

# rail safety update

NEWS AND UPDATES FOR THE RAIL  
INDUSTRY AND SAFETY ASSESSORS



NZ TRANSPORT AGENCY  
WAKA KOTAHI

April 2012

## Check those split pins!

A derailment occurred recently in a tourist/heritage organisation. Initial investigation revealed that the failure of a split pin had caused a piece of hand brake rigging to drop on to the track and derail a wagon and carriage. It is really important to carefully check all split pins during all rail vehicle inspections and to bear in mind that these can deteriorate with age.

## Australian comes to see how its done in NZ

The New South Wales rail regulators office passed on Merv's name to Peter Anderson, Vice President and Manager Rail Safety and Accreditation for Australian Railway Historical Society (ARHS) - ACT Division Inc. based in Canberra. This resulted in Peter arranging with Merv for a visit to New Zealand.

Peter was awarded a fellowship by the Winston Churchill Memorial trust in 2010 to carry out research in a number of countries (for details click [here](#)). Part of his research is examining the regulatory requirements governing the use of heritage rail equipment, particularly steam locomotives, used in mainline and private line operations.

Peter has specific interest in discussing from a regulators and operators perspective the regulatory background governing the practices of rail operators in New Zealand who use heritage equipment, including:

- Safety systems
- Safe working practices
- Training delivery methods
- Human factors pertaining to the use of volunteer, contract and full time employees
- Operation of heritage equipment, and

- Maintenance of heritage equipment.

The primary aim is to identify best practices that may be relevant to the Australian heritage railway operating environment.

Merv and Graeme met Peter in our Wellington office and Graeme arranged for Peter to visit Steam Incorporated at Paekakariki and Mainline Steam Heritage Trust at Plimmerton. These visits were particularly useful to Peter especially because both of those rail

organisations have Beyer Garratt articulated steam locomotives. The ARHS are currently restoring Beyer Garratt locomotive 6029 to get it ready for service again later this year.

Locomotive 6029 is one of a class of 42 which were the largest (weighing around 265 tonnes) and most powerful steam locomotives to run on any railway in Australia.



Merv took this photo of Peter (in the middle) enjoying his visit to Paekakariki with John Bovis and Russell Gibbard of Steam Inc.

# Quickly getting to the root of a problem

Having conducted a quick review of assessment condition responses, it is pleasing to see that most rail licence holders are getting to grips with the four-step assessment response process; however there are a number of responses where people have been struggling with the first step, that is, to identify the root cause.

|          |   |
|----------|---|
| Response | 1. Root cause ← Step 1 – Identify the root cause of the problem |
|          | 2. Corrective action  |
|          | 3. Preventative action  |
|          | 4. Evidence   |

Understanding the root cause of a condition is a key to eliminating any condition. A simple yet effective way of going about this can be to use the '5 Whys' technique. The article below gives you a brief history of the 5 Whys and how it can be applied.

## 5 Whys

### Definition of 5 Whys

Invented in the 1930's by Toyota founder Kiichiro Toyoda's father Sakichi and made popular in the 1970s by the Toyota Production System, the **5 Whys** strategy involves looking at any problem and asking:

### 'Why?' and 'What caused this problem?'

The idea is simple. By asking the question 'Why' you can separate the symptoms from the causes of a problem. This is critical as symptoms often mask the underlying causes of problems. As with effective incident classification, basing actions on symptoms is worst possible practice. Using the technique effectively will define the root cause of any non-conformances and subsequently lead you to defining effective long term corrective actions.

Often the answer to the first 'why' uncovers another reason and generates another 'why.' It often takes five 'whys' to arrive at the root cause of the problem. You will probably find that you ask more or less than 5 'whys' in practice.

By applying this concept Toyota moved from being an average quality car manufacturer to number one in the world with a reputation for quality.

### How to Use the 5 Whys

Example: Ask why 5 times

Non-conformance (condition)

Train #457 was in service with defective equipment and the safety case requires that the equipment be

operational.

### Why 1

*Why did the equipment fail?*

Because the circuit board burnt out.

### Why 2

*Why did the circuit board burn out?*

Because it overheated.

### Why 3

*Why did it overheat?*

Because it wasn't getting enough air.

### Why 4

*Why was it not getting enough air?*

Because the filter wasn't changed.

### Why 5 and root cause

*Why was the filter not changed?*

Because there was no preventive maintenance schedule in place informing the operator to do so.

The 5 Whys can help you uncover root causes quickly. You may find that there is more than one root cause for each non-conformance; preventative actions must be implemented for each of these.

To find more information about this content, go to Google and type in '5 whys' and there are plenty of excellent links for you to review.

# Variation to safety case

An application is required to the NZTA for any variation to your approved safety case.

Some examples of where a variation application would be submitted:

- A rewrite/update/new version of the Safety Case
- A rewrite/update/new version of the Safety System that could impact on safety
- A special event being run not covered by the Safety Case – Jigger rides etc

- The loaning/visiting of a locomotive from another organisation – unless you already have provision to cover this
- A vehicle under restoration entering service with the organisation for the first time

All variation application must include a risk assessment. Variations to an organisations' Safety Case should be submitted to the NZTA 20 working days prior to the event/activity. They should be submitted to your client manager. Electronic submissions are preferred.

## Reporting of accidents and incidents

In recent times there have been a few instances of accidents and incidents not being reported to the NZTA in the correct manner. Please remember that accidents and serious incidents should be reported by phone to the NZTA On Call number **(04) 499 1858** within two hours of the occurrence. This verbal report should be followed up with the normal written report. The written report should be emailed to [railreguation@nzta.govt.nz](mailto:railreguation@nzta.govt.nz) – not to your client manager or the Manager Rail Systems. This will ensure that the incident is dealt with correctly and in a timely manner.

The definition of an incident is (broadly) any event which could have placed a person at risk of serious injury or death or could have placed property at risk of significant damage. It is acknowledged that we have a reasonably robust reporting procedure in National Rail System Standard 5 (NRSS 5) for KiwiRail and other NRS operators but for other heritage and industrial operators it is often a judgement call. In the tourist/heritage and industrial sectors **all derailments must be reported.**

To assist with this we request that all operators read carefully the definitions of accidents and incidents in the Railways Act 2005 and that they seek further guidance on reporting timeframes from the *Rail Safety Licensing and Assessment Guidelines Appendix 2*: [www.nzta.govt.nz/resources/rail-safety-licensing-safety-assessment-guidelines/](http://www.nzta.govt.nz/resources/rail-safety-licensing-safety-assessment-guidelines/)

The new incident report form is available here: [www.nzta.govt.nz/resources/rail-incident-accident-form/docs/form.pdf](http://www.nzta.govt.nz/resources/rail-incident-accident-form/docs/form.pdf)

**Remember at all times – if in doubt – report it!**



# Safety Performance Report analysis

Reviews of the Safety Performance Reports (SPRs) submitted by all rail licence holders have been occurring over the last three months and the information and data has been collated into two main documents. One is simply actual data e.g. number of passengers, freight volume, kilometres travelled, etc. The other document records safety initiatives which have been identified, proposed and implemented.

According to the data that was reported in the SPRs, there have been a number of instances where rail licence holders are not always reporting incidents that have occurred to the NZTA. Verification of incidents reported in the SPRs against the NZTA's Rail Information System highlighted that the following are not always being reported to us:

- rail personnel/passenger injuries
- near collisions with vehicles/pedestrians
- shunting derailments.

It is good to see that these incidents matter to you, because obviously you have recorded them and are able to report on them at a later date. However, remember too that the Railways Act requires you to report incidents as well as accidents to the NZTA. An incident is an event that could have placed someone at risk of injury, or damaged property, even if in the particular circumstance no injury or property damage occurred.

Some of the safety issues identified in the SPR analysis that were similar in nature (from more than three rail licence holders) are:

- Level crossing near collisions
- Lack of visibility of staff working on-site
- Deficiencies in induction and/or training records/certifications.

Safety initiatives that were similar in nature (again identified from more than 3 rail licence holders) included:

- Complete review of the safety system/case
- Vegetation & debris maintenance
- Increased barriers and signage
- Improved/extra warning lights (vehicles and fixed points).

There were strong messages of improved communication and discussion of safety issues & initiatives and continuous improvement within the rail licence holder organisations. Discussions with local councils, schools and/or Police regarding near collisions and/or trespassing incidents (some of which have resulted in damage to infrastructure or personnel) are on-going projects.

The documents we have collated will be available for you to review in the near future - references to individual organisations will be removed and will be grouped into licence type, that is, tourist & heritage, industrial and others. This means you will all be able to read through the information and pick up some useful ideas to apply within your scope of activity. We will let you know how this will be distributed as soon as we are in a position to release the information.

The data the NZTA is talking about above covers the period 1 July 2010 – 30 June 2011. We are now not far from the end of the next reporting cycle, for the period ending 30 June 2012. The NZTA is working through various comments on the first report format used for the SPRs. We will be modifying it where necessary. The next safety performance reporting response date will be communicated to you nearer the end of June, once we have made a few amendments to the process.

Your input to this valuable data collection and reporting is highly valued, and with another year's worth of data we will be able to make some meaningful comparisons about the progress of the whole rail industry throughout New Zealand.



# Acting Manager Rail Systems

John Freeman, Manager Rail Systems, has been seconded to work on a project outside of rail, but still within the NZTA. Rob Gould has been appointed as the Acting Manager Rail Systems for the period John is away on his secondment.

Any matters for which you would normally contact John should be advised to Rob in the first instance. Rob will also continue to look after his group of rail clients throughout this period.

Rob's details are detailed below.

The project John is seconded to is focussed on disadvantaged and novice drivers which aims to assist disadvantaged and novice drivers with the mentoring and learning they need to pass the newly introduction road drivers licence tests.

## Correspondence to the NZTA

These days, all correspondence is filed in an electronic storage system here at the NZTA, so sending your letters, files or reports electronically saves us a bit of time.

Please send all of your electronic correspondence to your client manager and please 'cc' our Acting Rail Systems Manager - [rob.gould@nzta.govt.nz](mailto:rob.gould@nzta.govt.nz). However, if electronic mail is not available for your organisation 'snail mail' will still be answered!



## Our contact details

For general enquiries or contact information about the NZTA please check our website [www.nzta.govt.nz](http://www.nzta.govt.nz) or email us at [info@nzta.govt.nz](mailto:info@nzta.govt.nz)

NZ Transport Agency  
50 Victoria Street  
Private Bag 6995  
Wellington 6141

NZTA reception is located on level 2  
The Rail Systems team is located on level 3  
phone: (04) 894 5400 (option 4 - National Office)

### Rail Safety Notification Hotline

(24 hours 7 days a week)  
Phone (04) 499 1858

Rail enquiries: email us at [railregulation@nzta.govt.nz](mailto:railregulation@nzta.govt.nz)

### The Rail Systems team

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