



Eisenbahn-Bundesamt
Federal Railway Authority

Railway accident investigations

2006

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ANNUAL REPORT



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Preface

The annual report for 2006 is the first report to be published on the basis of Directive 2004/49/EC (the Railway Safety Directive) and Section 7 of the Railway Accident Investigation Ordinance (*Eisenbahnunfalluntersuchungsverordnung*), although the reporting period actually predates the transposition of the Directive.

In 2006, the year covered by the report, the Federal Railway Authority had a statutory obligation to investigate dangerous incidents in railway operations on the federal rail network.

At the beginning of 2007, in the Fifth Railway Regulations Amendment Act, the Federal Ministry of Transport, Building and Urban Affairs was given the statutory duty of investigating serious accidents within the meaning of the Railway Safety Directive as well as other dangerous incidents that could have led to serious accidents. In all other cases, investigation remains the responsibility of the Federal Railway Authority.

The reorganisation of the investigation system for railway accidents had already begun in 2006.



1. General remarks

1.1 Purpose and aim

The purpose of investigating dangerous incidents in railway operations is prevention, i.e. ensuring that accidents do not happen and improving rail safety. The aim of each investigation is to establish the causes and thus to obtain information that will serve as a basis for the implementation of measures designed to prevent future incidents.

Investigation comprises the collection and evaluation of information, the formulation of conclusions, including the identification of causes, and, where appropriate, the submission of safety recommendations. The proposals made by the investigating agency for the avoidance of accidents and the improvement of safety in railway operations are conveyed to the competent authorities in the form of safety recommendations.

It is not the purpose of the investigation to apportion blame, to resolve liability issues or to prepare or initiate disciplinary action for specific infringements. The investigation is conducted independently of any judicial inquiry.

1.2 Legal basis

To preserve the independence of the railways, technical investigation of dangerous incidents in railway operations in Germany has traditionally been a public duty. Under Section 3(2)(7) of the Federal Rail Transport Administration Act (*Gesetz über die Eisenbahnverkehrsverwaltung des Bundes*) and Section 5a(1)(2) of the General Railways Act (*Allgemeines Eisenbahngesetz*), it was the responsibility of the Federal Railway Authority.

Under Section 4(1) of the General Railways Act and Section 4(3)(2) of the Railway Operations Managers Ordinance (*Eisenbahnbetriebsleiterverordnung*), the rail operator is also bound to investigate dangerous incidents in railway operations.

The general directive entitled *Melden, Untersuchen und Berichten von gefährlichen Ereignissen im Eisenbahnbetrieb* ('Notification, investigation and



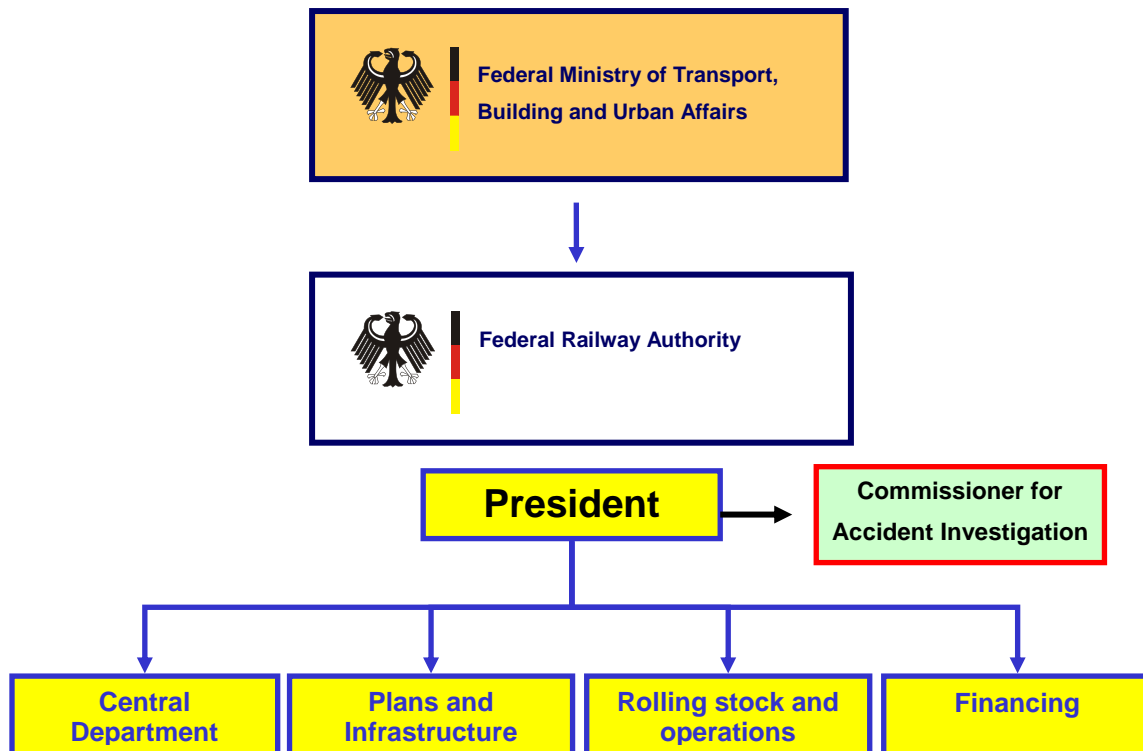
reporting of dangerous incidents in railway operations') specified the precise duties of railway enterprises.

2. Railway accident investigation

2.1 Organisation

Through its internal organisation the Federal Railway Authority ensures that the investigation of dangerous incidents is conducted objectively and independently of any internal or external body. In this respect, it has been particularly useful for the Federal Railway Authority to be able to rely on its own circle of trained specialists, which has eliminated the need to depend on assistance from railway employees.

In order to preserve this independence within the railway inspectorate, responsibility for the investigation of dangerous incidents has been entrusted to an executive unit that is separate from the rest of the departmental structure. The head of that unit, the Commissioner for Accident Investigation, is responsible only to the President of the Authority in matters concerning the type or scope of an investigation or the presentation of findings.



3. Investigations

All dangerous incidents were reported to the Commissioner for Accident Investigation by means of either a flash report (sent immediately on discovery) or a situation report.

A total of some 9 000 dangerous incidents were reported to the Commissioner for Accident Investigation. Compulsory flash reporting applied in about 280 of these cases.

A dangerous incident is immediately notifiable if at least one of the following conditions obtains:

- a train crashes or is derailed,
- at least one person is killed or seriously injured,
- at least five persons sustain minor injuries, or
- the incident is the focus of public attention.

On the basis of the incident report or of the submitted railway investigation report or in the framework of an examination of the facts, the Commissioner for Accident Investigation decided in each case whether an official inquiry was to be launched.

The following subsections contain brief accounts describing serious accidents that were examined in 2006 by the Commissioner for Accident Investigation on his own motion and reported to the European Railway Agency (ERA).

3.1 Collision at Kalk Nord, Cologne, on 15 March 2006



Goods train 51245 collided with goods train 50216, the latter being stationary at the home signal, which was displaying a stop aspect, at Kalk Nord goods station, Cologne. The collision caused the derailment of eleven wagons belonging to train 51245, some of which were tipped at an angle.

From a container mounted on the 14th wagon of train 50216 there was a small spillage of part of a non-hazardous load of plastic granules.

At the same time the Kalk North to Gremberg section was occupied by train 51122, for which the blocking and signalling system was operated correctly. Number 51122 had passed both of the trains involved in the accident prior to their collision.

Consequences:

One person (a power-unit driver) was injured. There was very costly damage to rolling stock and the permanent way.

Causes:

1. Divergence from the normal signal and points settings at the Gremberg signal box
2. Failure to operate the signalling equipment properly
3. Jamming of the coupling magnet in the operating gear of the signal (frost and/or residual magnetism)

Measures designed to guarantee operational safety:

As an immediate operational safeguard, a separate clearance check for every train leaving the block section was introduced immediately after the incident.

On the technical side the default signal and points settings at the Gremberg signal box were altered; in addition, a nationwide review was conducted to identify other places where similar default signal and points settings might be in use.

The review served to identify signal boxes where a divergence from the normal signal and points settings could have occurred.

3.2 Collision at Obervellmar on 1 November 2006



At Obervellmar station, goods train 44983 collided with a shunting train emerging onto the running line from a sorting siding. Both power units and the first wagon of each train were derailed.

Consequences:

Both power-unit drivers were seriously injured, and the shunter sustained minor injuries.

Damage amounted to almost €2 million. Both power units and the first wagon of each train were derailed.

Causes:

1. There was a lack of clear communication between operations control, the marshalling personnel and the driver of the power unit.
2. The shunting train emerged from the siding without the signal manager's authorisation.
3. The shunting and marshalling instructions did not contain the rules for entering and leaving sorting sidings.

Measures designed to guarantee operational safety:

The railway enterprises are responsible for taking appropriate measures. In connection with this specific incident, particular employees were given special retraining in the relevant aspects of their work.

3.3 Collision at Berlin Südkreuz on 20 November 2006



On Monday, 20 November 2006, a collision occurred at Südkreuz station in Berlin between a suburban passenger train and a Sperry SRS 200 rail test car. The suburban train was following the test car at a distance. Although its emergency braking system was activated, the suburban train did not come to a halt soon enough to avoid the test car, which had stopped in the station.

Consequences:

Three people suffered serious injuries, and several more sustained minor injuries.

Causes:

Investigations revealed that the braking distance of the suburban train had been extremely long.

To establish why this had been the case, an external consultant was commissioned to assess the braking behaviour of Class 481 units. The report has not yet been received.

Another point being investigated is the extent to which the rail test car in front had contributed to the incident. On inspection runs the rail test car sprays water onto the rails.



Measures designed to guarantee operational safety:

Pending identification of the causes, the railway enterprises gave a voluntary undertaking that, with immediate effect, such trains would no longer run close behind a rail test car. In addition, the maximum speed of Class 481 suburban units was lowered.

4. Measures taken to guarantee operational safety

Under Section 6 of the Railway Accident Investigation Ordinance, the investigating authority may issue safety recommendations at any time. These include measures that are necessary, in the light of the findings of investigations into serious accidents, to improve rail safety and prevent dangerous incidents.

Safety recommendations are to be addressed to the safety authority and, if necessary, to other agencies or authorities or to other Member States of the European Community. Within the scope of its powers, the safety authority ensures that the safety recommendations addressed to it, including those from other Member States, are considered and, where necessary, implemented.

In 2006 Directive 2004/49/EC had not yet been transposed into national law. Accordingly, no safety recommendations within the meaning of the Directive could be made in that year. Where necessary, however, steps were taken in the form of 'measures designed to guarantee operational safety', which are comparable with safety recommendations. In some cases these measures were imposed by the Federal Railway Authority, while in other cases the railway enterprises involved introduced the measures on a voluntary basis. The Authority was notified of any such measures.

Measures designed to guarantee operational safety imposed by the Federal Railway Authority in 2006 as a result of dangerous incidents are listed in the Authority's annual report.

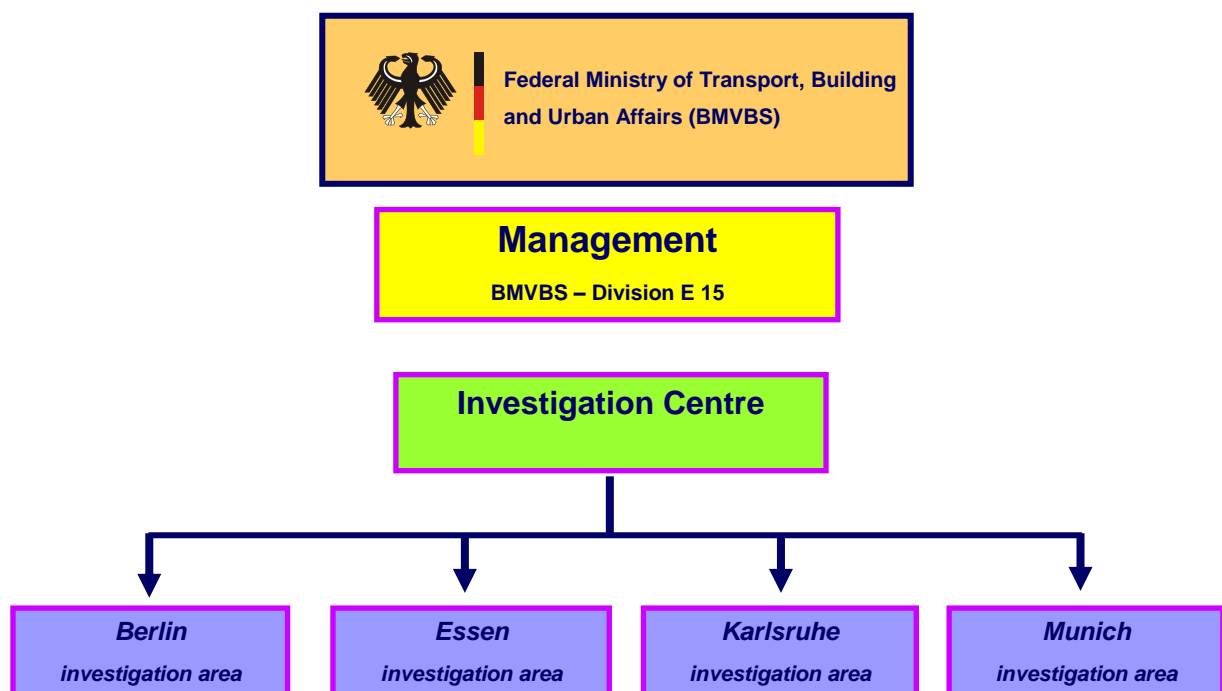
5. Outlook

At the beginning of 2007, the Fifth Railway Regulations Amendment Act transposed Directive 2004/49/EC into national law.

Under Section 5(1f) of the said Act, the investigation of dangerous incidents in railway operations on railway infrastructure subject to federal supervision is a federal responsibility. The Federal Government exercises this responsibility through the Federal Ministry of Transport, Building and Urban Affairs.

For cases in which the investigation of dangerous incidents in railway operations is a federal responsibility, the Federal Ministry of Transport, Building and Urban Affairs has enacted the Railway Accident Investigation Ordinance.

The following organisational structure is prescribed:



Technical management is the responsibility of Division E 15 at the Federal Ministry of Transport, Building and Urban Affairs.

The performance of operational tasks is the responsibility of the Investigation Centre with its four investigation areas.