



REASSESSMENT OF THE RESPONSES FROM TRANSPORT CANADA TO RAIL SAFETY RECOMMENDATION R08-01 - R06T0022

REMOVAL OF SUSPECT TRANSCONA WHEEL SHOP WHEEL SETS

Background

On 31 January 2006, at approximately 0750 Eastern Standard Time, southward Canadian Pacific Railway freight train 230-30 derailed one car at Mile 114.65 of the MacTier Subdivision. The train continued at 45 mph to Mile 103.48 near Buckskin, Ontario, where it experienced an undesired emergency train brake application and 11 additional cars derailed. Approximately 400 feet of track, including the Buckskin Siding north turnout and signal structures, were destroyed and the preceding 11 miles of track was heavily damaged. There were no dangerous goods involved and no injuries. The derailment cause was a loose freight car wheel.

In 2000, loose wheels began to occur on Canadian National's (CN) coal rail car fleet. By fall 2001, CN had traced the problem to a modified wheel boring process that had been used in the assembly of 36-inch wheel sets at its Transcona wheel shop between April 1998 and February 2001. The modified boring process resulted in wheel sets with reduced contact area between the wheel bore and axle wheel seat. Under normal service conditions, the reduced contact area led to higher stresses in the remaining areas of contact that initiated fretting at the tips of the bore spirals when the car was negotiating a curve. This resulted in brinell indentations occurring on the axle wheel seat that progressively loosened the interference fit. All of the wheel sets that were produced using the modified wheel boring process (approximately 43 800) have a high susceptibility to loosen, particularly in heavy-curvature territory.

Since loose wheels were first detected, CN and the Association of American Railroads (AAR) initiated an industry recall that included issuing AAR Early Warning letter (EW) 5183 and AAR Maintenance Advisory (MA) 74. However, due to shortfalls in the recall process, the risk has not yet been completely mitigated. Consequently, at least 25 per cent (10 000 to 12 000) of these wheel sets remain in service six years after the initial recall and loose wheel derailments continue to occur.

To date, at least 15 derailments in Canada have been attributed to suspect Transcona wheel shop loose wheels, 12 of which occurred after the recall process had been initiated. Since most of these two-wear wheel sets have an extended service life and the mode of failure takes time to develop, the risk of failure for these remaining wheel sets continues to increase the longer they remain in service.

Therefore, the Board recommended that:

The Department of Transport ensure that all 36-inch Canadian National Transcona wheel shop wheel sets assembled between April 1998 and February 2001 be removed from cars operating in Canada.

R08-01

Transport Canada's Response to R08-01 (July 2008)

Transport Canada (TC) accepts the Recommendation R08-01. On 13 June 2008, TC issued an Emergency Directive to CN pursuant to Section 33 of the *Railway Safety Act* (RSA) whereby CN is to identify and remove the said wheel sets from Canadian service, by no later than 15 October 2008.

Board Assessment of Response to R08-01 (July 2008)

TC has acknowledged the deficiency and have followed up with an Emergency Directive to CN pursuant to Section 33 of the *Railway Safety Act* (RSA) whereby CN is to identify and remove the said wheel sets from Canadian services, by no later than 15 October 2008. As it is too soon to evaluate the outcome of Transport Canada's Emergency Directive, the Board assesses the response to Board Recommendation R08-01 as having **Satisfactory Intent**.

Transport Canada's Response to R08-01 (November 2009)

TC believes that CN's compliance with the TC Emergency Directive and the various communiqués, including the AAR Early Warning System, has removed the immediate threat to safety by identifying and removing the majority of the suspect wheel sets. TC has requested a semi-annual report on any residual wheel sets identified.

Board Reassessment of Response to R08-01 (16 September 2010)

TC has followed up with subsequent action through the AAR and has requested a semi-annual report on any residual wheel sets removed. In consideration of the safety action taken by TC and by the industry to substantially reduce the risk, the Board reassesses the response to Recommendation R08-01 as **Fully Satisfactory**.

This deficiency file is **Closed**.