## R2018-01 Derailment of tank wagons at Mäntyharju 7 April 2018

50 tank wagons temporarily stored in the Kinni railway yard at Mäntyharju began to move of their own accord at 11.40am on Saturday 7 April 2018. The wagons rolled a distance of 145 metres and collided with a buffer stop. The first two wagons were derailed by the collision. A leak was created in the first wagon, with 35,000kg of Methyl tert-butyl ether (MTBE) leaking into the surrounding environment.

The wagons were on their way from Russia, via the Vainikkala border crossing, to the Port of Mussalo from which the MTBE was to be shipped to a third country. In the late winter of 2018, congestion amongst dangerous goods traffic (RID traffic) had reached the stage where wagons had to be temporarily stored outside RID railway yards. Due to this situation, the railway operator in charge of transporting the goods, VR Transpoint, asked the infrastructure manager, the Finnish Transport Agency, for temporary storage locations close to Kouvola.

The Finnish Transport Agency indicated four locations on the Savo track, one of which was the Kinni railway yard. The locations were identified on the basis of an analysis by the Finnish Transport Agency, which examined decommissioned rolling stock storage locations. It took no account of the requirements for the temporary storage of RID wagons, or of the longitudinal gradient of the track.

The wagons were brought to Kinni from Kouvola on 21 March. Measures were taken to ensure that the wagons remained stationary in accordance with the valid guidelines, by using two stop blocks in either direction. The wagons were subjected to daily monitoring in case of leaks. The employees charged with checking for leaks had no RID training and their task did not include ensuring that the wagons remained in place.

The wagons began moving as the weather became warmer, because the number of stop blocks was insufficient given the longitudinal gradient of the track and the weight of the wagons. The significant rise in temperature reduced the rolling resistance of the wagons and meltwater from snow simultaneously weakened the holding power of the stop blocks.

The driver of a passing train noticed the accident 27 minutes after the derailment. In accordance with the guidelines, the driver contacted the traffic controller and notified him of the accident. The traffic controller passed the information onto the emergency response centre. The emergency duty officer called out the rescue services with the assignment code *minor accident involving dangerous goods*.

A unit from an agreement fire brigade arrived on the scene at 1pm. The rescue services had no advance information on the wagons stored at Kinni, or the chemicals they contained. Such information had not been passed on due to the lack of clarity of the obligation to notify. The unit that arrived at the scene observed that the situation was serious and that insufficient resources had been deployed. The leader of the unit contacted the officer in charge in Mikkeli and requested additional personnel and equipment at the scene of the accident. The leader also requested that the assignment code be elevated and that the officer in charge visit the scene. The officer in charge elevated the assignment code but decided to lead the rescue operation remotely.

At first, the rescue services at the scene of the accident focused on recovering the chemicals from the spill. When the leak was stopped at 3.30pm, they began to empty the contents of the two derailed tank wagons. The rescue services did not proceed in accordance with the guidelines on containing dangerous goods and ensuring occupational safety. The scene of the accident was not inspected extensively enough during the initial hours, leading to a delay in forming a situational awareness of the spread of the substance over the terrain. There were also occupational safety deficiencies in the rescue operation. An operational area command (OAC) was not set up at the scene of the accident, due to

which the authorities and other actors participating in the rescue operation were unable to organise their efforts. Cooperation was inadequate and no use was made of rescue equipment and resources suitable for the situation.

The issue of post-accident measures to prevent environmental damage was left open after the rescue operation had ceased. Responsibility for the scene of the accident was transferred to the Finnish Transport Agency, but responsibility for environmental damage-control outside the railway area remained undefined. Upon identifying the situation, the ELY Centre led damage-control operations until 17 April, after which VR Group was responsible for them.

Samples taken from water bodies in the area confirmed that most of the chemicals had remained at the scene of the accident and its nearby area. Extensive damage-control measures were begun on this basis. Special arrangements were necessary in order to secure the water supply of nearby residents and businesses. Some of these arrangements remain in place and it is uncertain how long they will need to be continued. A clear picture has yet to be obtained of the accident's impacts on groundwater. It may take years or even decades to decontaminate the environment and for the effects of the accident to diminish. The total cost of the accident is several million euros. Most of the costs are related to environmental damage.

In order to avoid similar accidents in the future and reduce the consequences, the Safety Investigation Authority recommends that the Finnish Transport and Communications Agency ensure the implementation of the following recommendations:

- Railway traffic operators, the Finnish Transport Infrastructure Agency and the competent authorities must develop means of preventing traffic congestion amongst transports with dangerous goods arriving from Russia. The acquisition and use of predictive information must be developed in particular.
- Railway operators and infrastructure managers must perform a risk assessment of the temporary storage of RID wagons in locations other than designated RID railway yards, and the due care and attention required under RID legislation must be observed.
- Railway operators and the Finnish Transport Infrastructure Agency must develop the identification and management of risks related to normal rail traffic in their safety management systems.
- The Finnish Transport Infrastructure Agency will draw up guidelines on keeping wagons stationary in the Finnish state rail network.
- The Finnish Transport Infrastructure Agency will inform stakeholders of its role and responsibilities.

The Safety Investigation Authority also recommends that the Ministry of the Interior ensure the adoption of the following recommendation:

• The rescue services define the principles underlying remote management and the communication of the situational picture at the scene of the accident, and draw up guidelines on remote management.

In addition, the Safety Investigation Authority repeats recommendation 2018-S23 made to the Ministry of the Interior in investigation report R2017-03:

• The Ministry of the Interior shall ensure that an operational area command (OAC) is set up by the public authorities in the case of long-term or exceptional multi-authority tasks.