

## R2016-04 Collision of metro trains in Itäkeskus, Helsinki, on 27 July 2016

Two metro trains collided at Itäkeskus metro station in Helsinki at 2:00 am on 27 July 2016. The sides of the departing test drive train and the teaching train standing at the turnout area of the station collided and the test drive train was derailed. Nobody was hurt. The costs incurred from the accident amounted to approximately EUR 626,000.

Several test drive trains and teaching trains were operating on the night of the accident. The teaching train had been parked in the turnout area while the drivers and learners took a break. The traffic controller set a route for the test drive train and gave the metro driver an exceptional signal but did not tell the driver the reason for the signal. The driver of the test drive train proceeding according to the exceptional signal thought they could fit past the teaching train that was parked on the adjacent track.

Several different levels of factors created conditions for the accident. The custom in Itäkeskus was to park teaching trains in the turnout area while drivers and traffic controllers took their breaks. Traffic control had not recognised the danger this posed to other traffic.

There was a functional design fault in the safety devices, which had not been noticed previously. This made it possible to form a route despite the teaching train being parked in the turnout area. Moreover, the traffic control system set a different route from the one that the traffic controller had intended. The operator had not fixed this known fault. At the time of the accident, the traffic controller settled for the route formed by the traffic control system.

Due to shortcomings in the safety management system, the metro transport operator had not identified the risk of metro trains colliding and had not prepared for it in terms of safety devices and staff competence.

The actions of the driver of the test drive train also contributed to the accident. The driver failed to recognise the fouling point indicator and misjudged the space available for the overtake. The skills of the drivers contributing to the accident were inadequate, which in turn was due to shortcomings in the training system.

In order to improve safety and prevent accidents, the Safety Investigation Authority issues the following recommendations:

- Helsinki City Transport and the safety device supplier should investigate and analyse the requirements relating to the operational safety of the metro railway system thoroughly in order to avoid potential faults being carried across to the next system in the course of the current safety device revision.
- The Finnish Transport Safety Agency should ensure that Helsinki City Transport's safety management system is developed so that it meets the requirements set by the European Railway Agency (ERA) for safety management systems.
- Helsinki City Transport should schedule night-time metro trains and other units and draw up a driving programme for them.

The Safety Investigation Authority also recommends that Helsinki City Transport ensure that recommendations S265 and S266 given by the Safety Investigation Authority in investigation report B2/2008R are extended to also apply to metro traffic.

- "Tram drivers should be provided with a personalised and logically progressing training programme (B2/08R/S265)."
- "The training programme for driving performance should be documented (B2/08R/S266)."