

# Summary Safety Investigation Report

## Derailment of a freight train Melsele - 12 April 2012





# GENERAL INFORMATION

<b>Nature of the incident:</b>	derailment
<b>Safety investigation type:</b>	limited-scope safety investigation. The accident does not meet the criteria for classification as a serious accident.
<b>Date and time of the incident:</b>	12 April 2012 at approximately 6:12 p.m.
<b>Site of the accident:</b>	in the area of Melsele (Beveren-Waas), on line 59, in the vicinity of level crossing 12
<b>Train involved:</b>	SNCB Logistics freight train no. E 31283 (Zeebrugge – Antwerpen DS) 29 wagons 561 m – 1,627 tonnes The HL 2017 locomotive is equipped with the TBL1+ system
<b>Infrastructure:</b>	the derailment occurred between the unmanned stopping point in Beveren and LC 12 in Melsele, on line 59 on the curve at the end of siding VII.
<b>Accident particulars:</b>	wagons 10 to 16 included derailed when the freight train was switching from the siding to track B. The train split into 2 parts. The front part of the train (from the locomotive to wagon 9 included) came to a stop more or less 10 metres beyond level crossing 12; some of the wagons behind wagon 9 remained on siding VII and some derailed between the siding and the level crossing.
<b>Consequences:</b>	as a result of the derailment, tracks A and B of Line 59 and siding VII were entirely obstructed by rolling stock and containers. The catenary line and the tracks sustained extensive damage. Seven wagons derailed and sustained varying degrees of damage.

Since 2012, Infrabel's internal emergency plan has been reviewed on several occasions resolving several comments/conclusions relating to emergency planning. The measures taken are outlined below in this summary.

**Direct cause:** (condition of the infrastructure)

based on the assumption made by the Investigation Body, the derailment of wagon 10 stemmed from the track gauge of the siding and the partial tilt of one of the rails on the curve. One of the wheels dropped onto the inside of the track, the other climbed over the outer rail on the curve.

The increase in track gauge and the partial tilt of one of the rails on the outside of the curve are the consequence of the deterioration of several sleepers and sleeper screws on the siding.

**Indirect cause:** (leadership)

the deterioration of the different sleepers and fixings of the siding was visually confirmed (rotten sleepers, sleeper screws with no threads in the derailment area and ineffective fixings – sleeper screws not secured in the area before the derailment area).

**Underlying cause:** (risk management)

the sidings are visually inspected by the infrastructure manager. These observations are made by experienced and trained personnel during the periodic checks and inspections of the tracks, performed on the basis of empirically established internal rules.

The visual checks can facilitate the detection of damaged tracks and thereby enable the scheduling of the necessary maintenance or renovation tasks. Similar methods of visual inspection of the condition of sleepers and fixings are also employed by other infrastructure managers. Quantifiable measures may aid in taking corrective actions, however, no satisfactory methods exist for implementing them and these are not planned for the sidings.

**Additional observations:**

1. Some parties such as Fluxys are inadequately aware of the coordination function of the Leader Infrabel; this function is also insufficiently supported by those parties with adequate knowledge of the role of the Leader Infrabel.
2. On the night of the accident, the information communicated on the role of the emergency services and on the possible intervention of an officer from the fire department in the capacity of leader of operations or fire brigade director (fire fighter) was not sufficiently clear.
3. In 2012, the infrastructure manager's internal emergency and intervention plan took into account the operational risks, but did not adequately cover "external" risks such as the presence of a gas pipeline.

When the accident occurred, version 11/2011 of the emergency plan was in effect. In the current version, new functions have been established to support the Leader Infrabel, and "special situations" are taken into account.

4. Following the damage (stretching) sustained by the fibre optic cable, a GSM-R base station broke down due to the fact that this older transmission facility did not allow for switch-over in this case. In the interim, this facility has been replaced by a new-generation facility which offers the option of switch-over in cases such as these. In spite of this, the GSM-R emergency call was still relayed in time albeit later than the ideal time.

## Measures taken:

following these observations, Infrabel began a REX procedure. The latter led to a series of measures being taken to improve safety in the following areas:

- establishment of safety perimeters;
- support for the Leader Infrabel; meanwhile, the functions of deputy to the Leader Infrabel and I-AM coordinator have become operational to provide support for the Leader Infrabel;
- measures for Fluxys to be notified in case of the presence of gas pipelines have been taken;
- establishment of a periodicity for checks depending on various criteria (age, type of sleeper, type of fixing) for the fixings on the siding sleepers;
- introduction of a systematic inspection of the siding fixings in the RIAM application which guarantees the monitoring of the checks and the maintenance operations;
- review of the effectiveness criteria according to the type of fixing;
- review of the decision-making process for the maintenance of the fixings according to 3 levels: AL (Alert Limit), IL (Intervention Limit) and IAL (Immediate Action Limit);
- update of the inspection sheet for the fixings fastened by screws on the wooden sleepers + integration into RIAM;
- implementation of the new updated measures in the regulatory technical requirements.

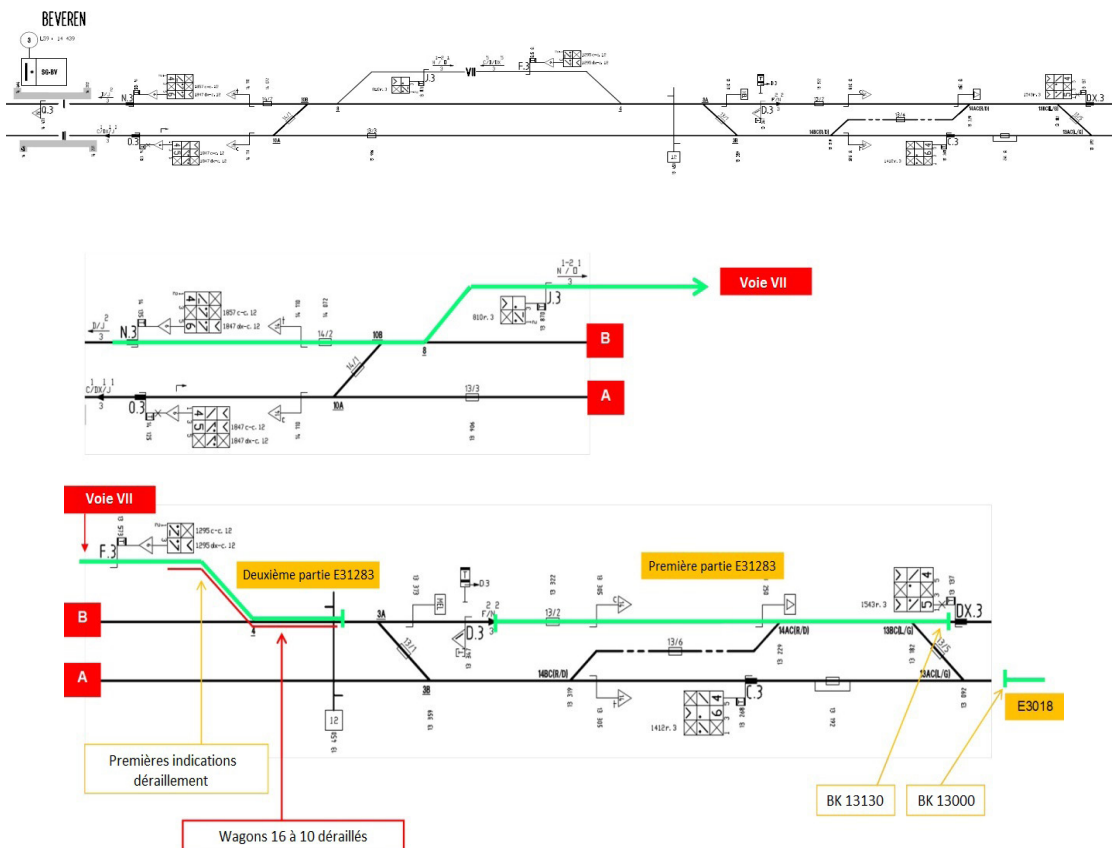


Figure 1: Schematic layout of the signalling with indication of the derailed freight train 31283 and the passenger train E3018



Investigation Body for Railway Accidents and Incidents  
<http://www.mobilit.belgium.be>

