



Transport safety alert

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13 April 2011 | TSA no. 36

Effective securement with handbrakes and stopblock functionality

Background

Several recent rail incidents have highlighted that:

- some existing stopblocks (both permanent and temporary) are not effective at stopping uncontrolled rolling stock movements. Insufficiently robust and/or insufficiently energy-absorbent stopblocks may be crushed, split, pushed ahead or pushed aside – thereby allowing the vehicles to continue beyond the stopblock location, possibly with serious consequences
- handbrakes are not being applied as required, or are not functioning as intended, on vehicles being shunted or stabled – thereby enabling runaways to occur (for example, towards stopblocks or catchpoints, towards other vehicles or workers, or directly onto running lines).

There has been a pattern of such events that have occurred over the last year. Examples are:

- locomotive stabled at Talbragar siding with handbrake applied ran away and derailed at the catch points
- seven wagons loaded with ore placed in a Port Kembla siding ran away and collided with the buffer stop. Buffer stop was demolished and one wagon was derailed
- track machines stabled on a slight grade at Wongawilli. One rolled into an adjacent machine even though handbrakes and wheel chocks were applied
- two locomotives stabled at CSA Mine Cobar with handbrakes applied ran away and derailed on the catchpoints at CSA Junction
- locomotive shunting a string of empty wagons down the old Tocomwal line at Narrandera pushed wagons through the stopblocks. Wagons ran away until running off the end of the track at a removed rail overbridge, falling down an embankment with one wagon blocking one lane of the Old Leeton Road
- two wagons loaded with concrete sleepers were reported to not be holding air at Braemar. Crew shunted wagons in the loop but the handbrakes did not hold and the wagons ran away until they derailed 100m past a stopblock and came to rest at a collapsed bridge
- wagon shunted and secured in yard at Moss Vale. Vibration from passing train allegedly caused handbrake to release, letting wagon run away and subsequently collide with another wagon.

Actions

Rail infrastructure managers and rolling stock operators should therefore reassess as soon as reasonably practicable:

- 1 the adequacy of coverage of these matters in their standards, risk registers, defect management systems and other relevant documentation
- 2 the appropriateness and effectiveness of extant risk controls such as stopblocks, and the need for redundancy in risk controls such as the provision of combinations of derailment devices and stopblocks, and the use of chocks or other devices in addition to handbrakes
- 3 the capability of existing stopblocks to serve their intended purpose, ensuring that they are designed and maintained to withstand being struck by rolling stock and to absorb sufficient energy in a worst-case scenario
- 4 the adequacy of instructions for the application of handbrakes, including the requirements for the number of vehicles to be secured on different gradients
- 5 the maintenance and inspection procedures which manage the possibility of defective or poorly designed handbrakes, and the defences which exist against such defects leading to adverse outcomes (including, but not limited to, techniques for detecting cases where attempted handbrake applications have not resulted in braking function)
- 6 the adequacy of processes for monitoring compliance with the relevant instructions and procedures.

In addition, attention is specially drawn to the following accident reports:

- the recent United Kingdom Rail Accident Investigation Branch (RAIB) report *Runaway and derailment of wagons at Ashburys* available at: http://www.raib.gov.uk/cms_resources/110324_R072011_Ashburys.pdf

This report identifies the underlying safety management issues leading to a situation where handbrakes had been applied but were not effective, and comments on the frequency of other such incidents in the UK

- the Office of Transport Safety Investigations (OTSI) report *Runaway grain wagon Temora* available at: <http://www.otsi.nsw.gov.au/rail/Investigation-Report-El-Zorro-Temora-Runaway-final.pdf>

This report deals with a mainline runaway initiated by an insecurely designed and insufficiently maintained handbrake. The defence intended to be provided by a stopblock then also failed.

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