



Safety recommendation no. 93

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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. 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.</p> <p>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).</p> <p>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>If a tank wagon overturns during a derailment, the presence of protruding components such as a measuring bar (track assurance) on the edge of the track can lead to damage to the wagon's casing and thereby lead to the spilling of its contents, something that can hold various hazards for both people and the environment. As these measuring bars (track assurances) are no longer relied on today, removing them could seriously reduce this risk.</p>
Safety recommendation	<p>To decrease the risk of damage caused to wagons during a derailment, the STSB recommends that the FOT has protruding measuring bars (track assurances), which are still built into the edge of the track, removed.</p>

Addressees

Stage of the implementation

Implemented. In September 2016, the FOT, together with other parties including the SBB, has made a 'joint declaration' regarding the transportation of chlorine, which should also be effective for the transportation of other hazardous goods. The SBB has committed itself to the task of examining stretches of line used in the transportation of chlorine for obstacles which are not operationally or technically imperative but that increase the likelihood of a leak (breach of the tanker wall) during a derailment. These obstacles are, where reasonable, to be removed. This is to occur on stretches of line assessed for critical risks due to the transportation of chlorine by 2019 and is to occur on remaining stretches of line used in the transportation of chlorine as part of general renewal and renovation works.

Investigation report concerning the safety recommendation

Schlussbericht
Rapport final
