

# 2007

## Annual report to the European Rail Agency from the National Investigation Body (Ireland)



D. Murton, Chief investigator

Rail Accident Investigation Unit (Ireland)

1/1/2006

# 2007 Annual Report to European Railway Agency

## Table of Contents

SUMMARY.....	3
INTRODUCTION.....	3
ORGANISATION.....	4
INVESTIGATIONS CARRIED OUT IN 2007 .....	6
Summary of accident .....	6
UPDATE ON PROGRESS OF RECOMMENDATIONS.....	7
Summary of accident and recommendation tracking .....	7

## SUMMARY

This report reflects the position and activities of the Investigation Unit in 2007 following the introduction of the Railway Safety Act 2005, the initial formation of the Investigation Unit, and the relationship between the Railway Safety Commission and the Investigation Unit.

This report specifically covers the process of investigation of accidents on the interoperable Irish railway network. This network has a track gauge of 1602mm. It is interoperable with the railway system in Northern Ireland, which falls under the jurisdiction of the United Kingdom.

The final section reviews accident recommendations.

## INTRODUCTION

On the 30<sup>th</sup> April 2006 a temporary Chief Investigator was appointed by the Railway Safety Commission to meet its legal obligation, and allow the initial formation of the Investigation Unit. A recruitment process was put in place to fill the position on a permanent basis and the permanent post was filled in April 2007. The temporary Chief Investigator had no permanent staff, and sourced assistance from the Inspectors within the RSC, this was done under the provisions of S57 (5) of the Railway Safety Act 2005.

The process and procedures of the investigations units are currently being developed as is their resource strategy; it is unlikely these will be finalised and in place until late 2008.

The Railway Safety Act 2005 sets out the purpose and approach of the investigations of the Investigation Unit.

*58.—(1) The purpose of an investigation by the Investigation Unit under this section shall be to improve railway safety by establishing, in so far as possible, the cause or causes of an incident with a view to making recommendations for the avoidance of incidents in the future, or otherwise for the improvement of railway safety.*

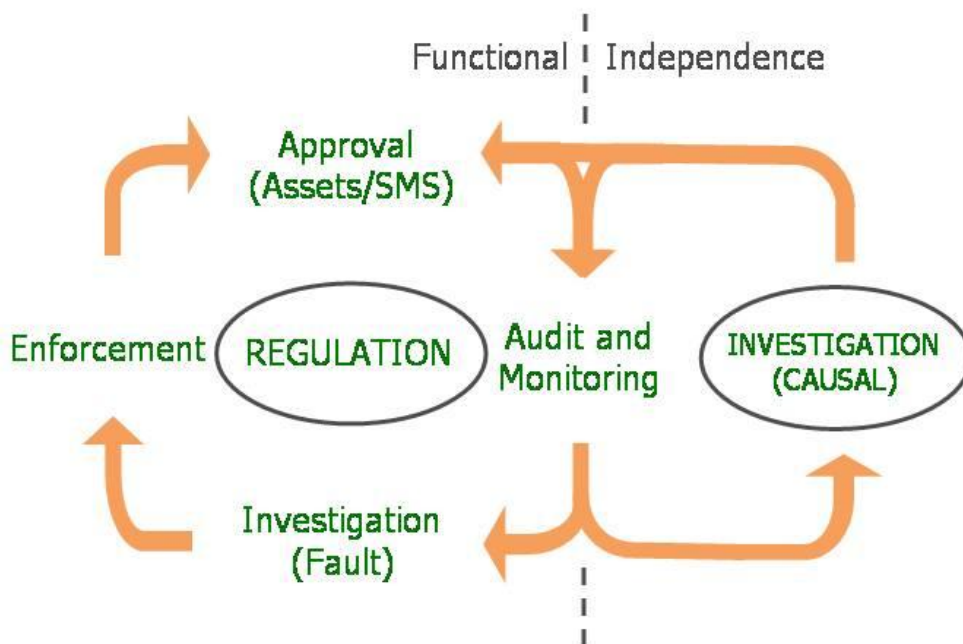
*(2) It shall not be the purpose of an investigation to attribute blame or liability.*

In 2007, one formal investigation was carried out.

## ORGANISATION

The Railway Safety Commission (RSC) is an independent government agency charged with safety oversight of public railways. These comprise Iarnród Éireann, LUAS operators Veolia, those heritage railways that are open to the public, currently 10, and those parts of the Bord na Móna industrial railway that interface with the public.

For the purposes of European legislation the RSC comprises two bodies, i.e., the National Safety Authority responsible for regulating railway safety, and the National Investigation Body that conducts causal investigations of railway incidents. Though these bodies share administration and corporate governance, they are functionally separate as required under Directive 2004/49/EC.



The independence of the investigation unit is also stated in the Railway Safety Act 2005

*57.—(1) The Commission shall not influence or seek to influence an investigation by the Investigation Unit of a railway incident or the contents of a report prepared by the Investigation Unit in accordance with sections 60 or 61.*

*(2) For the purposes of the exercise of its functions under this Part, the Investigation Unit may, where it deems it appropriate to do so as part of an investigation into a railway incident, investigate any decision, action or omission of the Commission which the Investigation Unit considers may be relevant to its investigation and the Commission shall co-operate with the Investigation Unit.*

## INVESTIGATIONS CARRIED OUT IN 2007

One formal investigation was carried out in 2007; this was into a collision at level crossing XN 104 between Ballybrophy and Killonan on the 28<sup>th</sup> June, 2007.

### Summary of accident

At approximately 20.00 on the 28<sup>th</sup> June, 2007, the 18.55 service from Ballybrophy to Limerick, train identification number A464, collided with a tractor and trailer at a farm crossing (XN 104). The crossing is located on the Ballybrophy to Killonan line situated at 35 miles 777 yards in the Roscrea to Birdhill section. The tractor and trailer were returning to a field to collect silage for storage when they were struck by the train.

The train was not derailed and came safely to a stop 81 m beyond the crossing. The tractor and trailer uncoupled. The tractor struck fencing and then came to a stop on top of the signalpost, to the right of the direction of travel of the train, parallel to the railway line, facing the direction of Ballybrophy. The trailer struck fencing on the Down side and came to a stop in the ditch to the left of the direction of travel of the train, at an angle of approximately 60° to the railway line.

The traincrew established that the attendance of the emergency services was not required for either the passengers, crew or the tractor driver. No injuries were reported and arrangements were made for the passengers to continue their journey by bus.

The line was reopened on the 29<sup>th</sup> June at 15.45 following the removal of the train, the tractor and trailer, and once repairs had been carried out to signalling equipment, track and the crossing.

The immediate cause of the accident was that the tractor driver drove across the railway without stopping and checking for the approach of a train.

Causal factors were: The gates of the crossing being left open for movements back and forth while work was going on in the adjacent field. The limited visibility of the line from the tractor due to vegetation at the lineside.

Underlying causes: The tractor driver was unfamiliar with the correct procedure for using unmanned level crossings as set out in Iarnród Éireann's publication "The SAFE use of unattended Railway Level Crossings" (Iarnród Éireann, 2006).

## **UPDATE ON PROGRESS OF RECOMMENDATIONS FROM 2006**

### **Summary of accident and recommendation tracking**

At approximately 06.00 hours on Tuesday 7<sup>th</sup> October 2003 a bulk cement train travelling between Limerick and Waterford became derailed as it crossed the viaduct that carries the railway over the river Suir at Cahir.

During the course of the accident the Train, which comprised two locomotives and twenty two laden cement wagons, divided. The locomotives and the first ten wagons crossed the viaduct, coming to a stand with the rear of wagon 10 approximately 61m beyond the Viaduct. The remaining twelve wagons fell through the deck of the viaduct coming to rest in the river or on the Waterford bank. While no railway employee or other party was injured in the accident the rear twelve wagons of the Train were damaged beyond repair and the deck of the Viaduct required major reconstruction.

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (Nov 2007)	Status open/closed
Viaduct Derailment	Cahir	Jul-06	<i>Iarnród Éireann (IÉ) should conduct a review of its safety management system to identify all areas where design, inspection and maintenance procedures are not fully developed and documented, and should establish a programme to develop and implement the necessary specifications and standards prioritised on the basis of safety risk. The content and structure of each specification or standard should reflect the safety criticality of the various elements of the associated procedure or physical asset. (Review 6 months, Establish programme within 24 months)</i>	IE	Iarnród Éireann's Infrastructure has already identified its requirements for standards (300 no.) and has included same in the 2004-2008 Railway Safety Programme. The target of 25 standards for 2005 has been exceeded - 40 produced. The standard for inspection of bridges and the standard for the inspection and maintenance of waybeams were both produced in 2005. The implementation and roll out of standards has been prioritised on a safety critical basis taking account of design, inspection and maintenance requirements.	Open
Viaduct Derailment	Cahir	Jul-06	<i>For remaining way-beam structures IÉ should review all available drawings and design documentation to identify, in so far as is practicable, variances from the original designs, and ensure that any safety implications are fully understood and that associated safety risks are reduced to as low as reasonably practicable.(Review 3 months, Mitigation programme completed 24 months)</i>	IE	There are 8 no. waybeam bridges remaining on the operational network. The adequacy of all these bridges was assessed in December 2003 and any remedial works were dealt with. In line with the findings of IÉ's own internal review, train speeds are restricted to 30 mph maximum on all waybeam bridges and a study of the dynamic interaction of wheel and rail on the waybeam bridges has been commissioned. This report is now complete and concludes that the key derailment indicators remained within safe limits.	Open



## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (Nov 2007)	Status open/closed
Viaduct Derailment	Cahir	Jul-06	IÉ should review the derailment containment arrangements on its various structures and make whatever modifications might be required to ensure that they are fit for purpose and capable of preventing disproportionate failure.(Review 3 months, Modification programme completed 12 months)	IE	Iarnród Éireann has carried out a risk based study to identify the need for containment measures at underline bridges. The study is complete and issued for internal review. The report will provide a prioritised programme of preventative measures.	Open
Viaduct Derailment	Cahir	Jul-06	In parallel with, and pending implementation of Recommendations 2 and 3, IÉ should periodically review and amend as necessary the safety measures implemented at structures similar to the Viaduct to ensure that operational safety risk is reduced to as low as reasonably practicable.(Review 3 months ongoing)	IE	The inspection of waybeam bridges is carried out at yearly intervals (formerly 2 years) and the matters and recommendations 2 & 3 above are being addressed as part of these inspections.	Open
Viaduct Derailment	Cahir	Jul-06	The training needs analysis conducted by IÉ on foot of the IRMS recommendation should be reviewed and, as necessary extended to include all staff involved in safety critical work. Where necessary new training plans should be introduced or existing plans modified or enhanced.(Review 6 months, Implementation programme completed 24 months)	IE	Training needs are regularly reviewed and prioritised by the relevant professional groups. Moreover training needs are reviewed for the introduction of new standards. Training in 2005 in Infrastructure was 8,200 days, a doubling from 2004.	Open
Viaduct Derailment	Cahir	Jul-06	IÉ should implement a strategy that ensures that its ongoing track monitoring requirements are effectively met, particularly in the short term pending upgrading of the EM50 track recording vehicle.(Review 3 months, Implementation 6 months)	IÉ	All track monitoring procedures are in place. The EM50 track recording vehicle is one of our methods of monitoring track parameters and there are processes in place to verify its calibration.	Open

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (Nov 2007)	Status open/closed
Viaduct Derailment	Cahir	Jul-06	<i>In developing a strategy for upgrading the EM50 track recording vehicle IÉ should ensure that all available technologies for monitoring track condition are fully assessed and the specified functionality reflects the best combination of available technologies.(Assessment 3 months, Strategy 6 months)</i>	IÉ	The above recommendation is the position being taken by Iarnród Éireann in the context of these technologies.	Open
Viaduct Derailment	Cahir	Jul-06	<i>IÉ should review, and amend as necessary, its asset management systems to ensure that data is pertinent, comprehensive, concise and accessible and provides evidence that all outstanding issues are appropriately actioned and closed out.(Review 3 months, Amendment programme completed 12 months)</i>	IÉ	The Infrastructure Asset Management System (IAMS) has the necessary modules to record assets, review condition register faults and programme inspection/maintenance	Open
Viaduct Derailment	Cahir	Jul-06	<i>IÉ should ensure that, pending full implementation and validation of new data management systems including those currently in course of development, comprehensive and up to date records of infrastructure asset inspection and maintenance are maintained and that relevant data is effectively promulgated to inspectors, maintainers and managers.(Review and implementation 3 months).</i>	IÉ	IÉ have well established inspection and maintenance procedures with effective dissemination of information to all relevant levels of Infrastructure staff. This is reviewed periodically and amended as necessary in light of developing conditions. IAMS will enhance and systemize these processes and roll out of the system has commenced. Implementation of all modules will take a number of years as is the case with other railway administrations - the target timetable is the end of 2008.	Open

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (Nov 2007)	Status open/closed
Viaduct Derailment	Cahir	Jul-06	<i>Provision is being made in the proposed Railway Safety Programme 2004-2008, for the establishment of internal IÉ auditing procedures. As with the overall safety development programme, IÉ should ensure that the introduction of these procedures is risk based with auditing introduced first in those areas presenting that greatest safety risk.(Review 3 months, Risk based audit programme commenced 6 months)</i>	IÉ	There are well established inspection, monitoring and audit regimes in place. These monitoring processes are being further developed with the introduction of standards and procedures - for example the Safety Audit Unit introduced in 2005.	Open
Viaduct Derailment	Cahir	Jul-06	<i>IÉ should review and amend as necessary it's arrangements for monitoring adherence to both permanent and temporary maximum train speed limits, through a combination of line-side measurement and interrogation of in-cab recorded data, to ensure that they are appropriate in the context of current driving practice.(Review 3 months, Necessary amendments introduced 6 months)</i>	IÉ	A programme of speed checks is in place in accordance with Railway Safety Standard No. 2.	Closed

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (Nov 2007)	Status open/closed
Viaduct Derailment	Cahir	Jul-06	<i>The functionality of the Teloc equipment currently in use by IÉ should be assessed, and modified as necessary, to ensure that it provides the level of access to data necessary for effective day to day safety management. (Review 3 months, Necessary modification implemented 24 months)</i>	IÉ	The review is completed and all new 201 locos have modern data recording equipment. This new equipment has been ordered for 071 class locos and fitment has commenced. Locos older than this will not be fitted with this equipment as it is planned to withdraw them from service over the next 2 – 5 years.	Open
Viaduct Derailment	Cahir	Jul-06	<i>IÉ should review its existing communications systems and take whatever action is necessary to ensure that on all parts of system train drivers are provided with an effective means of communication with the controlling signalman. (Review 3 months, Necessary change implemented 24 months)</i>	IÉ	Full train radio coverage will be provided on all main radial lines with the resignalling of the Mayo/Ballina and Rosslare lines in early 2008. The communications systems on the lightly used lines and freight lines are under review.	Open

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (September 2008)	Status open/closed
LC Collision at XN104	Between Ballybrophy & Killonan	June 08	Iarnród Éireann to review the various sources of information relevant to level crossings and develop a standard, or suite of standards, consolidation information on : civil engineering specifications; signage specifications; visibility of approaching trains ; and inspection and maintenance. Ensuring effective implementation and compliance.	IÉ	IÉ are currently developing our standards and systems with a view to delivering the objectives of this recommendation	Open
LC Collision at XN104	Between Ballybrophy & Killonan		Iarnród Éireann to develop a robust system that identifies current landowners who have crossings on their property and records the delivery of information to them. This should include the distribution of information to known contractors and should consider timely reminders coming up to the silage season	IÉ	IÉ are not in a position to identify agricultural contractors but we will provide copies of the Safe Use of Level Crossing booklet to the IFA and the ICMSA with a request that they distribute the information to contractors known to them. Notwithstanding this procedure, IÉ will continue to stress that responsibility for informing the users of Level Crossing procedure, IÉ will continue to stress that responsibility for informing the users of level crossings such as XN104 rests clearly with the landowner. We believe that any apparent dilution of that responsibility will have an adverse impact on safety.	Open

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (September 2008)	Status open/closed
LC Collision at XN104	Between Ballybrophy & Killonan	June 08	larnród Éireann to ensure that a system is put in place for effective implementation of existing standards and manage the timely introduction of new and revised standards, this should include departmental instructions.	IÉ	IÉ are reviewing current processes related to the implementation of standards in order to avoid ambiguity.	Open
			larnród Éireann to review the standards relating to on-board data recorders, ensuring that correct operation, accuracy and post incident downloads are effectively addressed	IÉ	IÉ have reviewed the standards relating to the on-board data recorders and are reinforcing the process necessary to achieve the objectives of this recommendation	
LC Collision at XN104	Between Ballybrophy & Killonan	June 08	larnród Éireann to develop and implement a vegetation management programme that addresses vegetation management on a risk basis, prioritising high risk areas.	IÉ	IÉ will prioritise vegetation management on a risk basis, encompassing issues such as signal sighting and adhesion together with level crossing view. Actual implementation will, of course, include a degree of practicality such as efficient access to adjacent work sites.	Open

## RAIU Recommendation Tracking

Incident	Location	Date of Report	Recommendation	Owner	Notified Action Taken by IÉ (September 2008)	Status open/closed
LC Collision at XN104	Between Ballybrophy & Killonan	June 08	Iarnród Éireann to review the "Monitoring the Speed of Trains" standard, including assessing the effectiveness of monitoring by means of signal cabin train registers.	IÉ	With the reduction in the number of individual signal cabins and the increased processes of on-train data recorders and other speed recording methodologies, IÉ do not anticipate any significant dependence on cabin register entries as a means of conducting checks of the speeds of trains.	Open
LC Collision at XN104	Between Ballybrophy & Killonan	June 08	The Railway Safety Commission to review and Issue 'Guidelines for the Design of Railway Infrastructure and Rolling Stock'.	RSC	The RSC formally issued the 'Guidelines for the Design of Railway Infrastructure and Rolling Stock' on the 28th August 2008. These are available on our website. They follow on from the publication of a number of other guidance documents relating to the approval of new infrastructure and rolling stock. It is the intension of the RSC to undertake a more thorough review of the documents.	Open