Press Office</td><td>Investigation Office of the EUB</td><td>Notified body interoperability (EBC)</td></tr>
<tr><td colspan="2">Notified body interoperability (EBC)</td></tr>
<tr><td>Ralf Schweinsberg
Department 1
Central Department</td><td>Dr. Ing. Jens Böhlke
Department 2
Infrastructure</td><td>Dr. Ing. Andreas Thomasch
Department 3
Vehicles, Operation</td><td>Dipl. Ing. oec.Peter Zenker
Department 4
Finance</td></tr>
<tr><td>Unit 10
International Affairs</td><td>Unit 21
Building inspection, approval and monitoring, IOHM equipment, LEA</td><td>Unit 31
Approval of vehicles, experts, testing facilities</td><td>Unit 41
Application for and appropriation of funds 1 (North)</td></tr>
<tr><td>Unit 11
Legal</td><td>Unit 22
Building inspection, approval and monitoring of signalling, telecommunication and electrical equipment</td><td>Unit 32
Monitoring of vehicles, approval of workshops, holder certification, market monitoring</td><td>Unit 42
Scrutiny of statements of appropriation of funds, budget, recovery</td></tr>
<tr><td>Unit 12
Staff</td><td>Unit 23
Planning, discharge</td><td>Unit 33
Approval of tank wagons, monitoring of consignments of dangerous goods / nuclear material, LEA (mt)</td><td>Unit 43
Application and appropriation of funds 2 (Berlin/Brandenburg)</td></tr>
<tr><td>Unit 13
IT systems, network, databases</td><td></td><td>Unit 34
Monitoring operation (staff, equipment and vehicles), LEA (mt)</td><td>Unit 44
Application and appropriation of funds 3 (South)</td></tr>
<tr><td>Unit 14
Budget, Internal Services, Accounts Office</td><td></td><td></td><td></td></tr>
<tr><td>Unit 15
Organisation, Controlling, Award</td><td></td><td></td><td></td></tr>
<tr><td>Unit 16
Passenger law, tariff supervision</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Field 1
Planning, discharge</td><td></td><td></td></tr>
<tr><td></td><td>Field 2
Building inspection and monitoring, IOHM equipment, LEA</td><td>EXTERNAL OFFICES</td><td></td></tr>
<tr><td>Central Services
Staff</td><td>Field 3
Building inspection and monitoring STE equipment</td><td>Field 4
Monitoring operation + transport of dangerous goods</td><td>Field 5
Finance</td></tr>
</table>

B.1.2. Internal organisation – Locations of the EBA

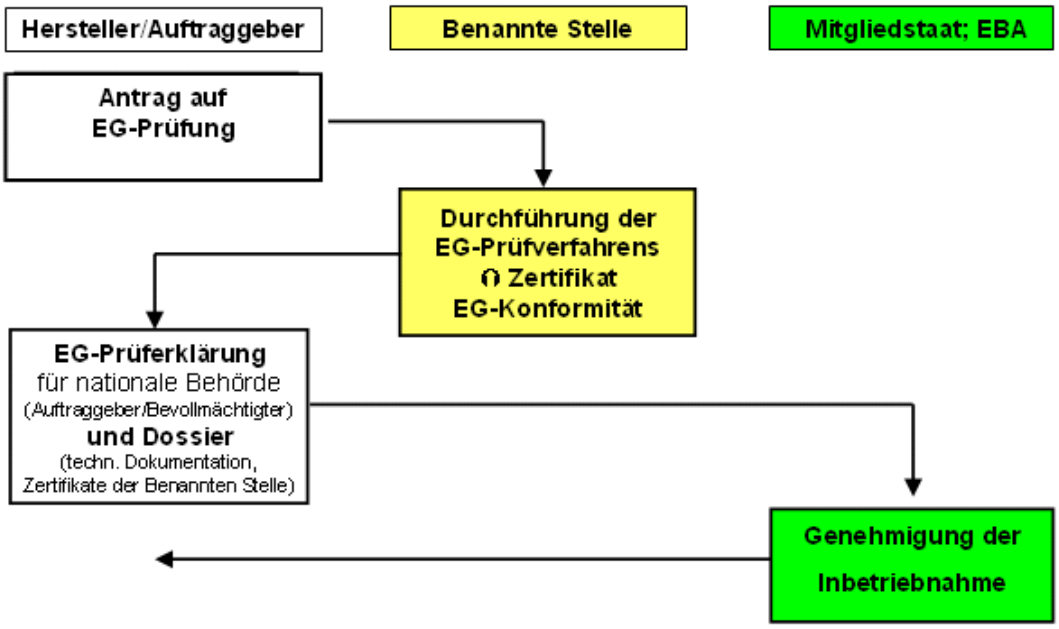
B.2. Diagram: Connection with other national authorities, as at 12.2009



Federal Ministry of Transport, Building and Urban Development (Minister Peter Ramsauer)

Road	Rail	Aviation	Shipping
Eisenbahn-Cert (EBC) Notified Body Interoperability	Federal Railway Authority (EBA) National Safety Authority	State Railways Investigation Office (EUB) Investigation Body	Federal Network Agency (BNetzA) Regulatory Body

B.3. Diagram: Cooperation with Notified Bodies



Manufacturer/Principal **Notified Body** **Member State, EBA**

Application for EC verification

Performance of EC verification

EC conformity certificate

Statement of EC verification

for national authority

(Principal/Agent)

and dossier

(technical documentation,

certificates from Notified Bodies)

Commissioning licence

APPENDIX C: CSI data and applicable definitions

C.1. CSI data

Safety indicators pursuant to Appendix I of the Safety Directive (2004/49/EC)

1. Accident related indicators

1.1. Total and relative number of significant accidents per million train-km broken down according to the following types of accident

	All types of accident	Collisions of trains, including collisions with obstacles within the clearance gauge	Derailments of trains	Level crossing accidents incl. accidents involving pedestrians	Accidents to persons caused by rolling stock in motion, with the exception of suicides	Fires in rolling stock	Other
TOTAL	310	16	7	64	201	4	18
RELATIVE	0.309	0.016	0.007	0.064	0.200	0.004	0.018

1.2. Total and reative number of persons seriously injured and killed per million train-km by type of accident, broken down into the following categories

1.2.1. Persons seriously injured

	All types of accident	Collisions of trains, including collisions with obstacles within the clearance gauge	Derail-ments of trains	Level crossing accidents incl. accidents involving pedestrians	Accidents to persons caused by rolling stock in motion, with the exception of suicides	Fires in rolling stock	Other
Total seriously injured	118	9	0	29	79	0	1
Relative number seriously injured	0.118	0.009	0.000	0.29	0.079	0.000	0.001
Including							
Passengers	13	0	0	3	10	0	0
Relative number of seriously injured passengers	0.013	0.000	0.000	0.003	0.010	0.000	0.000
Seriously injured per million passenger-km	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Employees	18	6	0	4	7	0	1
Relative number of seriously injured	0.018	0.006	0.000	0.004	0.007	0.000	0.001
Level-crossing users	22	0	0	22	0	0	0
Relative number of seriously injured	0.022	0.000	0.000	0,022	0.000	0.000	0.000
Trespassers on railway property	39	0	0	0	39	0	0

Relative number of seriously injured	0.039	0.000	0.000	0.000	0,039	0.000	0.000
Other persons	26	3	0	0	23	0	0
Relative number of other seriously injured	0.026	0.003	0.000	0.000	0.023	0.000	0.000

1.2.2. Fatalities

	All types of accident	Collisions of trains, including collisions with obstacles within the clearance gauge	Derailments of trains	Level crossing accidents Incl. accidents involving pedestrians	Accidents to persons caused by rolling stock in motion, with the exception of suicides	Fires in rolling stock	Other
Total fatalities	170	1	0	41	127	0	1
Relative number of fatalities	0.170	0.001	0.000	0.041	0.127	0.000	0.001
Including							
Passenger	3	0	0	0	2	0	1
Relative number of passenger fatalities	0.003	0.000	0.000	0.000	0.002	0.001	0.000
Relative number of passenger fatalities per million passenger-km	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Employees	4	1	0	0	3	0	0
Relative number of employee fatalities	0.004	0.001	0.000	0.000	0.003	0.000	0.000
Level-crossing users	41	0	0	41	0	0	0
Relative number level-crossing user fatalities	0.041	0.000	0.000	0.041	0.000	0.000	0.000
Trespassers on railway property	103	0	0	0	103	0	0
Relative number fatalities among trespassers on railway property	0.103	0.000	0.000	0.000	0.103	0.000	0.000
Other persons	19	0	0	0	19	0	0
Relative number of other person fatalities	0.019	0.000	0.000	0,000	0.019	0.000	0.000

2. Indicators relating to suicides

Total and relative number per million train-km of suicides

	Suicide
TOTAL	875
RELATIVE	0,872

3. Indicators relating to incidents and near misses

Total and relative number per million train-km of incidents and near misses, broken down into the following categories

	All incidents and near misses	Broken rails (EIU only)	Track buckles (EIU only)	Signalling failure (EIU only)	Signal passed at danger	Broken wheels	Broken axles
TOTAL	987	591	38	0	355	2	1
RELATIVE	0.984	0.589	0.038	0.000	0.354	0.002	0.001

4. Indicators relating to consequences of accidents

Consequences of accidents in euros or minutes and per million train-kilometres, broken down into the following components

No standard compilation in the year under review.

5. Number of working hours lost as a result of accidents

Not compiled in the year under review.

6. Indicators relating to technical safety of infrastructure and its implementation

Percentage of tracks with automatic train protection (IM only)	**90%**
Percentage of train kilometres using operational automatic train protection systems	**Not available**
Number of level crossings (EIU only)	**17.508**
Number of level crossings per line kilometer (EIU only)	**0.52**
Percentage of level crossings with active or passive protection (EIU only)	**58%**

7. Indicators relating to the safety management system

Not compiled in the year under review.

C.2. Definitions used in the annual report

C.2.1. Applicable definitions pursuant to Regulation 91/03:

Fatalities
Anyone who dies either immediately after an accident or within 30 days as a result of injuries sustained in an accident – apart from people committing suicide;

Seriously injured persons
Any injured person spending more than 24 hours in hospital after an accident, apart from people attempting suicide;

Passenger kilometres
The unit of measurement for the transportation of a passenger by rail over a distance of one kilometre. Only the distance covered in the territory of the reporting country is taken into account;

Passenger
A person travelling by rail who is not a member of staff. For the purposes of the accident statistics, passengers who try to jump on or off a moving train are included;

Suicide
An act of deliberate self-harm resulting in death, as registered and classified by the relevant national authority;

Significant accident
Any accident involving at least one moving railway vehicle in which at least one person is seriously injured or killed or which results in extensive damage to rolling stock, the tracks, other equipment or the surrounding area or considerable disruption to services. Accidents that occur in workshops and stores and at operational sites are excluded;

Train
One or more railway vehicles pulled by one or more locomotives or railway vehicles, or a single moving railway vehicle travelling under a specific number or a separate designation from a fixed starting point to a fixed finishing point. Light locomotives (locomotives running on their own) are not counted as trains;

Train kilometres
The unit of measurement for the movement of a train over a distance of one kilometre. The distance taken into account is – where known – the distance actually travelled; otherwise, the standard network distance between the start and end point is used. Only the distance covered in the territory of the reporting country is measured;

C.2.2 National provisions

In the area of accident-based CSIs and CSIs relating to faults and near accidents, in addition to the definitions in regulation 91/03, the definitions of Appendix 1 of Directive 2004/49/EC of the European Parliament and of the Council amended by Directive 2009/149/EC were used to the greatest possible extent to calculate the common safety indicators and common methods for the accident cost. These definitions were published with the EBA's guidance note on the drafting of safety reports. The guidance note is available online at: http://www.eba.bund.de/cln_016/nn_201964/DE/Infothek/Bahnbetrieb/Sicherheitsbericht/sicherheitsbericht__inhalt.html

If an accident leads to other types of accident (e.g. a derailment leads to a fire), recording is under the type of accident that triggered the chain. This applies regardless of the severity of the consequences of the accident. The relevant definitions are listed below.

Significant damage to property
Damage to vehicles, infrastructure or the environment amounting to at least EUR 150,000.

Considerable holdups
These occur if traffic is interrupted on a main section of track for six hours or more.

Train
means one or more railway vehicles pulled by one or more locomotives or railcars, or a single moving railway vehicle travelling under a specific number or a separate designation from a fixed starting point to a fixed finishing point. A light locomotive, i.e. a locomotive running on its own, is also counted as a train.

Level crossing
means any level crossing between a section of railway line and a street that is used by public or private transport and is classified as a crossing by the infrastructure operator. Crossings between platforms in stations are not included.

Street
here means all public or private streets, paths and squares, including paths for pedestrians and bicyclists, any other crossing for persons, animals, vehicles or machines.

Collision
includes the following train collisions and collisions with obstacles in the loading gauge:

- collision of the front of a train with the front or rear of another train,
- (lateral) collision between a train and part of another train, or
- collision of a train with
  - shunters,

- solid objects such as buffers, or
- objects lying across or by the track (apart from on level crossings, if lost by the crossing user), such as rocks, landslips, trees, lost parts of railway vehicles, lost or displaced cargoes, vehicles and machines or equipment for maintaining the tracks.

Derailment
includes all cases where at least one wheel of a train has left the rails.

Level-crossing accident
means an accident on a level crossing in which at least one railway vehicle and
- one or more vehicles crossing the line (including bicycles),
- one or more crossing users, such as, for example, pedestrians, or
- objects lying across or by the track and which were lost by a crossing vehicle or other user of the level crossing, are involved.

Accident with personal injury caused by a moving railway vehicle
includes accidents where one or more persons are hit by a moving railway vehicle or by an object that is attached to a railway vehicle or has come loose from it. Persons who fall from railway vehicles are also counted, as are passengers who fall or are hit by loose objects inside the train.

Vehicle fire
Fires and explosions in a railway vehicle (including cargo), which occur while travelling from the departure to the destination station, in these stations or during stops or handling en route are vehicle fires.

Other accident
is any accident that does not fall into any of the above categories.

Passenger
is a person travelling by rail who is not a member of the train crew. For the purposes of the accident statistics, passengers who try to jump on or off a moving train are included.

Employee
is any person whose employment is connected with the railway and who is on duty at the time of the accident. This includes train crew members and persons working on or with vehicles and/or infrastructure facilities.

Level-crossing user
is any person who uses a level crossing with a means of transport or on foot to cross a section of track.

Trespassers on railway property
describes all persons who, without the appropriate authorisation, are on railway property which they are not entitled to enter. This does not apply to level-crossing users.

Other (third parties)
includes all persons who do not fall into any of the above categories.

Broken rail
means any rail that has separated into two or more pieces, or from which a piece of material has broken off, creating a gap more than 50 mm long and 10 mm deep in the running surface.

Track buckle
includes faults in relation to track continuity and geometry that require the track to be closed immediately or speed restrictions to be imposed to maintain safety.

Signalling error
is any malfunction in the signalling system (track-side or vehicle-side) that leads to signalling that is less restrictive than required.

Passing a stop signal
This includes any incident where any part of the train goes beyond the permissible end point of the train journey. This includes driving past

- light or semaphore signals showing stop,
- an end point of the driver permission in automatic train control systems,
- a point communicated by written or oral order/instruction, and
- stop sign (excluding buffers) or hand signal.

Instances where vehicles without traction or an unoccupied train run away and pass a stop signal dangerously are not included. If the signal only shows stop so late that the tractive unit driver is unable to bring the train to a halt in time, this is not counted (e.g. withdrawal or failure of the signal).

Wheel and axle failure
means a failure where the essential parts of the wheel or axle are damaged, creating a risk of accident (derailment or collision).

Section kilometre
means the length of the rail network that is covered by the scope of the Safety Directive (2004/49/EC, Article 2), measured in kilometres. Where sections have more than one track, only the distance between the start and end points counts.

Track kilometre
means the length of the rail network that is covered by the scope of the Safety Directive (2004/49/EC, Article 2), measured in kilometres. Where sections have more than one track, the length of each individual track is counted.

C.3. Abbreviations

CSI	Common Safety Indicator
ERA	European Railway Agency
BÜ	Level crossing
Million	10^6
Billion	10^9

APPENDIX D: Important legal and regulatory changes

	Legislation	Date on which the law came into force	Reason for introduction (details of the new law or change to the existing law)	Description
General legislation on safety in national rail traffic				
Legislation in relation to the national safety authority	Sixth Law to amend the railway legal regulations of 30.08.2009 (Federal Law Gazette I Page 2497)	05.08.2009 or 03.12.2009	Revision of the AEG and the BEWG to transpose Directive 2007/59/EC into German Law (Train Driver Certificate Directive)	Creation of a basis for the certification of train drivers pursuant to Directive 2007/59/EC in Germany
National provisions on rail safety				
Regulations on requirements for licensing the putting into service and maintenance of new and significantly modified vehicles	Second regulation amending the Trans-European Railway Interoperability Regulation of 21.09.2009 (Federal Law Gazette I-page 3154)	22.09.2009	Amendment of the TEIV transposing amendments to the conventional TSI "Vehicles – Freight wagons" and "Traffic operation and traffic control" into German law	Explanation of the application of the modified TSI according to § 4 TEIV in Appendix 2 TEIV
Common operating rules for the railway network, including rules for the signalling and traffic control system	Regulation on the conditions of travelling staff in the interoperable cross border railway traffic (Railway travelling staff regulation EFPV) of 24.08.2009 (Federal Law Gazette I Page 2957)	25.08.2009	Legal act to transpose the Directive 2005/47/EC into German law	Regulations regarding working time, rest time and breaks for driving staff in cross border trains

APPENDIX E: Issue of safety certificates and safety licences – Figures

E.1. Safety certificates pursuant to Directive 2001/14/EC

Number of safety certificates issued in 2009 pursuant to Directive 2001/14/EC for rail transport undertakings with a licence issued in	With a German licence:	316
	With the licence of another member State:	11

E.2 Safety certificates pursuant to Directive 2004/49/EC

		New	Updated/ amended	Renewed
E.2.1. Number of valid safety certificates pursuant to **Part A** for rail transport undertakings in 2009	Registered in Germany:	0	0	0
	Registered in another Member State:	0	0	0

		New	Updated/ amended	Renewed
E.2.2. Number of valid safety certificates pursuant to **Part B** for rail transport undertakings in 2009	Registered in Germany:	0	0	0
	Registered in another Member State:	1	0	0

			A	R	P
E.2.3. Number of applications for safety certificates (pursuant to **Part A**) from rail transport undertakings in 2009	Registered in Germany for:	new certificates	0	0	6
		updated/amended certificates	0	0	0
		renewed certificates	0	0	0
	Registered in another Member State for:	new certificates	0	0	0
		updated/amended certificates	0	0	0
		renewed certificates	0	0	0

			A	R	P
E.2.4. Number of applications for safety certificates (pursuant to **Part B**) from rail transport undertakings in 2009	Registered in Germany for:	new certificates	0	0	6
		updated/amended certificates	0	0	0
		renewed certificates	0	0	0
	Registered in another Member State for:	new certificates	0	0	3
		updated/amended certificates	0	0	0
		renewed certificates	0	0	0

A = *accepted*: accepted application, certificate has already been issued
R = *rejected*: rejected application, certificate was not issued
P = *pending*: decision still outstanding, no certificate yet issued

E.2.5. List of countries in which rail transport undertakings that apply for a safety certificate pursuant to Part B in Germany have already received a safety certificate pursuant to Part A.

Austria, Belgium, Denmark, France, Netherlands, Poland, Sweden

E.3. Safety licences pursuant to Directive 2004/49/EC

	New	Updated/ amended	Renewed
E.3.1. Number of valid safety licences for track operators registered in Germany in 2009	9	0	0

(provisionally issued in accordance with Section 35(5c) of the General Railway Act)

		A	R	P
E.3.2. Number of applications for safety licences submitted by track operators registered in Germany in 2009.	new licences	0	0	1
	updated/amended licences	0	0	0
	renewed licences	0	0	0

A = *accepted*: accepted application, licence has already been issued
R = *rejected*: rejected application, licence was not issued
P = *pending*: decision still outstanding, no licence yet issued

APPENDIX F – Abbreviations

AEG	General Railway Act
BEGebV	Regulation on fees and charges of the State rail transport administrations (State Railway Fees Regulation)
BEVVG	State Rail Transport Management Act
BMVBS	Federal Ministry of Transport, Building and Urban Development
BNetzA	Federal Network Agency
BSWAG	Federal Railway Development Act
BÜ	Level crossing
COTIF	Convention Concerning International Carriage by Rail
CSI	Common Safety Indicators
EBA	Federal Railway Authority
EBC	Eisenbahn-Cert (Notified Interoperability Body)
EBO	Railway Construction and Operation Order
EIU	Railway infrastructure undertaking
ERA	European Railway Agency
ESiV	Railway Safety Regulation
EUB	State Railways Investigation Office
EVU	Rail transport undertaking
GSM-R	Global System for Mobile Communications – Rail
HOA	Hot box detector
IOH	Permanent-way and structural equipment
LST	Control and Safety Equipment
ObÜ	Monitoring of installations
RID	International Rule for Transport of Dangerous Substances by Rail
SMS	Safety Management System
STE	Signalling, telecommunication and electrical equipment
TEIV	Trans-European Railway Interoperability Regulation
TSI	Technical Specification for Interoperability
UbÜ	Monitoring of undertakings
VV EA	Administrative regulation on the inspection of railway structures
VV TAU	Administrative regulation on the inspection of structural and mechanical rail equipment and performance of the technical inspections of safety in the workplace
VV TAU-STE	Administrative regulation for the inspection of railway signalling, telecommunication and electrical equipment
WKV	Switch clamp lock