Safety Bulletin

Learning lessons from international rail incidents

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Safety Bulletins identify areas of concern, share information and identify positive steps to enhance safety

The Office of the National Rail Safety Regulator (ONRSR) encourages the rail industry to review local and international incidents for lessons learned. The examination of rail incidents that have been investigated by international rail agencies can provide duty holders with information on incidents that could also affect local operations and opportunities to improve the management of safety risks in Australia.

This *Safety Bulletin* provides examples of serious incidents that have occurred overseas from which relevant lessons can be learned as well as a list of resources which are freely available online.

Learning from others

The rail industry globally is large, complex and growing rapidly. There is a wealth of 'free lessons' from incidents involving operators in the international rail community which could reduce similar threats in Australia.

ONRSR guidance on preparing a safety management system[1] states that "organisations should be able to show that they have used, and will continue to use relevant information from…overseas experience" in the identification of risks to safety. In addition, Standards Australia recently published guidelines on risk management[2] which state that risk identification "should be based on the best available information. In preparing for risk identification, relevant historical data should be compiled and analysed. The experience of similar organisations might also be useful."

Following serious accidents or incidents, many countries undertake comprehensive rail safety investigations which report findings and recommendations to the stakeholders concerned. It is appropriate for the rail industry to review these reports and identify what we can do better in Australia.

The 'big bang' or smaller incidents?

It is good practice to explore opportunities to learn from major incidents. However, just because an event is catastrophic does not guarantee that it will be the most worthy of detailed examination. In fact, in many cases, it is the smaller incidents where the

[1] *Preparation of a Rail Safety Management System Guideline*, Version 1, 20 January 2013, Section 2.17.2

[2] SA/SNZ HB 436:2013 *Risk management – Principles and guidelines*, companion to AS/NZS ISO 31000:2009

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closest correlation to Australian practice exists and where the most valuable lessons can be learned. It is important not to overlook a smaller incident just because it is small.

Incidents relevant to Australia

Examples of recent investigation reports from three countries have been chosen to illustrate the relevance of these reports to the Australian rail industry. The examples contain:

- significant incidents with valuable insights for other railways
- multiple learning points in addition to the most direct causal factors
- topics with much wider applications than the context of the particular incident
- information on broader safety management issues that may warrant action at various levels of an organisation.

The ONRSR does not necessarily agree with all of the content in the reports or suggest these reports should take priority over many others that could have been selected.

EXAMPLE 1 – Ireland

Incident: Runaway locomotive at Portlaoise Loop
Date: 29 September 2011
Investigating agency: Railway Accident Investigation Unit
Investigation report: Download
A single-manned light locomotive was momentarily left unattended in a yard at Portlaoise, on the route from Dublin to Cork via Limerick Junction. Despite the grade being only 1 in 230, the locomotive ran away almost immediately, striking the buffer stops in a bay platform road at the nearby station. Although there were no injuries and little damage, the potential for much more adverse outcomes under slightly different circumstances is readily apparent.

The direct causes of the incident were:

- a defect in the braking system of the locomotive
- the driver failing to carry out the full sequence of actions required when vacating a cab.

However, the investigation revealed that these factors were activated by a number of fundamental problems, such as:

- failure to carry out a scheduled major overhaul
- the last prior lower-level maintenance examination did not include a relevant test because it had been omitted from the most recent set of instructions
- no quality control processes in place for verifying the adequacy of engineering maintenance procedural changes
- the defect in the braking system not being detected in any pre-service checks carried out by multiple drivers
- significant systematic deficiencies in many aspects of the training, assessment and competency management of drivers.

The report illustrates how an apparently minor incident, with two direct and specific causes, can provide insights at a more general level that may be relevant to a wide range of potential incidents.

EXAMPLE 2 – United Kingdom

Incident: Fatal accident involving a track worker at Saxilby
Date: 4 December 2012
Investigating agency: Rail Accident Investigation Branch (RAIB)
Investigation report: Download

This report analyses the circumstances that led to a trackwork supervisor (known as a controller of site safety or COSS) being struck and killed by a train on a line adjacent to that on which the work was being done.

Adjacent-line protection is a frequent source of concern. In this case, the protection was effectively not in place because the COSS had not arranged a "safe system of work", none of the other workers had challenged this, and numerous failures of planning and implementation existed.

The report is significant because it analyses the failures of the complex interactions of contractors and sub-contractors, whereby responsibility for planning, supervision, competency management and procedural compliance was diffuse or effectively non-existent.

For instance the COSS had been involved in two other recent safety incidents, from which various parties had concluded that his certification as a COSS should be suspended; yet the person continued to work in the role because of a mixture of lack of clear lines of responsibility, perceived staffing limitations, and deliberate and inadvertent omissions.

The report also deals with various unsatisfactory aspects of the management of investigations.

Overall, in addition to its obvious relevance to the management of worksite protection, this report provides information relevant to the much wider areas of personnel management, contractor management and investigations processes.

It would be easy to dismiss the report as irrelevant to other railways because the terminology and the actual safeworking procedures are different, however, the matters of principle involved are universal.

EXAMPLE 3 – New Zealand

Incidents:
3(a) Track occupation irregularity leading to near head-on collision at Staircase, Craigieburn
3(b) Hi-rail vehicle nearly struck by passenger train, Crown Road level crossing, near Paerata
Dates: 13 April 2011 and 28 November 2011
Investigating agency: Transport Accident Investigation Commission (TAIC)
Investigation report: Download Craigieburn; download Paerata

Both reports deal with a train controller authorising a track vehicle to occupy track before an approaching train had passed because of an unverified belief that the train had passed. One incident resulted in a collision, while the other was a near miss. This situation is one of the most acknowledged hazards of track occupancy authorities.

At Craigieburn, the controller had an extremely heavy workload and other pressures, and (in effect) made the assumption that the train would have passed the point because sufficient time had elapsed under normal running conditions.

At Paerata, the hi-rail person-in-charge informed the controller that a suburban train had passed and the controller assumed that this was the regular-service train, when it was a training movement running ahead of the regular service.

The reports discuss the failures in the processes applied to verify that all prior trains had passed the intended worksite, and note that inadequacies in the available information were a contributing factor as well as actual failures to follow all required processes.

Much broader aspects are also identified as fundamental to the breaches including:

- excessive workloads without recognition that they existed or that they would have negative effects
- substantial changes in normal arrangements without risk-assessing their effects
- lack of support and supervision
- reluctance of staff to seek assistance when workload or stress levels are becoming excessive
- insufficient opportunity for breaks, including the effects of long periods without eating
- the likelihood that insufficient, directly-available information may lead to the making of assumptions
- poor planning and co-ordination of maintenance activities resulting in excessive requests for track access
- radio communications that are ignored either because the listener has turned down the radio volume or has focussed only on communications anticipated to be directed to them.

Both reports have much wider application than worksite protection and the work of train controllers. Many of the issues are pertinent to almost all categories of rail safety workers.

These reports highlight the importance for rail organisations to identify the specific context of the report and to establish its relevance to their operating environment even if the original context appears quite different.

Conclusion

The examples in this *Safety Bulletin* are timely reminders of the value of external sources of information to aid the identification of risks and learning of lessons. The ONRSR encourages readers to review these incidents for applicability to their business. A list of sources for such reports is available as part of the bulletin. Periodic review of these sources will reveal a wealth of information much of which can have value in managing rail safety risk in Australia.

Resources

The following table lists the most commonly referred to sources of investigation reports from domestic and international rail safety investigators. This list is not exhaustive but does refer to the sources most regularly referred to by the ONRSR.

Country	Organisation	Website
Australia (Commonwealth)	Australian Transport Safety Bureau (ATSB)	www.atsb.gov.au
Australia (New South Wales)	Office of Transport Safety Investigations	www.otsi.nsw.gov.au
Australia (Queensland)	Transport and Main Roads	http://www.tmr.qld.gov.au/safety/rail-safety/safety-reports.aspx
Australia (Victoria)	Office of the Chief Investigator, Transport Safety	www.transport.vic.gov.au/about-us/oci
New Zealand	Transport Accident Investigation Commission (TAIC)	www.taic.org.nz
United Kingdom	Rail Accident Investigation Branch (RAIB)	www.raib.gov.uk
Ireland	Railway Accident Investigation Unit (RAIU)	www.raiu.ie
Netherlands	The Dutch Safety Board	http://tele2.onderzoeksraad.nl/en/
Norway	Accident Investigation Board Norway	http://www.aibn.no/Railway/Published-reports
Sweden	Swedish Accident Investigation Authority	http://www.havkom.se/default.asp
United States	National Transportation Safety Board (NTSB)	www.ntsb.gov
Canada	Transportation Safety Board of Canada (TSB)	www.tsb.gc.ca/eng
South Africa	Rail Safety Regulator	http://www.rsr.org.za