

*An Coimisiún  
Sábháilteachta  
Iarnróid*

*Railway  
Safety  
Commission*



*Annual Report 2007 to the European Railway Agency*



## TABLE OF CONTENTS

Table of Contents .....	3
A. Scope of the report .....	5
B. Introductory Section .....	6
B.1. Introduction to the report .....	6
B.2. Railway Structure Information (Annex A) .....	6
B.2.1. Network Map .....	6
B.2.2. List of Railway Undertakings and Infrastructure Managers .....	6
- .....	<b>Error! Bookmark not defined.</b>
B.3. Summary – General Trend Analysis .....	6
B.3.1. Development of railway safety .....	6
B.3.2. Safety Certification .....	6
B.4. The Safety Directive – .....	7
A.1.1. Stage of implementation .....	7
A.1.2. National basis of implementation, .....	7
A.1.3. Fulfilment of voluntary elements; .....	7
A.1.4. Applicable national legislation .....	7
C. Organisation .....	8
C.1. Introduction to the organisation .....	8
C.2. Organisational flow – relationship diagram .....	8
D. The development of railway safety .....	9
D.1. Initiatives to maintain/improve safety performances .....	9
D.1.1. Safety measures triggered by accidents/precursors to these .....	9
D.1.2. Safety measures with other triggers .....	9
D.2. Detailed data trend analysis .....	9
E. Important changes in legislation and regulation .....	11
F. The development of safety certification and authorisation .....	12
F.1. National legislation – starting dates – availability .....	12
F.1.1. Starting date for issuing Safety Certificates according to Article 10 of Directive 2004/49/EC (if necessary, distinguish between Part A and Part B) .....	12
F.1.2. Starting date for issuing Safety Authorisations according to Article 11 of Directive 2004/49/EC: .....	12
F.1.3. Availability of national safety rules or other relevant national legislation to Railway Undertakings and Infrastructure Managers (website, paper documentation on request, etc.) ...	12
F.2. Numerical data (Annex E) .....	12
F.3. Procedural aspects .....	12
F.3.1. Safety Certificates Part A .....	12
F.3.2. Safety Certificates Part B .....	13
F.3.3. Safety Authorisations .....	14
F.4. Safety Approval of Rolling Stock and Infrastructure .....	15
G. Supervision of Railway Undertakings and Infrastructure Managers .....	16
G.1. Description of the supervision of RUs and IMs .....	16
G.1.1. - Audits/inspections carried out by the NSA staff/third parties/both .....	16
G.1.2. - NSA manpower available for audits (Number, % of NSA staff involved) .....	16
G.1.3. - Economical aspects of audits (Costs,...) .....	16
G.2. Submission of all IM and RU annual safety reports by the legal deadline according to Article 9(4) Safety Directive .....	17

G.2.1.	Safety Targets and Safety Plans – Iarnród Éireann .....	17
G.2.2.	Safety Indicators – Iarnród Éireann .....	18
G.2.3.	Safety Management System and Safety Audit – Iarnród Éireann .....	18
G.2.4.	Particular Risks – Iarnród Éireann .....	18
G.3.	Number of inspections of RUs/IMs for 2007 .....	19
G.4.	Number of audits of RUs/IMs for 2007 .....	19
G.5.	Summary of the relevant corrective measures/actions .....	19
G.6.	Complaints from IM(s) concerning RU(s) .....	19
G.7.	Complaints from RU(s) concerning IM(s) .....	19
H.	Conclusions – Priorities – Results of safety recommendations .....	20
H.1.	Conclusion .....	20
H.2.	Priorities .....	20
H.3.	Results of Safety Recommendations .....	20
	Annexes .....	21
	ANNEX A: Railway Structure Information .....	22
A.1.	National network utilisation map .....	22
A.2.	List of Railway Undertakings and Infrastructure Managers.....	23
	ANNEX B: Organisation chart(s) of the National Safety Authority.....	24
B.1.	Chart: Internal organisation 2007 .....	24
B.2.	Chart: Relationship of NSA with other National Bodies.....	25
	ANNEX C: CSIs data – Definitions applied.....	26
C.1.	CSIs data .....	26
C.2.	Definitions used in the annual report.....	31
C.2.1.	Definitions in Regulation 91/03 to be applied:.....	31
C.2.2.	National definitions.....	33
C.3.	Abbreviations .....	33
	ANNEX D: Important changes in legislation and regulation .....	34
	ANNEX E: The development of safety certification and authorisation – Numerical Data .....	35
E.1.	Safety Certificates according to Directive 2001/14/EC.....	35

## **A. SCOPE OF THE REPORT**

The Railway Safety Directive (EC) 49/2004, Art.18, states that 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:

- the development of railway safety, including an aggregation at Member State level of the common safety indicators (CSIs) laid down in Annex I;
- important changes in legislation and regulation concerning railway safety;
- the development of safety certification and safety authorisation;
- results of and experience relating to the supervision of infrastructure managers and railway undertakings.

## **B. INTRODUCTORY SECTION**

### **B.1. Introduction to the report**

The Railway Safety Commission (RSC) is the National Safety Authority for railway safety in Ireland. This is the second annual report from the RSC to the European Railway Agency (ERA). Further information may be found in the RSC's annual report for 2007 and our Statement of Strategy 2006-2008, published on our web-site [www.rsc.ie](http://www.rsc.ie).

This report specifically covers the process of safety regulation of the interoperable Irish railway network. This network has a track gauge of 1600mm. It is interoperable with the railway system in Northern Ireland, which falls under the jurisdiction of the United Kingdom.

### **B.2. Railway Structure Information (Annex A)**

#### *B.2.1. Network Map*

A copy of the national railway network map is shown in Annex A.1.

#### *B.2.2. List of Railway Undertakings and Infrastructure Managers*

Details of the infrastructure manager and the principal railway operator are shown in Annex A.2. Iarnród Éireann is the infrastructure manager of the interoperable railway network in Ireland. Iarnród Éireann is also the principal operator on the railway network. It jointly operates a regular service, between Dublin and Belfast in Northern Ireland, in partnership with NIR-Translink. Otherwise, the only guest operator is a heritage railway society, the Railway Preservation Society of Ireland, whose trains are driven by Iarnród Éireann drivers.

### **B.3. Summary – General Trend Analysis**

#### *B.3.1. Development of railway safety*

The national network is low density and relatively lightly used. Even so, traffic intensity increased by 1.3%<sup>1</sup> from 2000-2006, with a further increase of 7.7 % in 2007. Since 2000, freight traffic has declined by about 70%, and passenger carryings have increased by 44%. The new timetable introduced at the end of the year 2006 featured a clock-face timetable, with hourly services on the main double-tracked lines, and the increase in passenger carrying capacity is set to continue with the introduction in 2007 of a new fleet of intercity railcar sets. Even so, the number of serious and significant accidents remains low.

The safety of the railway network has been improved through the railway safety investment programme, initiated in 1999.

#### *B.3.2. Safety Certification*

Safety certification of operators and safety authorization of infrastructure managers is dependent on a demonstration of their safety management system through a safety case.

The railways companies already have an established safety management system, which is being explained and formalised through their railway safety cases. These railway safety cases were submitted to the RSC for approval in June 2006 and were awarded safety certification in 2007.

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<sup>1</sup> Corrigendum to 2006 Annual Report to ERA

## **B.4. The Safety Directive –**

### *A.1.1. Stage of implementation*

The major part of the safety directive was implemented in the year 2006 by giving effect to the Railway Safety Act, 2005. Regulations were drafted in 2007 to implement the remaining parts of the safety directive.

### *A.1.2. National basis of implementation,*

The Railway Safety Act 2005 is the primary legislation governing railway safety in Ireland..

### *A.1.3. Fulfilment of voluntary elements;*

The Railway Safety Act 2005 goes beyond the scope of the Directive, as it effectively covers all railways with the exception of industrial railways, and the road/rail interfaces and passenger operations on industrial railways.

### *A.1.4. Applicable national legislation*

The Railway Safety Act 2005 and associated regulations are designed to provide a unified approach to railway safety regulation, and to apply the principles of the Railway Safety Directive.

## **C. ORGANISATION**

### **C.1. Introduction to the organisation**

The RSC mission statement, as presented in our Statement of Strategy 2006-2008, is that:

“The Commission will assure, through education, guidance and balanced regulation, the safety of railway services and affected persons.”

The RSC was established in January 2006. This meets the Railway Safety Directive requirement that member states create national railway safety authorities. The Directive requires the causal investigation of railway accidents to be functionally separate from safety regulation. To this end, the Railway Safety Act 2005 permits establishment of an Accident Investigation Unit within the RSC, with shared administration but independent staffing and reporting arrangements.

We are a small, professional organisation with a flat reporting structure. This structure encourages and facilitates free-flow of information and ideas, which promotes consultation and creative thinking. This complements our purpose of promoting excellence in railway safety. It also provides us with the flexibility we need to respond effectively to immediate and unpredictable work demands, and to accomplish the structured tasks within our business plan.

Our budget for the year 2007 was €2.09.m. Based on medium term workload projections made in 2002, we have approval for nine full-time staff, of which seven are technical and two administrative. This includes the Commissioner and the Chief Investigator, who are appointed by the Minister for Transport.

The position of Chief Investigator was filled in April 2007.

The Railway Safety Directive specifies, in loss and injury terms, a minimum threshold above which investigation is mandatory. One such incident occurred in 2007 and a direct investigation were initiated by the Unit. The Act provides for RSC oversight of internal railway undertaking investigations.

The organizational chart for the RSC is shown in Annex B.1.

### **C.2. Organisational flow – relationship diagram**

A chart showing the flow and relationships between the NSA and other national bodies may be seen in Annex B.2 of this report.



## **D. THE DEVELOPMENT OF RAILWAY SAFETY**

### **D.1. Initiatives to maintain/improve safety performances**

#### *D.1.1. Safety measures triggered by accidents/precursors to these*

In safety risk terms, railways are particularly vulnerable where they interface with roadways. On the Iarnród Éireann network there are more than two hundred and fifty public road level crossings and twelve hundred bridges over or under public roads.

The road rail safety working group, which is chaired by the RSC, is an advisory working group that focuses on safety at road rail interfaces. It seeks to establish a coherent strategy for the collective management of this risk, and to identify the scope for specific actions that will improve safety levels. Membership is made up of the railway undertakings, the road authorities, An Garda Síochána, the Irish Road Haulage Association and the Department of Transport.

The group met three times during 2007 focussing its attention primarily on bridge bashing, i.e., road vehicles striking railway bridges. At the November meeting, Iarnród Éireann reported a 36% reduction in the national rate of strikes of bridges under the railway, which indicates that the awareness campaigns are delivering results. The campaigns include the issue of a map showing bridge heights, including the availability of this map on line, and Garda prosecutions under the Railway Safety Act.

Other areas of common interest that were discussed during the year were:

- putting in place a joint inspection regime for railway bridges and level crossings by the railway undertakings, the road authorities and An Garda Síochána;
- sharing of data using common mapping systems;
- streamlining the approvals process for road bridges over railways; and,
- the placing of cameras on some railway level crossings where there is a history of the gates being left open.

#### *D.1.2. Safety measures with other triggers*

The railway safety investment programme stems from the need to address the significant deficiencies in the Iarnród Éireann railway system identified in an independent review conducted in 1998. 2007 was the ninth year of the programme.

In 2007, the Department Transport commenced a Value for Money audit of the Safety Investment Programme. As a stakeholder in the programme, the RSC is a member of the steering committee.

### **D.2. Detailed data trend analysis**

This paragraph should contain the analysis of trends related to all categories of CSIs:

This is the second annual report to the ERA. To initialize this approach, significant accident data for the years 2002-2006 was averaged, and data for 2007 is shown separately. This may be viewed in Annex C.1.1. These data are normalized in Annex C.1.2.

#### 1. Number of accidents:

In 2007, nine significant accidents were reported, of which four occurred in suspicious circumstances

#### 2. Collisions, derailments, level crossing incidents, fires in rolling stock, etc:

A train collided with a third party tractor and trailer unit at a field level crossing, causing about €110000 damage to the tractor & trailer and about €110000 damage to rolling stock, track, fencing and line side signal and telecoms equipment.

3. Number of fatalities;

7 people died in separate incidents, three of which appeared to be accidental.,

An elderly pedestrian was killed when struck by a train at a level crossing whose design requires pedestrian users to exercise vigilance. In addition to the level crossing fatality, one person died when they were struck by a train whilst trespassing on the line at night and a passenger died after falling on steps leading to a station platform.

Four people died in circumstances indicating possible suicide. Of these, one suicide was recorded by Coroner's Verdict, and a further three fatalities occurred in circumstances indicating possible suicide.

4. Number of injuries;

One person was seriously injured when struck by a train while trespassing on the railway line at night.

5. Number of precursors to accidents;

Precursors are reported for 2007 in Table D.2.1:

Broken rails	1
Track buckles	1
Wrong-side signal failures	1
Signals Passed at Danger (including shunting signals)	31
Broken wheels	0
Broken axles	0

**Table D.2. 1: Precursor incidents**

6. Cost of all accidents, hours worked on safety

Cost of accidents: These data are not available.

Percentage of hours worked lost due to accidents: These data are not available.

7. Technical safety of infrastructure and its implementation, management of safety

Line-km (track-km) = 2164 km;

Percentage of track with ATP: 5%

Percentage of train-km using operational ATP systems: 13.7%

Total level crossings: 1126 (1191 in 2006)<sup>2</sup>

LCs per line-km: 0.52<sup>3</sup>

LCs with automatic or manual protection: 19.27% of total (18% in 2006)<sup>4</sup>

Internal audits planned by IMs and RUs: 13

Internal audits accomplished: 13

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<sup>2 3 4</sup> Corrigendum to 2006 Annual Report to ERA

## **E. IMPORTANT CHANGES IN LEGISLATION AND REGULATION**

The major part of the safety directive was implemented in the year 2006 by giving effect to the Railway Safety Act, 2005

Remaining provisions to implement the safety directive are intended to be introduced in 2008 by way of regulations drafted during 2007.

## **F. THE DEVELOPMENT OF SAFETY CERTIFICATION AND AUTHORISATION**

### **F.1. National legislation – starting dates – availability**

#### *F.1.1. Starting date for issuing Safety Certificates according to Article 10 of Directive 2004/49/EC (if necessary, distinguish between Part A and Part B)*

The railway undertaking already has an established safety management system, which is being explained and formalised through their railway safety case. The railway safety case was submitted to the RSC for approval on 31<sup>st</sup> October 2006 and safety certification was awarded at the end of January 2007.

#### *F.1.2. Starting date for issuing Safety Authorisations according to Article 11 of Directive 2004/49/EC:*

The railways infrastructure manager already has an established safety management system, which is being explained and formalised through their railway safety cases. The railway safety case was submitted to the RSC for approval on 31<sup>st</sup> October 2006 and safety certification was awarded at the end of January 2007.

Safety authorisation is implicit in Safety Certification, as the Infrastructure Manager and the Railway Undertaking are the same entity.

#### *F.1.3. Availability of national safety rules or other relevant national legislation to Railway Undertakings and Infrastructure Managers (website, paper documentation on request, etc.)*

National legislation dating from 1922 onwards is published by the Government Publications Office and may be downloaded from the website <http://www.irishstatutebook.ie>. Older legislation is not currently in publication, but copies of Public Acts may be obtained from the Department of Transport on request.

### **F.2. Numerical data (Annex E)**

The progress of the safety certification and safety authorisation process is indicated in Annex E.

### **F.3. Procedural aspects**

#### *F.3.1. Safety Certificates Part A*

##### *F.3.1.1. Reasons for updating/amending Part A Certificates (e.g. variation in type of service, extent of traffic, size of company)*

One safety certificate was issued in the year 2007. The process of updating safety certification in regard to new rolling stock is described in section F.4 below.

Inspection days concerning safety certificates Part A in section G.3 refer to inspections performed as part of the update and amendment process, i.e., approval of new works and new rolling stock.

##### *F.3.1.2. Main reasons if the mean issuing time for Part A Certificates (restricted to these mentioned in Annex E and after having received all necessary information), was more than the 4 months foreseen in Article 12(1) of the Safety Directive*

One safety certificate was issued in the year 2007.

Subject to receipt of sufficient information and clarification as outlined in s.46 of the Railway Safety Act, the RSC must process each application within 3 months.

F.3.1.3. Overview of the requests from other National Safety Authorities to verify/access information relating the Part A Certificate of a Railway Undertaking that has been certified in your country, but applies for a Part B certificate in the other Member State

No requests of this nature were received in the year 2007.

F.3.1.4. Summary of problems with the mutual acceptance of the Community wide valid Part A Certificate

Iarnród Éireann safety certificate was issued in 2007, operations to Northern Ireland were not affected.

F.3.1.5. NSA Charging fee for issuing a Part A Certificate (Yes/No – Cost)

A fee may be payable to the Minister, based on the cost of processing the request (see SI no. 643 of 2004 giving effect to Council Directive 2001/14/EC). No charges were made for safety certification in 2007.

F.3.1.6. Summary of the problems with using the harmonised formats for Part A Certificates, specifically in relation to the categories for type and extent of service

There were no problems in 2007.

F.3.1.7. Summary of the common problems/difficulties for the NSA in application procedures for Part A Certificates.

None.

F.3.1.8. Summary of the problems mentioned by Railway Undertakings when applying for a Part A Certificate

None.

F.3.1.9. Feedback procedure (e.g. questionnaire) that allows Railway Undertakings to express their opinion on issuing procedures/practices or to file complaints

Railway Undertakings are facilitated through published guidance on safety cases, and through direct meetings with the RSC. The practice of the RSC is to facilitate applications as much as possible. The Railway Undertaking may appeal first to the RSC and further to the High Court should they be refused safety certification.

### *F.3.2. Safety Certificates Part B*

F.3.2.1. Reasons for updating/amending Part B Certificates (e.g. variation in type of service, extent of traffic, lines to be operated, type of rolling stock, category of staff, etc.)

No safety certificates were updated or amended in year 2007.

F.3.2.2. Main reasons if the mean issuing time for Part B Certificates (restricted to these mentioned in Annex E and after having received all necessary information), was more than the 4 months foreseen in Article 12(1) of the Safety Directive

The deadline for submission of the safety case by existing operators for the purpose of safety certification was 1<sup>st</sup> November 2006.

Subject to receipt of sufficient information and clarification as outlined in s.46 of the Railway Safety Act, the RSC must process each application within 3 months.

Any acceptance of Rolling Stock for operation will serve as an amendment to the Part B Certificate.

#### F.3.2.3. NSA Charging fee for issuing a Part B Certificate (Yes/No – Cost)

A fee may be payable to the Minister, based on the cost of processing the request (see S.I. no. 643 of 2004 giving effect to Council Directive 2001/14/EC)

#### F.3.2.4. Summary of the problems with using the harmonised formats for Part B Certificates, specifically in relation to the categories for type and extent of service

No Part B safety certificates were issued in the year 2007.

#### F.3.2.5. Summary of the common problems/difficulties for the NSA in application procedures for Part B Certificates.

None.

#### F.3.2.6. Summary of the problems mentioned by Railway Undertakings when applying for a Part B Certificate

None.

#### F.3.2.7 Feedback procedure (e.g. questionnaire) that allows Railway Undertakings to express their opinion on issuing procedures/practices or to file complaints

Railway Undertakings are facilitated through published guidance on safety cases, and through direct meetings with the RSC.

### *F.3.3. Safety Authorisations*

#### F.3.3.1. Reasons for updating/amending Safety Authorisations

Safety Authorisation is implicit in Safety Certification, as the Infrastructure Manager and the Railway Undertaking are the same entity.

The process of updating safety certificates in regard to new works is described in section F.4 below.

Inspection days concerning safety certificates Part A in section G.3 refer to inspections performed as part of the update and amendment process, i.e., approval of new works and new rolling stock.

#### F.3.3.2. Main reasons if the mean issuing time for Safety Authorisations (restricted to these mentioned in Annex E and after having received all necessary information), was more than the 4 months foreseen in Article 12(1) of the Safety Directive

The deadline for submission of the safety case by existing infrastructure managers for the purpose of safety authorisation was 1<sup>st</sup> November 2006.

Subject to receipt of sufficient information and clarification as outlined in s.46 of the Railway Safety Act, the RSC must process each application within 3 months. The safety case for Iarnród Éireann was accepted at the end of January 2007.

Any acceptance of new works serves as an amendment to the Safety Certificate.

#### F.3.3.3. Summary of the regularly problems/difficulties in application procedures for Safety Authorisations

None.

#### F.3.3.4. Summary of the problems mentioned by Infrastructure Managers when applying for a Safety Authorisation

None.

#### F.3.3.5. Feedback procedure (e.g. questionnaire) that allows Infrastructure Managers to express their opinion on issuing procedures/practices or to file complaints

Infrastructure managers are facilitated through published guidance on safety cases, and through direct meetings with the RSC. The practice of the RSC is to facilitate applications as much as possible. The infrastructure manager may appeal first to the RSC and further to the High Court should they be refused safety authorisation.

#### F.3.3.6. NSA Charging fee for issuing a Safety Authorisation (Yes/No – Cost)

None charged in 2006.

### **F.4. Safety Approval of Rolling Stock and Infrastructure**

The process of updating safety certificates in regard to new rolling stock and new works is described below:

An infrastructure manager may not commence construction, installation or assembly of new works, and a railway undertaking may not bring into operation new rolling stock, until it has submitted a safety assessment and the RSC has approved this by way of a formal communication. Under the Railway Safety Act, the RSC is expected to issue this communication within 28 days, either accepting the safety assessment or setting out its reasons for not doing so.

To ensure that the process of approval of new works (infrastructure and rolling stock) is as smooth and effective as possible, we operate on a phased basis, granting approvals at various key project milestones. For infrastructure works there are three stages of approval, i.e., preliminary design, detailed design and prior to service or operation. In relation to rolling stock there are five stages of approval. i.e., concept, preliminary design, detailed design, testing and commissioning and passenger service/operations.

The RSC is expected to issue a communication within 28 days, either accepting the safety assessment or setting out its reasons for not doing so, e.g., a request for further information. This deadline is almost always met. The onus is therefore on the infrastructure manager or railway undertaking to submit sufficient and appropriate information to allow safety approval of new works and new rolling stock by the RSC.

During 2007 our approvals work involved twenty-six heavy rail projects. Twenty-seven interim approvals were issued and five projects fully signed off for operation. Assessment of three rolling-stock projects- was ongoing through the year.

The main problem is a lack of inspectors within the RSC. In 2007, the process of safety approvals accounted for more than one third of permanent inspectors' time, together with significant outsourced assistance. The deadlines for approval of new works and new rolling stock have been met but, as a consequence, the level of audit and inspection has been lower than expected.

## **G. SUPERVISION OF RAILWAY UNDERTAKINGS AND INFRASTRUCTURE MANAGERS**

### **G.1. Description of the supervision of RUs and IMs**

#### *G.1.1. - Audits/inspections carried out by the NSA staff/third parties/both*

The RSC auditing and monitoring activities derive from four principal sources:

- Complaints and representations by, or on behalf of, passengers;
- Industry safety concerns, typically arising from accidents and incidents;
- The need to ensure that railway undertakings are implementing their approved safety cases;
- The need for ongoing assessment of the performance of all industry safety duty holders.

The RSC generally conducts inspections in response to representations or reports of incidents. Unannounced inspections are also performed. A total of 31 representations were received in 2007.

The RSC also endeavours to perform planned coordinated audits of features of the railway system giving rise to concern. As in 2006, approval demands deriving from the high level of railway development works meant that we were able to commit less time to performance auditing and monitoring than we would have wished.

However, during the year a number of inspections of Iarnród Éireann were carried out focussing on;

- Passenger flow and emergency escape at stations;
- Bridge protection warning systems;
- Platform safety announcements;
- Level crossings;
- Trespass and vandalism.

Where the occasion permitted, inspectors took the opportunity to travel in locomotive cabs to assess operations and the condition of the permanent way.

The scenes of a number of railway incidents were inspected, including two major landslips, a collapse of equipment onto the line, five level crossings following collisions or pedestrian strikes, and a diesel multiple unit damaged by fire.

To augment the work of our team in this area, in October 2007, the RSC engaged consultants to undertake a partial audit of Iarnród Éireann's implementation of their safety case. A full audit was not deemed necessary during the first year of operation under the new safety case regime.

The audit report was completed in November 2007 and issued to Iarnród Éireann for comment. They put programmes in place to implement associated observations and recommendations. The report can be viewed on the RSC website, [www.rsc.ie](http://www.rsc.ie).

#### *G.1.2. - NSA manpower available for audits (Number, % of NSA staff involved)*

The RSC has nobody dedicated to safety audits. These are done by the 5 inspectors as part of their general duties. In 2007, safety audit, monitoring and inspections (not associated with safety authorisation or certification) accounted for about 4% of inspectors' time.

#### *G.1.3. - Economical aspects of audits (Costs,...)*

The RSC currently bears the costs of its own audits.



## **G.2. Submission of all IM and RU annual safety reports by the legal deadline according to Article 9(4) Safety Directive**

Safety Directive (EC) 49/2004 :

Art.9, ” Each year all infrastructure managers and railway undertakings shall submit to the safety authority before 30 June an annual safety report concerning the preceding calendar year. The safety report shall contain:

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

As Article 9 of the Safety Directive was not implemented in Irish Law in 2007, the necessary information was provided to the RSC through existing reporting mechanisms.

The annual report of the integrated principal railway undertaking and infrastructure manager, Iarnród Éireann, is outlined below :

### ***G.2.1. Safety Targets and Safety Plans – Iarnród Éireann***

#### **G.2.1.1. Organisation’s Corporate Safety Targets 2007**

The organisation’s corporate safety targets are met through a number of programmes, particularly the Railway Safety Programme 2004 – 2008; the implementation of recommendations arising from the ‘Review of Railway Safety’; the Network Wide Risk Model and the Enterprise Wide Risk Management register.

In summary, there are in the order of 190 safety initiatives leading to more than of 485 actions. These are focussed on improving the implementation of the Safety Management System, i.e., improving structures, standards, systems, training, equipment and special initiatives for improving competency and, in particular, reduction of Signals Passed at Danger (SPADs) and other areas of operational risk.

#### **G.2.1.2. Railway Safety Programme 2004 – 2008**

Parts A and C of the programme focus on improvements of the company’s Safety Management System (A) and Human Performance Development (C) over a range of 51 projects. Special attention and detailed updating of key or slow moving projects and reporting to the DoT has led to good progress being made during 2007 on these programmes. The majority of these projects have reached maturity and are either in place or well progressed towards implementation. In particular, auditing and competency assessment are now well established, as are improved accident and incident investigation processes.

#### **G.2.1.3. Review of Railway Safety Recommendations**

A review of Railway Safety and of the role and function of the RSC and the Department of Transport was delivered in June 2006. A further review was commissioned by the RSC in October 2007 and the report made available in November. 30 recommendations, and a further 27 observations, were made applicable to Iarnród Éireann. These have been collated and progressed with the relevant owners. Updates of progress take place on a regular basis.

## *G.2.2. Safety Indicators – Iarnród Éireann*

### *G.2.2.1. Network Wide Risk Model*

The 2007 re-run of the model was completed and the findings were issued. There has been a reduction in risk level from a Risk Factor of 11.3 to 9.0. This reduction is attributable to a number of factors; e.g. improvements in the model (issues log), improved asset ratings, rolling stock changes, and improved safety performance output data.

The new General Level Crossing Risk Model was further developed

### *G.2.2.2. Enterprise Wide Risk Management Register*

The Enterprise Wide Risk Management register (EWRM) was reviewed and updated in May 2007. Progress on the twenty safety related risks is progressed on a regular basis.

## *G.2.3. Safety Management System and Safety Audit – Iarnród Éireann*

### *G.2.3.1. Safety Case progress report end of 2007*

Iarnród Éireann submitted their first safety case to the Railway Safety Commission in October 2006, as required by the 2005 Railway Safety Act, and an acceptance certificate was issued on January 30, 2007.

The implementation of the safety case was partially reviewed under a process commissioned by the RSC at the end of 2007 and the resulting recommendations and observations were embraced by the appropriate management responsibilities.

### *G.2.3.2. Safety Audit*

In 2007 the audit unit had a target to conduct 20 audits. The unit carried out a total of 20 audits, i.e.:

- 4 personnel and locations (PAL) audits were carried out at stations.
- 3 audits were carried out on Railway Safety Standards (RSS): one on *RSS 2 Checking the Speed of Trains*, and two on *RSS 67 Training Competence and Fitness*.
- 2 audits were carried out on CME maintenance procedures and safety management procedures.
- 1 audit was carried out on Platform Safety and Starting of trains.
- 1 audit was carried out on Possession Management, Rule Book T3.
- 1 audit was carried out on the management of user operated public road and farm crossings.
- 3 audits were carried out on the Safety Statement risk assessments and associated safety management issues in Infrastructure Divisions.
- 3 audits were carried out on the Safety Statement risk assessments and associated Safety Management issues at stations.
- 1 audit was carried out on compliance with the General Appendix instructions in relation to Freight traffic.
- 1 in-cab audit was carried out

The audit results were communicated to the Line Management responsible for carrying out the opportunities for improvement.

## *G.2.4. Particular Risks – Iarnród Éireann*

No report was received on observations on deficiencies and malfunctions of railway operations and infrastructure management that might be relevant for the safety authority.

**G.3. Number of inspections of RUs/IMs for 2007**

		Inspections concerning Safety Certificates Part A (days)	Inspections concerning Safety Certificates Part B (days)	Inspections concerning Safety Authorisations (days)	Other Inspections (days)
	planned	29			62
	carried out	40			39

**G.4. Number of audits of RUs/IMs for 2007**

		Audits of Safety Certificates Part A	Audits of Safety Certificates Part B	Audits of Safety Authorisations	Other Audits
	planned	1			
	carried out	1			

**G.5. Summary of the relevant corrective measures/actions**

The process of safety certification was completed in 2007. The RSC normally writes to the railway company about issues that cause it concern, and expects the company to respond outlining the actions that it proposes. No important warnings were issued during the year 2007.

**G.6. Complaints from IM('s) concerning RU('s)**

No complaints were received by the RSC related to conditions in the RU's Part A/Part B Certificate

**G.7. Complaints from RU('s) concerning IM('s)**

No complaints were received by the RSC related to conditions in the IM's authorisation

## **H. CONCLUSIONS – PRIORITIES – RESULTS OF SAFETY RECOMMENDATIONS**

### **H.1. Conclusion**

Our second year of operation as an independent agency operating within the European railway safety regulatory framework has been successful. While some elements of the framework have yet to be applied indications are that the transition from largely internal, to external, industry safety regulation will be achieved effectively and without undue conflict. Addressed in terms of international comparators and internal improvement our rail industry continues to perform well in safety terms. Areas where actions are needed have however been identified and we are working with undertakings and other stakeholders to address these.

### **H.2. Priorities**

To build further on our good industry safety record the following are our immediate organisational priorities remain as follows:

- Build on our established working relationships with industry stakeholders to ensure the most effective implementation of the safety regulatory framework
- Work to ensure full transposition of EU legislation
- Address the serious resourcing and recruitment difficulties that we are experiencing and which are becoming increasingly critical.

### **H.3. Results of Safety Recommendations**

We continue to track duty holder implementation of recommendations deriving from investigation reports and from an ongoing process of industry safety review that commenced in 1998. Our most effective tool for assessing the resultant benefits is an industry predictive model that indicates a steady reduction in safety risk since the process commenced.

## **Annexes**

ANNEX A: Railway Structure Information

ANNEX B: Organisation chart(s) of the National Safety Authority

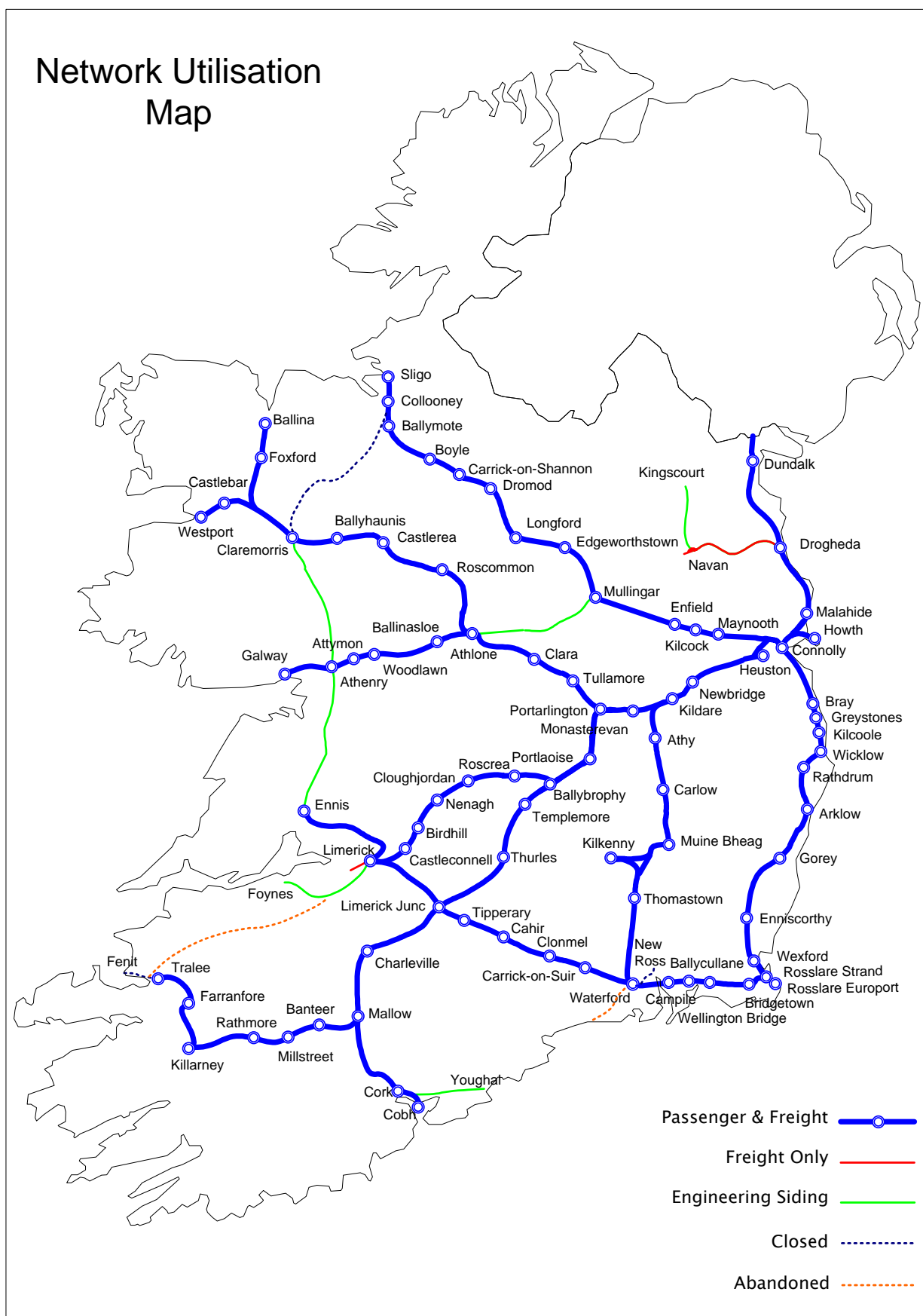
ANNEX C: CSIs data – Definitions applied

ANNEX D: Important changes in legislation and regulation

ANNEX E: The development of safety certification and authorisation – Numerical Data

## ANNEX A: Railway Structure Information

### A.1. National network utilisation map



## A.2. List of Railway Undertakings and Infrastructure Managers

### A.2.1. Infrastructure Manager(s)

<b>Name</b>	<b>Address</b>	<b>Website/Net work Statement Link</b>	<b>Safety Authorisation (Number/Date)</b>	<b>Start date commercial activity</b>	<b>Total Track Length/Gauge</b>	<b>Electrified Track Length/Voltage s</b>	<b>Total Double/Simple Track Length<sup>5</sup></b>	<b>Total Track Length HSL</b>	<b>ATP equipment used</b>	<b>Number of LC</b>	<b>Number of Signals</b>
Iarnród Eireann	Connolly Station Amiens Street Dublin 1	<a href="http://www.irishrail.ie">www.irishrail.ie</a>	31/01/2007		2164 km <sup>6</sup> (lines in traffic) gauge 1600mm <sup>7</sup>	97km 1500V(DC)	454 km/ 1256 km (lines in traffic)	none	CAWS , ATP	1126 (1191 in 2006) <sup>8</sup>	2166 (2150 in 2006) <sup>9</sup>

### A.2.2. Railway Undertaking(s)

<b>Name</b>	<b>Address</b>	<b>Website</b>	<b>Safety Certificate 2001/14/EC (Number/Date)</b>	<b>Safety Certificate A-B 2004/49/EC (Number/Date)</b>	<b>Start date commercial activity</b>	<b>Traffic Type (Freight,...)</b>	<b>Number of Locomotives</b>	<b>Number of Railcars/Multiple Unit-sets</b>	<b>Number of Coaches/Wagons</b>	<b>Number of train drivers/safety crew</b>	<b>Volume of passenger transport</b>	<b>Tonnes of freight transport</b>
Iarnród Eireann	Connolly Station Amiens Street Dublin 1	<a href="http://www.irishrail.ie">www.irishrail.ie</a>		31/01/2007		Passenger, Freight	79 (excluding OTMs)	225 DMU vehicles 154 EMU vehicles	248 coaches 419 wagons (including maintenance wagons) <sup>10</sup>	483 train drivers	45.513 MLN	0.825 MLN tonnes 129 MLN tonne-km

<sup>5 6 7 8 9</sup> Corrigendum to RSC 2006 Annual Report to ERA

<sup>10</sup> Maintenance wagons were not included in 2006 figure

## ANNEX B: Organisation chart(s) of the National Safety Authority

### B.1. Chart: Internal organisation 2007

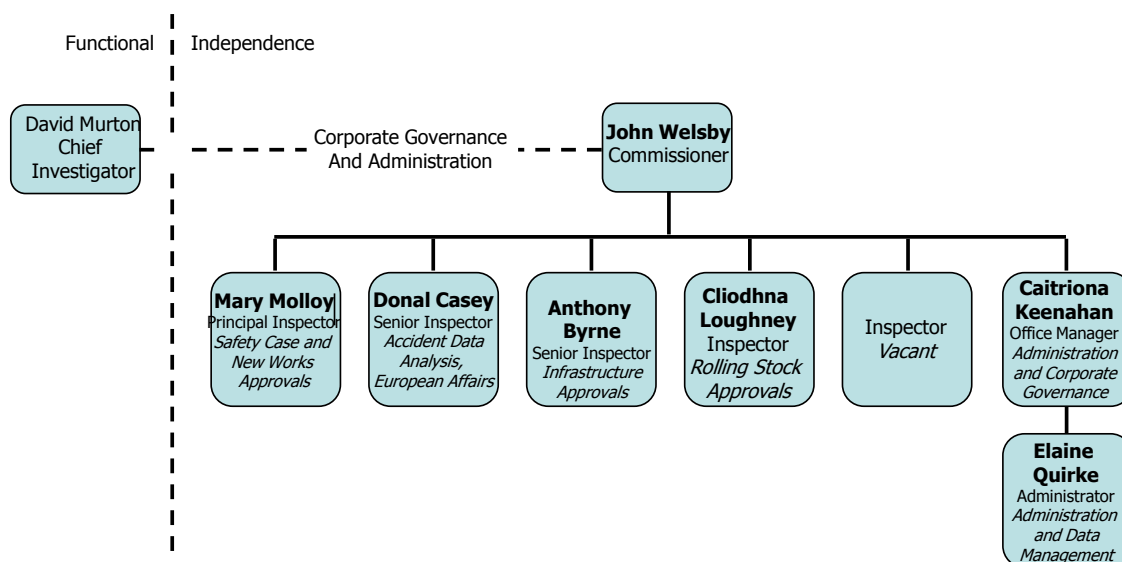
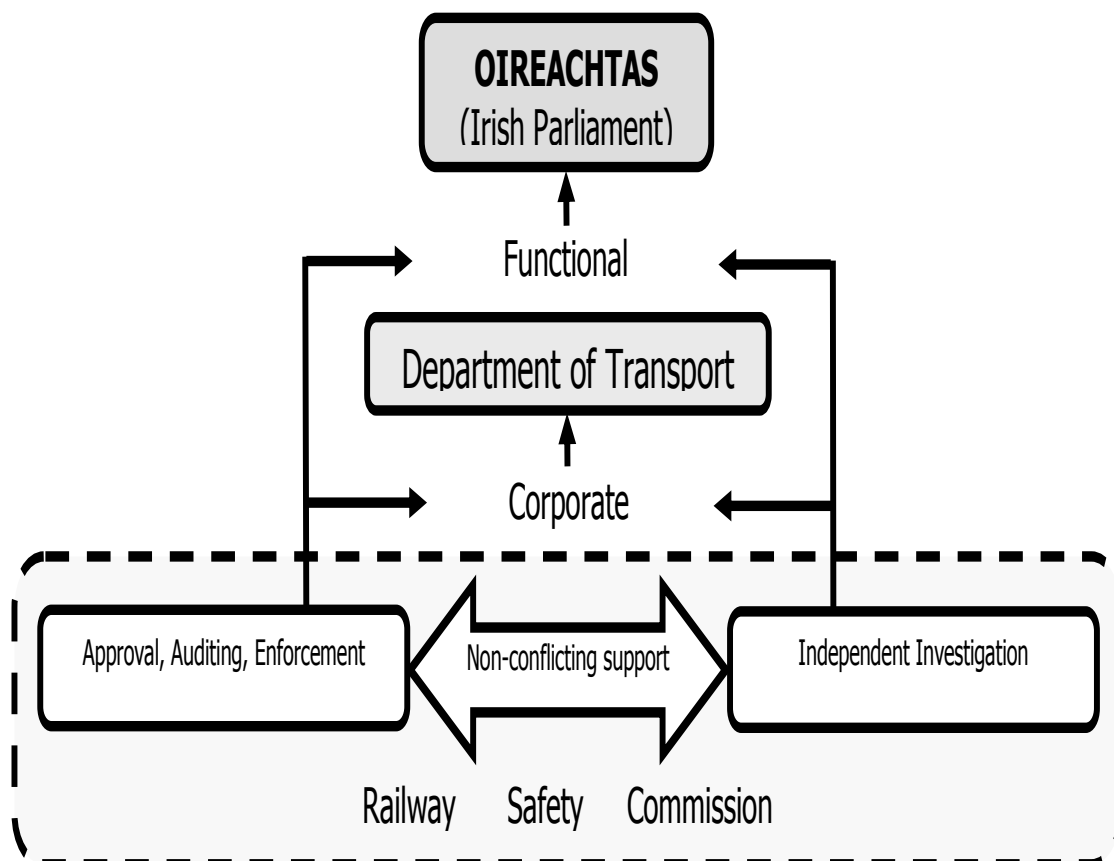


Figure 1: *Organisational Chart for the Railway Safety Commission*



## B.2. Chart: Relationship of NSA with other National Bodies



**Figure 2: flow & relationships between the Railway Safety Commission and other national bodies**

## ANNEX C: CSIs data – Definitions applied

### C.1. CSIs data

*Accidents, Fatalities and Injuries 2002-2006, by type and by category of people involved:*<sup>11</sup>

#### National Data on railway accidents

Country:	IRELAND	IRELAND	Years:	Five year average: 2002-2006
Train*kilometer/ year:		15131800		
Passengertrain*kilometer/year:		12832600		
Passenger*kilometer:		1.69E+09		

IRELAND	Average annual N° of Accidents	Passengers		Employees		Level Crossing users		Unauthorised Persons on railway premises		Others	
		Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries
Five year average: 2002-2006											
Collisions of trains, including collisions with obstacles within the clearance gauge.	0.40	-	0.2	-	-	-	-	-	-	-	-
Derailments of trains	0.40	-	0.2	-	-	-	-	-	-	-	-
Level-crossing accidents, including accidents involving pedestrians at level crossings	0.40	0.2	-	-	-	0.2	-	-	-	-	-
Accidents to persons caused by rolling stock in motion, with the exception of suicides.	1.40	0.2	0.4	-	0.6	-	-	-	0.2	-	-
Accidents to persons involving rolling stock in motion, where suicide may have been a factor.	9.80	-	-	-	-	-	1.8	7.2	0.8	-	-
Fires in rolling stock	-	-	-	-	-	-	-	-	-	-	-
Others	0.40	-	0.200	-	-	-	-	-	-	-	-

*Normalised Data for Accidents, Fatalities and Injuries 2002-2006, by type and by category of people involved:*<sup>12</sup>

IRELAND	Average annual N° of Accidents	Passengers		Passengers		Employees		Level Crossing		Unauthorised		Others	
		Fatalities/ BLN pass km	Serious Injuries/ BLN pass km	Fatalities/ MLN train km	Serious Injuries/ MLN train km	Fatalities/ MLN train km	Serious Injuries/ MLN train km	Fatalities/ MLN train km	Serious Injuries/ MLN train km	Fatalities/ MLN train km	Serious Injuries/ MLN train km	Fatalities/ MLN train km	Serious Injuries/ MLN train km
Five year average: 2002-2006													
Collisions of trains, including collisions with obstacles within the clearance gauge.	0.40	-	0.118	-	0.013	-	-	-	-	-	-	-	-
Derailments of trains	0.40	-	0.118	-	0.013	-	-	-	-	-	-	-	-
Level-crossing accidents, including accidents involving pedestrians at level crossings	0.40	0.118	-	0.013	-	-	-	0.013	-	-	-	-	-
Accidents to persons caused by rolling stock in motion, with the exception of suicides.	1.40	0.118	0.236	0.013	0.026	-	0.040	-	-	-	0.013	-	-
Accidents to persons involving rolling stock in motion, where suicide may have been a factor.	9.80	-	-	-	-	-	-	0.119	0.476	0.053	-	-	-
Fires in rolling stock	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	0.40	-	0.118	-	0.013	-	-	-	-	-	-	-	-

<sup>11 12</sup> Corrigendum to RSC 2006 Annual Report to ERA

*Accidents, Fatalities and Injuries in 2007, by type and by category of people involved:*

National Data on railway accidents

Country:	IRELAND	Year:	2007
Train*kilometer/ year:	16332000	Percentage of Track with ATP:	5%
Passengertrain*kilometer/year	16060000	Percentage of Train*km with ATP:	13.7%
Passenger*kilometer:	2.007E+09	N° of Level crossings:	1126
Track'-km in traffic	2164	Percentage of LC with Protection:	19.3%

	Total N° of Accidents	Passengers		Employees		Level Crossing users		Unauthorised Persons on railway		Others	
		Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries
Collisions of trains, including collisions with obstacles within the clearance gauge.	1										
Derailments of trains											
Level-crossing accidents, including accidents involving pedestrians at level crossings											
Accidents to persons caused by rolling stock in motion, with the exception of suicides.	3							2	1		
Suicides	4							4			
Fires in rolling stock											
Others	1							1			

*Normalised precursors to accidents*

**IRELAND**

	Number	Per MLN train-km
<b>2007</b>		
Broken rails	1	0.6
Track buckles	1	0.6
Wrong-side signal failures	1	0.6
Signals Passed at Danger (including shunting signals)	31	1.9
Broken wheels	0	0.00
Broken axles	0	0.00

## Safety Directive 2004/49/EC - Annex 1 CSIs

## 1. Indicators relating to accidents

## 1.1a. Total number of accidents and a break-down into the following types of accidents

## 1.1b. Relative to MLN train kilometres: number of accidents and a break-down into the following types of accidents

	Total number of all 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 rolling stock in motion, with the exception of suicides	Fires in rolling stock	Others
code of variable	N00	N01	N02	N03	N04	N05	N06
1.1a. Number of accidents	5	1	0	1	2	0	1

	N10	N11	N12	N13	N14	N15	N16
1.1b. "Relative" Number of accidents	3.05E-01	6.12E-02	0.00E+00	6.12E-02	1.22E-01	0.00E+00	6.12E-02

	Suicides
code of variable	N07
1.1a. Total number of suicides	4

	"Others"
code of variable	N17
1.1b. Relative to "Others" train kilometres number of suicides	2.45E-01

## 1.2a. Total number of persons seriously injured by type of accident divided into the following categories

## 1.2b. Relative to MLN train kilometres: total number of persons seriously injured by type of accident divided into the following categories

## 1.2c. Relative to BLN passenger kilometres: total number of persons seriously injured by type of accident divided into the following categories (for passengers only)

	Total number in all accidents	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving pedestrians at level crossings	In accidents to persons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	T000	T001	T002	T003	T004	T005	T006
1.2a. Total seriously injured	1	0	0	0	1	0	0

	Total number in all accidents	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving pedestrians at level crossings	In accidents to persons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	T010	T011	T012	T013	T014	T015	T016
1.2b. "Relative" Total seriously injured	6.12E-02	0.00E+00	0.00E+00	0.00E+00	6.12E-02	0.00E+00	0.00E+00

	Total number in all accidents	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving pedestrians at level crossings	In accidents to persons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	P000	P001	P002	P003	P004	P005	P006
1.2a. Passengers	0	0	0	0	0	0	0

	P010	P011	P012	P013	P014	P015	P016
1.2b. "Relative" Passengers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	P020	P021	P022	P023	P024	P025	P026
1.2c. "Relative" Passengers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	S000	S001	S002	S003	S004	S005	S006
1.2a. Employees including the staff of contractors	0	0	0	0	0	0	0

	S010	S011	S012	S013	S014	S015	S016
1.2b. "Relative" Employees including the staff of contractors	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	L000	L001	L002	L003	L004	L005	L006
1.2a. Level-crossing users	0	0	0	0	0	0	0

	L010	L011	L012	L013	L014	L015	L016
1.2b. "Relative" Level-crossing users	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	U000	U001	U002	U003	U004	U005	U006
1.2a. Unauthorized persons on railway premises	1	0	0	0	1	0	0

	U010	U011	U012	U013	U014	U015	U016
1.2b. "Relative" Unauthorized persons on railway premises	6.12E-02	0.00E+00	0.00E+00	0.00E+00	6.12E-02	0.00E+00	0.00E+00

	O000	O001	O002	O003	O004	O005	O006
1.2a. Others	0	0	0	0	0	0	0

	O010	O011	O012	O013	O014	O015	O016
1.2b. "Relative" Others	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**1.3a. Total number of persons killed by type of accident divided into the following categories**
**1.3b. Relative to MLN train kilometres: total number of persons killed by type of accident divided into the following categories**
**1.3c. Relative to BLN passenger kilometres: total number of persons killed by type of accident divided into the following categories (for passengers only)**

	Total number in all accident	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving pedestrians at level-crossings	In accidents to persons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	Tk00	Tk01	Tk02	Tk03	Tk04	Tk05	Tk06
1.2a. Total killed	3	0	0	1	1	0	1

	Total number in all accident	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving TKedestrians at level-crossings	In accidents to TKpersons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	Tk10	Tk11	Tk12	Tk13	Tk14	Tk15	Tk16
1.2b. "Relative" Total killed	1.84E-01	0.00E+00	0.00E+00	6.12E-02	6.12E-02	0.00E+00	6.12E-02

	Total number in all accident	In collisions of trains, including collisions with obstacles within the clearance gauge	In derailments of trains	In level-crossing accidents, including accidents involving pedestrians at level-crossings	In accidents to persons caused by rolling stock in motion, with the exception of suicides	In fires in rolling stock	In others
code of variable	Pk00	Pk01	Pk02	Pk03	Pk04	Pk05	Pk06
1.3a. Passengers	0	0	0	0	0	0	0

code of variable	Pk10	Pk11	Pk12	Pk13	Pk14	Pk15	Pk16
1.3b. "Relative" Passengers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

code of variable	Pk20	Pk21	Pk22	Pk23	Pk24	Pk25	Pk26
1.3c. "Relative" Passengers	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

code of variable	Sk00	Sk01	Sk02	Sk03	Sk04	Sk05	Sk06
1.3a. Employees including the staff of contractors	0	0	0	0	0	0	0

code of variable	Sk10	Sk11	Sk12	Sk13	Sk14	Sk15	Sk16
1.3b. "Relative" Employees including the staff of contractors	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

code of variable	Lk00	Lk01	Lk02	Lk03	Lk04	Lk05	Lk06
1.3a. Level-crossing users	1	0	0	1	0	0	0

code of variable	Lk10	Lk11	Lk12	Lk13	Lk14	Lk15	Lk16
1.3b. "Relative" Level-crossing users	6.12E-02	0.00E+00	0.00E+00	6.12E-02	0.00E+00	0.00E+00	0.00E+00

code of variable	Uk00	Uk01	Uk02	Uk03	Uk04	Uk05	Uk06
1.3a. Unauthorised persons on railway premises	1	0	0	0	1	0	0

code of variable	Uk10	Uk11	Uk12	Uk13	Uk14	Uk15	Uk16
1.3b. "Relative" Unauthorised persons on railway premises	6.12E-02	0.00E+00	0.00E+00	0.00E+00	6.12E-02	0.00E+00	0.00E+00

code of variable	Ok00	Ok01	Ok02	Ok03	Ok04	Ok05	Ok06
1.3a. Others	1	0	0	0	0	0	1

code of variable	Ok10	Ok11	Ok12	Ok13	Ok14	Ok15	Ok16
1.3a. "Relative" Others	6.12E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.12E-02

**2. Indicators relating to incidents and near-misses**
**2.1a. Total number of incidents and near-misses and a break-down into the following types**
**2.1b. Relative to MLN train kilometres: number of incidents and near-misses and a break-down into the following types of accidents**

	Total number of incidents and near-misses	Total number of broken rails	Total number of track buckles	Total number of wrong-side signalling failures	Total number of signals passed at danger	Total number of broken wheels on rolling stock in service	Total number of broken axles on rolling stock in service
code of variable	I00	I01	I02	I03	I04	I05	I06
2.1a. Number of accidents	34	1	1	1	31	0	0

code of variable	I10	I11	I12	I13	I14	I15	I16
2.1b. "Relative" Number of accidents	2.08E+00	6.12E-02	6.12E-02	6.12E-02	1.90E+00	0.00E+00	0.00E+00

### 3. Indicators relating to consequences of accidents

#### 3.1a. Total costs in euro of all accidents

#### 3.1b. Relative to MLN train kilometres: total costs in euro of all accidents

#### 3.2a. Total number of working hours of staff and contractors lost as a consequence of accidents

#### 3.2b. Relative to thousand number of hours worked: number of working hours of staff and contractors lost as a consequence of accidents

	Total costs of all accidents	Costs of deaths	Costs of injuries	Costs of replacement or repair of damaged rolling stock and railway installations	Costs of delays, disturbances and re-routing of traffic, including extra costs for staff and loss of future revenue
code of variable	C00	C01	C02	C03	C04
3.1a. Costs (in €)	0	0	0	0	0

code of variable	C10	C11	C12	C13	C14
3.1b. "Relative" Costs (in €)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	Total number of working hours of staff and contractors lost as a consequence of accidents
code of variable	W00
3.2a. Total number of working hours	0

code of variable	W10
3.2b. "Relative" Total number of working hours	#DIV/0!

Page 3

### 4. Indicators relating to technical safety of infrastructure and its implementation

	Percentage of tracks with Automatic Train Protection (ATP) in operation	Percentage of train kilometres using operational ATP systems	Total number of level crossings	Total number of level crossings per line kilometre	Percentage of level crossings with automatic or manual protection
code of variable	T01	T02	T03	T04	T05
4. Number	5.00%	13.70%	1126	5.20E-01	19.27%

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

Internal audits accomplished by infrastructure managers and railway undertakings as set out in the documentation of the safety management system.

	Total number of accomplished audits	Percentage of audits accomplished /required (and/or planned)
code of variable	A01	A02
5. Number	13	100.00%

### 6. Reference data

	Number of TrainKM	Number of Passkm	Number of line kilometers	Total number of working hours
code of variable	R01	R02	R03	R04
6. Number	16.332	2.007	2164	0

## *C.2. Definitions used in the annual report*

### *C.2.1. Definitions in Regulation 91/03 to be applied:*

#### ***deaths (killed person)***

any person killed immediately or dying within 30 days as a result of an injury accident, excluding suicides

#### ***injuries (seriously injured person)***

any person injured who was hospitalized for more than 24 hours as a result of an accident, excluding attempted suicides

#### **passenger-km**

the unit of measure representing the transport of one passenger by rail over a distance of one kilometre. Only the distance on the national territory of the reporting country shall be taken into account

#### ***rail passenger***

any person, excluding members of the train crew, who makes a trip by rail. For accident statistics, passengers trying to embark/disembark onto/from a moving train are included

#### **suicide**

an act to deliberately injure oneself resulting in death, as recorded and classified by the competent national authority

#### **significant accident**

any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic. Accidents in workshops, warehouses and depots are excluded

#### ***train***

one or more railway vehicles hauled by one or more locomotives or railcars, or one railcar traveling alone, running under a given number or specific designation from an initial fixed point to a terminal fixed point. A light engine, i.e. a locomotive traveling on its own, is not considered to be a train

#### **train-km**

the unit of measure representing the movement of a train over one kilometre. The distance used is the distance actually run, if available, otherwise the standard network distance between the origin and destination shall be used. Only the distance on the national territory of the reporting country shall be taken into account



### *C.2.2. National definitions*

#### **Significant damage**

Damage in excess of €150,000.

#### **Suspicious circumstances:**

Accidents with circumstances that would normally be investigated by the police, rather than the NIB.

### *C.3. Abbreviations*

ATP	Automatic Train Protection;
BLN	10 <sup>9</sup>
CSI	Common Safety Indicator
ERA	European Railway Agency
IÉ	Iarnród Éireann – Irish Rail
LC	Level Crossing
HSL	High Speed Line (Definition acc. Directive 96/48/EC);
LC	Level Crossing
MLN	10 <sup>6</sup>
NIB	National Investigating Body for railway accidents
NSA	Network Safety Authorities
RS	Rolling Stock
RSC	Railway Safety Commission
RU/IM	Railway Undertaking and Infrastructure Manager

## **ANNEX D: Important changes in legislation and regulation**

The Railway Safety Act 2005 (Part 8) (Appointed Day) Order 2007 (SI 232 of 2007) was made by the Minister for Transport on 11 May 2007. This order sets 11 May 2007 as the date on which Part 8 of the Railway Safety Act 2005 comes into effect, thereby establishing a body known as the Railway Safety Advisory Council, the general function of which is to consider issues relevant to railway safety and to make recommendations as appropriate, to the Minister for Transport or to the Railway Safety Commission (as National Safety Authority).

## ANNEX E: The development of safety certification and authorisation – Numerical Data

### *E.1. Safety Certificates according to Directive 2001/14/EC*

Number of Safety Certificates issued according to Directive 2001/14/EC, held by Railway Undertakings in year 2007 being licensed	in your Member State	1
	in another Member State	0