



The National Safety Authority for Railways in Ireland

## 2017 annual report to the European Union Agency for Railways

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## 1. Introduction

The Commission for Railway Regulation is pleased to submit its annual report for 2017. This is the final annual report under the Commission's current strategy 2015 – 2017.

### 1.1. Purpose, scope and addressees of this report

Article 18 of the Railway Safety Directive 2004/49/EC (the Directive) requires the CRR to publish an annual report by 30<sup>th</sup> September each year concerning its activities in the preceding year and to send it to the European Union Agency for Railways (ERA).

The annual 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;
- derogations decided in accordance with Article 14a(8) of the Directive.

To improve global railway safety, the ERA needs to understand how the EU railway system is functioning and any issues that are impacting on safety performance.

This annual report demonstrates how the Commission for Railway Regulation (CRR), as National Safety Authority (NSA) for railways in Ireland, is promoting the EU rail regulatory framework<sup>1</sup> while fulfilling its tasks under the Railway Safety Directive (EC) 2004/49 and preparing for the changes to be brought about by the incoming Railway Safety Directive (EU) 2016/798.

The geographic scope of this report is the 1600mm gauge national railway system in the Republic of Ireland.

The CRR endeavours to show how the railway system is performing, highlighting problems and good practices while leading the railway industry in Ireland on a safety improvement journey. This report aims to provide evidence of the CRR's ongoing efforts to improve safety performance in the State, communicate its main safety messages and objectives, show what it is doing and why, and explain how well it is succeeding.

This report offers some insight to the operational railway companies and applicants for safety certification and safety authorisation, including the railway undertakings (RU), the infrastructure manager (IM) and the entities in charge of maintenance of vehicles (ECM), which should help them to continually improve their safety management systems (SMS).

This report may also be of interest to the National Investigating Body (NIB) for railway occurrences and to the Department of Transport, Tourism and Sport.

### 1.2. Main conclusions on the reporting year

The incumbent Commissioner for Railway Regulation retired and a new Commissioner was appointed.

The CRR continued its monitoring role of the Infrastructure Manager Multi-Annual Contract and provided technical support to the Department of Transport Tourism and Sport (DTTAS) with particular emphasis on the implementation of the EU 4<sup>th</sup> Railway Package.

The CRR undertook a range of activities relating to conformity assessment, authorisation to place in service, supervision and enforcement. There was extensive engagement between CRR and the Iarnród Éireann RU and IM in relation to conformity assessment for their respective renewed safety certification and safety

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<sup>1</sup> (EU) 2016/798 - Art 16 (i) - NSA tasks include "monitoring, promoting, and, where appropriate, enforcing and updating the safety regulatory framework including the system of national rules"

authorisation, due in March 2018. Extensive supervisory functions including audit and inspection were planned and carried out on a risk basis. Formal enforcement after an audit or inspection was required in seven instances.

There was an increase of approximately 6% in passenger journeys and no increase in freight traffic on the national network. Four 'significant accidents' (as defined by the Directive) were reported, which is higher than recent years.

A process of review of the national primary legislation was commenced as a result of differences between road and railway law in regard to the testing of professional drivers for drugs and alcohol.

The CRR is a member of the International Railway Safety Council (IRSC) and the Commission agreed to host the International Railway Safety Council annual conference in October 2018. The theme for the Irish conference is "Organisational Culture that Values Safety".

## 2. Summary in English language

Please see section 1.2 of this report.

### 3. NSA organisation, safety strategy, programs & initiatives

#### 3.1. Organisation<sup>2</sup>

The incumbent Commissioner for Railway Regulation retired in August 2017. The new Commissioner took up his appointment in December 2017 with the Deputy Commissioner fulfilling the role in the interim. One inspector resigned and two were also appointed. The organisational structure of the CRR remained unchanged.

The CRR continued to receive the majority of its funding through the annual levy that the CRR places on the entities that are subject to regulation. The levy is allocated on the basis of the level of authorisation or supervision that each entity will be subject to in that year. The balance was received as Grant-in-Aid from the Department of Transport, Tourism and Sport.

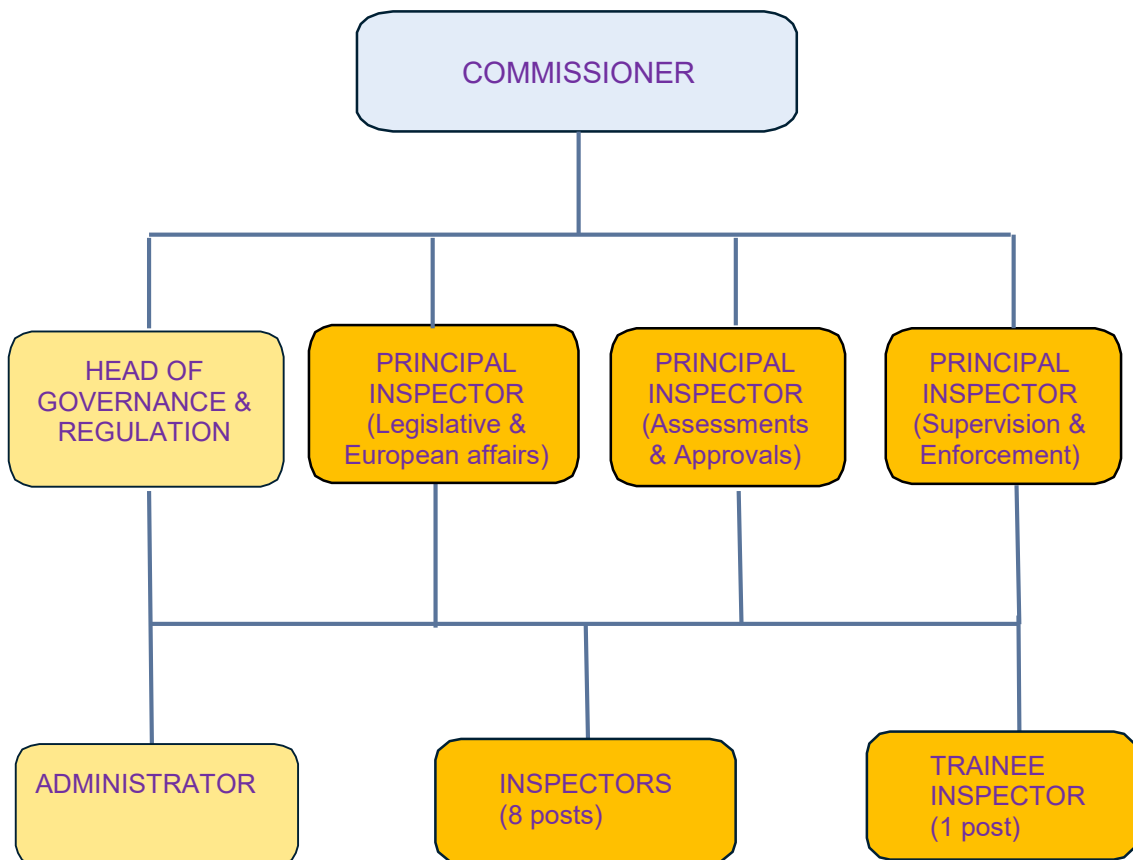


Figure 1 - Staffing of the CRR at end of year 2017

#### 3.2. Safety strategy, programs & initiatives

The objective of all CRR activities during 2017 was in accordance with its mission “To advance the safety of railways in Ireland through diligent supervision and enforcement.”

The following task areas indicated in the 2016 report were addressed by the CRR as it continued to deliver on its responsibilities under European and National legislation during 2017:

<sup>2</sup>Significant organisational changes may be internal (creation of new departments, different allocation of tasks amongst departments, etc.) or external, such as modifications in the institutional relationship with the Ministry of Transport or other public authorities (NIB, Regulatory Body, etc.). This information should only be reported if there are organisational changes compared to the previous year.



- Continuing co-operation with, and technical support to the DTTAS in the development of functions for economic regulation of the railway sector in compliance with Directive 2012/34/EU;
- Engagement with the EU and ERA in the development of EU legal instruments designed to facilitate implementation of the fourth railway package;
- Recruitment on a permanent basis of sufficient competent specialists to keep the CRR adequately resourced;
- Professional development of all CRR staff so as to help ensure that adequate railway-specific technical and legal knowledge and skills are available within the organisation;
- Continued engagement with the IÉ-RU function for the roll out of ECM certification to all passenger and locomotive fleets;
- Development of internal processes and procedures relating to the Quality Management System for the CRR.

## 4. National safety performance

### 4.1. Statistics and analysis of general trends of CSIs and national safety indicators

The Irish network accounts for a very small proportion of total EU railway traffic, with 18.75 million train-km (0.4% of EU) and 2,122 million passenger-km (0.4% of EU) recorded for year 2017. It is predominantly a passenger railway, with only 101.4 million freight tonne-km (0.03% of EU) recorded for year 2017.

It continues to have relatively low accident rates per million train-km. Although it is difficult to pick up significant trends in the CSI accidents as the dataset is very small, there has been an underlying decline in the five-year rolling average number of reported significant accidents. However, four significant accidents were recorded for year 2017, which is higher than recent years.

The overall picture of safety in the rail industry is a good one, with most indicators trending positively.

The Common Safety Indicators (CSIs)<sup>3</sup> for Ireland are available on the E-RAIL website. The following is an analysis of trends related to CSIs and national safety indicators:

#### 4.1.1. Number of fatalities/serious injuries (total and relative to train-km).

There were two fatal accidents to trespassers on the railway in 2017, one of a lady who accessed the railway at a gated user-worked level crossing and walked along the railway in pursuit of a pet dog, and one where a man was walking along a four-track section of railway. Seven other fatalities appear to have been due to an attempt at suicide.

The CRR has not received all verdicts of coroner's inquest into the fatalities occurring in 2017, so our classification is based on information received from the RU involved. If a coroner should advise the CRR of a verdict of 'misadventure' or of 'accidental death', the fatality would be officially regarded as accidental and the E-RAIL statistics will be updated as necessary.

Separate to the two fatalities, one trespasser was accidentally injured by rolling-stock in motion, and one further injury was apparently due to an attempt at suicide.

There were no passenger or employee fatalities or serious injuries in 2017 involving a train movement or train accident. The Irish network continues to have a satisfactory performance relative to other European national networks, although it is recognised that there is always scope for improvement.

#### 4.1.2. Number of significant accidents (total and relative to train-km).

In 2017, there were four significant accidents, including one derailment with extensive delays to trains but no injuries, and three accidents to trespassers resulting in two fatalities and one injury. The 5-year average rolling trend for significant accidents has been consistently positive since 2011, but the increase in 2017 is noteworthy.

#### 4.1.3. Number of precursors to accidents.

The number of precursor events in 2017 was mixed, with a decrease in the number of reported Signals Passed at Danger (SPADs) from 13 in 2016 to 9 in 2017. However, three of these SPADs passed the danger-point in 2017, compared with one in 2016.

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<sup>3</sup>CSIs as defined in Annex I and in Appendix to Annex I of Railway Safety Directive (EU) 2014/88.

Overall, there had been a long-term decline in the number of SPADs in the Irish network. This SPAD rate average was 0.7 SPADs per million train-km between 2013 and 2017. Although this baseline exceeds the average reported EU rate of 0.5 SPADs per million train-km, reports for the past four years indicate that about 15% of IE SPADs had passed the danger-point, compared with 36% of EU SPADs. This indicates that the frequency of more serious SPADs in Ireland is somewhat less than the EU average, and shows a relatively good detection and reporting rate for the less serious SPAD events.

In 2017, there was one significant mainline derailment and six low-risk derailments in sidings.

The IE-IM reported 114 injuries to passengers (including persons at the platform interface), which is equivalent to 54 injuries per billion passenger-km. IE-IM also recorded 321 injuries to customers and visitors to stations and premises. Most of these injuries tend to be of a minor nature and are usually treated by first-aid.

#### **4.1.4. Cost of significant accidents.**

There were four significant accidents on the Irish network in 2017, which is more than normal. The CSI estimated economic impact of significant accidents for 2017 was €8.5 million

#### **4.1.5. Technical safety of infrastructure and its implementation, management of safety.**

There has been no change in the percentage of tracks with Train Protection Systems (TPS) or Automatic Train Protection (ATP) over the past five years. A limited type of automatic train protection is available on 99 track-km (4.6%) of the Irish network: this DART-ATP system is now classified as a 'TPS with speed control', because the system requires driver intervention during operations and does not reach all ATP criteria.

A further 900 track-km (41.6%) of the network is equipped with a TPS called the Continuous Automatic Warning System (CAWS). However, the remaining 1,166 track-km (53.8%) of the network is not equipped with any form of TPS or ATP system.

The underlying number of railway level crossings on the active network has been relatively unchanged over the past four years. The number of level crossings at the end of 2017 stood at 982, compared with 972 at the end of 2016: this increase was due to inclusion of a number of level crossings in ongoing use at sidings that had previously been excluded. Continued investment in this area has been focussed on replacement of manually-worked gates with remotely-worked full-barriers at rail-side protected level crossings.

Regarding the EU CSIs relating to the management of safety, the RUs and IM normally achieve the safety audit targets which they set out for themselves. For example, both IÉ-IM and IÉ-RU completed 19 audits each in 2017.

## **4.2. Impact of accidents**

Similar to preceding years, the year 2017 was generally positive in terms of train accidents and there were no passenger or rail-worker fatalities. However, there was one significant train accident, albeit with no serious injury, where a suburban passenger train derailed at low speed at facing points which had been ineffectively secured by a member of RU station staff when performing a delegated IM task. There was severe disruption and passenger trains were delayed by a cumulative time of 30 hours as a result of this accident. Issues of communication, staff training and competence were identified by the RAIU in its investigation of the accident, and seven safety recommendations were made in its recently published report.

Two people were accidentally struck and killed by trains in motion. One accident occurred near a user-worked level crossing to a lady pursuing a dog that had strayed onto the line, and the second accident occurred to a trespasser walking along a four-tracked section of line. In addition, two other trespassers were seriously injured in separate accidents when struck by trains.

## **4.3. Interventions and their effects**

The Irish national CSI data for 2017 may be found on the ERAIL system.

Ireland has a small network with relatively few accidents, so one must generally look back more than five years to identify trends. A number of national performance indicators for the years 2003-2017 are shown in Appendix 4 of the CRR's published annual report for 2017, and further information appears in the CRR's annual statistical report entitled 'Railway Safety Performance in Ireland'.

National indicators are reviewed below in regard to train collisions, signals passed at danger, train derailments, bridge strikes and trespass.

In regard to **collisions**, there was a sharp decline in train collisions with the gates of a level crossing since 2010, due to the ongoing programme of replacement of manually worked gates with remotely worked full-barriers. A notable decline in collisions with large animals coincides with improved fencing and farm level crossings, although the presence of wild deer on the line is prevalent and accounts for three-quarters of all animal strikes.

In regard to **SPADs**, there has been a continual decline since 2003. Although the general reduction in 2017 coincides with an initiative involving a driver's reminder device, there was an increase in significant SPADs in 2017.

In regard to **derailments** affecting running lines and derailments in sidings, a marked decline coincided with the dramatic loss of freight traffic in 2006.

The trend in railway **bridge strikes** by road vehicles is a national safety indicator. Over the past 5 years, bridge strikes appear to have plateaued against a backdrop of rising road vehicle traffic. The total in 2017 was 84, compared to 93 in 2016. Even though economic activity has returned to the level experienced in 2005, the under-bridge strike rate in 2017 was 65% less than in 2005. This indicates success in the avoidance of such accidents through infrastructure improvements (e.g., bridge elevation and town bypasses), traffic-diversion (e.g., embargo on HGVs in Dublin city centre) and better communication interventions (e.g., advance-warning signage) brought about with the effective cooperation of the IM, CRR, Garda, Road Safety Authority, road authorities and road hauliers.

The number of fatal injuries to persons involving rolling-stock in motion on railway or level crossing where **trespass or suspicious death** was indicated increased from 5 in 2016 to 7 in 2017.

The CRR looked at the suicide issue, and encouraged IÉ-RU, the State railway undertaking, to address this matter by identifying locations at potential risk. IÉ-RU works closely with organisations such as the Samaritans and awareness and outreach campaigns are run from time to time.

## **5. Certifications and authorisations**

### **5.1. Number of certifications and authorisations**

There were no certifications or authorisations issued during 2017.

### **5.2. Discussions of supervision outcomes with other NSAs**

See section 6.4 of this report.

### **5.3. Changes to certification and authorisation strategy and procedure**

There were no changes to certification and authorisation strategy and procedure during 2017.

### **5.4. Regular exchange of information between the NSA and RUs and IM**

There was extensive engagement between CRR and the Iarnród Éireann RU and IM in relation to conformity assessment for their respective renewed safety certification and safety authorisation, due in March 2018.

## 6. Supervision

### 6.1. Changes to the supervision strategy, procedure and team

In 2017, the CRR Supervision Team comprised of four full-time equivalent inspectors lead by a Principal Inspector. Although one member of the CRR Supervision Team resigned in mid-2017, two new inspectors were appointed soon afterwards. The two new inspectors brought in expertise in human factors and further competence in the field of structural engineering.

The CRR's supervision strategy of 'firm-but-fair' regulation remained unchanged and had the principal goals of:

- Satisfying the CRR that Railway Organisations (RUs and IMs) are implementing their approved SMSs;
- Providing assurance that Railway Organisations are actively managing risks, and
- Meeting the requirements of Commission Regulation (EC) No 1077(2012) CSM on Supervision.

### 6.2. Supervision plan

The following outlines progress of the CRR supervision plan in 2017 in accordance with the common safety method for supervision by national safety authorities<sup>4</sup>.

The primary aim of CRR is to supervise the continued application of each RU and IM safety management system, while fostering and encouraging railway safety at all levels within each organisation. The CRR have an overarching **supervision programme** that comprises of **supervision plans** for each RU and IM operating in the State, which serve to formally arrange the CRR's supervisory activities.

Within each supervision plan, the **supervision activities** include audit, inspection and meetings with senior managers from the various railway organisations. These supervision activities produce constructive outcomes including actions to address identified non-compliances and areas where preventative action is necessary.

The CRR have supervision plans for the following railway organisations:

- Iarnród Éireann (IÉ-IM) – Infrastructure Manager
- Iarnród Éireann (IÉ-RU) – Railway Undertaking
- Balfour Beatty Rail Ireland (BBRI)– Railway Undertaking
- Railway Preservation Society of Ireland (RPSI)– Railway Undertaking
- Northern Ireland Railways (Translink) – Railway Undertaking (Part B only).

#### 6.2.1. *Global risk to the railway system in the Member State*

The CRR's supervision of Railway Organisations is risk-based. Risk is the product of the frequency of occurrence of accidents and incidents resulting in harm (caused by a hazard) and the degree of severity of that harm.

The CRR classifies each Railway Organisation as posing either a 'priority 1, 2, 3 or 4 level of risk', and the level of risk determines the supervision regime. The risk prioritisation categories are:

Risk Prioritisation Categories	
Priority 4	Negligible risk
Priority 3	Low risk
Priority 2	Medium risk
Priority 1	High risk

The CRR targets more resources to those Railway Organisations that have:

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<sup>4</sup> Regulation (EU) No 1077/2012, Art 3

- high level of **exposure** to risk by virtue of the distance they travel in train-km per annum;
- **safety performance** level that suggests risks are not well-managed, or a
- history of **dangerous occurrences** such as railway accidents and incidents.

The CRR supervision plans take into account proportional factors such as the size and complexity of the railway organisation, and their previous safety performance. In short, the railway organisation more exposed to risk should expect more supervision.

For each RU and IM operating in the State, the key areas of risk associated with their specific operation were considered. These include **organisational management, asset management, railway operations** and **workplace safety**.

#### *6.2.1.1. Organisational Management*

Underlying areas of interest to the CRR include staff and management competence, compliance with safety requirements, safety-critical communications and the organisational safety culture.

#### *6.2.1.2. Asset Management*

Railway Infrastructure such as level crossings remain a key area of risk to train operations, specifically at the passive user-worked level crossings where there is a reliance on the third party user to use the level crossing correctly.

Rolling-stock maintenance and the management of change specific to some fleets were also a cause for concern in 2017, given that there appeared to be a trend in relation to wrong-side door failures on a particular fleet.

#### *6.2.1.3. Railway Operations*

The railway system has many interfaces and key areas of risk include the platform-train interface and level crossings. The incidence of train over-speeding was an area of risk identified in late 2016 that was fed into the 2017 plan.

#### *6.2.1.4. Workplace Safety*

While matters of workplace health and safety are enforced by the Health and Safety Authority, worker safety is also considered by CRR inspectors whilst undertaking audits and inspections. The areas of infrastructure possession management and the control of road-rail vehicles operating on or near the line were specifically considered in 2017.

### *6.2.2. How the supervision strategy addresses the global risk*

Supervision activities, including audits, inspections and meetings, were added to the particular supervision plan for each RU & IM to target those areas identified as posing risk to the safety of passengers, staff and third parties.

#### *6.2.2.1. Organisational Management*

In terms of organisational management, including **competence, compliance, communication**, management of **change**, and safety **culture**, the following supervision activities were performed:

- An inspection of Irish Rail's management of change, relating to key safety positions within the company;
- An inspection of the training and competence management of persons undertaking operations duties, including shunting.

#### 6.2.2.2. *Asset Management*

In the area of asset management, a number of stations, bridges and level crossing were inspected in 2017 and checked using fitness-for-purpose criteria. Additionally, inspectors travelled in the cabs of trains to observe driver behaviour and assess the asset condition from the driver and passenger's perspective. As required, inspectors would identify findings that often led to actionable outcomes for the respective railway organisation to address.

#### 6.2.2.3. *Railway Operations*

In the area of railway operations, the booking-on of drivers was inspected at one location. Fitness-for-duty is an important aspect of these checks and driver managers were questioned on how they undertake this activity. Station inspections considered the platform-train interface, the platform condition, access/egress etc. Train over-speed occurrences and measures taken to reduce them were discussed at quarterly meetings held with executives from the principal RU.

#### 6.2.2.4. *Workplace Safety*

With regard to workplace safety, when visiting engineering possessions (infrastructure maintenance work-sites), the quality and content of safety briefings was often observed, and safety control measures in place to manage the work activities were reviewed. Safe systems of work were also checked whilst undertaking an inspection of a rolling-stock maintenance facility. An audit of operational shunting activities focusing on training and competence.

### 6.2.3. *Analysis*

This analysis links the decisions taken on the areas to focus on with an analysis of the risk and the expected benefits from the supervision activity.

#### 6.2.3.1. *Organisational management*

The CRR's inspection of Irish Rail's decision to appoint persons with limited safety experience to senior safety positions on a temporary basis was rigorously reviewed. The CRR wished to check that the organisational change has been managed in accordance with their approved safety management system. Moreover the inspection sought to assure the CRR that risks associated with the change has been identified and suitable mitigated. The CRR were satisfied that suitable arrangements were in place or where implemented to alleviate our initial concerns.

#### 6.2.3.2. *Asset management*

With regard to asset management, CRR inspectors undertook the following inspections in 2017:

- 13 stations
- 10 railway bridges
- 20 cab-rides
- 5 level crossings (ground level), more were observed whilst undertaking cab-rides.

Additionally, a rolling-stock maintenance facility, a signal cabin and a number of earthworks structures (cuttings, embankments and rock-faces) were inspected.

In all cases, inspectors are checking fitness for purpose criteria and bring any deficiencies to the attention of the infrastructure manager or railway undertaking as appropriate. No significant findings were identified suggesting that the railway organisation's own inspection and maintenance regimes were being implemented.



#### 6.2.3.3. *Railway operations*

Regarding railway operations, the booking-on of drivers was inspected at one location in 2017. Fitness-for-duty is an important aspect of these checks and the drivers' manager at this location was questioned on how they undertake this activity. The convenience of late-notice safety information, e.g., emergency speed-restrictions was also checked and found to be in order. Some information was noted to be somewhat out-of-date and all findings were reported to the RU safety department for their attention and action as necessary.

Whilst undertaking station inspections, inspectors consider the platform-train interface, the platform condition, access and egress, etc. Line markings and platform condition were satisfactory in the majority of cases. Any instances where improvements could be made were reported to the appropriate department.

In 2015-16 the issue of train over-speed occurrences came to light so, in 2017, the principal RU was required to report the incidence of such occurrences to the CRR at the scheduled quarterly meetings. A total of 17 over-speed occurrences were reported in 2017. Of these, four were of serious concern given that the recorded speed was more than double the permitted speed. These events were discussed in more detail with the RU and actions taken by the RU were ascertained.

#### 6.2.3.4. *Workplace safety*

Although workplace safety is enforced by the Health and Safety Authority, CRR inspectors will consider workplace safety as a factor when performing inspections.

In 2017, CRR inspectors arrived unannounced at a small number of engineering possessions where site-safety briefings and safe systems of work were observed and checked.

Similarly, safe systems of work were checked during an inspection of a rolling-stock maintenance facility. Task risk-assessments were checked and mainly found to be of reasonable quality. Minor deficiencies were noted and reported to RU management for action.

An audit of shunting activities focussed on training and competence, including communication with drivers.

#### 6.2.4. Changes to the supervision plan during the year

Some changes to supervision plans was necessary in 2017, e.g. –

- Due to the resignation of an inspector mid-year and the resulting delay of an audit, external consultants were engaged to undertake an operations audit of IÉ-RU;
- Due to the addition of a task to the supervision plan for IÉ-IM to review the procurement of safety critical components in the Chief Civil Engineer's department following concerns about quality and traceability;
- Due to the addition of a task to the supervision plan for IÉ-RU to review the procurement of safety critical components in the Chief Mechanical Engineer's department following concerns about quality and traceability.

##### 6.2.4.1. *Occurrences*

It should be noted that due to CRR inspectors following up on railway occurrences (accidents & incidents) not all planned activities could be undertaken. There will always be a variable proportion of time spent undertaking post-accident and post-incident inspections.

##### 6.2.4.2. *Complaints*

Similarly, the CRR must review and act upon, as necessary, public and railway staff complaints. This is also an unforeseeable quantum which could impact on planned supervision activity.

As in 2016, the CRR received 52 complaints in 2017, of which 49 related either to IÉ-IM or to IÉ-RU, with the other three being of a general, legislative or network nature.

### 6.3. Supervision results

#### 6.3.1. Success of the SMS in controlling the risk in the Member State?

Year 2017 saw continued recovery in passenger traffic on the national network, with 45.5 million passenger journeys made: this represented an increase of approximately 6% on year 2016 and a return to the peak levels seen back in 2006-2008. That said, the safety performances of the RUs and IM were positive with no passenger or worker serious injuries or fatalities. The following key safety performance indicators illustrate the overall performance and likely success of the SMS in controlling risk in the Member State.

- 3 train collisions with a road vehicle at a level crossing;
- 3 trains in collision with a railway vehicle at a station or in an engineering possession;
- 1 low speed passenger train derailment and six derailments in sidings (including two by the maintenance contractor);
- 9 signals passed at danger (including one by the maintenance contractor).

All the above with the exception of SPADs were broadly in line with previous years. SPADs decreased to a six-year low. Actions to reduce SPADs included the installation of a Driver Reminder Appliance to mitigate the risk of Start-Against-Signal SPADs.

##### 6.3.1.1. Audits

In terms of supervision results, the following tables present the CRR's audit and inspection activity for 2017.

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
BBRI	Annex II Criterion S Audit Report	0	0	5
Iarnród Éireann-IM	Management of Track	0	1	11
Iarnród Éireann-RU	Vertical Slice audit of the Operations Department Safety Management System	0	1	5
Iarnród Éireann-IM	Vertical Slice audit of the Infrastructure Manager Operations (IMO) Safety Management System	0	4	6

Table 1 - CRR Audits initiated in 2016 and finalised in 2017

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
Iarnród Éireann-IM	Audit of the procurement of Safety Critical Components	0	2	4
BBRI	Strategic Management Review & HRO Comparison	0	4	4

Table 2 - CRR Audits initiated and finalised in 2017

The CRR's 2017 audits identified some non-compliances with SMS requirements and associated conformity assessment criteria, including –

- Inspection of adjustment (expansion) switches (Non-compliance to Regulation (EU) 1169/2010, Annex II, A2.)
- Procedures to verify the competence of contractors/subcontractors and suppliers (Non-compliance to Regulation (EU) 1169/2010, Annex II, C1.)

- Procedures when working with other entities on issues of shared interfaces likely to affect risk control measures (Non-compliance to Regulation (EU) 1169/2010, Annex II, A4.)
- Procedures for agreed documentation and communication with the relevant entities including the identification of roles and responsibilities of each participating organisation and the specifications for information exchanges (Non-compliance to Regulation (EU) 1169/2010, Annex II, A5.)
- Persons undertaking safety-critical tasks not consistently aware that their role was 'safety critical' (Non-compliance to Regulation (EU) 1169/2010, Annex II, G1.)

When CRR inspectors (auditors) identify findings they make **outcomes** in accordance with our published guidelines (RSC-G-023). Outcomes categorised as either a **non-compliance** or an **action required** are tracked by the CRR for implementation. CRR Inspectors routinely meet with railway organisation personnel in 2017 to collect and review evidence of action taken. There is a backlog of outcomes that the CRR will tackle in 2018.

#### 6.3.1.2. *Inspections*

Inspections of a railway organisations assets and its operations is also used as part of the CRR's compliance supervision activities. In 2017, the CRR undertook a total of 79 Inspections which focused on:

- Railway assets with particular reference to rolling stock, stations, level crossings, bridges and other structures;
- Iarnród Éireann's management of change;
- Event management (Railway Preservation Society of Ireland).

CRR inspectors also took the opportunity to travel in IÉ-RU's locomotive and railcar cabs to assess the operations and the condition of the permanent way, with 20 such assessments take place in 2017.

All outcomes arising from these inspections are being progressed by the railway organisation concerned, and the CRR is monitoring remediation of all safety critical issues.

#### 6.3.2. *How issues are being addressed?*

National legislation provides CRR inspectors with enforcement powers ranging from a request for an Improvement Plan, to serving an Improvement Notice or Prohibition Notice. The CRR may if necessary revoke a Safety Authorisation or Safety Certificate and the affected railway organisation may appeal to the High Court. The CRR aims to apply the principle of proportionality by responding to any failing of a railway organisation using the appropriate powers.

In 2017, the following enforcement measures were initiated by the CRR:

##### Section 76 of the RSA 2005 – Improvement Plan

2 Improvement Plans were requested following audits:

- CRR Audit of BBRI's Strategic Management
- CRR Audit of the Chief Civil Engineer's department's (Iarnród Éireann) procurement of Safety Critical Components

5 Improvement Plans were requested following inspections:

- CRR Inspection of IÉ-IM's management of scour susceptible bridges;
- CRR Inspection of IÉ-RU's internal monitoring of the carriage of dangerous goods;
- CRR Inspection of IÉ-IM's management of scour susceptible bridges;
- CRR Inspection of IÉ-IM's management of competence of Persons Required to Conduct IM Operating Duties;
- CRR Inspection of IÉ-RU's Drogheda Train Maintenance Depot.

##### Section 77 of the RSA 2005 – Improvement Notice.

1 extension to an existing Improvement Notice was served following:

- Extension of time granted to Improvement Notice served on Iarnród Éireann, in 2016, relating to its Drugs and Alcohol policy.

#### Section 78 of the RSA 2005 - Prohibition Notice

- No Prohibition Notices were served in 2017.

#### 6.3.3. How results compare with the expected planned outcome?

The CRR's supervision activities conducted in 2017 broadly align with that of previous years. A slightly lower number of supervision activities were conducted in 2017 compared to 2016. This was partly due to one member of staff leaving the CRR mid-way through 2017 and the recruitment of a replacement taking slightly longer than expected. Nonetheless, a total of 94 supervision activities were undertaken in 2017, i.e.:

- 5 SMS audits
- 73 Inspections of assets and operations
- 16 Post Accident/Incident Inspections

The CRR Supervision team also assigned more time to follow up on outstanding recommendations (outcomes) and good progress was made here.

#### **6.4. Discussions of supervision results with other NSAs**

No formal cross-border meetings were held with either the Northern Ireland Department for Infrastructure (DfI) or the GB Office of Rail & Road in 2017 regarding supervision activities.

However, correspondence was exchanged between the CRR and DfI-NI regarding the CRR's annual supervision programme for the year and proposed supervision activities on Northern Ireland Railways (Translink).

#### **6.5. Dialogue with the operational companies**

CRR supervising inspectors meet quarterly with executives from the principal railway companies. There is a standing agenda for these meetings, and their safety performance is discussed. Leading and lagging safety indicators are presented by the railway companies.

CRR inspectors also engage with heads of department, safety managers and such from these railway organisations regarding supervision activities that are completed, are in progress or are being planned.

A number of particular issues/topics were discussed in year 2017 with the State railway (RU and IM) and these included:

- The legal compliance of their **drugs and alcohol** policy
- Secondments to **Safety Manager positions**
- **Organisational change**

##### 6.5.1. Drugs and alcohol

The CRR were contacted by an employee of the State Railway Undertaking regarding the legality of the company's drugs and alcohol policy. The CRR commenced a review of and determined that the company's policy was non-compliant with national law. The CRR engaged directly with the company on this matter to seek a resolution.

##### 6.5.2. Safety Manager positions

The CRR were advised by the CEO of the State railway company of an organisational change involving secondment of personnel into the Head of Health & Safety position in the RU and IM on an interim basis. The CRR had reservations about the duration and competence and support mechanisms in place to enable such a

change and requested that the changes be risk assessed. The proposed duration of the secondments also concerned the CRR and these issues were brought to company management's attention.

#### 6.5.3. Organisational change

State railway organisations must change and adapt to meet the various challenges they face, be that delivering enhanced services or managing costs. The CRR realises that railway companies will always be exposed to some degree of organisational change. In 2017 there were a number of executive level changes together with changes to safety departments that were of interest to the CRR. Consequently, the CRR engaged with the State railway companies to assure itself that changes were being assessed and reviewed internally.

### 6.6. NSA check of application and effectiveness of all processes and procedures in the management system

#### 6.6.1. Scope

The following is the NSA report on the application of the 'CSM Monitoring' Regulation (EU) 1078/2012 by the railway undertakings, infrastructure managers, and as appropriate, by the entities in charge of maintenance in accordance with Article 18 of the Directive<sup>5</sup>.

The CRR does not have sufficient resources to check all processes and procedures are being applied by RUs and IMs. Its supervision plans therefore target areas of identified risk.

CRR inspectors meet periodically with senior managers from the RUs and IMs to hear what internal monitoring and auditing they are doing to check the application and effectiveness of processes and procedures in their management system.

The CRR promotes the concept of continuous improvement and 'moving beyond compliance' so that railway organisations actively check to ensure that internal processes and procedures are delivering expected results.

#### 6.6.2. CSM-Monitoring

##### 6.6.2.1. *RU & IM internal checks*

The following describes the checks performed by RUs and IMs on the correct application and the effectiveness of the processes and procedures in their management systems, including the technical, operational and organisational risk control measures<sup>6</sup>.

The CRR can confirm that the internal monitoring regimes of the principal RU and IM are active. Monitoring activities include accident investigations, competency assessments, safety assurance checks and Rule Book compliance checks, safety tours, safety review workshops, Safety Steering Group meetings and Safety Review Group meetings.

##### 6.6.2.2. *RU & IM accident investigations*

The following describes in particular how the RUs and IMs investigate accidents, in accordance with their SMS procedures to ensure that accidents, incidents, near misses and other dangerous occurrences are reported, investigated and analysed and the necessary preventative measures are taken<sup>7</sup>.

CRR inspectors meet quarterly with Investigation Managers from the principal RU and IM to review their progress in terms of incident and accident investigation. Both the RU and IM have at least 2 full-time Investigators which is commensurate to the size and activity of the Irish railway network.

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<sup>5</sup> Regulation (EU) 1078/2012, Art 5(2)

<sup>6</sup> Regulation (EU) 1078/2012, Art 1(2)(a).

<sup>7</sup> Directive (EU) 2004/49, Annex III para 2(h)

Both railway organisations occasionally have investigations that have not been concluded within 6 months of the occurrence (a legal requirement under national railway legislation). In 2017, the IÉ-IM investigations unit made good progress in closing overdue investigations and this will be reviewed by the CRR attention in 2018.

Accident investigators received appropriate training and are typically individuals with considerable railway experience.

Improved internal monitoring systems are in place within the railway organisations to track the implementation of recommendations. By early 2017, a new Accident Incident Management Systems (AIMS) was implemented across the Irish Rail business units and this is a good tool for the recording of actions taken and demonstrating the effective management of recommendations.

#### *6.6.2.3. RU & IM root-cause analysis*

The following indicates the extent to which RU and IM investigations seek to identify the root-causes relating to the regulatory framework conditions and application of the safety management system.<sup>8</sup>

The CRR confirms that final investigation reports are routinely supplied by the RU and IM to the CRR for review. These reports typically contain an executive summary, the sequence of events surrounding the accident/incidents, a summary of evidence, analysis, conclusions and recommendations and they are well presented.

Railway organisations are continuously improving their investigation report-writing and always seek to identify the immediate cause, casual factors and underlying factors, and the root-cause is stated where possible.

Most reports are of a high standard with 'SMART' recommendations linked to underlying causes and associated factors. Reports tend to challenge the implementation and effectiveness of the SMS and recommendations are regularly made to address SMS weaknesses.

The IM, in 2017, also started to carry out basic trend-analysis which is encouraging, and should be useful for targeting internal monitoring activity.

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<sup>8</sup> Directive (EU) 2004/49, Annex V para 4(3)

## 7. Implementing of major EU projects

### 7.1. The implementing of major EU projects,

#### 7.1.1. The fourth railway package

The CRR continued to represent the State at meetings of the Railway Interoperability and Safety Committee and at the expert group on the fourth railway package. It actively participated at the conference on the Single European Railway Area held in Amsterdam in June 2017.

#### 7.1.2. CSM-RA

The requirements for application of the CSM REA are embedded in the safety management systems of both the RU and the IM. The projects where the CSM REA was applied included:

Five projects where there was a significant technical change affecting vehicles, i.e. -

- i) The weed spray module on a multi-purpose vehicle,
- ii) A new track recording vehicle,
- iii) Enterprise carriage refurbishment project,
- iv) The Grand Hibernian project, and
- v) 8100 Driver's safety device bypass.

Five projects where there was a significant change concerning structural subsystems, i.e. -

- i) Dublin City Centre re-signalling Phase 1,
- ii) Dublin City Centre re-signalling Phases 3 & 4,
- iii) GSM-R system,
- iv) Limerick station re-signalling, and
- v) Kilkenny station re-signalling.

#### 7.1.3. CSM Monitoring

Please see section 6.6.2 of this report.

#### 7.1.4. Other aspects

Nothing to report.

### 7.2. Status on the implementation process

The main railway undertaking and infrastructure manager have shown an interest in progressively improving their organisational safety culture, see section 9 of this report.

### 7.3. Outcome of previous safety initiatives

Please see section 4.3 of this report.

## **8. EU legislation and regulation relating to the Railway Safety Directive**

### **8.1. Changes in legislation and regulation**

There were no changes in national legislation in the year 2017 in regard to railway safety. However, a review of the primary legislation (the Railway Safety Act 2005) was commenced, as a result of difficulties encountered in applying the law in regard to testing of railway staff for drugs and alcohol.

### **8.2. Review of the operating companies' use of new EU legislation and regulation**

This review includes rolling stock, infrastructure, training and personal aspects, including any derogations decided for ECMs in accordance with Article 14a of the Directive as amended by Directive 2008/110/EC (eventually to be replaced by Article 15 of Directive 2016/798/EU).

There were no derogations in year 2017 to the ECM certification scheme, decided in accordance with Article 14a(8).

IE-RU obtained its original ECM certification from CRR for its rail freight fleet: in 2017, it renewed this certification using an ECM certification body based in a non-EU State.



## 9. Safety Culture

This section describes any initiatives being undertaken in the CRR, or which CRR has seen in the railway sector, which contribute to the development of a positive safety culture.

In 2017, the CRR actively encouraged the various RUs and the IM to participate in the railway safety culture initiative. In particular, the Irish railway industry, in association with the railway regulatory authorities of Northern Ireland (UK) and the Irish Republic, agreed to host the 2018 International Railway Safety Council (IRSC) conference, the theme of which is “Organisational Culture that Values Safety”. This was formalised at the 2017 IRSC conference in Hong Kong.

## 10. Theme chapter

This optional section outlines the work and results of one or more focus areas of the NSA (e.g. level-crossing safety initiatives, worker safety, and initiatives taken to reduce deaths and serious injuries to unauthorised users).

Please see section 9 of this report.