

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.

**green cargo**

Date 25/06/2019 Case Measures taken following the Ludvika accident RJ 2019:02

Our reference  
Bengt Fors, 010-455 7800

Recipient  
SHK

**Green Cargo's response to proposed recommendation following the accident in Ludvika on 12/10/2017:**

Test the coil springs on type V5 locomotive at e.g. periodic maintenance to ensure proper functionality (see section 3.4.1.). (RJ 2019:02 R1)

Response: Green Cargo is working to introduce checks of coil springs and shock absorbers in conjunction with Overhaul 3 on type V5 locomotives. The interval for Overhaul 3 is 48 months. These checks are expected to be introduced in the supervisory programme no later than by year-end 2019.

Evaluate whether the V5 locomotive, after modification with angled shock absorbers, receives enough vertical damping capability, in relation to the original design and the locomotive's suspension (see section 3.3.). (RJ 2019:02 R2)

Response: Green Cargo completed all necessary analyses in preparation of approving the reconstruction to ensure sufficient vertical damping capability. However, it is difficult to say whether it is enough to manage several independent plus and minus track faults and the risks entailed by these. Considering the above, together with the large number of faults we have now realised exist in the infrastructure of a similar nature, and considering earlier similar accidents with several independent, directly consecutive track faults that have caused derailments, we have with this information in mind taken the initial direct measure to restore the vehicles to their original setup. We have done this pending regulations for how different directly consecutive track faults shall be assessed and possible adjustments in what basis is needed for an approval (in short, which margin of error should be allowed in the track systems and what must be provided in the vehicle approval).

Review the conditions and values used in simulations and test runs in the event of changes to vehicles to ensure that less favourable conditions are also tested (see section 3.3). (RJ 2019:02 R3)

Response: In the simulations and test runs preceding and following the reconstruction, Green Cargo has taken into consideration the values stated in regard to the time-dynamic properties set out in standard EN 1463:2005 in TSD (1302/2014). These values set out in the standard constitute the regulations.

Kind regards,  
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