

Bus fire in a tunnel | Norway

A tourist coach caught fire in the 11.4-km-long Gudvanga tunnel. Witness observations and technical findings indicate that the cooling system started leaking towards the end of the drive, probably as the coach was heading up the Flenja tunnel. The AIBN has not identified a clear cause of the fire. It was not until 300 m after entering the Gudvanga tunnel that the driver observed smoke and stopped the coach immediately. The driver notified the police and quickly evacuated the coach.

The triple alert notice to the other emergency services worked as intended. The 110 emergency communication centre in Sogn og Fjordane county notified the Traffic Control Centre (VTS), which immediately closed the tunnel with road barriers and a flashing red stop signal. Aurland Fire Service was in place at the scene of the fire inside the tunnel after approximately 15 minutes. During the first telephone conversation between the 110 centre and VTS, VTS was asked to wait to initiate fire ventilation. When the driver removed the fire extinguisher from the wall of the tunnel to try to extinguish the fire, the fire ventilation started automatically and the pre-set direction of ventilation was towards Gudvangen.

The automatic fire ventilation meant that the smoke was ventilated to the most distant exit (11.1 km) through the part of the tunnel that held the greatest number of road users. The automatic system, which is used in several of the longest tunnels in Norway, exposed the road users closest to the scene of the fire to greater danger and reduced their possibility of self-rescue. It also affected

VTS and the fire service's ability to gain control of the situation at an early stage. In the AIBN's opinion, the Norwegian Public Roads Administration (NPRA) should change the automatic system so that the ventilation is controlled in a way that facilitates self-rescue.

A scenario with many people on foot in the tunnel, like in the Gudvanga tunnel fire in 2013, was avoided because all 32 passengers from the coach could fit in an empty van that happened to arrive at the scene. 19 vehicles managed to turn around in the tunnel. Three vehicles containing a total of five people were trapped in the smoke in the tunnel, but mobile phone communication with the emergency services helped to ensure that everybody stayed in their cars in the tunnel.

That the fire service decided to reverse the direction of ventilation on being notified that road users were trapped in the smoke further into the tunnel had a decisive impact on the development of the situation. The decision shows that Aurland Fire Service had learnt from the fire in the tunnel in 2013. In the AIBN's opinion, this tactic can be further developed and used in other tunnels.

Five people who were left in the tunnel were found by smoke divers from Voss Fire Service after approximately 1.5 hours and taken to hospital to be treated for smoke injuries.

The investigation shows that the NPRA's equipment and procedures are inadequate, considering that they can be decisive for the outcome of a tunnel fire. The AIBN calls for

technology that can provide a real-time overview of the number of vehicles, their location and the number of people inside the tunnel, and an immediate notification from VTS to motorists in the event of a fire.

Furthermore, the AIBN believes that direct, uninterrupted communication is very important in an emergency, and that VTS should therefore be able to communicate directly with the emergency services by being connected to the Norwegian Public Safety Network (Nødnett).

It is the AIBN's view that the fire could probably have been prevented had the driver performed a safety inspection of the coach before entering the Gudvanga tunnel. A safety inspection should consist of a brief stop in a suitable place where the vehicle can be inspected for leakages, overheating and smoke development. In the AIBN's opinion, facilities should be established to enable drivers to perform the recommended safety check before entering certain tunnels.



