[logo] **SWEDISH TRANSPORT ADMINISTRATION**

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TRV 2021/21798
Counterpart's case number
J-5/21

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This document is a translation made by SHK of the original response in Swedish to the safety recommendation. In case of discrepancies between this translation and the Swedish original text, the Swedish text shall prevail in the interpretation of the response.

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Derailment Kummelby – Häggvik 11/02/2021

On 11 February 2021, a freight train derailed between the operations sites Kummelby and Häggvik in Stockholm County. Extensive damage was sustainedon the railway vehicles and rail infrastructure at the site. The derailment was caused by rail fatigue where crack formation had not been identified or dealt with as part of the infrastructure manager's system for preventive maintenance.

In the final report RJ 2022:02 the Swedish Accident Investigation Authority has recommended that the Swedish Transport Administration:

- 'Continue the development work it is doing to enable crack formation in rail to be identified at an earlier stage.
- From a comprehensive perspective, review how current systems for preventing surface fatigue leading to broken rails can be improved. This review should include evaluating the intervals applied for non-destructive testing, follow-up of how defects are located, reported and marked out in practice and an analysis of the potential consequences of departing from the set interval for preventive machining.'

The recommendations from the Accident Investigation Authority coincide with ongoing improvement works within the Transport Administration. Since 2019 the Transport Administration has initiated a number of activities for the purpose of improving operations and maintenance relating to rail defects. Among other things, working methods for regulatory safety inspection have been improved and implemented during this period. Measures with links to the accident site have already been implemented. These were reported in the Transport Administration's own investigation report into the accident, TRV 2021/116958, under the heading *Actions taken and already decided*. Cooperation is taking place at the national level and internationally in order to take advantage of best practice and implement this.

As a result of the recommendations, an action plan has been drawn up for planned measures. The measures are as follows:

- Development of a method for filming rail together with contractors. The method is being documented and a proposed introduction plan is being produced. (Complete no later than 01/02/2023)
- Analysis methods for authorisation assessment and filming of the railway infrastructure are being developed in the project 'Digital Inspection'. The methods will be documented and form

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the basis on which to assess machining or replacement of rail. (Complete no later than 30/06/2023)

- Development of pooling of data from different authorisation measurements, manual and automatic, will continue in order to enable the identification of 'defect locations' that have to be rectified using replacement or machining of rail. (Complete no later than 30/06/2023)
- Implementation of 'Assessment support running surface defect, knowledge document: assessment of rail defects on the running surface' in inspection activities. (Complete no later than 30/06/2023)
- Conduct a risk analysis for the purpose of reviewing inspection intervals. (Complete no later than 15/12/2023)
- Evaluation of preventive grinding introduced in 2022 and compilation of existing literature and best practice within grinding in cooperation with Chalmers University of Technology. (Complete no later than 31/03/2023)
- Produce key performance indicators and IT support for tracking the development of damage and subsequent inspection intervals for rail. (Complete no later than 31/03/2023)
- Development of IT support for analysing defect localisation from ultrasound in order to track and acknowledge grinding that has been ordered, as well as to manage 'hot spots' as an aid to safety inspection. (Complete no later than 30/06/2023)

Initiatives are also being implemented in order to increase the speed of maintenance, for example increasing the amount of rail grinding by reallocating the budget.

The action plan has been adopted by the Swedish Transport Administration's director of safety and security Hanan Åberg.

Best regards,

Hanan Åberg

Director of Safety & Security

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