



REASSESSMENT OF THE RESPONSE TO RAIL SAFETY RECOMMENDATION R07-01 - R05E0059

RAIL TESTING, INSPECTION, AND MAINTENANCE

Background

On 03 August 2005, at 0509 Mountain daylight time, Canadian National freight train M30351-03, proceeding westward from Edmonton, Alberta, to Vancouver, British Columbia, derailed 43 cars, including 1 loaded car of pole treating oil, 1 car of toluene (UN 1294), and 25 loaded cars of Bunker C (heavy fuel oil) at Mile 49.4 of the Edson Subdivision near Wabamun, Alberta. Approximately 700 000 litres of Bunker C and 88 000 litres of pole treating oil were spilled, causing extensive property, environmental, and biological damage. About 20 people were evacuated from the immediate area. There were no injuries.

The *Railway Track Safety Rules* do not provide any guidance on fatigue life, nor are there common industry standards for rail life based on accumulated tonnage and the properties of the steel.

CN has developed its own Rail Defect Tracking System (RDTS), which is, in part, able to track the history of maintenance rails. Maintenance rails are selected based on observed wear and conformity to the profile of the parent rail. Neither the quality of steel nor the accumulated tonnage is factored into this decision.

In this occurrence, a maintenance rail failed because it had reached the end of its fatigue life. Because of the way the defects developed in the rail, they could not be identified by the available inspection tools. The rail was installed because it matched the profile of the parent rail; no consideration was given to matching the steel specification of the maintenance rail with the parent rail.

Inspection programs are the primary defence against rail fractures. Recognizing the limitations of existing inspection tools, there is a requirement for additional strategies to ensure that maintenance rails are not installed where they are likely to have a shorter fatigue life than the parent rail. Taking into account the risk of undetected defect development and premature failure of maintenance rails, the Board recommends that:

The Department of Transport establish minimum standards for the quality and strength of maintenance rails.

R07-01

Transport Canada's Response to R07-01 (January 2008)

Transport Canada (TC) has already started work with industry to develop a long-term strategy to modernize the *Track Safety Rules* that will take into consideration the establishment of standards for the quality and strength of maintenance rails and for rails approaching their fatigue limit.

Board Reassessment of Response to R07-01 (April 2008)

TC acknowledged the deficiency and indicated that future revisions to the Track Safety Rules will take into consideration the establishment of standards for the quality and strength of maintenance rails. As it is too soon to evaluate the outcome of TC's proposal, the Board assesses the response to Board Recommendation R07-01 as having "*Satisfactory Intent*".

Additional Response to R07-01(June 2010)

The Track Safety Rules are being revised and reviewed. TC indicates that this item is planned for the next revision of the Track Safety Rules.

Board Reassessment of Response to R07-01 (June 2010)

As the revision is still planned to be included and it is too soon to evaluate the outcome of TC's proposal, the Board reassesses the response to Board Recommendation R07-01 to remain as having **Satisfactory Intent**.

Additional Information From the Railway Industry (December 2010)

CP's Red Book of Track Requirements contains procedures on ultrasonically testing (UT) rails before they can be used as replacement. When installing a maintenance rail, experienced CP Track Maintenance Supervisors try to match rail profile and type particularly in curves. CN Engineering Track Standards contain similar procedures but also include a requirement that rails used for spot renewals should be selected to have the same average wear and metallurgy as the rail in track.

Board Reassessment of Response to R07-01 (February 2011)

Given that the major freight rail companies now have minimum standards for replacement (maintenance) rails, the Board reassesses the response to Recommendation R07-01 as being **Fully Satisfactory**.

Next TSB Action

This file is assigned an **Closed** status.