Norwegian Safety Investigation Authority

Report on railway accident at Arna station on 22 March 2024

Railway report 2025/03

The accident occurred on Friday 22 March 2024, at 19:12, at Arna station. Freight train 5924 from OnRail AS passed the inner main signal 11016 at danger. The train, traveling at approximately 75 km/h when it passed the signal, continued through a diverting switch, collided with an end buffer, derailed, and came to a standstill in the entrance of the Arnanipa tunnel.

The train driver sustained minor injuries. The accident resulted in extensive material damage. The locomotive was a total write-off, and three wagons were condemned, totaling an estimated 52 million NOK in vehicle damage. Infrastructure rebuilding costs were estimated at 27.8 million NOK.

The direct cause of the accident was that the train departed from the Bergen terminal with severely reduced braking power, making it impossible for the train to stop at Arna station where it was scheduled to cross a passenger train. The investigation established several contributing factors that allowed the accident to occur.

The main brake pipe cranes between the locomotive and the first wagon were closed during troubleshooting for a non-safety-critical error on the TDD-monitor in the cab. This was done to perform a shutdown and restart of the locomotive without emptying the main brake pipe. The troubleshooting was neither planned nor followed a set routine, and the dispatcher contacted the train to investigate whether the departure could be expedited. This occurred while the driver was troubleshooting. Neither the train driver nor the terminal worker remembered to open the cranes before departure, and consequently, no check that the main brake pipe was open was performed. As a result, the driver only had functional brakes on the locomotive, but not on the wagons.

The train driver performed a test brake while running in the Ulriken tunnel, as required. However, this test was performed while the train was on an ascent, and the driver perceived the

braking effect as normal, failing to detect the train's severely reduced braking capacity.

OnRail AS had not risk assessed the Traxx F160 AC3 (BR187) locomotive type before use, nor did the company have a written procedure for error correction that required closing the main brake pipe cranes. The high frequency of faults on the TDD-monitor created the operational necessity for the troubleshooting procedure that resulted in the closed cranes.

The investigation identified that a similar dangerous situation could arise because the BR187 locomotive requires the ETCS-brake test to be conducted without connected wagons, or by closing the main brake pipe cranes to the wagons. This is a condition of use set out in the manufacturer's "Red Book" and is different from other known locomotive types. This condition transfers a residual risk to the end user.

The track equipment and interlocking system at Arna station functioned as intended. The diverting switch led train 5924 away from the main track, which prevented further travel into the tunnel. Norwegian and European infrastructure is not designed to handle trains operating with such severely reduced braking effect relative to their speed.

The situation after the accident was confusing, with several misunderstandings between the Bergen traffic control center and the emergency services. Notably, the emergency services were not made aware that passenger train 601 (with approximately 170 people on board) was stationary inside the Arnanipa tunnel until about an hour after the accident.

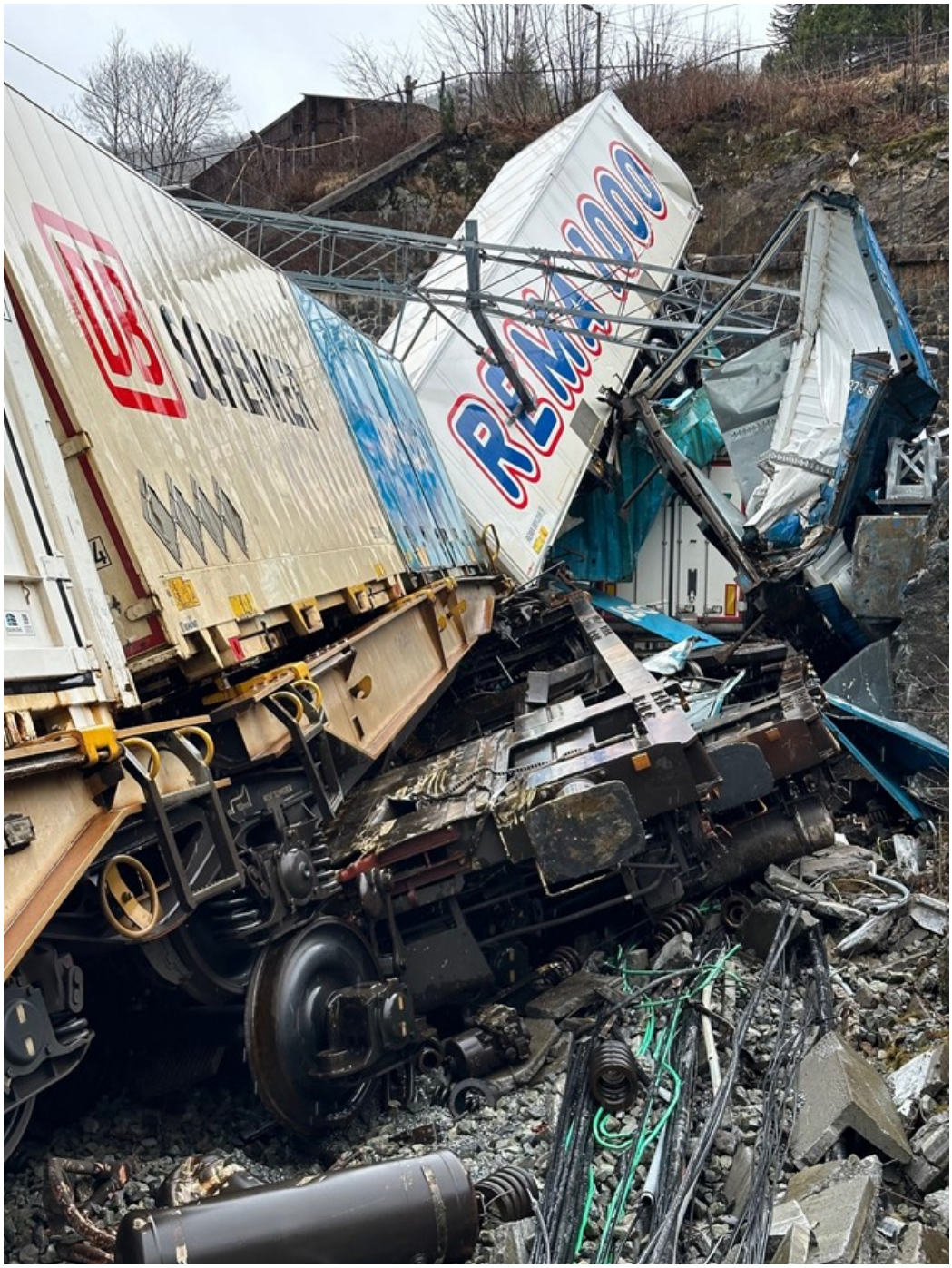
Bane NOR stated that it generally prefers to recover the train, keeping passengers safely inside, rather than conducting an on-foot evacuation along the track. The recovery process for train 601 was delayed by several factors, including police requirements for slow speed into the tunnel, difficulties releasing the train's brakes, and logistical challenges with bus transportation, resulting in passengers being stuck for over five hours.

The Norwegian Safety Investigation Authority makes three safety recommendations following the accident. Two of the safety recommendations concern the use of the locomotive type BR187, in general, and in OnRail AS. One safety recommendation concerning exercises between Bane NOR SF and the emergency services.

The report also highlights three learning points related to risk assessment of new vehicles, use of emergency calls and the operational barrier test brake while running.

Drone picture. Photo: NSIA

Inside the tunnel. Photo: NSIA



Outside the tunnel. Photo: NSIA

Published 14.10.2025

Safety recommendation

Safety recommendation Rail no. 2025/03T

On Friday 22 March at 19:12, OnRail AS' freight train 5924 passed the main signal on Arna station at danger. Via a switch, the train was led out into a diverting track, where it collided with the terrain surrounding the tunnel and came to rest in the opening of the Arnanipa tunnel.

Due to previous troubleshooting and correction of a non-safety-critical error, the driver had decided to close the main brake pipe cranes between the locomotive and the first wagon, but forgot to open them again before departure from Bergen. The process for handling this type of error was not risk assessed or systematically handled in OnRail AS.

The Norwegian Safety Investigation Authority recommends the Norwegian Railway Authority to ask OnRail AS to risk assess the use of Traxx F160 AC3 (BR187), particularly considering situations that may require closing of the brake pipe cranes.

Safety recommendation Rail no. 2025/04T

On Friday 22 March at 19:12, OnRail AS' freight train 5924 passed the main signal on Arna station at danger. Via a switch, the train was led out into a diverting track, where it collided with the terrain surrounding the tunnel and came to rest in the opening of the Arnanipa tunnel.

When the accident occurred, passenger train 601 stopped inside the Arnanipa Tunnel, about 1 km from the accident site. In the dialogue between Bane NOR and the emergency services, several misunderstandings arose, which in turn created uncertainty around decisions.

The Norwegian Safety Investigation Authority recommends the Norwegian Railway Authority to ask Bane NOR SF to practice interaction with the emergency services to ensure that they receive required information to make the correct decisions.

Safety recommendation Rail no. 2025/05T

On Friday 22 March at 19:12, OnRail AS' freight train 5924 passed the main signal on Arna station at danger. Via a switch, the train was led out into a diverting track, where it collided with the terrain surrounding the tunnel and came to rest in the opening of the Arnanipa tunnel.

The locomotive type Traxx F160 AC3 (BR187) comes with conditions of use that must be met by the end user. Both error correction situations and the need for ETCS brake tests can mean that main brake pipe cranes have to be closed, and thus there is a risk that these will be forgotten in the closed position.

The Norwegian Safety Investigation Authority recommends the Norwegian Railway Authority to ensure that users of Traxx F160 AC3 (BR187) in Norway has complied with the manufacturer's conditions of use related to the locomotive's braking systems.

Facts

Location	Arna station

Occurrence date	22.03.2024
Type of Transportation	Freight train
Type of occurrence	SPAD
Operator	OnRail AS