# CONCLUSIONS

The conclusions include the causes of the accident or incident. A cause means the various factors behind the incident and the direct and indirect circumstances affecting it.

1. A scheduling change and a fault in the locomotive of a preceding train resulted in a disruption that required a train to reverse.

***Conclusion:*** *Disruptions resulting from locomotive faults are common. The resulting hold-ups need to be resolved in whatever manner seems best in the circumstances and often in a rush.*

1. A traffic controller’s misjudgement meant that a train was authorised to be reversed onto a section of track that was not long enough for it.

***Conclusion:*** *Traffic control system interfaces create a risk of misjudgements. Traffic controllers sometimes have a heavy workload, which makes mistakes more likely.*

1. Fintraffic Railway Ltd’s reversing checklist was not followed. The checklist says nothing about checking whether the reversing train will fit onto the section of track that has been assigned for it.

***Conclusion:*** *The fact that the checklist was not followed is indicative of a lack of safety culture and supervison. Neither the current self monitoring procedures nor other supervision of traffic control are capable of ensuring that the reversing checklist is followed in practice or of addressing weaknesses in the checklist.*

1. Reversing is a relatively common manoeuvre but still something that an individual traffic controller and an individual train driver rarely have to do. Rail industry operators have seen reversing more as a disruptive inconvenience than a high-risk situation.

***Conclusion:*** *Reversing situations have not been analysed and their risks to safety of other traffic have not been identified.*

1. The situation escalated quickly and ended up requiring action from three traffic controllers.

***Conclusion:*** *Situational picture was inadequate. The effects of the reversing manoeuvre and the traffic controllers’ decisions regarding other trains were not taken into consideration, and the safety of the decisions was not verified.*

1. The movement authority given to the reversing train was based on zero overlap. The current safety devices do not recognise zero overlap as a critical command, which is why it is used to expedite traffic flow.

***Conclusion:*** *A single misjudgement in respect of the length of the track immediately led to a collision because the movement authority was based on zero overlap. There is currently no technological system to safeguard against an accident if a human error is made when authorising a reversing manoeuvre.*

1. According to the current guidelines for reversing, movement authority is given up to a limit that the carriages must not pass. The weaknesses in the reversing guidelines have been recognised in practice, but no steps have been taken to rectify the situation.

***Conclusion:*** *The current reversing guidelines cannot guarantee safety, as it is impossible in practice for the driver of a reversing train to see where the wagons at the rear of the train are relative to the limit of the movement authority. The Rail Safety Committee has failed to ensure that the guidelines work in practice.*

1. The Finnish Transport Infrastructure Agency’s guidance working groups do not always observe their own drafting procedures. Work of the group is not always systematic and long termed.

***Conclusion:*** *The Finnish Transport Infrastructure Agency’s approach to drawing up rail transport operation guidelines and ensuring compliance with the associated common safety method for risk evaluation and assessment (‘CSM’) is not systematic.*

1. The Finnish Transport and Communications Agency’s focus in enforcing compliance appears to be less on guidance and day-to-day operation and more on auditing safety management system documentation. The traffic management company enforces compliance through infrastructure managers’ self-monitoring The traffic management company also has its own self-monitoring policy.

***Conclusion:*** *Rail network operators’ current self-monitoring procedures and the authorities’ safety management audits are not enough to ensure adequate instruction and coordinated safety management across the rail industry.*