

4 CONCLUSIONS

4.1 Statements

1. According to the shunting work programme, the shunting was planned for the evening of 8 July 2016 in the Port of Mussalo in Kotka such that 20 of the 28 wagons should have been left on track 822.
2. The track lengths used when planning shunting work vary between systems.
3. The shunting foreman was controlling the unit by radio control and estimated that the wagons would fit inside the gates. He was controlling the shunting work from around 200 metres from the buffer stop.
4. During shunting, account must be taken of the sightline towards the direction of travel, so that the unit can be stopped before the end point of the shunting movement.
5. From the position he had chosen, the shunting foreman could not see the buffer stop at the end of the track as the wagons approached it. As a result, two tank wagons loaded with SBP gasoline went through the barrier.
6. As the first wagon was derailed, the end of the second one mounted the under-frame of the first wagon. Because the height difference was so great, the override protection was unable to prevent the central buffer couplings from detaching from each other.
7. The central buffer coupling on the second wagon caused a dent in the tank of the first wagon. No leak occurred.
8. There are differences between the instructions of different operators on how to raise the alarm about accidents. There were delays in raising the alarm, but they were not important in this case.
9. The emergency response centre alerted rescue units accordingly. The rescue units reached the scene within the time given in the risk analysis. There was no actual rescue operation.
10. Procedures for entering and analysing safety deviations, and for the related corrective measures, are described in the safety management system. The annual number of accidents shows that corrective measures have not been taken as hoped in the case of shunting operations.
11. Shunting work involves deeply ingrained practices that are not compliant with safety principles. The probable reasons for such practices are inertia and expediting the work at the expense of safety.

4.2 Causes of the occurrence

The immediate cause of the accident was the placing of the shunting foreman during shunting, where he could not see the end of the track during the final stage of shunting. The choice of place from which to control the shunter affected his assumption that the unit's cut-off point would be inside the gate.

The current instructions do not precisely define the placing of the shunting foreman, or observation by radio-control during work. According to regulations, such work should be done in a way that allows the shunting unit to be stopped before reaching any obstacle whatsoever. Shunting accidents obviously happen because the control station chosen is incorrect. The safety management system was unable to address this erroneous practice effectively. In the case of shunting, management supervision does not function as required by the safety management system. Several accidents have occurred – and have not been prevented – due to inadequate or neglectful observation.