



Safety recommendation no. 96

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Safety deficit	<p>On Saturday 25th April 2015, at 02:49, the five rearmost wagons of a freight train travelling from Basel to Lausanne-Triage derailed on the line between Éclépens and Vufflens-la-Ville in the vicinity of the municipality of Daillens (canton of Vaud). The train consisted of 22 wagons, of which 14 were laden with hazardous goods.</p> <p>Several hundred metres before the position where the derailed wagon came to a halt, part of the running gear detached from one of wagon 20's bogies. When passing over a switch shortly before a right-hand bend, the wagon derailed and was pushed out of the rails. Due to the resulting momentum, two wagons in front of wagon 20 as well as the wagon behind it all overturned, and the rearmost wagon's front bogie derailed. Wagons 18 to 21, all of which were laden with chemicals, rolled over onto their sides. While overturning, wagon 19's tank – which contained 25 tonnes of sulphuric acid – was damaged, and the contents spilled onto the ground next to the track. Due to the pushing effect of the two wagons that followed, wagon 20 rotated by approx. 180° before coming to a stop next to the track. Its tank was damaged and leaked approx. 3,000 litres of caustic soda. The direct cause of train 60700's derailment in Daillens is the loss of wagon 20's front-left axle bearing housing (axle box). The loss of this axle box is the result of a long process which began with maintenance work on the aforementioned axle box in August 2011. During this work, the castellated nut's retaining washer which fixes the bearings onto the axle journal, was not secured correctly. The castellated nut gradually loosened itself, which led, bit by bit, to the following damage: An increase in transverse stress on the axle box's rolling element, the intensification of axle 1's lateral movement and the occurrence of S-shaped pitting on the rolling surface of this axle's wheels, the fatigue and subsequent breaking of the left-hand leaf spring on axle 1. Ultimately, this damage caused the derailment of wagon 20 in Daillens.</p> <p>The wheelsets are of critical importance to the safety of the rolling stock.</p> <p>The current certification system is guided by economic factors which often come at the cost of safety. As the present case shows, the certifying body did not carry out the entire audit at the yearly maintenance audits, but for the section on workshop work, instead fell back on the technical assessment that had been carried out by a body, which in its structure was governed and represented by the wagon owner. Even if this practice is in accordance with the rules, it raises the question, whether the impartiality of the certifying body is ensured.</p>
Safety recommendation	<p>The STSB recommends that the FOT amends the ECM regulations with regards to the certification of the bodies commissioned to carry</p>

out maintenance so that certifications and audits of the workshops responsible for maintenance (ECM system's function 'd') can no longer be delegated to third-party organisations, but instead fall under the responsibility of the national regulators.

Addressees	Bundesamt für Verkehr
Stage of the implementation	Partially implemented. The FOT states that EU regulation 445/2011 (ECM regulation) describes the current state of the technology with regards to the certification of those responsible for maintenance work and that the regulation was introduced throughout Europe and within the domain of OTIF. The revision of the ECM regulation was under way and should be completed in 2018. Suggestions for the amendment of the ECM regulation are put forward in the appropriate committees and also by FOT employees. Over the course of 2017, the FOT will examine the current extent of monitoring the certifying bodies' audits, taking the results into consideration.
Investigation report concerning the safety recommendation	<u>Schlussbericht</u> <u>Rapport final</u>