

BRIEFING INFORMATION NOTE

Topic	Revisions of the Railway Locomotive Inspection and Safety Rules					
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Purpose	For Decision			For Information	X	
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Issue

Transport Canada has updated the *Railways Locomotive Inspection and Safety Rules* to address causes of uncontrolled movements. Given the degree of changes, the set of rules requires a full review and assessment to consider how this may apply to BC's provincially regulated railways.

Background

- On March 10, 2021, Transport Canada amended the *Railway Locomotive Inspection and Safety Rules*. These rules have an effective date of October 1, 2022.
- These revisions are a result of [Federal Ministerial Order 21-01](#). The *Railway Locomotive Inspection and Safety Rules* will include design and performance standards for locomotives equipped with roll-away protection, which is a feature designed to apply the air brakes when movement is detected.
- The need for action was prompted by the increase of uncontrolled movements in recent years and its potential consequences for employees and communities (e.g., the Goderich - Exeter Railway train incident in February 2021 and Canadian Pacific train incident in November 2016). The Transportation Safety Board outlined concerns about the number of uncontrolled movements, noting the existence of an upward trend in their number since 2015, which peaked most recently in 2019 at 78.
- Rule revisions and additional requirements are in the interest of safe railway operations to prevent further occurrences of uncontrolled movements.

Discussion

Pursuant to the provisions of paragraph 19(1)(a) of the *Railway Safety Act* (RSA), railway companies and local railway companies must revise the *Railway Locomotive Inspection and Safety Rules* to incorporate design and performance parameters for locomotives with roll-away protection.

Revisions to the *Railway Locomotive Inspection and Safety Rules*

1. The revisions to the *Railway Locomotive Inspection and Safety Rules* requires companies to address the following elements:
 - a. Defining roll-away protection;
 - b. Outlining design and performance parameters of roll-away protection; which must include:
 - the activation of roll-away protection when there is a power interruption;
 - the activation speed;

- the activation locomotive brake cylinder pressure;
 - the time to initiate a brake application;
 - a means of notifying the appropriate authority that the roll-away protection has been activated;
 - the roll-away protection cannot reset once activated, without human intervention; and
 - any other parameters that are conducive to safe railway operations in this matter.
- c. A verifiable mean for mechanical and operating employees to know which locomotives are equipped with roll-away protection;
 - d. Including locomotive equipped with roll-away protection in the Locomotive Specification Records;
 - e. Testing and verification procedures for locomotives equipped with roll-away protection; and
 - f. Filing of the testing and verification procedures with the Minister (within 30 days of the approval of the revision to the Rules and within 14 days of any changes to the procedures).
2. The revision to the *Railway Locomotive Inspection and Safety Rules* requires companies to use testing and verification procedures to ensure that the roll-away protection performs in accordance with all design and performance parameters.

See Appendix A for the full additions and revisions of the *Railway Locomotive Inspection and Safety Rules*.

Impacts

Railway Locomotive Inspection and Safety Rules

- It is anticipated that Section 3, **Definition of Rollway Protection**, may have some impact on provincial regulated railways. Rollaway protection is a locomotive system that causes a penalty brake application to be initiated automatically when unintentional movement is detected on stationary equipment. It is a secondary function of the safety control system that initiates a warning activation sequence.
 - Rollaway protection is specific to locomotives. Locomotives are rail vehicle propelled by any energy form, other than steam, intended for the propulsion and/or control of freight, passenger, or service equipment. Most of provincial railways are industrial sites, which use alternative car moving equipment and do not fit into Transport Canada's definition of a locomotive.
 - Rollaway protection is primarily used on locomotives that travel on mountain grades or park their trains for long periods of time. Transport Canada defines as a portion of a track 2 miles in length or greater, with an average grade greater than 1.8%. Most provincially regulated railways do not travel on mountain grades or leave their trains parked for long periods of time.
- It is anticipated that Section 13.2 (b), **Safety Control Equipment**, may have some impact on provincially regulated railways. This section relates to safety control systems with roll-away protection. The requirement is to start the warning timing cycle and subsequently initiate a penalty brake application of the train air brakes within 45 seconds when the brake cylinder pressure is below a certain PSI or speed is detected.
 - Among other listed requirements, these locomotives must meet the Association of American Railroad's *Standard S-5513 – Locomotive Alerter Requirements* (AAR Standard S-5513). The AAR Standard S-5513 applies to locomotives built on or after January 1st, 2009, and prescribes the parameters for the activation of the safety control system when a stationary locomotive unintentionally moves. Most provincial railways do not operate locomotives built on or after January 1st, 2009.
- It is anticipated that Section 13.2 (c), **Safety Control Equipment**, may have some impact on provincially regulated railways. The warning timing cycle cannot be stopped or reset once it is activated (below the activation speed or speed is no longer detected). The train will only stop once it has reached its penalty break application. This requirement relates to locomotives built on or after March 1, 2020. Many provincially regulated railways have locomotives built prior to 2020.
- Subsequent sections will have a minimal impact on provincially regulated railways as it is related to:
 - labelling roll-away protection on the cab of the locomotive;
 - inspection frequencies and requirements for safety control and air brake systems with roll-away protection and;
 - filing requirements with Transport Canada.

CONCLUSION

To ensure provincially regulated railways align with the latest industry best practices, Technical Safety BC advises the Province to adopt the October 1, 2022, *Railway Locomotive Inspection and Safety Rules*.

Appendix A: Additions and Revisions to the Railway Locomotive Inspection and Safety Rules

Addition- Section 3.35 Definition of roll-away protection:

- 3.35 A locomotive system which will, as a minimum, cause a penalty brake application to be initiated automatically when motion is detected without operator input on a stationary locomotive

Revision- Section 13.2 (b): Safety Control Equipment

- 13.2 (b) - A controlling locomotive equipped with a safety control system with roll-away protection must commence a safety control system warning timing cycle and subsequently initiate a penalty brake application of the train air brakes **within no more than 45 seconds** should any of the following occur:
 - **locomotive brake cylinder pressure is less than; (a) 15 psi for locomotives designed with up to 27 psi maximum brake cylinder pressure; or (b) 25 psi for all other locomotives.**
 - speed is detected (**at the lowest measurable speed that the system is designed to detect in order to initiate a penalty brake application) which must not exceed 1 mph.**)

Addition- Section 13.2. (c): Safety Control Equipment

- 13.2 (c) As of January 1, 2023, not stop the warning timing cycle following the first activation, due to the locomotive slowing below the activation speed or speed no longer being detected. This requirement applies to new locomotives built or modernized on or after March 31, 2020. Modernized means locomotives that have had their safety control systems upgraded to current technology comparable to new locomotives built on or after March 31, 2020. By December 31, 2035, any locomotive equipped with a safety control system with roll-away protection must comply with this requirement.

Addition- Section 13.2. (d): Safety Control Equipment

- 13.2 (d) Have clear labelling in the cab of the locomotive identifying that the locomotive is equipped with roll-away protection.

Addition- Section 13.2. (e): Safety Control Equipment

- 13.2 (e) Be inspected and tested on an annual basis or after any modification or software change to the safety control system or air brake system to ensure that the system functions as specified in 13.2 b) and c).

Addition- Section 13.3. Safety Control Equipment

- 13.3- A locomotive equipped with roll-away protection that is not part of the safety control system must, at a minimum, meet the requirements of 13.2. For the purposes of applying section 13.2 above, the safety control system is the roll-away protection system.

Addition- Section 35.2. (g): Filing Requirements with the Department

- 35.2 (g) Testing and verification procedures for locomotives equipped with roll-away protection (within 30 days of the approval of the revision to the Rules and within 14 days of any changes to the procedures).