Rail Safety Regulator's Report

2013-14

Message from the Director-General

I am pleased to present the annual report of Queensland's Rail Safety Regulator for the financial year 2013-14.

The Rail Safety Regulator is committed to maintaining and improving safety outcomes across Queensland's extensive rail network through communication and collaboration with the rail industry. The regulator's work includes accrediting and auditing rail transport operators, investigating rail incidents, collecting and analysing rail safety statistics, as well as developing safety policy. This report includes data about the safety performance of the 62 accredited rail transport operators in Queensland for the year ended 30 June 2014.

In addition, the regulator team has worked with rail industry stakeholders on a range of projects over the past year including the New Generation Rolling Stock Project and the Level Crossing Congestion Project. Regulatory work also continued on the Gold Coast Light Rail and the Moreton Bay Rail Link projects.

The regulator's work enhances safe rail operations across the state and sustains the confidence of the Queensland community in the safety of passengers and freight using rail in Queensland.

A safe and efficient rail transport network is vital for connecting Queensland's people, places and businesses. I am proud of our achievements in facilitating this and take this opportunity to acknowledge the hard work of the Rail Safety Regulator team in delivering our outcomes for this year.

Neil Scales

Director-General

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Executive Summary

This report provides an overview of the Rail Safety Regulator's activities and of the safety performance of the rail transport operators in Queensland.

By 30 June 2014, there were 62 accredited rail transport operators in Queensland. Of these, 45 are commercial railways and 17 are designated as tourist and heritage railways.

The functions and responsibilities of the Rail Safety Regulator are managed by two business units of the Department of Transport and Main Roads: Rail Regulation and Safer Roads and Rail.

During the 2013-14 financial year, the Rail Regulation Unit conducted 137 compliance activities, exceeding the yearly target by 37%. The Rail Regulation Unit also conducted four compliance investigations. No rail safety incidents required 'no blame' investigations during the year.

Safer Roads and Rail continued to lead the Queensland Level Crossing Safety Group which implements the *Queensland Level Crossing Safety Strategy 2012-2021* to further improve level crossing safety. The unit also coordinated the live trials that began in mid-2013 on the Queensland Rail network for the Rail Level Crossing Safety Technology Trials project. Safer Roads and Rail has also been leading the development of a new Queensland Rail Safety Law that is broadly consistent with the Rail Safety National Law.

This year saw other significant projects commence, these included the Level Crossing Congestion Project and the New Generation Rolling Stock Project. Regulatory work also continued in relation to the Gold Coast Light Rail and the Moreton Bay Rail Link projects.

Rail safety performance was analysed based on the rail safety occurrences reported by rail transport operators to the Rail Safety Regulator. There were 102 Category A and 13,715 Category B occurrences reported by rail transport operators in 2013-14. This represents a decrease in Category A occurrences (down 18%) compared with the Category A average of 124 over the preceding four years.

There were two fatalities reported; higher than the single fatality in the previous year but below the average of four fatalities per year between 2009-10 and 2012-13. One of the fatalities was the result of a collision between a train and a pedestrian at a level crossing; the other was the result of a collision between a train and an intoxicated person who was leaning out from a station platform.

There were nine level crossing collisions with road vehicles and two with persons. This is slightly below the annual average of just under 12 level crossing collisions with road vehicles and persons over the preceding four years.

The Rail safety Regulator will continue to examine and use the data reported by rail transport operators to guide its regulatory activities in 2014-15.

Part 1: Overview

Queensland's Rail Safety Regulator

The Rail Safety Regulator's principal objective is to facilitate safe railway operations in Queensland.

The role of the Rail Safety Regulator is to enhance rail safety by:

- accrediting persons as rail transport operators
- conducting an assessment of the competency and capacity of rail transport operators
- conducting safety investigations and reviewing rail transport operators' investigation reports
- conducting risk based compliance activities including:
  - audits of rail transport operators' safety management systems
  - inspections of rail safety operators' procedures and practices
- implementing agreed national rail safety legislation reforms
- collecting and analysing rail safety incident statistics.

The Director-General of the Department of Transport and Main Roads is the Rail Safety Regulator in Queensland. The Land Transport Safety Branch is delegated to carry out the functions of the Rail Safety Regulator. The branch administers the *Transport (Rail Safety) Act 2010*, as well as other legislation and policies that relate to the delivery of transport safety outcomes in the state.

The objectives of the *Transport (Rail Safety) Act 2010* are:

- to provide for improvement of the safe carrying out of railway operations
- to provide for the management of risks associated with railway operations
- to make special provision for the control of particular risks arising from railway operations
- to promote public confidence in the safety of transport of passengers or freight by rail.

The functions of the Rail Safety Regulator are managed by two business units of the Land Transport Safety Branch: Rail Regulation and Safer Roads and Rail (Figure 1).

The Rail Regulation Unit is an operational team with high-level skills in accreditation, auditing, risk management and rail investigation. All unit members are Rail Safety Officers. The Rail Regulation Unit also acts as the competent authority for the regulation of transport of dangerous goods by rail. The Rail Regulation Unit comprises of two teams:

- Accreditation – a team that manages new accreditation applications, variations to accreditation and notifications of change.
- Risk and Audit – a team that develops and conducts a compliance activity program comprising of audits and compliance inspections.

The Safer Roads and Rail Unit is responsible for the development of rail safety legislation and policy which support rail safety regulation. Safer Roads and Rail also provides research support on rail safety issues. The Safer Rail team within the unit is supported by the Data Analysis team for the supply of rail safety statistics.

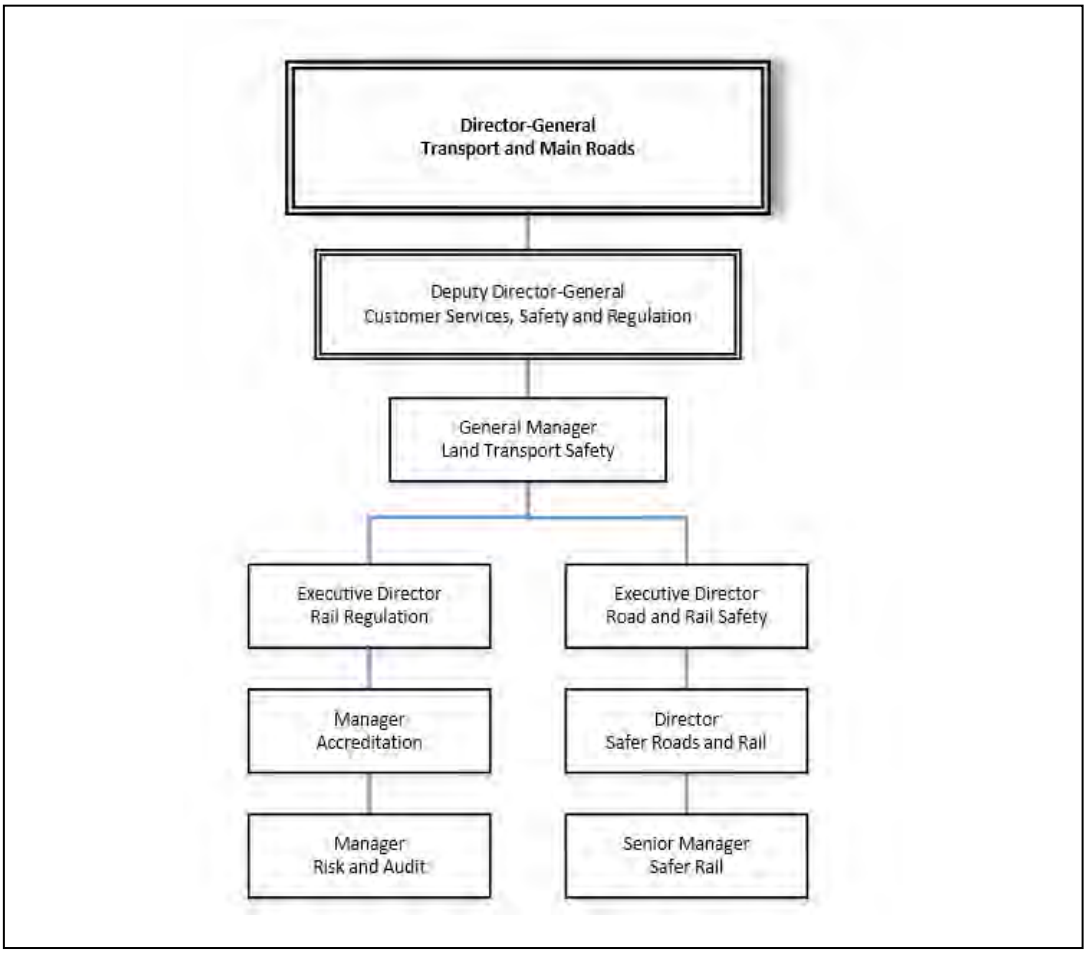

Figure 1: Organisational structure

Accredited Rail Transport Operators in Queensland

There are two distinct types of operations for which rail transport operators are accredited:

- Rail infrastructure manager – a person who has control over a railway track or a section of railway track over which rolling stock operates.
- Rolling stock operator – a person who owns or has the right to operate or move rolling stock such as locomotives, wagons, passenger carriages or other on-track vehicles on railway tracks.

Rail transport operators may be accredited for one or both types of operations.

As at 30 June 2014 the number of accredited rail transport operators in Queensland was 62 (Table 1). Of these, 45 are commercial railways and 17 are designated as tourist and heritage railways. The list of accredited operators is in Appendix 1.

Commercial railways conduct rail operations for the purpose of gaining a financial profit for shareholders. Tourist and heritage railways, on the other hand, are organisations focused on the preservation and operation of historic rolling stock or rail infrastructure.

Table 1: Accredited railways as at 30 June 2014

	Commercial	Tourist and Heritage	Total
Rolling Stock Operator only	21	4	25
Rail Infrastructure Manager only	4	0	4
Both	20	13	33
Total	45	17	**62**

Part 2: Rail Safety Regulator Activities

Compliance Strategy

Rail regulation in Queensland is conducted in a co-regulatory environment. The rail industry and the Rail Safety Regulator share the management of risks regarding rail operations. The rail industry is responsible for determining and maintaining safety standards and the Rail Safety Regulator is responsible for reviewing and checking safety standards to ensure rail operations do not affect rail safety so far as is reasonably practicable.

The Rail Safety Regulator utilises a scaled approach to resolve rail safety issues. The approach is shown in the diagram below (Figure 2).

Figure 2: Scaled approach to resolve rail safety issues

The Rail Safety Regulator provides a strong focus on informing the rail industry of appropriate safety standards, helping the rail industry to comply with legislation and checking safety standards are maintained. Information and help are provided during the application for accreditation process, at times when variations to accreditation occur, through meetings, workgroups, site visits and through targeted education programs.

The Rail Safety Regulator checks the performance of rail transport operators through a program of audits and compliance inspections. Enforcement activities include the issuing of improvement notices, prohibition notices, the suspension or cancelling of accreditation and prosecution action.

It is the preference of the Rail Safety Regulator to utilise enforcement tools as a last resort. The Rail Safety Regulator assesses the ability of individual rail transport operators to comply with legislation alongside their willingness to comply in determining appropriate action. This assessment is made on the behaviour demonstrated by the rail transport operator and the apparent safety culture at the time the decision is made. The aim of the Rail Safety Regulator is to develop a generative safety culture that creates and follows best practice with respect to rail safety (Figure 3).

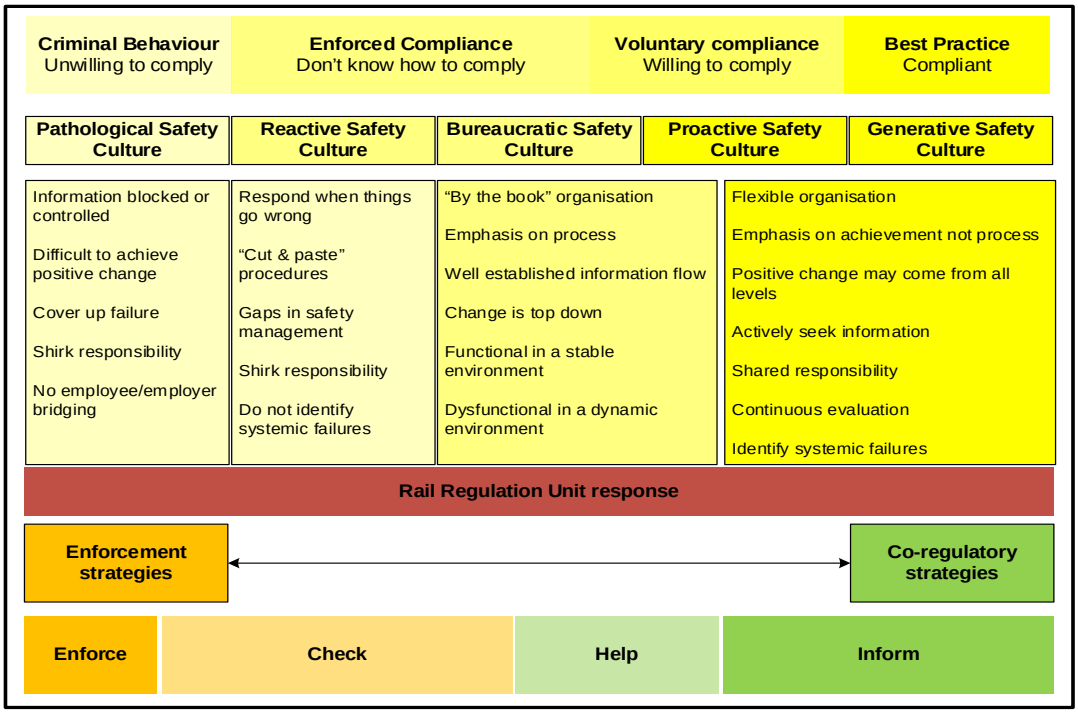

Figure 3: Towards a generative safety culture

Resource Allocation

In 2013-14 the Rail Regulation Unit maintained an average of 19 staff in teams consisting of Accreditation, Risk and Audit and the Directorate. Rail Safety Officers were prioritised tasks based on an assessment of risk to rail safety and availability of resources.

The Safer Rail team within the Safer Roads and Rail Unit has seven staff members.

Rail Regulation Unit

Accreditation Team

Applications for Rail Safety Accreditation

To conduct railway operations in Queensland, a person must hold rail safety accreditation in accordance with the requirements of the *Transport (Rail Safety) Act 2010*. The Accreditation Team of the Rail Regulation Unit is responsible for assessing applications for rail safety accreditation. The Accreditation Team must satisfy the Rail Safety Regulator that the applicant has the competency and capacity to meet the legislated requirements to carry out railway operations before accreditation can be granted.

The procedure to assess an applicant to ensure they have the competence and capacity to conduct safe rail operations is complex and requires extensive knowledge of risk management techniques and technical information relating to engineering and mechanical standards and designs. The Accreditation Team works with the applicant to ensure sufficient information is provided to make a decision.

In 2013-14, 13 applications were received for rail safety accreditation. Seven rail safety accreditations were granted. A further six applications were being assessed by the Accreditation Team as at 30 June 2014.

Variations to Rail Safety Accreditation

In addition to the new applications for accreditation, the Accreditation Team assessed 21 applications for variation to accreditation. Variations to accreditation are required to be submitted by a rail transport operator when it intends to undertake railway operations that are outside the scope of their current accreditation.

Exemptions to Rail Safety Accreditation

The Rail Safety Regulator may exempt a person who is assessed as a 'low risk' railway from requiring rail safety accreditation. A low risk railway is a railway not connected to or associated with:

- railway tracks, or any other rail infrastructure of another railway
- a rail or public road crossing.

Exemptions may be granted from all or part of the accreditation requirements for railway operations. The extent of an exemption is dependent on the particular railway operator's scope and nature and this varies on a case by case basis.

The Rail Safety Regulator considered it appropriate to exempt six applicants as low risk railways in 2013-14. The initiative to grant exemptions to low risk railways provided significant benefit in reducing red tape and regulatory burden for organisations where accreditation would not produce any safety benefits.

Notifications of Change

An accredited railway is required to notify the Rail Safety Regulator if it proposes to make a change to its rail operations. The notification must be provided at least 28 days prior to the proposed change and allows the Rail Safety Regulator to review the change and assess any rail safety risks. During the 2013-14 year, the Rail Regulation Unit reviewed 86 notifications of change.

Accreditation Projects

Standardisation of Notices of Accreditation

Each accredited railway operator receives a Notice of Accreditation that details the type of operations and geographical boundaries within which the railway can operate. In 2013-14 the Rail Safety Regulator undertook a review of the accreditation notices that had been issued to all existing rail transport operators in Queensland. The review identified that similar rail operations had inconsistent conditions of accreditation that produced differing levels of regulatory burden on the operator.

Each rail transport operator's notice was amended to ensure alignment with the *Transport (Rail Safety) Act 2010*. The notices for rail transport operators that also operate in other jurisdictions of Australia were also amended consistent with the principles of accreditation established by the Office of the National Rail Safety Regulator.

The review was completed in May 2014 and has reduced the number of standard conditions placed on notices of accreditation from eight to three. The review has achieved a significant reduction in regulatory burden for rail transport operators while maintaining the same level of safety.

Private Sidings Registration

In September 2013 the registration of private sidings in Queensland became mandatory. In early 2013 the Rail Regulation Unit had commenced a project to identify and register all private sidings.

A private siding is a portion of railway track that is connected by points to a running line or another siding on which rolling stock can be placed clear of the running line and is managed by a person other than the manager of the rail infrastructure that the siding connects with or has access to.

The project identified 31 private sidings across Queensland that required registration. As at 30 June 2014, 29 private sidings were registered and applications have been received for the remaining two.

Risk and Audit Team

Compliance activities are conducted by the Rail Regulation Unit to ensure an accredited rail transport operator is meeting its obligations under the *Transport (Rail Safety) Act 2010*. The Risk and Audit Team is responsible for the development and delivery of a risk based compliance activities plan. Compliance activities include audits, compliance inspections and site visits. Compliance activities conducted by the Rail Regulation Unit are collaborative in nature and are designed to remedy issues before regulatory interventions such as improvement notices or prohibition notices are required.

The Rail Regulation Unit's compliance activities plan includes pre-planned and reactive activities. Pre-planned activities are usually scheduled annually and target specific areas of a safety management system. Reactive activities are those which are scheduled in response to certain issues which have been identified by the Rail Regulation Unit.

The Risk and Audit Team uses a bespoke risk profiling model to determine the number of compliance activities for each railway. Higher risk accredited railways receive more compliance activities compared to those evaluated to be at lower risk. The compliance activities plan is dynamic in nature and therefore a railway initially identified as low risk railway may still receive more scrutiny (through reactive compliance activities) from the Rail Regulation Unit based upon safety performance.

The Rail Safety Regulator's compliance activities take into account:

- rail safety occurrence trend
- type of infrastructure and operation of each railway
- physical condition/age of assets
- competency and capacity
- must-checks such as boiler certificates
- media reports
- recent safety issues

- reports received through confidential reporting scheme
- special conditions of accreditation
- recommendations from various investigation reports
- critical safety management system elements of each railway
- previous non-conformances.

The Rail Regulation Unit set a target to conduct 100 compliance activities in 2013-14. The Rail Regulation Unit exceeded the target, completing 137 compliance activities. This is compared to 121 completed compliance activities in the previous financial year. The increase is due to a strategic change the Rail Regulation Unit implemented in the beginning of the year, that is, to conduct more compliance inspections and less audits.

This strategy was adopted to maintain more regulatory oversight on a railway's implementation of its own safety management system. Early indications are that this strategy is effective for large commercial railways who already have a mature safety management system. As each compliance inspection has a narrow scope compared to audits, they are more efficient for both the Rail Regulation Unit staff and accredited railway's staff. This in effect has reduced regulatory burden on railways yet provided a higher level of assurance to the Rail Regulation Unit. The Rail Regulation Unit intends to continue this strategy for the 2014-15 financial year.

Audits

In the 2013-14 financial year the Rail Regulation Unit conducted 20 audits. Key safety areas targeted during audits included:

- Safety audit arrangements – the ability of the rail transport operator to implement and conduct internal audits of its own rail operations.
- Corrective action – the ability of rail transport operators to develop and maintain a register to record and learn from corrective actions required throughout the year.
- Risk management – the ability of the rail transport operator to identify hazards, assess and manage the risks created by its rail operations.
- Procurement and contract management – the ability of rail transport operators to manage the engagement and use of contract staff in the construction, maintenance and repair of rail infrastructure and rolling stock.

The Rail Regulation Unit has identified through its compliance program that key areas requiring improvement by rail transport operators include:

- Safety management system review – the requirement to continually assess the safety management system that is in place to ensure it is relevant to the contemporary practices of the rail operator.

- Interface coordination plans – the requirement to ensure that interface coordination plans that are in place are effective, and established with the correct entity.

There were 15 non-compliances resulting from the audits. The non-compliances were broad in nature and did not identify a specific industry wide issue or trend. The individual rail transport operators have acted to resolve the matters.

The results of the treatment of the non-compliances will be monitored by the Rail Regulation Unit in the 2014-15 compliance program.

Compliance Inspections

In the 2013-14 financial year the Rail Regulation Unit conducted 95 compliance inspections targeting numerous aspects of safety management systems. The key focus areas were:

- Implementation of processes for ensuring the safety of personnel working on track, generally known as 'worksite protection'.
- Currency of training and competency of train drivers to ensure the safe operation of trains with a particular attention on train drivers' route competency.
- Timely completion of required maintenance and repairs of Automatic Train Protection (ATP) system on-board locomotive equipment and railway track equipment. The ATP system ensures the train speed does not exceed above a predetermined target speed.

If a non-compliance is identified following a compliance inspection, the Rail Regulation Unit requires a written explanation from the railway for the non-compliance and seeks resolution of the matter as soon as practicable.

Site Visits

Together with audits and compliance inspections, the Rail Regulation Unit conducts site visits to:

- collect evidence of certain rail safety related practices
- observe and understand rail safety related issues which have come to its attention.

In the 2013-14 financial year the Rail Regulation Unit carried out 22 site visits. All site visits are documented and any issues identified are included when planning future compliance activities.

Investigations

The Rail Safety Regulator may conduct an investigation in relation to a rail safety issue. The Rail Safety Regulator may conduct either a compliance investigation to determine if a breach of the *Transport (Rail Safety) Act 2010* has occurred, or a 'no blame' investigation to identify and examine systemic safety issues.

Compliance Investigations

In the 2013-14 financial year the Rail Regulation Unit conducted four compliance investigations.

- Cleveland collision – In October 2013, the Rail Regulation Unit completed an investigation into the collision of a suburban passenger train with the Cleveland station on 31 January 2013. The investigation found that the rail transport operator had satisfactorily implemented measures to reduce the risk of a similar incident occurring in the future.
- Fatality at Cannon Hill – On 3 January 2014, a pedestrian was fatally injured while attempting to cross a railway track at Cannon Hill. The investigation established that the rail transport operator's systems and procedures did not contribute to the rail safety incident.
- Fatality at Lawnton – On 11 February 2014, a person standing on a platform at Lawnton Station was fatally injured by a passing freight train. The person was struck by the train after encroaching into the rail corridor. The investigation established that the rail transport operator's systems and procedures did not contribute to the rail safety incident.
- Yard derailments – During the 2013 calendar year, a large number of derailments occurred in yards managed by rail transport operators. The investigation found a rail transport operator's procedures were deficient and the rail transport operator has since remedied the issue.

No Blame Investigations

'No blame' investigations are conducted where systemic issues appear to have attributed to an incident which require a detailed investigation. During 2013-14, no incidents required investigation.

Enforcement

The Rail Safety Regulator utilises enforcement action as a last resort to address rail safety matters. The Rail Safety Regulator uses administrative compliance tools such as prohibition notices and improvement notices. A prohibition notice is issued where an immediate risk to safety is apparent. An improvement notice is issued when a rail transport operator has been provided an opportunity to correct a safety issue but has not done so in a satisfactory manner.

In the 2013-14 period, no prohibition notices or improvement notices were required to be issued.

The Rail Safety Regulator may also take other enforcement actions including the suspension or cancellation of a rail transport operators accreditation or commence prosecution for a breach of a rail safety duty. The Rail Safety Regulator was not required to take other enforcement actions during the reporting period.

Safety Alerts and Bulletins

Rail Safety Bulletins

Rail Safety Bulletins are used to provide information to rail transport operators about contemporary safety issues. In 2013-14, the Rail Safety Regulator issued two safety bulletins.

- Ensuring effective radio communications with Network Control, February 2014 – this bulletin was prepared and released by the Rail Regulation Unit, following the investigation into a number of rail safety incidents where network controllers were not able to make emergency broadcasts to train crew to alert them of serious safeworking breaches.
- Safety Learnings from International Rail Incidents, April 2014 – the bulletin highlights a number of investigation reports from various countries to illustrate their relevance to the Australian rail industry. The Office of the National Rail Safety Regulator issued Rail Safety Bulletins which were re-distributed to assist the Queensland rail industry in identifying areas of concern, to share information and to take positive steps to enhance safety.

Rail Safety Alerts

Rail Safety Alerts are used to provide rail transport operators with urgent information concerning rail operations. No rail safety alerts were required to be issued during the 2013-14 year.

Education

Tourist and Heritage Education Visits

During the year an education program focused at the tourist and heritage and smaller commercial railways in Queensland was developed and delivered by the Rail Regulation Unit. These railways are generally operated by volunteers who do not necessarily have a background in rail safety, in contrast to the larger commercial railways who have specialised staff to oversee rail safety.

The education program was developed to address a number of issues that had been identified in relation to inadequate documentation and procedures by these organisations; in particular regarding the collection of information and incident reporting.

The education program was also provided to newly registered private siding owners.

This consultative approach provides an excellent opportunity for rail organisations to understand the issues around rail regulation and to enable the Rail Regulation Unit staff to better understand the operations of each organisation. Following the visits, the Rail Regulation Unit saw an improvement in the collection and reporting of safety information by the organisations.

The Rail Regulation Unit will continue to conduct the program in 2014-15.

Diploma of Government (Rail Safety Regulation)

In 2012 and 2013 Rail Safety Officers within the Rail Regulation Unit undertook studies towards obtaining a Diploma of Government (Rail Safety Regulation).

The Diploma of Government (Rail Safety Regulation) consists of competencies in:

- compliance with legislation in the public sector
- promoting the values and ethos of public service

- monitoring and maintaining workplace safety
- operating within the regulatory framework for rail safety
- managing risk
- reviewing and promoting safety culture
- exercising regulatory powers
- receiving and acting on industry safety information and intelligence
- supervising and carrying out complex inspections and monitoring
- coordinating audit and inspection programs.

The Diploma of Government (Rail Safety Regulation) is a useful benchmark for a minimum standard for Rail Safety Officers. The Diploma course provides Rail Safety Officers with a broad perspective on the application of rail safety legislation to rail transport operations.

Significant projects

New Generation Rolling Stock

The New Generation Rolling Stock project involves the delivery of 75 six-car trains for the Brisbane suburban passenger network. The entity accredited for the project is Bombardier Transportation Australia Pty Ltd. The first train is due to be delivered early in 2016. In addition, the project will also see the delivery of a purpose built maintenance and stowage depot at Wulkuraka.

In February 2014, the Rail Regulation Unit approved a variation to the rail safety accreditation of Bombardier, to allow for the construction of the new rolling stock and the depot. The Rail Safety Regulator is continuing to monitor the delivery of this project.

Moreton Bay Rail Link

In August 2013 a contract to design and construct the Moreton Bay Rail Link was awarded to Thiess Pty Ltd. The Moreton Bay Rail Link will consist of 12.6 kilometres of dual-track heavy gauge passenger rail line between Petrie and Kippa-Ring, including six new stations and associated infrastructure as well as a stabling facility at Kippa-Ring. Construction of the rail corridor works began in early 2014, with passenger operations due to commence in 2016.

Overseeing this project is a significant work effort for the Rail Regulation Unit, with involvement in the project to continue to increase throughout the various phases of the project.

A program of targeted compliance activities has commenced to ensure Thiess has sufficient processes and procedures in place to mitigate any safety risks. The program will provide the Rail Safety Regulator with a high level of assurance that the track and associated track structures are safe and fit for purpose.

Gold Coast Light Rail

GoldLinQ Pty Ltd was granted rail safety accreditation on 3 May 2011 to construct 13 km of track for the Gold Coast Rapid Transit system. One of the more significant variations to accreditation conducted by the Rail Regulation Unit was the changes required to enable the transition by GoldLinQ from the construction, testing and commissioning phase to the commencement of passenger operations.

The assessment of this variation involved three stages: the testing and commissioning of the track infrastructure; the testing and commissioning of the trams; and the verification of the design and construction to cover the safety aspects especially where this relates to the pedestrian movements in the heavily pedestrian areas around Cavill Avenue. GoldLinQ's Notice of Accreditation was varied to allow passenger operations to commence from 1 June 2014.

The Rail Safety Regulator will continue to closely monitor the operations of GoldLinQ through compliance activities and regular meetings.

Mount Isa Line Derailment Analysis

In July 2013 the Rail Regulation Unit commenced a project to examine the number of derailments which had occurred on the Mount Isa Line between 2008 and 2013. Derailments have the potential to cause death, create substantial damage to rail infrastructure and create significant disruption which can delay rail services.

The project examined the cause of 41 main line derailments and focused on the operating practices of the rail infrastructure manager and rolling stock operators who use the Mount Isa Line. The objective was to improve rail safety on the Mount Isa Line by reducing the number of derailments and increasing the availability and capacity of the corridor.

The report was released to relevant stakeholders in June 2014 for consultation. It is expected that the report will be finalised in September 2014. The report will make recommendations to both the rail infrastructure manager and rolling stock operators to better manage the issue of derailments and improve rail safety.

Wheel Rail Interface Issues

In early 2013 the Rail Regulation Unit had commenced an investigation into incidents of low rail adhesion between rolling stock wheel sets and rail infrastructure, following an incident at Cleveland in January 2013. The issue of low adhesion between the rolling stock wheel sets and rail infrastructure in certain weather conditions was also identified by the Australian Transport Safety Bureau in their interim investigation report into the Cleveland collision incident.

As a result, in March 2013, Queensland Rail established the Wheel Rail Interface Group to examine the issue of braking performance of rolling stock under low adhesion conditions.

The Rail Regulation Unit closely monitored the progress of the working group in 2013-14. The Wheel Rail Interface Group has developed 73 actions, which will be monitored until completion during the Rail Safety Regulator's 2014-15 compliance program.

Safer Roads and Rail Unit

Queensland Level Crossing Safety Strategy

In 2013-14 the Safer Roads and Rail Unit continued to coordinate the activities of the Queensland Level Crossing Safety Group (QLCSG). The QLCSG brings together government and industry stakeholders who have committed to work collaboratively to improve level crossing safety, and provides leadership and overall direction to achieve the objectives of the *Queensland Level Crossing Safety Strategy 2012-2021* (the Strategy).

The long term vision of the Strategy is zero harm at level crossings across Queensland. The Strategy promotes a wide range of initiatives such as:

- public awareness campaigns
- enhancing the visibility and audibility of trains
- exploring new technology
- improving rail level crossing infrastructure
- undertaking research and development.

The QLCSG developed an action plan relating to the Strategy and met regularly to discuss and monitor the implementation of planned activities.

The annual report of the QLCSG for 2012-13 is available on the Transport and Main Roads website. The 2013-14 report is being developed and will also be published on the website.

Evaluation of New and Emerging Technologies for Rail Level Crossing Safety

The Safer Roads and Rail Unit, in collaboration with Queensland Rail, continued the trial of innovative technologies to evaluate whether they have a positive effect on driver behaviour at level crossings.

Live trials on the Queensland Rail network started in mid-2013, with two radio break-in systems and a solar-powered lighting system being trialled across five sites around Queensland. These were:

- La Trobe University's Dedicated Short Range Communication/DSRC based Intelligent Transport System (live trial completed)
- NFA's radio break-in Pixie system (live trial completed)
- Railnet's solar powered signs (live trial ongoing).

The Cooperative Centre for Rail Research and Innovation (Rail CRC) is evaluating the trials to determine the types of systems which may be effective in changing road driver behaviour and reducing safety risks at level crossings in Queensland. The evaluation report is expected by the end of 2014.

Level Crossing Congestion Project

During 2013-14 the Safer Roads and Rail Unit, in conjunction with TMR's Engineering and Technology Branch and Queensland Rail, started a project to look at ways to improve worsening road congestion (due to increases in both the number of road users and train frequency) and related driver misbehaviour around level crossings, while maintaining safety levels. This project brings road and rail engineers together to share their expertise and create solutions that benefit the Brisbane transport system holistically.

There are 47 public level crossings in the greater Brisbane area that are being reviewed as part of this project. All options and treatments that can improve road congestion will be considered including upgrading technology, changing road geometry and/or signage, signalling upgrades, better integration of traffic and rail signals and addressing human factors issues.

A working group was established to explore various options and treatments to reduce road congestion around level crossings in the greater Brisbane area. By the end of June 2014, the project working group has completed:

- the analysis of all available rail and road data that could be an indicator of congestion near level crossings
- a technical review of international best practice in relation to reducing congestion at active level crossings, and considering how these initiatives could be applied in the Southeast Queensland context.

This work is being used to build a comprehensive level crossing simulation model which can test different treatments at eight level crossing sites. If the modelling shows measurable benefits to road congestion through identified measures, the project could be expanded to include the other 39 crossings, live trials and to implement solutions.

Participation in Rail CRC Research

In 2013-14 Safer Roads and Rail Unit and the Rail Regulation Unit continued to provide financial and in-kind support to the research projects of the Rail CRC. Rail safety related research projects that have been completed by the Rail CRC in 2013-14 included:

- Understanding pedestrian behaviour at level crossings
- Intelligent transport systems for safer level crossings
- Rail incident investigator training and competency framework
- Safety case for driver-only operations.

The Rail CRC closed its research program on 30 June 2014 and was replaced by another research entity, the Australasian Centre for Rail Innovation (ACRI). Other Rail CRC projects relating to level crossing safety were carried over to ACRI for completion by December 2014.

Participation in National Rail Safety Reform

Safer Roads and Rail continued to lead in developing a new Queensland Rail Safety Law that is broadly consistent with the Rail Safety National Law. Work is continuing in this area.

Part 3: Rail Industry Safety Performance

In Queensland, rail transport operators are required to report notifiable occurrences to the Rail Safety Regulator. The Rail Safety Regulator uses this data to determine risks within the rail industry and to measure rail safety performance.

For the purposes of analysis and reporting, each notifiable occurrence report that is received is classified according to the national Occurrence Classification – Guideline One (OC-G1). The unit of classification is the top event of an occurrence, which is defined as the event with the greatest adverse outcome, expressed in terms of injury, property damage or accident. A list of incident types is included in Appendix 2.

An occurrence is also classified by seriousness into either a Category A (major) or Category B (minor) occurrence. Sections 31 and 32 of the *Transport (Rail Safety) Regulation 2010* provide guidance on whether a notifiable occurrence is classified as Category A or Category B.

Category A notifiable occurrences are an event which is one or more of the following:

- an accident or incident that has caused significant property damage, serious injury or death
- a running line derailment
- a running line collision between rolling stock
- a collision at a railway crossing between rolling stock and either a road vehicle or a person
- a fire or explosion on or in rail infrastructure or rolling stock that affects the safe carrying out of the railway operations or has endangered one or more persons
- a terrorist attack or an act or event suspected to be a terrorist attack
- an accident or incident involving an inadequacy in the safety management system for the railway operations that could have caused significant property damage, serious injury or death.

In the 2013-14 financial year there were 102 Category A occurrences reported. This represents an increase of 10% compared with the previous financial year. However, this year's Category A occurrences were 18% lower than the Category A average of 124 over the preceding four years.

There were 13,715 Category B occurrences reported in 2013-14, also showing a 10% increase from the previous financial year.

Figure 4 shows the number of notifiable occurrences reported by quarter since 2009-10 by seriousness. The large dips in Category A reporting in the third quarters of the 2010-11 and the 2012-13 financial years can be attributed to widespread flooding that inundated Queensland in January 2011 and January 2013, causing closures to the rail network.

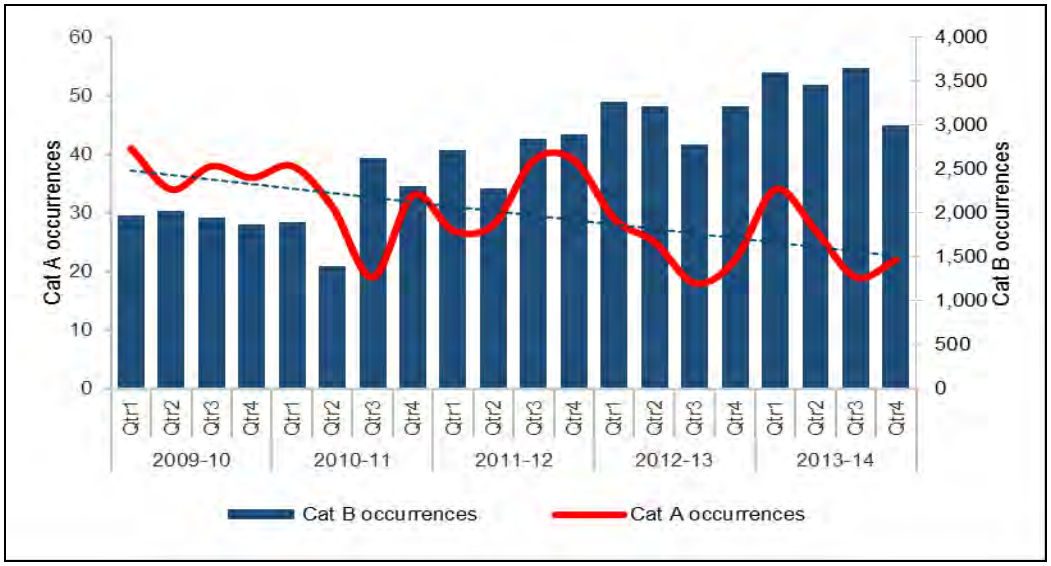

Figure 4: Notifiable occurrences by category level

Fatalities (excluding suicides and natural causes)

A fatality is defined as a person who has died within 30 days of a railway occurrence, from injuries sustained in that occurrence. This does not include people who have died due to natural causes, assaults or suspected suicides.

In the 2013-14 financial year there were two fatalities reported. One was the result of a collision between a train and a pedestrian at a level crossing, while the other was the result of a collision between a train and an intoxicated person who was leaning out from a station platform. While this is higher than the single fatality in the previous financial year, it is also below the yearly average of four fatalities over the preceding four years.

The majority of fatalities are due to collisions either at level crossings or running line collisions. While both types of occurrence are a direct result of railway operations, it is worth identifying where the balance of responsibility for managing this risk lies in these occurrences. For example, of the seven running line collision fatalities since 2009-10, five were the result of a collision between a train and a person trespassing within the rail corridor. In these cases the balance of responsibility for managing this risk lies with the individual who chose to engage in dangerous behaviour rather than with the rail transport operator. Table 2 shows the number of fatalities by occurrence type while Figure 5 shows the number of fatalities by person type in Queensland since 2009-10.

Table 2: Fatalities (excluding suicides and assaults)

Type		2009-10	2010-11	2011-12	2012-13	2013-14	Total Fatalities	%
Direct result of railway operations	Running line collisions	2	2	1	1	1	**7**	**37%**
	Level crossing collisions	1	1	3	0	1	**6**	**32%**
Fatalities as a direct result of railway operations		**3**	**3**	**4**	**1**	**2**	**13**	**68%**
Incidental to railway operations	Slips, trips or falls	0	0	2	0	0	**2**	**11%**
	Railway trespass	0	1	2	0	0	**3**	**16%**
	Other	0	0	1	0	0	**1**	**5%**
Fatalities incidental to railway operations		**0**	**1**	**5**	**0**	**0**	**6**	**32%**
Total Fatalities (excl. suicides and assaults)		**3**	**4**	**9**	**1**	**2**	**19**	**100%**

Of the 19 fatalities reported since 2009-10, nine were people trespassing within the rail corridor, eight were members of the general public and two were passengers (Figure 5).

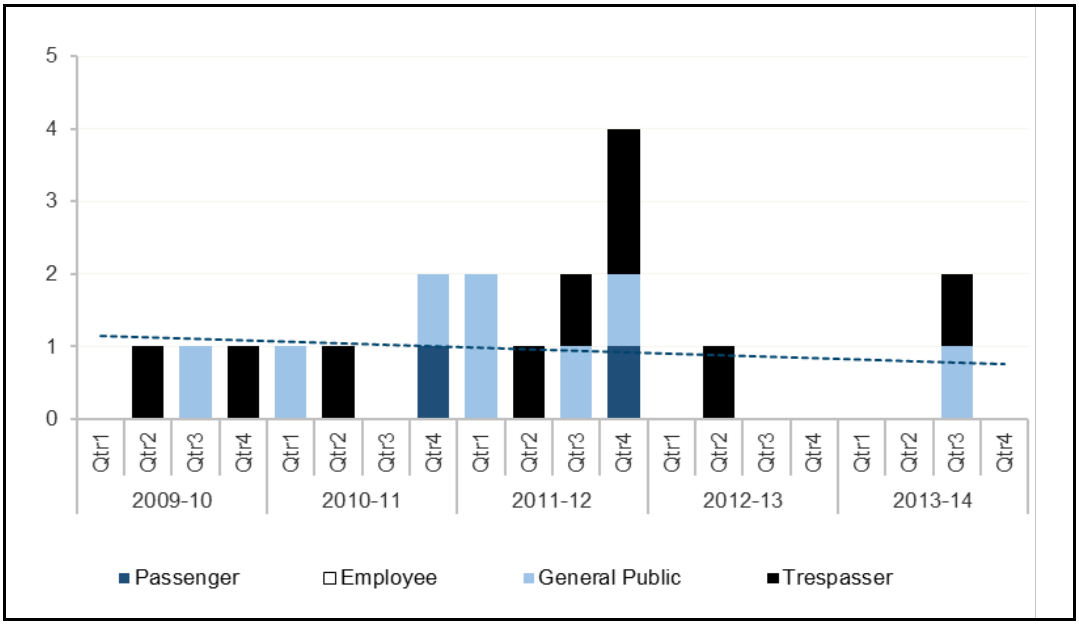

Figure 5: Fatalities (excluding suicides and assaults) by person type

Serious Injuries (excluding attempted suicides, assaults and pre-existing medical conditions)
Serious injuries are defined as injuries as a result of a railway occurrence where the person is admitted to hospital because of those injuries.

In 2013-14 there were 19 people admitted to hospital as the result of a notifiable occurrence in Queensland. Of these, 13 (68%) were the result of a slip, trip or fall. These figures are reasonably consistent with those reported between 2009-10 and 2012-13, which has seen an average of 18 serious injuries per year with 69% being the result of a slip, trip or fall. The serious injuries reported in 2013-14 was 14% lower than that for the previous year.

In contrast to fatalities there is a greater proportion of serious injuries which can be considered incidental to railway operations (78% of serious injuries since 2009-10). These are primarily the slip, trip or fall occurrences (89% of hospitalisations incidental to railway operations). Of the slips, trips or falls, the majority (78% since 2009-10) occur on stairs, ramps and escalators at stations or on station concourses rather than occur while on a train or while entraining or detraining. Table 3 shows the number of serious injuries reported by financial year by type of occurrence.

Table 3: Serious injuries (excluding attempted suicides, assaults and pre-existing medical conditions)

Type		2009-10	2010-11	2011-12	2012-13	2013-14	Total	%
Direct result of railway operations	Running line collisions	2	1	1	5	0	9	**10%**
	Level crossing collisions	2	1	3	1	3	10	**11%**
	Yard collisions	0	0	1	0	0	1	**1%**
Serious injuries as a direct result of railway operations		**4**	**2**	**5**	**6**	**3**	**20**	**22%**
Incidental to railway operations	Slips, trips or falls	10	9	16	15	13	63	**69%**
	Railway trespass	1	1	0	1	1	4	**4%**
	Other	0	1	1	0	2	4	**4%**
Serious injuries incidental to railway operations		**11**	**11**	**17**	**16**	**16**	**71**	**78%**
Serious injuries		**15**	**13**	**22**	**22**	**19**	**91**	**100%**

Figure 6 shows the person type of serious injuries since 2009-10. Of the 91 serious injuries reported, there were 50 passengers, 26 members of the public, 11 trespassers and four employees.

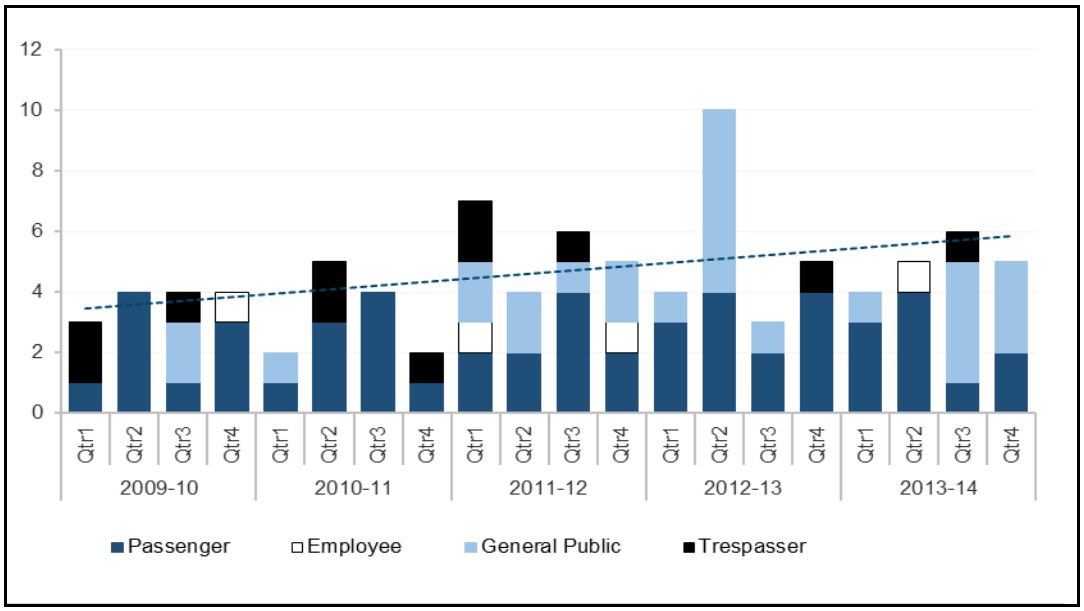

Figure 6: Serious injuries (excluding attempted suicides, natural causes and assaults) by person type

Details of serious incidents reported in 2013-14 are in Appendix 3.

Minor Injuries

There were 474 minor injuries reported in the 2013-14 financial year. This is above the average number of 457 reported over the preceding four financial years. Since 2009-10 over 95% of minor injuries have been slips, trips or falls. Figure 7 shows the number of reported injuries by person type. Over 90% of minor injuries that have occurred involved a train passenger.

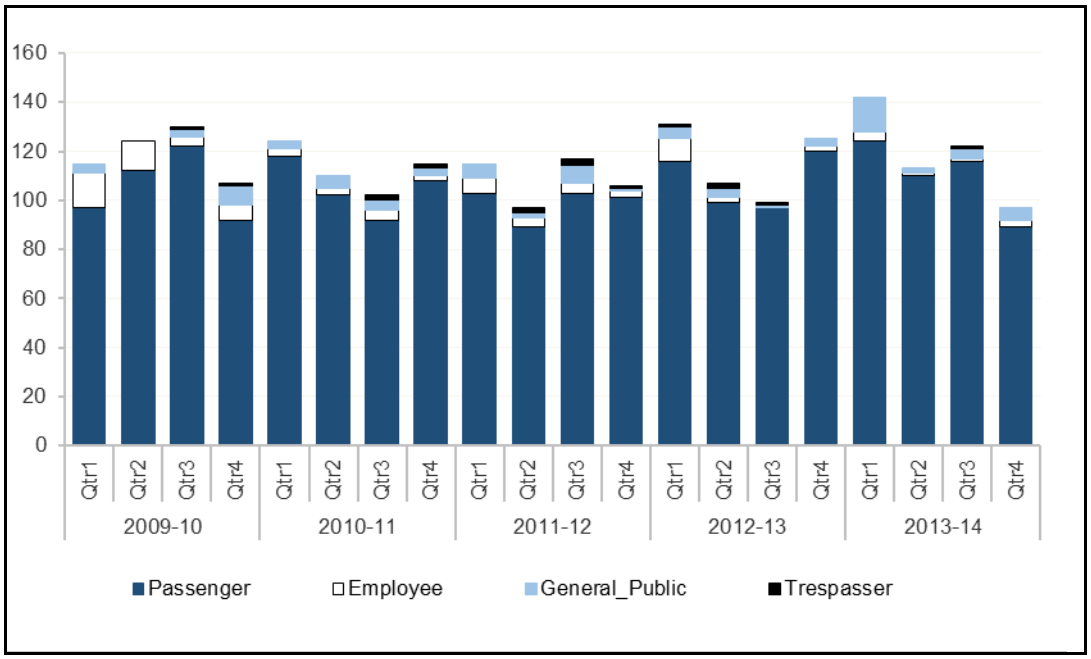

Figure 7: Minor injuries by person type

Notifiable occurrences

Table 4 shows a summary of notifiable occurrences reported to the Rail Safety Regulator for the period 2009-10 to 2013-14. Details (quarterly breakdowns) are in Appendix 4.

Table 4. Number of selected notifiable occurrences, Queensland, 2009-10 to 2013-14

Occurrence Type* / Financial Year	2009-10	2010-11	2011-12	2012-13	2013-14	Ave 2009-10 to 2012-13
Running line derailments	38	41	36	26	20	35.3
Yard line derailments	157	147	149	187	99	160.0
Running line collisions	9	5	5	7	5	6.5
Yard collisions	54	45	45	52	48	49.0
Level crossing collisions - persons	0	0	2	1	2	0.8
Level crossing collisions - road vehicle	11	10	10	13	9	11.0
Level crossing near misses - persons	236	219	203	126	113	196.0
Level crossing near misses - road vehicle	464	307	372	352	225	373.8
SPAD - train crew error	103	81	76	98	92	89.5
SPAD - Technical	260	252	291	279	292	270.5
Proceed Authority Exceeded - train crew error	6	11	7	6	8	7.5
Slip, trip or fall	616	526	561	572	660	568.8
Track and civil infrastructure irregularities	664	960	811	1089	817	881.0
Safew orking rule or procedure breach	199	174	167	122	109	165.5
Load irregularities	338	162	285	326	319	277.8
Electrical infrastructure irregularities	149	143	162	108	87	140.5
Rollingstock irregularities	405	488	610	449	628	488.0

* Not all OC-G1 occurrence types are included in table

Derailments

There were 20 running line derailments reported in 2013-14 which is 43% below the average of 35 reported between 2009-10 and 2012-13. Of the 20 running line derailments in 2013-14, 17 were freight trains, two were track machines and one was a non-suburban passenger train. There were no suburban passenger train derailments.

There were also 99 yard derailments reported which was a significant decrease (down 47%) from the 187 reported in the previous financial year.

Despite the comparatively high frequency of yard derailments, they are generally low risk incidents involving low-speed movements of freight rolling stock and empty passenger sets. Running line derailments are of primary concern because of the potentially severe consequences associated with higher track speeds and multi-fatality potential in regards to passenger trains.

Collisions

There were five running line collisions classified as Category A incidents in 2013-14. Two were running line collisions between trains and two were running line collisions with rolling stock. The other was a running line collision with a person not at a level crossing.

There were also a further 503 running line collisions classified as Category B incidents, involving 274 running line collisions with animals or livestock, 206 running line collisions with obstructions, 22 running line collisions with infrastructure and one collision with a person. Collisions with obstructions includes collisions with natural objects such as tree branches that fall on the track, mud slides and objects intentionally placed on the track by vandals.

There were 48 yard collisions reported in 2013-14 which is slightly below the annual average of 49 over the preceding four years. Of these 48 collisions, 27 were collisions with obstructions, 12 were collisions with infrastructure, six were collisions with rolling stock and three were collisions with animals.

Level Crossing Occurrences

Level Crossing Collisions

In 2013-14 there were 11 level crossing collisions in Queensland; nine were with road vehicles and two with persons. This is slightly below the annual average of just under 12 collisions over the preceding four years. Of the 58 collisions at level crossings since 2009-10, five involved pedestrians.

Of the level crossing collisions with road vehicles in 2013-14, four occurred at crossings protected by active protection (boom gates or flashing lights) and five at crossings with passive protection (stop or give way signs). The two level crossing collisions with persons occurred at pedestrian crossings protected by pedestrian gates. In all of the circumstances, the road user disobeyed the road rules and the rail operation did not contribute to the incident.

Since 2009-10 there have been six fatalities as a result of level crossing collisions in Queensland. In 2013-14, there was one fatality, three hospitalisations and two minor injuries reported as a result of level crossing collisions.

Level Crossing Near Misses

Along with the level crossing collisions there have also been numerous near misses with both road vehicles and persons reported since 2009-10. In the 2013-14 financial year there were 225 near misses with road vehicles and 113 near misses with persons reported.

A near miss is defined as any occurrence where the driver of a moving train takes emergency action or has insufficient time to take emergency action to avoid impact with a road vehicle or person at a level crossing and no collision occurred. Emergency action includes continuous audible warning and/or brake application. Incidents where the driver did not take emergency action but road vehicles or persons crossed when lights were flashing or gates were closed are not reported as near misses.

Boom Strikes

Other level crossing occurrences include boom strikes, which is when a road vehicle collides with the level crossing equipment at crossings protected by boom gates. In 2013-14 there were 146 reported boom strikes. This is below the annual average of 193 reported between 2009-10 and 2012-13.

Signal Passed at Danger

A signal passed at danger (SPAD) is an occurrence where a train is not authorised to pass a signal. A SPAD is a precursor safety occurrence – that is, an event which could, under specific circumstances where other defence mechanisms fail, lead to a serious rail safety incident.

There are five subcategories of SPAD. The three subcategories in terms of train crew error risk are ‘driver misjudged’, ‘completely missed while running’ and ‘starting against signal’. Technical SPADs are those where a proceed signal changes to stop in the face of the driver giving insufficient time for the train to brake to a stop prior to passing the signal at danger.

There were 92 train crew error SPADs reported in the 2013-14 financial year. This is slightly above the annual average of just under 90 SPADs over the preceding four years.

Other notifiable occurrences

There are a number of other minor notifiable occurrences which are reported by rail transport operators. These include occurrences such as exceed limits of authority, track and civil infrastructure irregularities, rolling stock irregularities, electrical irregularities, load irregularities and safeworking breaches.

The Rail Safety Regulator will continue to examine and use the data reported by rail transport operators to guide its regulatory activities in 2014-15.

Appendix 1: Accredited Rail Transport Operators as at 30 June 2014

Organisation	Rail Infrastructure Manager	Rolling Stock Operator	Commercial	Tourist and Heritage	Date Accredited
3801 Limited		✓	✓		29.09.2005
Adani Mining Pty Ltd	✓	✓	✓		31.07.2012
Airtrain Citylink Ltd	✓	✓	✓		14.10.1998
ATEC Freight Terminals Pty Ltd	✓		✓		18.04.2013
Atherton–Herberton Historic Railway Inc	✓	✓		✓	1.11.2010
Aurizon Network Pty Ltd	✓	✓	✓		1.07.2010
Aurizon Operations Ltd	✓	✓	✓		1.07.2010
Australia Eastern Railroad Pty Ltd	✓	✓	✓		1.09.2008
Australian Narrow Gauge Railway Museum Society	✓	✓		✓	19.06.1997
Australian Rail Track Corporation Ltd	✓	✓	✓		15.01.2010
Australian Railway Historical Society	✓	✓		✓	19.06.1997
Australian Society of Section Car Operators Inc		✓		✓	5.03.2002
Australian Tube Mills Pty Ltd	✓	✓	✓		30.03.2004
BM Alliance Coal Operations Pty Ltd	✓	✓	✓		1.06.2012
Bombardier Transportation Australia Pty Ltd	✓	✓	✓		5.02.2008
Bowen Coke Pty Ltd	✓	✓	✓		1.3.2010
BP Australia Pty Ltd		✓	✓		9.9.2013
Brand Productions Corporate	✓		✓		10.12.2010
Bundaberg Steam Tramway Preservation Society Inc	✓	✓		✓	17.11.2011

Organisation	Rail Infrastructure Manager	Rolling Stock Operator	Commercial	Tourist and Heritage	Date Accredited
Cairns Kuranda Steam	✓	✓	✓		14.05.2001
Cement Australia Pty Ltd		✓	✓		9.12.2013
Coleman Rail Pty Ltd		✓	✓		1.05.2013
Copper Refineries Pty Ltd	✓	✓	✓		15.06.2010
Darling Downs Historical Rail Society Ltd	✓	✓		✓	21.10.2008
Downer EDI Rail Pty Ltd	✓	✓	✓		15.10.2009
Downer EDI Works Pty Ltd		✓	✓		1.04.2010
Freightliner Australia Pty Ltd		✓	✓		14.05.2007
Genesee and Wyoming Australia Pty Ltd		✓	✓		25.11.2002
Ginger Headquarters Pty Ltd	✓	✓	✓		4.11.2013
GoldLinQ Pty Ltd	✓	✓	✓		3.05.2011
GrainCorp Operations Ltd	✓	✓	✓		19.04.2000
Great Southern Rail Limited		✓	✓		20.05.2003
Hancock Coal Infrastructure Pty Ltd	✓		✓		1.12.2011
Incitec Pivot Limited		✓	✓		15.03.2013
Interail Australia Pty Ltd		✓	✓		26.03.2002
John Holland Pty Ltd		✓	✓		10.08.2009
Laing O'Rourke Australia Construction Pty Ltd		✓	✓		5.12.2011
Lend Lease Engineering Pty Ltd		✓	✓		10.8.2012
Mary Valley Heritage Rail Museum	✓	✓		✓	23.04.1998
Maryborough City Whistle Stop Committee		✓		✓	4.11.1999
McConnell Dowell Constructions (Aust) Pty Ltd		✓	✓		8.11.2010

Organisation	Rail Infrastructure Manager	Rolling Stock Operator	Commercial	Tourist and Heritage	Date Accredited
New South Wales Rail Transport Museum		✓		✓	3.04.1998
Northern Longhaul Railroad Pty Ltd		✓	✓		1.3.2014
NSW Trains		✓	✓		3.09.2004
Pacific National Pty Ltd	✓	✓	✓		28.06.2002
Port Douglas Steam Train Company Pty Ltd	✓	✓		✓	15.04.2003
Port of Brisbane Pty Ltd	✓		✓		11.11.1999
Queensland Nickel Pty Ltd		✓	✓		18.04.2013
Queensland Pioneer Steam Railway Co-Operative Ltd	✓	✓		✓	1.07.1997
Queensland Rail Limited	✓	✓	✓		1.07.2000
Ravenshoe Railway Co Ltd	✓	✓		✓	3.10.2006
Rhomberg Rail Australia Pty Ltd		✓	✓		1.06.2012
Rockhampton Regional Council	✓	✓		✓	13.06.2008
SCT Logistics		✓	✓		1.05.2007
Southern Downs Steam Railway Association	✓	✓		✓	29.05.2002
The Big Pineapple Corporation Pty Ltd	✓	✓	✓		2.04.2013
The Brisbane Tramway Museum Society	✓	✓		✓	21.11.2013
The Rail Motor Society Inc		✓		✓	14.11.2008
Thiess Pty Ltd		✓	✓		30.05.2011
Transfield Services (Australia) Pty Ltd		✓	✓		14.11.2013
UGL Rail Service Pty Ltd		✓	✓		24.9.2013
Wilmar Sugar Australia Limited	✓	✓		✓	22.12.2000

Appendix 2: Notifiable occurrences (Category A and Category B)

The *Transport (Rail Safety) Act 2010* specifies that rail transport operators must report certain occurrences that happen on (or in relation to), the rail transport operator's railway premises or railway operations.
Occurrence Classification – Guideline One (OC-G1), classifies occurrences as follows:

- Derailment
- Collision
- Level crossing occurrence
- Signal passed at danger (SPAD)
- Proceed authority exceeded
- Signalling and other proceed authority system irregularities
- Slip, trip or fall
- Load irregularity
- Dangerous goods occurrence
- Safeworking rule or procedure breach
- Track and civil infrastructure irregularity
- Rolling stock irregularity
- Electrical infrastructure irregularity
- Fire
- Explosion
- Suspected or attempted suicide
- Alcohol or drugs irregularity
- Train warning and enforcement system irregularity
- Communications systems failure
- Railway network security
- Runaway.

Full details of OC-G1 can be found on the Transport and Main Roads website.

Appendix 3: Serious incidents, 2013-14

In the 2013-14 financial year there were 20 serious rail safety incidents. Each of the listed incidents resulted in a serious injury to a person or a fatality.

Fatalities

Date	QT Reference Number	Description	Description
3 January 2014	4885	Level Crossing Occurrence	At 6.47am a female pedestrian was struck by a train at Barrack Road level crossing, Cannon Hill. Information suggests that the deceased has gone around the active pedestrian protection in place at the level crossing and has then stepped into the path of an express Cleveland bound train which caused fatal injuries.
11 February 2014	4904	Collision	At approximately 9.00pm a male was standing on the edge of the platform at Lawnton station. The male was watching the wagons of a freight train go past and was struck in the head by the corner of one of the wagons. The injuries were fatal.

Serious injuries

Date	QT Reference Number	Description	Description
17 July 2013	4791	Slip, Trip or Fall	A male pedestrian was walking the Creek Street stairs at Central Station, fell and injured left ankle. He was admitted to hospital for treatment for a broken leg and broken arm.
22 July 2013	4790	Slip, Trip or Fall	A female passenger proceeding through the subway from Central train station to Anzac Square, slipped and fell. The passenger suffered a serious knee injury.
10 August 2013	4804	Slip, Trip or Fall	An intoxicated male passenger fell down the stairs while exiting Zillmere train station. The passenger suffered minor injuries.
3 October 2013	4839	Slip, Trip or Fall	An elderly female passenger was moving through a train carriage when the emergency brake application was applied. The passenger fell to the floor, hitting the lower left side of her body. The passenger continued to Rockhampton where she was transported to hospital, suffering a broken hip. The emergency brake application was due to an electrical failure of an automatic train protection track transponder.
3 November 2013	4858	Slip, Trip or Fall	A female passenger slipped on palm seed at the Rockhampton train station building. The passenger was transported to hospital with a suspected fractured wrist.
8 November 2013	4865	Slip, Trip or Fall	An elderly female passenger was walking along Central train station when they tripped and fell. The passenger was transported to hospital with a fractured hip.

Date	QT Reference Number	Description	Description
15 November 2013	4872	Slip, Trip or Fall	An elderly female fell while using the escalator at Central train station. She had mistaken the elevator for a travelator and lost her balance as the steps formed. She fell backwards with her luggage falling on top of her. She was transported to hospital and treated for a fractured pelvis.
21 November 2013	4882	Slip, Trip or Fall	A Queensland Rail employee fell from an elevated work platform. The employee sustained a break to their left hand, requiring surgery.
12 January 2014	4886	Track & Civil Infrastructure Irregularity	A white van driving along Lawler Road came off the road and rolled into the rail corridor. Rail traffic was suspended for approximately 4.5 hours to recover the driver and remove the van.
17 January 2014	4890	Level Crossing Occurrence	A vehicle failed to stop for an active level crossing at Jellicoe Street, Toowoomba. The vehicle collided with, and subsequently caused damage to, the boom gates and the 30th wagon of the train. The level crossing is protected by flashing lights, boom gates and an audible alarm. Two serious injuries were reported.
22 January 2014	4896	Slip, Trip or Fall	A customer with low vision fell down the curb at Gladstone Travel Centre. The passenger was admitted to hospital for surgery on a broken leg.
24 January 2014	4897	Track & Civil Infrastructure Irregularity	At approximately 7.15 am 24 January 2014, a Toyota Hino flatbed truck carrying an elevated work platform, collided with the Price Street railway bridge in Nambour. Driver admitted to hospital with minor injuries. Rail traffic was suspended until 4am the following morning, while repairs were completed.
15 March 2014	4919	Railway Network Security	At 12.25am on 15 March 2014, an intoxicated male was observed by security on private property adjacent to the Queensland Rail Ipswich South Yard. When disturbed the male ran and jumped down to the Queensland Rail property, landing on a star picket. The male was transported to hospital with serious injuries.
9 April 2014	4927	Level Crossing Occurrence	On 9 April 2014, a Queensland Rail tourist train travelling from Cairns to Kuranda collided with a road vehicle. The road vehicle had turned across a crossing in front of the train. The crossing was protected by stop signs and cross bucks.
9 April 2014	4930	Slip, Trip or Fall	On 9 April 2014, an elderly passenger was descending the stairs at Graceville Station. The passenger, who was carrying luggage in both hands, lost his balance and stumbled, hitting their arm against the handrail. The passenger was admitted to hospital for surgery.
16 April 2014	4937	Slip, Trip or Fall	An elderly passenger was attempting to navigate the stairs with the assistance of a walking frame with wheels. The passenger has fallen down the stairs and struck their head. Nundah Station is accessible by both stairwell and access ramps.

Date	QT Reference Number	Description	Description
21 April 2014	4935	Slip, Trip or Fall	Travel train Q301 stopped at Howard to allow passengers to detrain. While the train was stationary, an elderly female passenger (86) fell which caused herself injury which required medical attention. The passenger was removed from the train and transported to Hervey Bay Hospital by the QAS.
3 June 2014	4958	Slip, Trip or Fall	On 3 June 2014, a passenger at Bald Hills Station has stepped off the platform, falling onto the tracks. Two passengers assisted the person back onto the platform before using the emergency help intercom to inform Queensland Rail Network Control. Trains in the vicinity were suspended. The passenger may have suffered a seizure while intoxicated. The passenger was transported to hospital with lacerations to the head.

Appendix 4: Notifiable occurrences, 2009-10 to 2013-14

Queensland's rail transport operators are required under the *Transport (Rail Safety) Act 2010* to report on rail safety occurrences. The following figures show a quarterly numbers of rail safety occurrences notified for the five years from 2009-10 to 2013-14.

Derailments

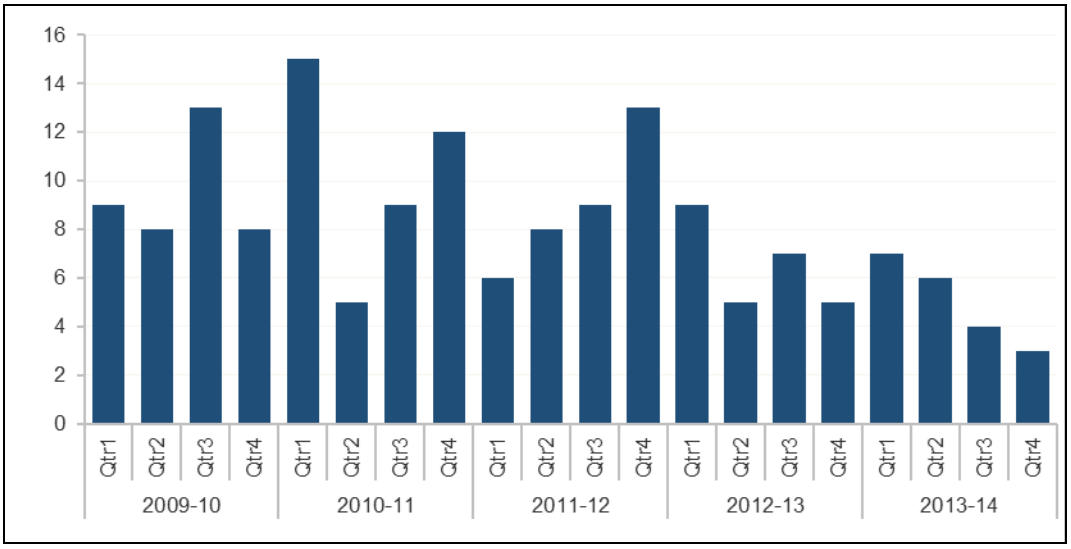

Figure 4-1: Running Line Derailments

A running line derailments is any derailment that affects the safe operations of a running line.

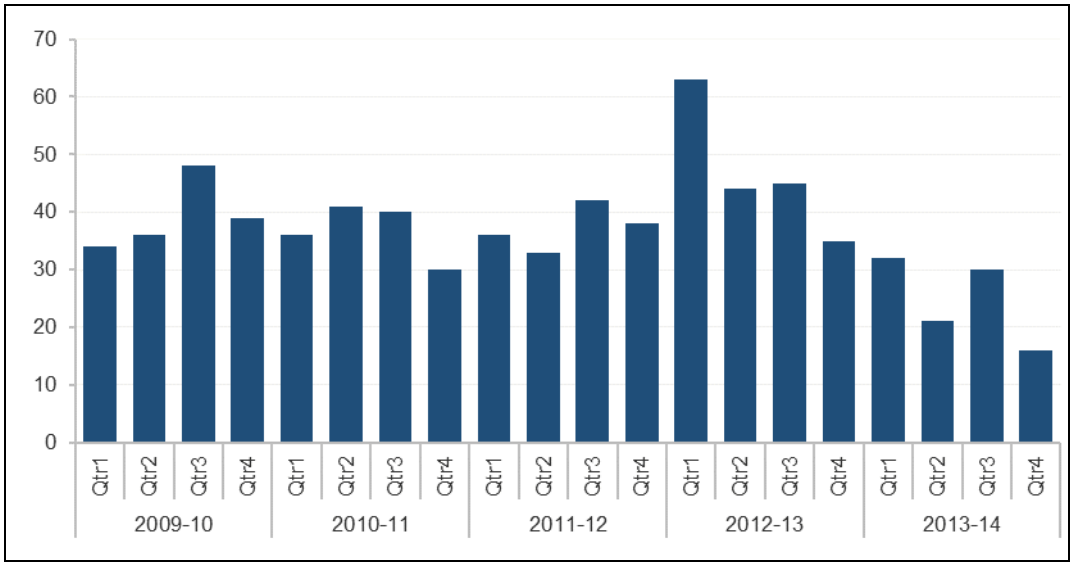

Figure 4-2: Yard Derailments

A yard derailment is any derailment other than a running line derailment.

Collisions

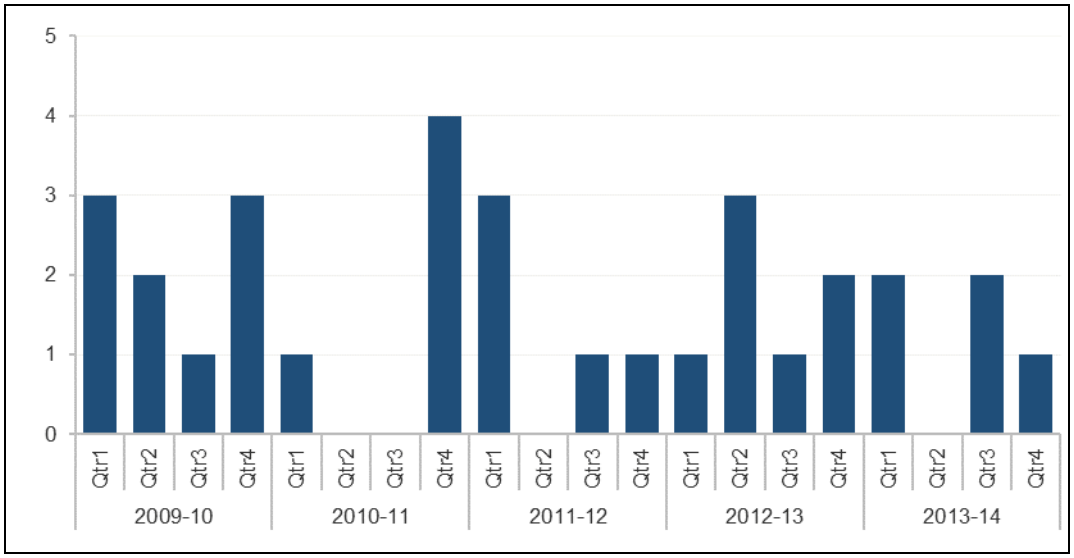

Figure 4-3: Running Line Collisions

Running line collisions include collisions between trains, with rolling stock, with vehicles or persons not at level crossings and with infrastructure.

Figure 4-4: Running Line Collisions between trains and with rolling stock

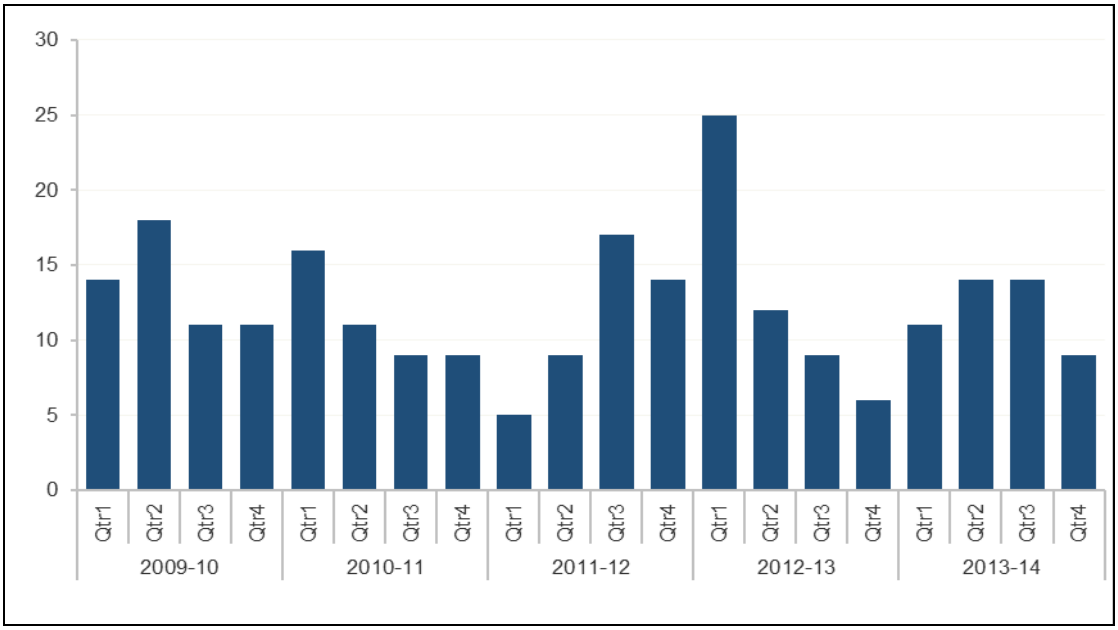

Figure 4-5: Yard Collisions

Level Crossing Occurrences

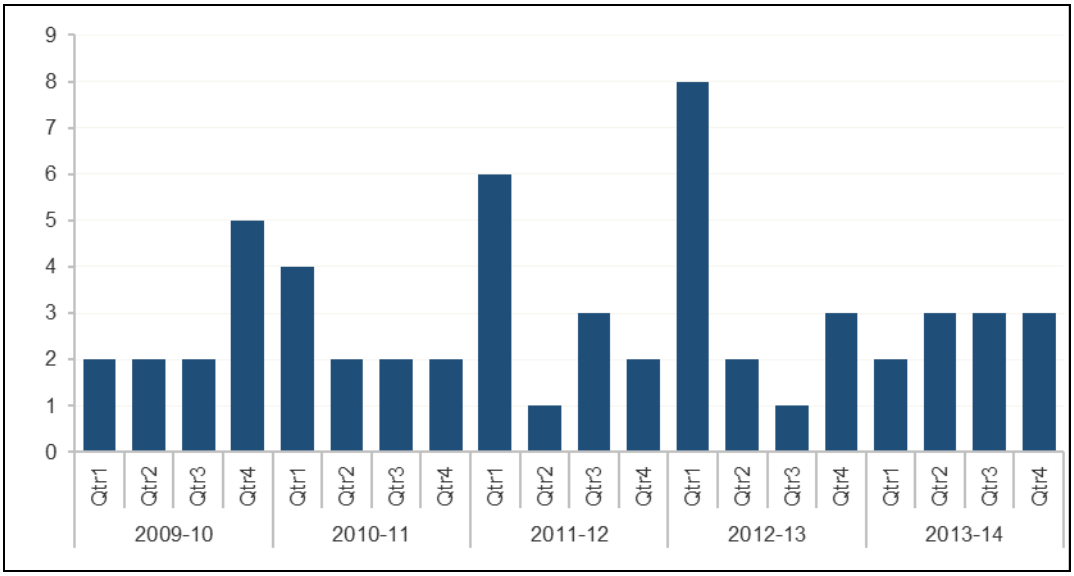

Figure 4-6: Level Crossing Collisions with vehicles or persons

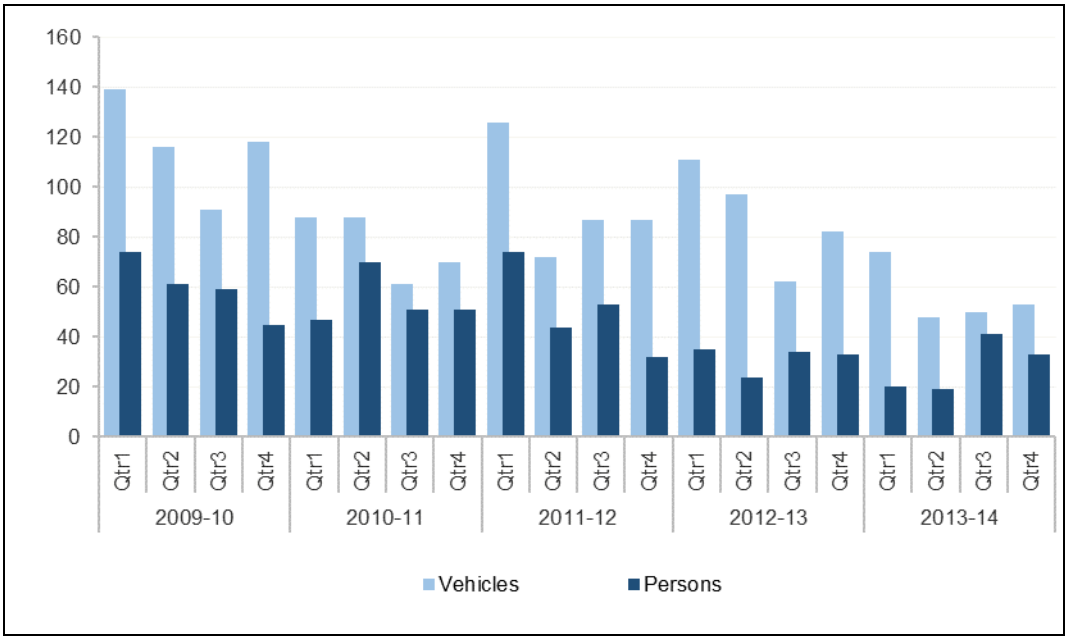

Figure 4-7: Level crossing reported near misses with vehicles and persons

A near miss is defined as any occurrence where the driver of a moving train takes emergency action or has insufficient time to take emergency action to avoid impact with a road vehicle or person at a level crossing and no collision occurred. Emergency action includes continuous audible warning and/or brake application. Incidents where the driver did not take emergency action but road vehicles or persons crossed when lights were flashing or gates were closed are not reported as near misses.

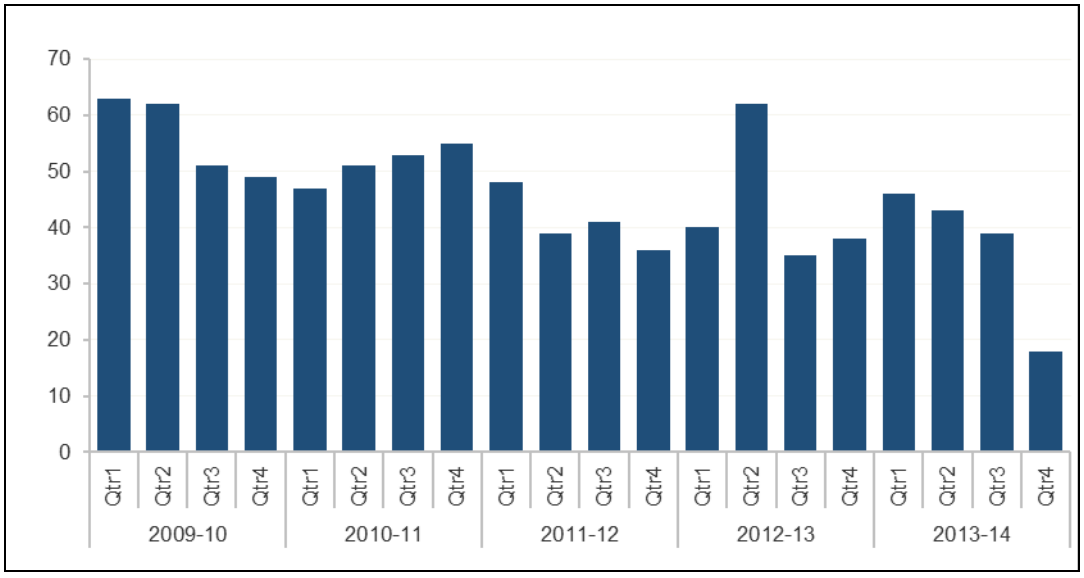

Figure 4-8: Level Crossing Occurrences (Boom Strikes)

Signal Passed at Danger

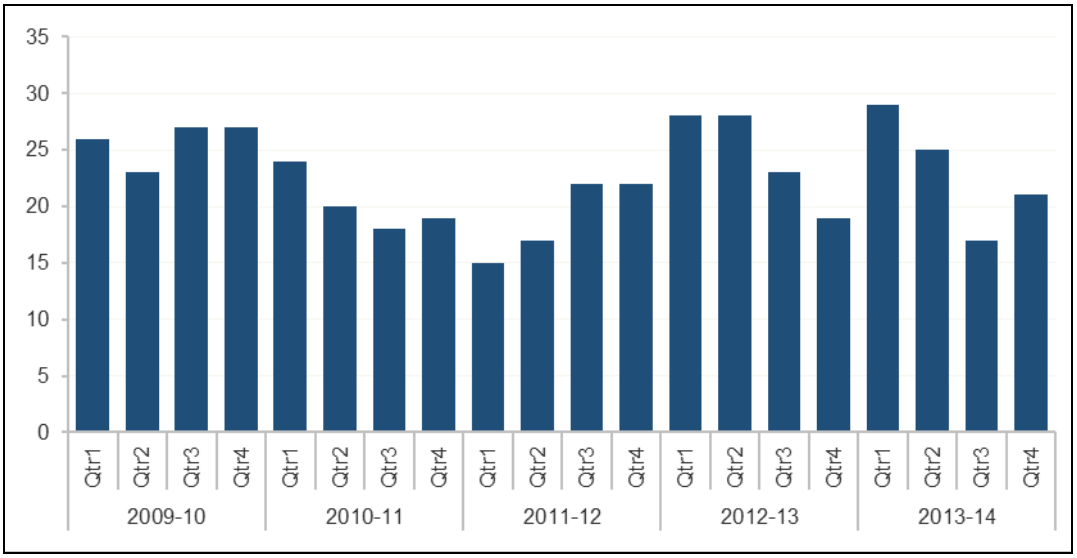

Figure 4-9: Train Crew Error SPADS

The three sub-categories of SPAD in terms of train crew error risk are driver misjudged, completely missed while running and starting against signal.

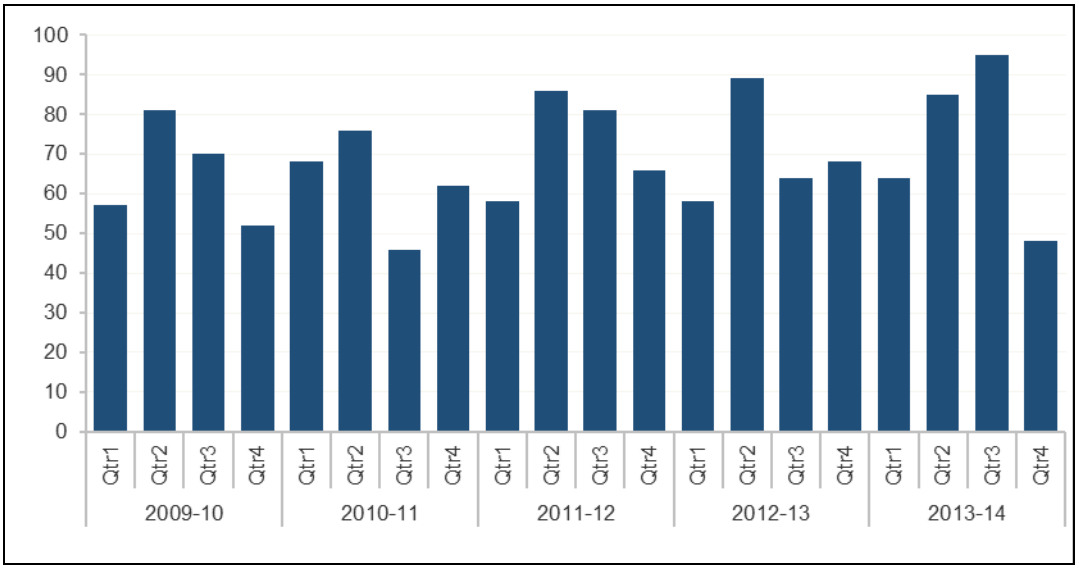

Figure 4-10: Technical Error SPADS

Technical SPADs are those where a proceed signal changes to stop in the face of the driver giving insufficient time for the train to brake to a stop prior to passing the signal at danger.

Other notifiable occurrences

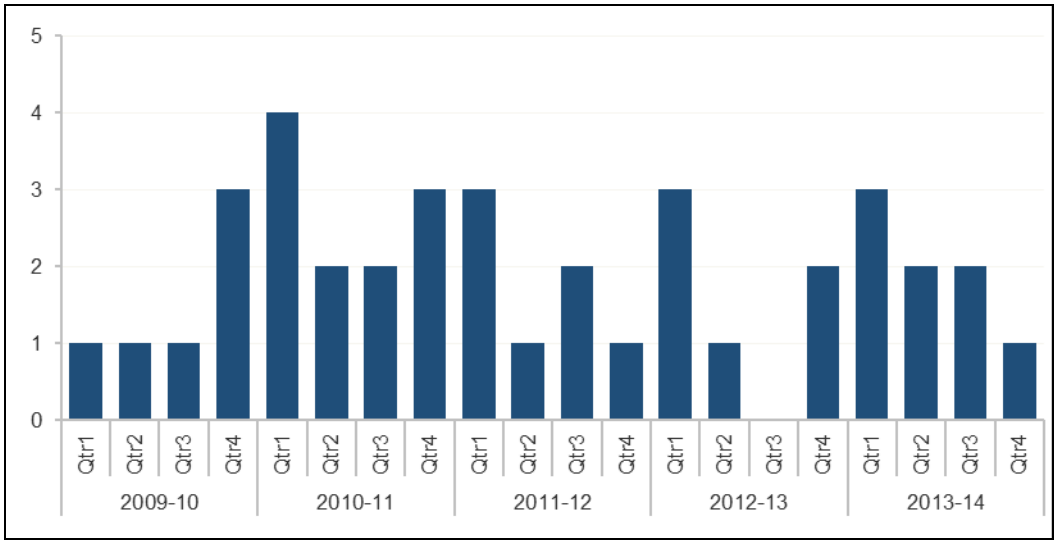

Figure 4-11: Exceed limit of authority occurrences

Exceed limit of authority incidents occur when a train exceeds the limits of authorised movements. It includes authorised movements such as train orders/authority, special authority orders, tokens, warrants and locations such as stop boards, limit boards etc. They do not include SPADs.

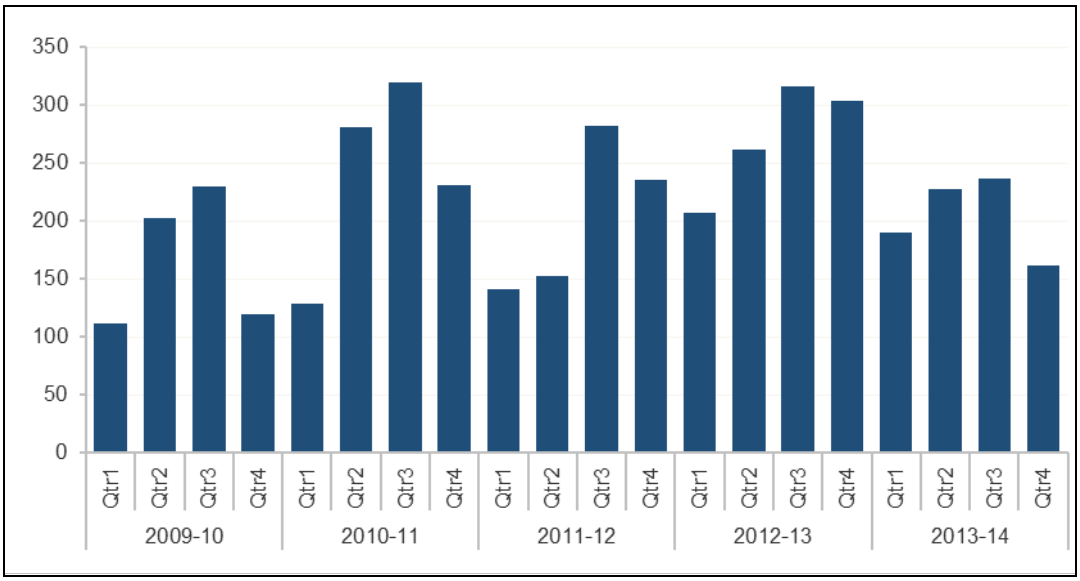

Figure 4-12: Track and Civil Infrastructure Irregularities

Track and civil irregularities are any irregularity in the track or civil infrastructure that endangers or has the potential to endanger the safety of railway operations, persons and/or premises. It includes broken rail, misalignment of track and spread track but excludes any irregularity detected and corrected under normal maintenance.

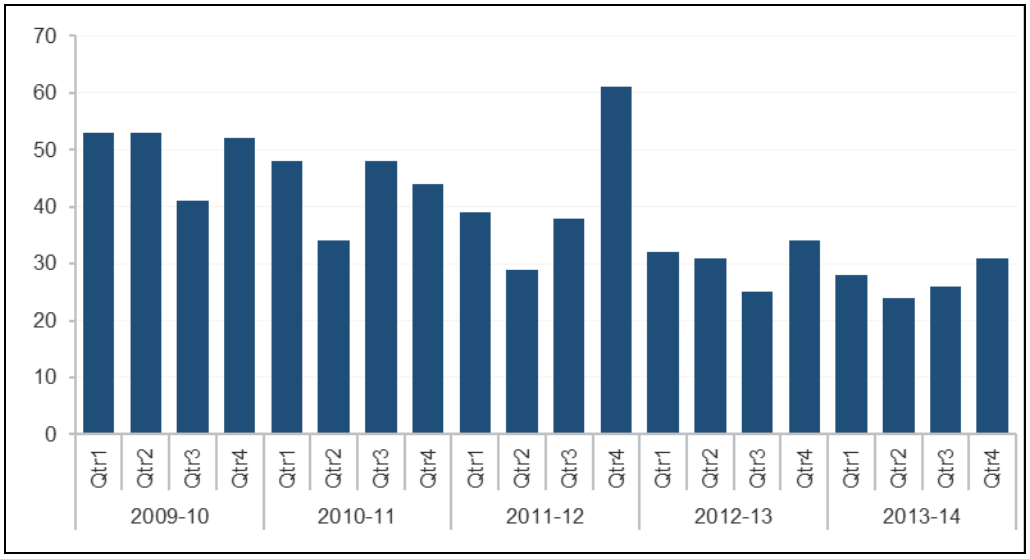

Figure 4-13: Safeworking Rule or Procedure Breach

A safeworking rule or procedure breach is any breach of an operational; safeworking system or procedure that endangers or has the potential to endanger the safety of railway operations or persons. It includes breaches such as human failures (intentional or unintentional), communication failures, and failure to act on information or to comply with directions. It excludes system failures identified as part of standard inspection and maintenance programs.

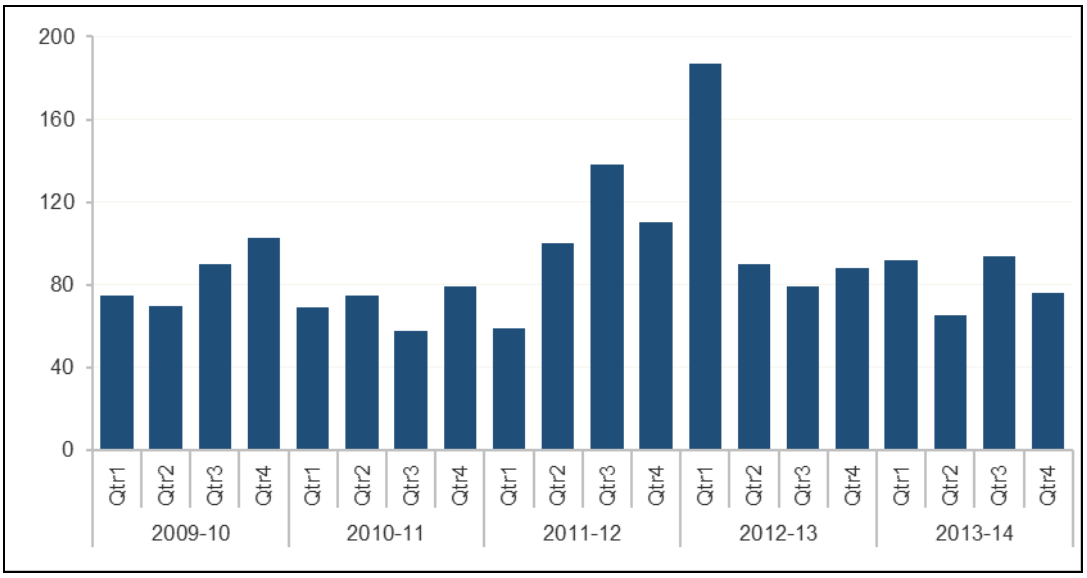

Figure 4-14: Load Irregularities

Load irregularities include situations where the load endangers or has the potential to endanger the safety of railway operations, persons and/or premises or causes damage. It includes open or incorrectly secured doors, loads that are placed or shifted out of gauge, load spills, uneven distribution of loads, loose load fastenings and overloading.

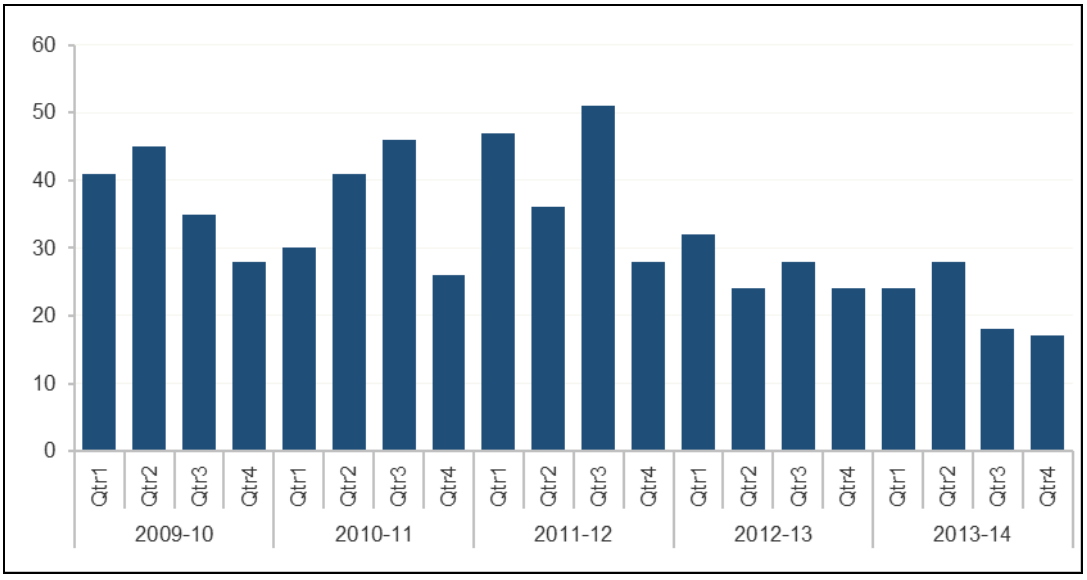

Figure 4-15: Electrical infrastructure irregularities

Electrical infrastructure irregularities are any irregularity in an electrical component that results in an electrical accident or endangers or has the potential to endanger the safety of railway operations, persons and/or premises. It includes fixed electrical equipment, defects in supply, dewirement or entanglements, failure of overhead line equipment and wiring.

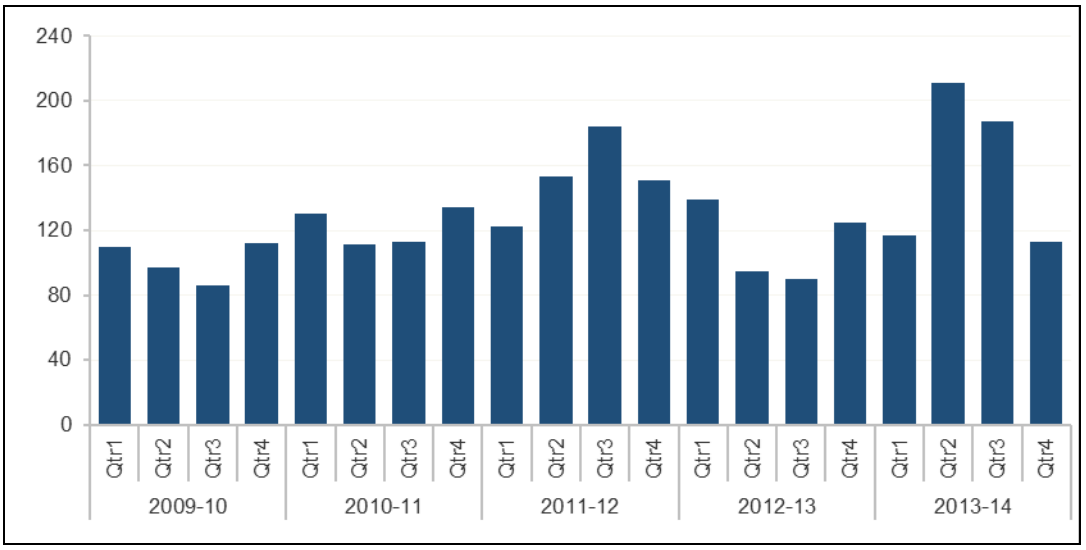

Figure 4-16: Rolling stock irregularities

Rolling stock irregularities include irregularities to rolling stock such as wheel, axle or bearing failures, train parting, braking system failures and faulty passenger doors.