

**Proposal for a Directive of the European Parliament and of the Council on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification**

(2002/C 126 E/09)

(Text with EEA relevance)

COM(2002) 21 final — 2002/0022(COD)

*(Submitted by the Commission on 25 January 2002)*

THE EUROPEAN PARLIAMENT AND THE COUNCIL  
OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 71(1) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the Economic and Social Committee,

Having regard to the opinion of the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty,

Whereas:

(1) In order to pursue efforts to establish a single market for rail transport services, initiated by Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways<sup>(1)</sup>, it is necessary to establish a common regulatory framework for railway safety. Member States have until now developed their safety rules and standards mainly on national lines, based on national technical and operational concepts. Simultaneously differences in principles, approach and culture have made it difficult to break through the technical barriers and establish international transport operations.

(2) Directive 91/440/EEC, Council Directive 95/18/EC of 19 June 1995 on the licensing of railway undertakings<sup>(2)</sup> and Directive 2001/14/EC of the European Parliament and

of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification<sup>(3)</sup> provide the first steps towards regulation of the European rail transport market by opening the market for international rail freight services. However, the provisions on safety have proved to be insufficient and different safety requirements still present major barriers to seamless rail transport in the Community. It is of particular importance to harmonise the regulatory structure in the Member States, the content of safety rules, safety certification of railway undertakings, the tasks and roles of the safety authorities and the investigation of accidents.

(3) Metros, trams and other light rail systems are in many Member States subject to local or regional safety rules and are often supervised by local or regional authorities and not covered by the requirements on Community interoperability or licensing. Trams are furthermore often subject to road safety legislation and could therefore not be fully covered by railway safety rules. For these reasons and according to the principle of subsidiarity as set out in Article 5 of the Treaty, Member States should be allowed to exclude such local rail systems from the scope of this Directive.

(4) Safety levels in the Community rail system are generally high, in particular compared to road transport. It is important that safety is maintained during the current restructuring phase, which will separate functions of previously integrated railway companies and move the railway sector further from self-regulation to public regulation. In line with technical and scientific progress safety should be further improved, when reasonably practical and taking into account the competitiveness of the rail transport mode.

(5) All those operating the railway system, infrastructure managers and railway undertakings, should bear the full responsibility for the safety of the system, each for his part. Member States should make a clear distinction between this immediate responsibility for safety and the safety authorities' task of providing a national regulatory framework and supervising the performance of the operators.

<sup>(1)</sup> OJ L 237, 24.8.1991, p. 25. Directive as amended by Directive 2001/12/EC (OJ L 75, 15.3.2001, p. 1).

<sup>(2)</sup> OJ L 143, 27.6.1995, p. 70. Directive as amended by Directive 2001/13/EC of the European Parliament and of the Council (OJ L 75, 15.3.2001, p. 26).

<sup>(3)</sup> OJ L 75, 15.3.2001, p. 29.

- (6) Requirements on safety of the subsystems of the trans-European rail networks are laid down in Council Directive 96/48/EC of 23 July 1996 on the interoperability of the trans-European high-speed rail system<sup>(1)</sup> and Directive 2001/16/EC of the European Parliament and of the Council of 19 March 2001 on the interoperability of the trans-European conventional rail system<sup>(2)</sup>. However, those Directives do not define common requirements at system level and do not deal in detail with regulation, management and supervision of safety. When minimum safety levels of the subsystems are defined by technical specifications for interoperability (TSI) it will be increasingly important to establish safety targets at system level as well.
- (7) Common safety targets (CST) and common safety methods (CSM) should be gradually introduced to ensure that a high level of safety is maintained and to provide tools for assessment of the safety level and the performance of the operators on the European level as well as in the Member States.
- (8) Information on safety of the railway system is scarce and not generally publicly available. It is thus necessary to establish common safety indicators (CSI) in order to assess that the system complies with the CST and to facilitate the monitoring of railway safety performance.
- (9) National safety rules, which are often based on national technical standards, should gradually be replaced by rules based on common standards, established by TSI. New national rules should be in line with Community legislation and facilitate the migration towards a common approach to railway safety. They should therefore be subject to a Community approval process.
- (10) The development of CST, CSM and CSI as well as the need to facilitate the process towards a common approach to railway safety requires technical support on Community level. The European Railway Agency instituted by Regulation (EC) No .../... of the European Parliament and of the Council is set up to deliver recommendations concerning CST, CSM and CSI and further harmonisation measures and to monitor the development of railway safety in the Community.
- (11) In carrying out their duties and fulfilling their responsibilities, infrastructure managers and railway undertakings should implement a safety management system, fulfilling Community requirements and containing common elements. Information on safety and the implementation of the safety management system should be submitted to the safety authority in the Member State.
- (12) The safety management system should take into account that the provisions of Council Directive 89/391/EC of 12 June 1989<sup>(3)</sup> on the introduction of measures to encourage improvements in the safety and health of workers at work and its relevant individual directives are fully applicable to the protection of the health and safety of workers engaged in railway transport.
- (13) To ensure a high level of safety on the railways and equal conditions for all railway undertakings, they should be subject to the same safety requirements. The safety certificate should give evidence that the railway undertaking has established its safety management system and is able to comply with the relevant safety standards and rules. For international transport services it should be enough to approve the safety management system in one Member State and give the approval Community validity. Adherence to national rules on the other hand should be subject to additional certification in each Member State. The final aim should be to establish a common safety certificate with Community validity.
- (14) Member States should make efforts to assist applicants wanting to enter the market as railway undertakings. In particular they should provide information and act promptly on requests for safety certification. For railway undertakings operating international transport services, it is important that the procedures are similar in different Member States. Although the safety certificate will contain national parts for the foreseeable future, it should nevertheless be possible to harmonise the common parts of it and facilitate the creation of a common template.
- (15) Certification of train staff and in-use rollingstock for the different national networks are often insurmountable barriers to new entrants. Member States should be responsible for providing training and certification of train staff and mutual acceptance of basic requirements of train staff should be guaranteed. A common procedure should be established for mutual acceptance of in-use rolling stock.
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- (1) OJ L 262, 16.10.1996, p. 18 (Directive as amended by Directive .../.../EC of the European Parliament and of the Council amending Council Directive 96/48/EC and Directive 2001/16/EC (OJ L ...)).
- (2) OJ L 110, 20.4.2001, p. 1. (Directive as amended by Directive .../.../EC of the European Parliament and of the Council amending Council Directive 96/48/EC and Directive 2001/16/EC (OJ L ...)).
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- (3) OJ L 183, 29.6.1989, p. 1.

- (16) As part of the new common regulatory framework for safety, national authorities should be set up in all Member States to regulate and supervise railway safety. To facilitate cooperation between them at Community level, they should be given the same minimum tasks and responsibilities. The safety authorities should be granted a high degree of independence. They should carry out their tasks in an open and non-discriminatory way to help to create a single Community rail system and cooperate to coordinate their decision-making criteria, in particular concerning safety certification of railway undertakings carrying out international rail transport.
- (17) Serious accidents on the railways are rare. However, they can have disastrous consequences and raise concern among the public about the safety performance of the railway system. All accidents should, therefore, be investigated from a safety perspective to avoid recurrence and the results of the investigations should be made public. Near misses and other incidents are significant precursors to serious accidents and should also, be subject to safety investigations.
- (18) A safety investigation should be kept separate from the judicial inquiry into the same incident and be granted access to evidence and witnesses. It should be carried out by a permanent body, independent of the actors including the safety authority, under as much openness as possible. For each occurrence the investigation body should establish the relevant investigation group with necessary expertise to find the immediate causes and underlying causes of the incident.
- (19) The reports on investigations and any findings and recommendations provide crucial information for the further improvement of rail safety and should be made publicly available at Community level. Safety recommendations should be acted upon by the addressees and actions reported back to the investigating body.
- (20) Since the objectives of the proposed action, namely to coordinate activities in the Member States to regulate and supervise safety and to investigate accidents and to establish at Community level common safety targets, common safety methods, common safety indicators and common requirements of safety certificates, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale of the action, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.
- (21) Since most of the measures necessary for the implementation of this Directive are measures of general scope within the meaning of Article 2 of Council Decision 1999/468/EC of 28 June 1999 laying down the

procedure for the exercise of implementing powers conferred on the Commission<sup>(1)</sup>, they should be adopted by use of the regulatory procedure provided for in Article 5 of that Decision. In accordance with Article 2 of Decision 1999/468/EC, some measures for the implementation of this Directive should be adopted by use of the advisory procedure provided for in Article 3 of that Decision.

- (22) Since some provisions of Directive 95/18/EC and Directive 2001/14/EC are superseded by this Directive, those Directives should be amended.
- (23) The Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. Those penalties must be effective, proportionate and dissuasive,

HAVE ADOPTED THIS DIRECTIVE:

#### CHAPTER I

#### INTRODUCTORY PROVISIONS

##### Article 1

##### Subject-matter

The purpose of this Directive is to ensure the development and improvement of safety on the Community's railways by:

- (a) harmonising the regulatory structure in the Member States,
- (b) defining responsibilities between the actors,
- (c) developing common safety targets and common safety methods,
- (d) requiring the establishment, in every Member State, of national safety authorities and independent national bodies for accident investigation,
- (e) defining common principles for the management, regulation and supervision of railway safety.

##### Article 2

##### Scope

1. This Directive applies to the railway system in the Member States, which may be broken down into subsystems for structural and operational areas. It covers safety requirements on the system as a whole, including the safe management of infrastructure and of traffic operation and the interaction between railway undertakings and infrastructure managers.

<sup>(1)</sup> OJ L 184, 17.7.1999, p. 23.

2. Member States may exclude from the measures they adopt in implementation of this Directive:

- (a) metros, trams and other light rail systems;
- (b) networks that are technically separated from any part of the trans-European conventional and high-speed rail systems and intended only for the operation of local, urban or suburban passenger services and railway undertakings operating solely on these networks;
- (c) privately owned railway infrastructure that exists solely for use by the infrastructure owner for its own freight operations.

### Article 3

#### Definitions

For the purpose of this Directive, the following definitions shall apply:

- (a) 'railway system' means the totality of the subsystems for structural and operational areas, such as infrastructure, energy, control and command and signalling, rolling stock, traffic operation and management, maintenance, telematics applications for passenger and freight services, environment and users, as defined in Directives 96/48/EC and 2001/16/EC, as well as the management and operation of the system as a whole;
- (b) 'infrastructure manager' means any body or undertaking that is responsible in particular for establishing and maintaining railway infrastructure, or a part thereof, as defined in Article 3 of Directive 91/440/EEC, which may also include the management of infrastructure control and safety systems. The functions of the infrastructure manager on a network or part of a network may be allocated to different bodies or undertakings;
- (c) 'railway undertaking' means any public or private undertaking, the activity of which is to provide transport of goods and/or passengers by rail with a requirement that the undertaking must ensure traction; this also includes undertakings which provide traction only;
- (d) 'technical specification for interoperability (TSI)' means the specifications by which each subsystem or part of a subsystem is covered in order to meet the essential requirements and ensure the interoperability of the trans-European high-speed and conventional rail systems as defined in Directive 96/48/EC and Directive 01/16/EC;
- (e) 'common safety targets (CST)' means the minimum safety levels that must be reached by different parts of the rail system (the conventional rail system, the high speed rail system or lines solely used for freight transport) and by the system as a whole, expressed in risk acceptance criteria;
- (f) 'common safety methods (CSM)' means the methods that shall be developed to describe how the CST are reached and how compliance is assessed;
- (g) 'safety authority' means the national body entrusted with the task to regulate and supervise railway safety according to the provisions of this Directive;
- (h) 'national safety rules' means all rules containing railway safety requirements imposed at Member State level and applicable to more than one railway undertaking, irrespective of the body issuing them;
- (i) 'safety management system' means the organisation and arrangements established by an infrastructure manager or a railway undertaking to ensure the safe management of its operations;
- (j) 'investigator-in-charge' means a person responsible for the organisation, conduct and control of an investigation;
- (k) 'serious accident' means:
  - (a) accidents caused by collision or derailment of trains, resulting in at least one killed person or five or more seriously injured persons,
  - (b) other railway accidents causing the loss of human lives, multiple serious injuries or extensive damage to rollingstock, the infrastructure or the environment and with an obvious impact on railway safety regulation or the management of safety;
- (l) 'incident' means any occurrence, other than serious accidents, associated with the operation of trains and affecting the safety of operation;
- (m) 'investigation' means a process conducted for the purpose of accident and incident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the making of safety recommendations;
- (n) 'causes' means actions, omissions, events or conditions, or a combination thereof, which led to the accident or incident;
- (o) 'Agency' means the European Railway Agency, the Community agency for railway safety and interoperability, established by Regulation (EC) No .../... of the European Parliament and of the Council;

- (p) 'notified bodies' means the bodies which are responsible for assessing the conformity or suitability for use of the interoperability constituents or for appraising the EC procedure for verification of the subsystems, as defined in Directive 96/48/EC and Directive 2001/16/EC;
- (q) 'interoperability constituents' means any elementary component, group of components, subassembly or complete assembly of equipment incorporated or intended to be incorporated into a subsystem upon which the high-speed or conventional rail system depends directly or indirectly, as defined in Directives 96/48/EC and 2001/16/EC. The concept of a 'constituent' covers both tangible objects and intangible objects such as software.

## CHAPTER II

### DEVELOPMENT AND MANAGEMENT OF SAFETY

#### Article 4

##### Development and improvement of railway safety

1. Member States shall ensure that railway safety is generally maintained and, where reasonably practicable, continuously improved, taking into consideration the development of Community legislation and the technical and scientific progress and giving priority to the prevention of serious accidents.

Member States shall ensure that safety rules are laid down, applied and enforced in an open and non-discriminatory manner, fostering the development of a single European rail transport system.

2. Member States shall ensure that the responsibility for the safe operation of the railway system and the control of risks created on it shall be laid upon the infrastructure managers and railway undertakings, obliging them to implement necessary risk control measures, to apply national safety rules and standards, and to establish safety management systems according to the provisions of this Directive.

Each infrastructure manager and railway undertaking shall be made responsible for its part of the system and its safe operation, including supply of material and contracting of services, vis-à-vis users, customers and third parties.

#### Article 5

##### Common safety targets, common safety methods

1. The CST and CSM shall be adopted by the Commission, by [date] <sup>(1)</sup> at the latest, in accordance with the procedure referred to in Article 26(2). They shall be published in the *Official Journal of the European Communities*.

Prior to the adoption of CST and CSM, non-binding guidelines on CST and CSM may be adopted in accordance with the

procedure referred to in Article 26(3). They shall be published in the *Official Journal of the European Communities*.

2. Draft CST and CSM and draft non-binding guidelines shall be drawn up by the Agency under a mandate which shall be adopted in accordance with the procedure referred to in Article 26(2).

The draft CST and CSM shall be based on an examination of existing targets and methods in the Member States and take account of the estimated costs and benefits. They shall analyse the possible impact on TSI for the subsystems and contain, where appropriate, consequential proposals for amendments to the TSI.

3. The CST shall define in particular the minimum safety levels that must be reached by different parts of the railway system and by the system as a whole expressed in risk acceptance criteria for:

- (a) individual risks related to passengers, staff including the staff of contractors, level crossing users and unauthorised persons on railway premises,
- (b) societal risks.

4. The CSM shall describe how compliance with the CST is assessed by elaborating and defining:

- (a) risk evaluation and assessment methods,
- (b) methods for assessing conformity with requirements in safety certificates issued in accordance with Article 10, and
- (c) methods to check that the structural subsystems of the trans-European high-speed and conventional rail systems are operated and maintained in accordance with the relevant essential requirements.

5. The CST and CSM shall be revised at regular intervals, in accordance with the procedure referred to in Article 26(2), taking into account the global development of railway safety and technical and scientific progress.

#### Article 6

##### Common safety indicators

1. In order to facilitate the assessment of conformity with the CST and to provide for the monitoring of the general development of railway safety, Member States shall collect information on common safety indicators (CSI) through the annual reports of the safety authorities as referred to in Article 17.

The first reference year for the CSI will be ... <sup>(2)</sup> to be reported with the annual report the year after.

The CSI are established as set out in Annex I.

<sup>(1)</sup> Five years after entry into force of the Directive.

<sup>(2)</sup> Two years after the year of entry into force of this Directive.

2. By [date] <sup>(1)</sup> at the latest Annex I shall be revised in accordance with the procedure referred to in Article 26(2), in particular to include common definitions of the CSI and common methods to calculate accident costs.

#### Article 7

##### National safety rules

1. Member States shall ensure that the national safety rules are published and made available to all infrastructure managers, railway undertakings and applicants for a safety certificate.

2. Member States shall ensure that the safety authorities are made responsible for adoption of national safety rules.

3. By [date] <sup>(2)</sup> at the latest Member States shall notify the Commission of all the relevant national safety rules in force, as set out in Annex II, and indicate their area of application.

The notification shall further provide information on the principal content of the rules with references to the legal texts, on the form of legislation and on which body or organisation is responsible for its publication.

#### Article 8

##### Adoption of new national safety rules

1. When a Member State intends to introduce new national safety rules or amendments to existing rules as referred to in Annex II, it shall send the draft rule to the Commission, unless the rules are wholly related to the implementation of TSI.

If the draft rule is not in conformity with Community legislation a Decision, addressed to the Member State concerned, shall be adopted in accordance with the procedure referred to in Article 26(2);

If no Decision is adopted within six months after the submission of the draft, the Member State shall be free to adopt the rule.

2. Paragraph 1 shall not apply in those cases where adoption of a new rule is urgent for safety reasons. The Member State shall in such a case inform the Commission of its intention to adopt the rule without following the procedure referred to in paragraph 1 and give the reasons which warrant the urgency of the measures taken. The Commission shall give its views on the information as soon as possible.

#### Article 9

##### Safety management systems

1. Infrastructure managers and railway undertakings shall establish their safety management systems to ensure that the

<sup>(1)</sup> Five years after entry into force of the Directive.

<sup>(2)</sup> Twelve months after entry into force of the Directive.

railway system is in conformity with CST and with safety requirements laid down in TSI and that the relevant parts of CSM are applied.

In the absence of TSI, CST and CSM, the safety management system shall meet requirements laid down in national safety rules as described in Article 7 and Annex II.

2. The safety management system shall meet the requirements and contain the elements laid down in Annex III, adapted to the character, size and other conditions of the activity pursued. It shall ensure the control of all risks created by the activity of the infrastructure manager or railway undertaking, including the supply of maintenance and material and the use of contractors, and, where appropriate, the risks arising as a result of operations by other parties.

3. The safety management system of any infrastructure manager shall take into account the effects of operations by different railway undertakings on the network and make provisions to allow all railway undertakings to operate in accordance with TSI and national safety rules and with conditions laid down in their safety certificate. It shall furthermore be developed with the aim of coordinating the emergency procedures of the infrastructure manager with all railway undertakings that operate on its infrastructure.

4. Each year all infrastructure managers and railway undertakings shall submit to the safety authority by 30 June at the latest an annual safety report concerning the preceding year. The safety report shall contain:

- (a) information on how the organisation's corporate safety targets are met and the results of safety plans;
- (b) the development of national safety indicators and of the CSI laid down in Annex I, as far as it is relevant to the reporting organisation;
- (c) the results of internal safety auditing;
- (d) observations on deficiencies and malfunctions of railway operations and infrastructure management that might be relevant for the safety authority.

#### CHAPTER III

##### SAFETY CERTIFICATION

#### Article 10

##### Safety certificates

1. In order to be granted access to the railway infrastructure a railway undertaking must hold a safety certificate according to the provisions of this Chapter. The safety certificate may cover the whole railway network of a Member State or only a defined part thereof.

The purpose of the safety certificate is to give evidence that the railway undertaking has established its safety management system and can meet requirements laid down in TSI and other relevant Community legislation and in national safety rules in order to control risks and operate safely on the network.

2. The safety certificate shall comprise:

(a) certification confirming acceptance of the railway undertaking's safety management system as described in Article 9 and Annex III, and

(b) certification confirming acceptance of the provisions made by the railway undertaking to meet specific requirements necessary for the safe operation on the relevant network concerning the application of TSI and national safety rules and the certification of staff and rollingstock, based on documentation submitted by the railway undertaking as described in Annex IV.

3. The safety authority in the Member State where the railway undertaking first establishes its operation shall grant the certification according to paragraph 2(a) and (b).

The certification according to paragraph 2(a) must specify the type and extension of the railway operations covered. It shall be valid throughout the Community for equivalent rail transport operations.

4. The safety authority in the Member State in which the railway undertaking is planning to operate additional rail transport services shall grant the additional national certification necessary according to paragraph 2(b).

5. The safety certificate shall be renewed every fifth year. It shall be wholly or partly updated whenever the type or extension of the operation is substantially altered.

The holder of the safety certificate shall without delay inform the competent safety authority of all major changes in the conditions of the safety certificate. It shall furthermore notify the competent safety authority whenever new categories of staff or new types of rolling stock are introduced.

The safety authority may require that the safety certificate be revised following substantial changes in the safety regulatory framework.

If the safety authority finds that a holder no longer satisfies the conditions for a safety certificate, it shall revoke the certificate immediately giving reasons for its decision.

6. The safety authority shall inform the Agency on the safety certificates referred to in paragraph 2(a) that have been issued, renewed, amended or revoked. The information shall state the name and address of the railway undertaking, the

issuing date, scope and validity of the safety certificate and, in case of revocation, the reasons for the decision.

7. By [date] <sup>(1)</sup> at the latest the Agency shall evaluate the development of safety certification and submit a report to the Commission with recommendations on a migration strategy towards a single Community safety certificate. The Commission shall take appropriate action following the recommendation.

#### Article 11

### Application requirements

1. The safety authority shall take a decision on an application for safety certification without delay, but not more than four months after all information required and any supplementary information requested by the safety authority has been submitted. If the applicant is requested to submit supplementary information, such requests shall be communicated promptly.

2. In order to facilitate the establishment of new railway undertakings and the submission of applications from railway undertakings from other Member States, the safety authority shall give detailed guidance on how to obtain the safety certificate. It shall list all requirements that have been laid down for the purpose of Article 10(2) and make all relevant documents available to the applicant.

Special guidance shall be given to railway undertakings that apply for a safety certificate concerning services on a defined limited part of an infrastructure, specifically identifying the rules that are valid for the part in question.

3. An application guidance document describing and explaining the requirements and listing the documents that must be submitted shall be made available to the applicants free of charge.

#### Article 12

### Training and certification of train staff

1. Train drivers and staff accompanying the trains of a railway undertaking that have been certified according to Article 10(2)(b) in one Member State to meet basic requirements concerning minimum or maximum age, basic abilities, fitness and health status shall be mutually accepted by other Member States.

2. Member States shall ensure that railway undertakings applying for a safety certificate have fair and non-discriminatory access to training facilities for train drivers and staff accompanying the trains, whenever such training is necessary for the fulfilment of requirements to obtain the safety certificate.

The services offered must include necessary route knowledge, operating rules, the signalling and control command system and emergency procedures applied on the routes operated.

<sup>(1)</sup> Five years after the entry into force of the Directive.

If the training services do not include examination and certification, Member States shall ensure that railway undertakings have access to such certification if it is a requirement of the safety certificate.

The safety authority shall ensure that the provision of training services or, where appropriate, certification meets the safety requirements laid down in TSI or national safety rules described in Article 7 and Annex II.

3. If the training facilities are available only through the services of one single railway undertaking or the infrastructure manager, Member States shall ensure that they are made available to other railway undertakings at a reasonable and non-discriminatory price.

#### Article 13

##### **Certification of in-use rolling stock**

1. Railway undertakings operating rollingstock that are certified in one Member State according to Article 10(2)(b) and not, fully in compliance with a TSI shall be certified in additional Member States.

2. The railway undertaking applying for certification in additional Member States shall submit a technical file concerning the rollingstock or type of rollingstock to the relevant safety authority, indicating its intended use on the network. The file shall contain the following information:

- (a) evidence that the rolling stock has been certified by a safety authority in another Member State and records that show its history of operation, maintenance and, where applicable, technical modifications undertaken after certification;
- (b) relevant technical data and operational characteristics requested by the safety authority and needed for its complementary certification;
- (c) evidence on technical and operational characteristics that show that the rollingstock is in compliance with the energy supply system, the signalling and control command system, the track gauge and infrastructure gauges, the maximum allowed axle load and other constraints of the network;
- (d) information on exemptions from national safety rules that are needed to grant certification and evidence, based on risk assessment, showing that the acceptance of the rolling stock does not import undue risks on the network.

3. The safety authority may request that test runs on the network be undertaken to verify compliance with the restrictive parameters referred to in paragraph 2(c) and shall in that case prescribe their range and content.

4. The safety authority shall adopt its decision on an application according to this Article without delay and not

later than four months after the complete technical file, including documentation of the test runs, has been submitted. The certificate may contain conditions for use and other restrictions.

#### Article 14

##### **Harmonisation of safety certificates**

1. By [date] <sup>(1)</sup> at the latest, decisions on common harmonised requirements according to Article 10(2)(b) and Annex IV and a common format for application guidance documents shall be adopted in accordance with the procedure referred to in Article 26(2).

2. Prior to the adoption of harmonised requirements and a common format for application guidance documents non-binding guidelines may be adopted in accordance with the procedure referred to in Article 26(3).

3. The Agency shall recommend harmonised requirements and a common format for application guidance documents under a mandate which shall be adopted in accordance with the procedure referred to in Article 26(2).

#### CHAPTER IV

##### **SAFETY AUTHORITY**

#### Article 15

##### **Tasks of the safety authority**

1. Each Member State shall establish a safety authority to supervise and regulate railway safety. It shall be independent in its organisation, legal structure and decision-making from any railway undertaking, infrastructure manager and applicant.

2. The safety authority shall be entrusted with at least the following regulatory tasks:

- (a) authorising the bringing into service of the structural subsystems constituting the trans-European high-speed rail system according to Article 14 of Directive 96/48/EC;
- (b) authorising the bringing into service of the structural subsystems constituting the trans-European conventional rail system, according to Article 14 of Directive 2001/16/EEC;
- (c) authorising the bringing into service of new and substantially altered rollingstock that are not yet covered by a TSI;
- (d) the issue, renewal, amendments and revocation of relevant parts of safety certificates according to Article 10;
- (e) the adoption of legally binding national safety rules as described in Article 7 and Annex II, unless the rules are issued by the national Parliament or the Government.

<sup>(1)</sup> Five years after entry into force of the Directive.



3. The safety authority shall be entrusted with the following supervisory tasks:

- (a) checking that the structural subsystems of the trans-European high-speed rail system are operated and maintained in accordance with the relevant essential requirements;
- (b) checking that the structural subsystems of the trans-European conventional rail system are operated and maintained in accordance with the relevant essential requirements;
- (c) carrying out the Member State responsibility concerning the supervision of the interoperability constituents and their compliance with the essential requirements;
- (d) checking that infrastructure managers and railway undertakings are operating under the requirements laid down in rules under Community or national law and that conditions and requirements laid down in safety certificates are met;
- (e) supervising that rollingstock are duly registered and that safety related information in the national register, established in accordance with Article [...] of Directive 96/48/EC and Article [...] of Directive 2001/16/EC is accurate and kept up to date.

4. The tasks referred to in paragraphs 2 and 3 may not be transferred or contracted to any infrastructure manager or railway undertaking.

#### Article 16

##### Decision-making principles of the safety authority

1. The safety authority shall carry out its tasks in an open, non-discriminatory and transparent way. In particular shall it allow all parties to be heard and give reasons for decisions.

It shall promptly respond to requests and applications and communicate its requests for information and its decisions without undue delay.

In the process of developing the national regulatory framework the safety authority shall consult all involved and interested parties, including infrastructure managers, railway undertakings, manufacturers and maintenance providers, users and staff representatives.

2. The safety authority shall be free to carry out all inspections and investigations that are needed for accomplishment of its supervisory task and it shall be granted access to all relevant documents and to premises, installations and equipment of infrastructure managers and railway undertakings.

3. Member States shall take the measures necessary to ensure that decisions taken by the safety authority are subject to judicial review.

4. The safety authorities shall conduct an active exchange of views and experience for the purpose of harmonising their decision-making criteria across the Community. The cooperation shall in particular aim at facilitating and coordinating the safety certification of railway undertakings which have been granted international train paths according to the procedure laid down in Article 15 of Directive 2001/14/EC.

The Agency shall support them in these tasks.

#### Article 17

##### Annual report

Each year the safety authority shall publish an annual report concerning its activities in the preceding year and send it to the Agency by 30 September at the latest. The report shall contain information on:

- (a) the development of railway safety, including an aggregation on Member State level of the CSI laid down in Annex I;
- (b) important changes in legislation and regulation concerning railway safety;
- (c) the development of safety certification;
- (d) results of and experiences from the supervision of infrastructure managers and railway undertakings.

#### CHAPTER V

##### ACCIDENT AND INCIDENT INVESTIGATION

#### Article 18

##### Occurrences that shall be investigated

1. Member States shall ensure that an investigation is carried out after serious accidents and incidents on the railway system, the objective of which is possible improvement of railway safety and the prevention of future accidents and incidents.

2. Occurrences that shall be investigated include:

- (a) serious accidents;
- (b) incidents that under slightly altered conditions might have led to serious accidents, including technical failures to the structural subsystems or to interoperability constituents of the trans-European high-speed or conventional rail systems.

3. The extent of investigations and the procedure to be followed in carrying out such investigations shall be determined by the investigating body referred to in Article 20, taking into account the principles and the objectives of Articles 19 and 21 and depending on the lessons it expects to draw from the accident or incident for the improvement of safety.

It is at the discretion of the investigating body to decide whether an investigation of an occurrence referred to in paragraph 2(b) shall be established or not. In its decision it shall take into account:

- (a) the seriousness of the incident,
  - (b) whether it forms part of a series of incidents with relevance on system level,
  - (c) its impact on railway safety in a Community perspective, and
  - (d) requests from infrastructure managers, railway undertakings or the safety authority.
4. The investigation shall in no case be concerned with apportioning blame or liability.

#### Article 19

##### Status of investigation

1. Member States shall define, in the framework of their respective internal legal systems, a legal status of the investigation that will enable the investigators-in-charge to carry out their task in the most efficient way and within the shortest time.
2. In accordance with the legislation in force in the Member States and, where appropriate, in cooperation with the authorities responsible for the judicial inquiry, the investigators shall, as soon as possible, be given:
  - (a) access to the site of the accident or incident as well as to the rolling stock involved, the related infrastructure and traffic control and signalling installations;
  - (b) the right to an immediate listing of evidence and controlled removal of wreckage, infrastructure installations or components for examination or analysis purposes;
  - (c) access to and use of the contents of on-board recorders and equipment for recording of verbal messages and registration of the operation of the signalling and control system;
  - (d) access to the results of examination of the bodies of victims;
  - (e) access to the results of examinations of the train staff and other railway staff involved in the accident or incident;
  - (f) the opportunity to examine involved railway staff and other witnesses;
  - (g) access to any relevant information or records held by the infrastructure manager, the railway undertakings involved and the safety authority.

3. The investigation shall be accomplished independent of any judicial inquiry and the progress of work may in no case be delayed or restrained by the judicial proceedings.

#### Article 20

##### Investigating body

1. Each Member State shall ensure that investigations of accidents and incidents referred to in Article 18(2) are conducted by a permanent body. This body shall be independent in its organisation, legal structure and decision-making from any infrastructure manager, railway undertaking, charging body, allocation body, and notified body. It shall furthermore be independent of the safety authority, of any regulator of railways and of any party whose interests could conflict with the tasks entrusted to the investigating body.
2. The investigating body shall be given the means required to carry out its responsibilities independent of the organisations referred to in paragraph 1 and shall be able to obtain sufficient resources to do so. Its investigators shall be afforded status giving them the necessary guarantees of independence. It shall comprise at least one investigator able to perform the function of investigator-in-charge in the event of an accident or incident.
3. Member States shall make provisions that railway undertakings, infrastructure managers and, where appropriate, the safety authority, are obliged to immediately report accidents and incidents referred to in Article 18(2) to the investigating body. The investigating body shall be able to respond to such reports and make necessary arrangements to establish the investigation without delay.
4. The investigating body may combine its tasks under this Directive with the tasks to investigate other occurrences than railway accidents and incidents as long as such investigations do not endanger the independence of the body.
5. If necessary the body may request the assistance of investigating bodies from other Member States or from the Agency to supply expertise or to carry out technical inspections, analyses or evaluations.
6. Member States may entrust the investigating body with the task to carry out investigations of other rail accidents and incidents than those referred to in Article 18(2).
7. The investigating bodies shall conduct an active exchange of views and experience for the purpose of developing common investigation methods, elaborating common principles for follow-up of safety recommendations and adapt to the development of technical and scientific progress.

The Agency shall support them in this task.

*Article 21***Accomplishment of investigations**

1. An accident or incident referred to in Article 18(2) shall be investigated by the investigation body of the Member State in which it occurred. If it is not possible to establish in which Member State it occurred or if it occurred on the border between two Member States the relevant bodies shall agree which one of them that will carry out the investigation or agree to carry it out in cooperation. The other body shall in the first case be allowed to participate in the investigation and fully share its results.

2. For each accident or incident the body responsible for the investigation shall arrange for the appropriate means, comprising the necessary operational and technical expertise to carry out the task.

3. The investigation shall be accomplished under as much openness as possible, allowing for all parties to be heard and sharing the results. The relevant infrastructure manager and railway undertakings, the safety authority, victims and their relatives, owners of damaged property, manufacturers, the emergency services involved and representatives of staff and users shall be informed of the investigation and its results and be given, as far as practicable, the opportunity to take part in the proceedings.

*Article 22***Reports**

1. An investigation of an accident or incident referred to in Article 18(2) shall be the subject of reports in a form appropriate to the type and seriousness of the accident or incident and the relevance of the findings. The reports shall state the objectives of the investigations as referred to in Article 18(1) and contain, where appropriate, safety recommendations.

2. The investigating body shall make public the final report in the shortest possible time and normally not later than 12 months after the date of the occurrence. The report shall, as close as possible, follow the reporting structure laid down in Annex V. The report, including the safety recommendations shall be communicated to the relevant parties referred to in Article 21(3) and to bodies and parties concerned in other Member States.

3. Each year the investigating body shall publish by 30 September at the latest an annual report accounting for the investigations carried out in the preceding year, the safety recommendations that were issued and actions taken according to recommendations issued previously.

*Article 23***Information to be sent to the Agency**

1. Within one week after the decision to open an investigation the investigating body shall inform the Agency thereof.

The information shall indicate the date, time and place of the occurrence, as well as its type and its consequences as regards loss of lives, injuries and damage.

2. The investigating body shall send the Agency a copy of the final reports referred to in Article 22(2) and of the annual report referred to in Article 22(3).

*Article 24***Safety recommendations**

1. A safety recommendation issued by an investigating body shall in no case create a presumption of blame or liability for an accident or incident.

2. Recommendations shall be addressed to the safety authority and, where needed by reason of the character of the recommendation, to other bodies or authorities in the Member State or to other Member States. Member States and their safety authorities shall take the necessary measures to ensure that the safety recommendations issued by the investigating bodies are duly taken into consideration, and, where appropriate, acted upon.

3. The safety authority and other authorities or bodies or, when appropriate, other Member States to which recommendations have been addressed, shall report back to the investigating body on measures that are taken or planned as a consequence of the recommendation.

## CHAPTER VI

**IMPLEMENTING POWERS***Article 25***Adaptation of Annexes**

The Annexes shall be adapted to technical and scientific progress, in accordance with the procedure referred to in Article 26(2).

*Article 26***Committee**

1. The Commission shall be assisted by the Committee instituted by Article 21 of Directive 96/48/EC.

2. Where reference is made to this paragraph, the regulatory procedure laid down in Article 5 of Decision 1999/468/EC shall apply, in compliance with Articles 7 and 8 thereof.

The period provided for in Article 5(6) of Decision 1999/468/EC shall be three months.

3. Where reference is made to this paragraph, the advisory procedure laid down in Article 3 of Decision 1999/468/EC shall apply, in compliance with Articles 7 and 8 thereof.

## CHAPTER VII

### GENERAL AND FINAL PROVISIONS

#### Article 27

#### Amendments to Directive 95/18/EC

Directive 95/18/EC is amended as follows:

1. Article 8 is replaced by the following:

#### 'Article 8

The requirements relating to professional competence shall be met when an applicant railway undertaking has or will have a management organisation which possesses knowledge and/or experience necessary to exercise safe and reliable operational control and supervision of the type of operations specified in the licence.'

2. In the Annex, Section II is deleted.

#### Article 28

#### Amendments to Directive 2001/14/EC

Directive 2001/14/EC is amended as follows:

1. The title is replaced by the following:

'Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure.'

2. In Article 30(2), point (f) is deleted.
3. Article 32 is deleted.
4. In Article 34, paragraph 2 is replaced by the following:

'2. At the request of a Member State or on its own initiative the Commission shall, in a specific case, examine the application and enforcement of provisions concerning charging, capacity allocation, and within two months of receipt of such a request decide in accordance with the advisory procedure referred to in Article 35(2) whether the related measure may continue to be applied. The Commission shall communicate its decision to the European Parliament, the Council and to the Member States.

Without prejudice to Article 226 of the Treaty, any Member State may refer the Commission's decision to the Council within a time limit of one month. The Council, acting by a qualified majority, may in exceptional circumstances take a different decision within a period of one month.'

#### Article 29

#### Report

The Commission shall submit to the European Parliament and to the Council by [date] <sup>(1)</sup> at the latest and every five years thereafter a report on the implementation of this Directive.

The report shall be accompanied where necessary by proposals for further Community action.

#### Article 30

#### Penalties

The Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate, non-discriminatory and dissuasive.

The Member States shall notify those provision to the Commission by the date specified in Article 31 by the latest and shall notify it without delay of any subsequent amendment affecting them.

#### Article 31

#### Implementation

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by [. . .] <sup>(2)</sup> at the latest. They shall forthwith inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

#### Article 32

#### Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Communities*.

#### Article 33

#### Addressees

This Directive is addressed to the Member States.

<sup>(1)</sup> Five years after entry into force of the Directive.

<sup>(2)</sup> Two years after the entry into force of this Directive.

## ANNEX I

**COMMON SAFETY INDICATORS**

Common Safety Indicators to be reported by the safety authorities:

Indicators related to activities according to Article 2(2), (a) and (b), should be accounted for separately, if they are submitted.

If new facts or errors are discovered after the submission of the report the indicators for one particular year shall be amended or corrected by the safety authority at the first convenient opportunity and latest with the next annual report.

As indicators related to accidents under heading 1 below Community statistics provided for by Regulation (EC) . . . of the European Parliament and of the Council on rail transport statistics shall be used as far as the information is available.

**1. Indicators relating to accidents**

1. Total and relative (to train kilometres) number of accidents and a break-down on the following types of accidents:

- collisions of trains, including collisions with obstacles within the clearance gauge;
- derailments of trains;
- level-crossing accidents, including accidents involving pedestrians at level-crossings;
- accidents to persons caused by rollingstock in motion;
- fires in rollingstock.

Only the primary accident shall be accounted for, even if the consequences of the secondary accident are more severe, e.g. a fire following a derailment.

2. Total and relative (to train kilometres) number of persons seriously injured and killed by type of accident divided into the following categories:

- passengers (also in relation to total number of passenger-kilometres);
- employees including the staff of contractors;
- level-crossing users;
- unauthorised persons on railway premises;
- others.

**2. Indicators relating to incidents and near-misses**

1. Total and relative (to train kilometres) number of broken rails, track buckles and wrong-side signalling failures.

2. Total and relative (to train kilometres) number of signals passed at danger.

3. Total and relative (to train kilometres) number of broken wheels and axles on rollingstock in service.

**3. Indicators relating to consequences of accidents**

1. Total and relative (to train kilometres) costs in euro of all accidents where, if possible, the following costs should be calculated and included:

- deaths and injuries;
- compensation for loss of or damages to property of passengers, staff or third parties, including damages caused to the environment;

- replacement or repair of damaged rollingstock and railway installations;
- delays, disturbances and re-routing of traffic, including extra costs for staff and loss of goodwill.

From the costs shall be deducted indemnity or compensation recovered from third parties such as motor vehicle owners involved in level crossing accidents. Compensation recovered by insurance policies held by railway undertakings or infrastructure managers shall not be deducted.

2. Total and relative (to number of hours worked) number of working hours of staff and contractors lost as a consequence of accidents.

#### 4. Indicators related to technical safety of infrastructure

1. Percentage of tracks with Automatic Train Protection (ATP) <sup>(1)</sup> in operation and percentage of train kilometres on ATP equipped tracks.
2. Number of level crossings (total and per line kilometre). Percentage of level crossings with automatic or manual protection.

#### 5. Indicators relating to the management of safety

Accomplished internal audits by infrastructure managers and railway undertakings as set out in the documentation of the safety management system. Total number of completed audits and the number as a percentage of required (and/or planned) audits.

#### 6. Definitions

The reporting authorities may use nationally applied definitions of the indicators and methods for calculation of costs when data according to this Annex are submitted. All definitions and calculation methods in use shall be explained in an Annex to the annual report described in Article 17.

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<sup>(1)</sup> If there are several different ATP systems in use they should be accounted for separately.

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## ANNEX II

### NOTIFICATION OF NATIONAL SAFETY RULES

National rules that shall be notified to the Commission according to the procedure described in Article 7:

1. rules concerning existing national safety targets and safety methods as described in Article 5(2) and (3);
2. rules concerning requirements on safety management systems and safety certification of railway undertakings;
3. rules concerning requirements for the authorisation of placing into service and maintenance of new and substantially altered rollingstock that are not yet covered by a TSI. The notification shall include rules for exchange of rollingstock between railway undertakings, registration systems and requirements on testing procedures;
4. common operating rules of the railway network that are not yet covered by TSI, including rules relating to the signalling and traffic management system;
5. rules laying down requirements on additional internal operating rules (company rules) that must be established by infrastructure managers and railway undertakings;
6. rules concerning requirements on staff executing safety critical tasks, including selection criteria, health status and vocational training and certification as far as they are not yet covered by a TSI;
7. rules concerning the investigation of accidents and incidents.

## ANNEX III

**SAFETY MANAGEMENT SYSTEMS****1. Requirements on the safety management system**

The safety management system must be documented in all relevant parts and shall in particular describe the distribution of responsibilities within the organisation of the infrastructure manager or the railway undertaking. It shall show how control from the management on different levels is secured, how staff and their representatives on all levels are involved and how continuous improvement of the safety management system is ensured.

Sufficient resources must be allocated to ensure that staff with expert knowledge and experience in safety management maintains key functions.

**2. Basic elements of the safety management system**

The basic elements of the safety management system are:

- (a) a safety policy approved by the organisation's chief executive and communicated to all staff;
  - (b) qualitative and quantitative corporate targets for the maintenance and enhancement of safety and plans for reaching the targets;
  - (c) procedures to meet existing, new and altered technical and operational standards laid down in TSI or in national rules referred to in Article 7 and Annex II or in other relevant rules and procedures to assure compliance with the standards throughout the life-cycle of equipment and operations;
  - (d) procedures and methods to carry out risk evaluation and implement risk control measures whenever a change of the operating conditions or new material imposes new risks on the infrastructure or on operations;
  - (e) provision of programmes for training of staff and systems to ensure that the staff's competence is maintained and tasks carried out accordingly;
  - (f) arrangements for the provision of sufficient information within the organisation and, where appropriate, between organisations operating on the same infrastructure;
  - (g) procedures and formats for how safety information shall be documented and designation of procedure for configuration control of vital safety information;
  - (h) procedures to ensure that accidents, incidents, near misses and other dangerous occurrences are reported, investigated and analysed and that necessary preventive measures are taken;
  - (i) provision of plans for action and alert and information in case of emergency, agreed upon with the appropriate public authorities;
  - (j) provisions for recurrent internal auditing of the safety management system.
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## ANNEX IV

**DECLARATIONS FOR NETWORK SPECIFIC PART OF SAFETY CERTIFICATE**

The following documents must be submitted to enable the safety authority to deliver the network specific part of the safety certificate. To avoid duplication of work and to reduce the amount of information only summary documentation should be submitted concerning elements that comply with TSI and other requirements of Directives 96/48/EC and 2001/14/EC:

- a documentation by the railway undertaking of the TSI or parts of TSI and, where relevant, national safety rules and other rules applicable to its operations, its staff and its rolling stock and how compliance is ensured by the safety management system;
- a documentation by the railway undertaking of the different categories of staff employed or contracted for the operation, including evidence that they meet requirements of TSI or national rules and have been duly certified;
- a documentation by the railway undertaking of the different types of rollingstock used for the operation, including evidence that they meet requirements of TSI or national rules and have been duly certified.

## ANNEX V

**PRINCIPAL CONTENT OF ACCIDENT AND INCIDENT INVESTIGATION REPORT****1. Summary**

The summary shall contain a short description of the occurrence, when and where it took place and the consequences it led to. It shall state the direct causes as well as contributing factors and underlying causes established by the investigation. The main recommendations shall be quoted and information shall be given on to whom they are addressed.

A translation of the summary into one of the working languages of the Agency shall be included in the report, where appropriate.

**2. Immediate facts of the occurrence***1. The occurrence:*

- date, exact time and location of the occurrence;
- description of the events and the accident site including the efforts of the rescue and emergency services;
- the decision to establish an investigation, the composition of the team of investigators and the accomplishment of the investigation.

*2. The settings of the occurrence:*

- involved staff and contractors and other parties and witnesses;
- the trains and their composition including the registration number of involved rollingstock;
- the description of the infrastructure and signalling system — track types, switches, interlocking, signals, train protection;
- means of communication;
- works carried out at or in the vicinity of the site;
- trigger of the railway emergency plan and its chain of events;
- trigger of the emergency plan of the public rescue services, the police and the medical services and its chain of events.

*3. Fatalities, injuries and material damages:*

- passengers and third parties, staff, including contractors;
- cargo, luggage and other property;
- rollingstock, infrastructure and the environment.



4. *External circumstances:*

- weather conditions and geographical references.

**3. Record of investigations and inquiries**

1. *Summary of testimonies (subject to the protection of identity of persons):*

- railway employees, including contractors;
- other witnesses.

2. *The safety management system:*

- the framework organisation and how orders are given and carried out;
- requirements on staff and how they are ensured;
- routines for internal checks and audits and their results;
- interface between different actors on the infrastructure.

3. *Rules and regulations:*

- relevant EU and national laws and public regulation;
- other rules like operating rules, local instructions, staff requirements, maintenance prescriptions and applicable standards.

4. *Functioning of rollingstock and technical installations:*

- signalling and control command system, including registration from automatic data recorders;
- infrastructure;
- communications equipment;
- rollingstock, including account of automatic data registration.

5. *Documentation of the operative system:*

- measures taken by staff for traffic control and signalling;
- exchange of verbal messages in connection with the occurrence, including documentation from recordings;
- measures taken to protect and safeguard the site of the occurrence.

6. *Man-machine-organisation interface:*

- working time applied to the involved staff;
- medical and personal circumstances with influence on the occurrence, including existence of physical or psychological stress;
- design of equipment with impact on man-machine interface.

7. *Previous occurrences of a similar character.*

**4. Analysis and conclusions**

1. *Final account of the event chain:*

- establishing the conclusions on what happened, based on the facts discovered in Chapter 3.

2. *Discussion:*

- analysis of the facts established in Chapter 3 with the aim to draw conclusions on the causes of the occurrence and the performance of the rescue services.

3. *Conclusions:*

- direct and immediate causes of the occurrence including contributing factors related to actions taken by involved persons or conditions of rollingstock or technical installations;
- underlying causes related to skills, procedures and maintenance;
- root causes related to the regulatory framework conditions and application of the safety management system.

4. *Additional observations:*

- deficiencies and shortcomings discovered during the investigation, but without relevance to the conclusions on causes.

5. **Measures that have been taken**

Record of measures already taken or adopted as a consequence of the occurrence.

6. **Recommendations**

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