Rail Fatigue Management System Regulations
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MEMORANDUM TO THE MINISTER OF TRANSPORT

Request to Approve an Inspection, Compliance and Enforcement Approach for the Proposed Rail Fatigue Management System Regulations

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Career Development for Regulatory Professionals
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ISSUE

The adoption of 'Fatigue Management System Regulations' is a necessary step to fulfill the mandate letter commitment to improve rail safety. However, addressing this issue presents complex inspection, compliance and enforcement challenges. This note discusses the challenges of implementing the proposed regulations to mitigate persistent fatigue-related safety risks in the rail sector and offers a series of recommendations and proposed next steps.

BACKGROUND

Fatigue impairs human performance (attention, vigilance, and general cognitive functioning) and poses a risk to the safety of rail operations. From the early 1990s to mid-2022, fatigue has been identified as a contributing factor in 32 rail accidents. This led the Transportation Safety Board (TSB) to include fatigue management as a Watchlist item since 2016. TSB uses an evidence-based approach to connect current fatigue management practices in the rail sector with key safety issues that require action. The 2021 Mandate Letter to the Minister of Transport outlines the commitment to advance measures that further improve the safety and security of the Canadian rail system.

Transport Canada (TC) implemented new requirements in November 2020 in the *Duty and Rest Period Rules for Railway Operating Employees* (Duty and Rest Rules). Under these new rules, companies are required to develop comprehensive Fatigue Management Plans. TC has reviewed and provided feedback to all companies on their plans.

In March 2022, TC completed consultations on the proposed Regulations. These proposed outcome-based Regulations, which are planned for pre-publication in 2025, would expand the current duty period and rest period requirements detailed in the Duty and Rest Rules to non-operating employees and prescribe a systematic framework to ensure fatigue is effectively managed by companies.

The framework would require rail operators to develop, implement and continuously improve a fatigue management system that applies to all railway employees who have duties essential to safe railway operations. This would include:

- Fatigue Management Plans,
- Fatigue management processes and procedures,
- Fatigue management training and awareness program, and,
- Continual improvement process for the company/task specific Fatigue Management System.

CONSIDERATIONS

Outcome-based regulatory requirements come with unique challenges that need to be factored into the development of an inspection, compliance, and enforcement approach.

Success of the proposed regulations is dependent on a complementary inspection, compliance and enforcement approach that establishes trust and collaboration within the rail sector, minimizes regulatory burden on industry, verifies compliance, assesses effectiveness, and encourages continual improvement of fatigue management practices.

Establishing Trust

To ensure the success of the outcome-based regulatory requirements in effectively mitigating fatigue-related risks, the inspection, compliance, and enforcement approach should seek to influence systemic and cultural change within the rail sector (i.e. TC, rail unions, rail operators and employees) and establish trust in the ability of the various systems to manage fatigue-related risks.

Over the past decade, persistent demands have been made by unions and employees to improve rail operation safety through collective agreements of a Fatigue Management System. The failure to do so highlights a lack of trust within the industry to effectively mitigate fatigue-related safety risks. This led to a strike in 2019 and there is a high possibility of a future strike or lockout over fatigue and rail safety concerns.

Minimizing the Regulatory Burden

The adoption of a Fatigue Management System approach to mitigate safety risks would impose a regulatory burden on industry by extending the reporting and recording requirements present in the Duty and Rest Rules to all safety-critical employees, not just operating employees. In addition, rail operations would have the added regulatory burden associated with the development, implementation, monitoring, and auditing of their Fatigue Management System. To minimize the regulatory burden on industry, inspection, compliance, and enforcement activities need to be proportional to risk and TC will engage in meaningful consultation to ensure industry has the tools they need to comply with the regulatory requirements.

Verifying Compliance and Assessing Effectiveness

The proposed outcome-based Regulations would provide industry with the flexibility to identify fatigue-related safety risks that are specific to their operations and tailor their respective systems address each rail company operation. They would also allow industry to develop innovative solutions to mitigate risks and monitor their plan for effectiveness. However, if the proposed Regulations provide too much flexibility and room for interpretation, it could result in minimal or no improvement of fatigue-related risks. To ensure that the proposed Regulations are effective, TC's inspection, compliance and enforcement approach would:

- Verify that Fatigue Management Systems have been implemented and comply with the regulatory requirements,
- Monitor Fatigue Management System performance, and
- Determine whether the proposed Regulations are effective at reducing fatigue-related risk.

RECOMMENDED INSPECTION, COMPLIANCE AND ENFORCEMENT APPROACH

The recommended inspection, compliance and enforcement approach includes the following key features:

1. Adopt a systemic, risk-informed approach to assess FMS

We recommend that TC establish an advisory committee, comprised of external stakeholders, internal partners, and fatigue specialists, to develop a tool called the Fatigue Risk Management Framework. The framework would be used to assess the strategies developed as following:

- The level of risk associated with various operations,
- Prioritize and establish inspection frequency,
- Provide information to rail operations on areas within their particular fatigue risk framework that present the highest risk, and
- Assess the effectiveness of the plan over time.

In the development of the framework, the committee would identify and establish metrics to consider:

- Inherent risk factors,
- Mitigation factors, and
- Compliance factors (i.e. predict likelihood of non-compliance).

This is similar to the approach of the United Kingdom. The UK has developed and implemented a comprehensive risk model (Railway Management Maturity Model) to assess the performance of their rail regulations, identify higher risk operations, and prioritize inspection through a risk-based approach.

The development and adoption of the proposed framework would allow TC to maximize the use of TC resources and minimize the regulatory burden on industry by focusing inspection, enforcement and compliance efforts towards areas of greatest risk. The development of a risk profile of various rail operations in Canada would also allow TC to assess the effectiveness of the proposed Regulations to reduce fatigue-related safety risks over time.

2. Provide tools to promote compliance

It is recommended that TC work with rail sector stakeholders (i.e. Rail Association of Canada, rail operators, rail unions and other rail worker associations) on the development of the following components:

- Fatigue Risk Management Framework,
- Guidance on the FMS regulatory requirements, its auditing, and continuous improvement,
- Development of a fatigue management system including the required protocols,
    - Identifying and assessing fatigue risks and establishing mitigation measures.
    - Monitoring, including maintaining records, that can be used to identify fatigue related risks and assess the effectiveness of fatigue mitigation measures.
- Fatigue management toolkit including guidance on best practices, templates, and educational and training packages for all staff in safety-critical positions, and
- Enforcement and compliance policy.

TC has already developed a toolbox to reduce fatigue related risks in the aviation sector.

Other jurisdictions, such as the United States and the United Kingdom, have developed fatigue risk management guidance documents in collaboration with their rail sectors. Adopting a similar approach in Canada, one based on meaningful and early engagement with industry, will serve to:

Ensure that stakeholders become intimately familiar with the regulatory requirements and establish trust in the FMS's ability to manage fatigue-related risks,

- Promote compliance by ensuring that tools reflect stakeholder needs, and
- Reduce regulatory burden by providing a toolkit to help rail operations bring their operations into compliance with the new regulatory requirements. It would also ensure that stakeholders understand when their operations would be deemed to be non-compliant.

3. Verify compliance through audits and inspections

It is recommended that TC use the framework to review the protocols developed by each company to determine the level of risk associated with rail operations and establish inspection frequency. This analysis would be used to establish processes for fatigue management system audits and inspecting company records to assess the level of implementation and effectiveness of their FMS.

Inspection of company would be triggered by:

- Minimum inspection frequency as determined by each framework,
- Significant changes to operational activities,
- New science on fatigue management, or
- Any significant event where fatigue was a factor, as determined by the Transportation Safety Board.

It is also recommended that TC support inspectors by helping them transition from enforcement of prescriptive rules to outcome-based requirements through:

- Developing the skills of the TC inspectorate,
- Evaluating the need to recruit inspectors with expertise in assessing risks on a systems approach,
- Providing guidance, training, and education on each component of the proposed system the frequency of audits, and inspecting company records, and
- Establishing a robust framework to enable inspectors to provide feedback on the fatigue management and fostering a culture of continuous improvement.

Adoption of risk-informed approach to inspection would allow TC to:

- Reduce administrative burden for rail operations that have low fatigue-related safety risks or succeed in reducing them, and
- Track risk profiles of fatigue management systems over time to determine whether the proposed Regulations are effective in reducing fatigue-related safety risks.

4. Establish an approach to regulatory response

It is recommended that TC adopt a transparent risk-based approach to enforcement and factor in the nature of the non-compliance and level of risk it presents to rail safety by:

- Issuing administrative monetary penalties to rail operations that are not complying with the proposed regulations, commensurate with risk, and
- In situations where industry is refusing to correct high-risk non-compliance, terminating the company's railway operating certificate.

Consulting on and publishing TC's enforcement approach is recommended as it will:

- Establish predictable outcomes for the rail industry,
- Demonstrate that TC response to non-compliance is measured and based on risk and promotes compliance with the regulatory requirements, and
- Foster trust by demonstrating to stakeholders and Canadians that TC takes fatigue-related safety risks seriously.

NEXT STEPS

- Pre-publish the proposed Regulations in the *Canada Gazette, Part I.*
- Engage with stakeholders on the compliance, inspection and enforcement approach.
- Establish an advisory committee tasked with development of the FRMF.
- After the coming into force of the Regulations, provide regular updates on the implementation progress, particularly after reviewing at least 50% of the submitted fatigue management systems.
- Evaluate whether adjustments to the approach are necessary based on the findings.

RECOMMENDATION

It is recommended that you approve the proposed inspection, compliance, and enforcement approach. A progress report will be provided within one year of implementation, allowing for adjustments to reduce regulatory burden and enhance the safety of Canadians.