



Safety recommendation no. 134

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Safety deficit	<p>In Immensee, track reconstruction involving subsoil rehabilitation was taking place, for which a working composition with special vehicles was used. At about 03:45 on Wednesday, 18 March 2015, after completion of the works, the work combination was divided into two construction combinations, which were to travel independently towards Arth-Goldau. The first construction combination had to wait at the track crossover in Brunnmatt to continue its journey. At 04:27, the second construction combination was driven as an indirectly guided shunting movement into the preceding, stationary construction combination. A shunting supervisor was killed, a track-laying worker suffered serious injuries and four tracklaying workers suffered minor injuries. Vehicles and infrastructure suffered serious damage.</p> <p>The collision between two construction compositions was due to the fact that several people in different functions did not follow rules, such as the correct application of processes for shunting movements with special vehicles, compliance with speaking rules and perception of defined roles. This led to a situation where the persons involved had different levels of knowledge and to misunderstandings about the size of the workplace, responsibilities for the route between Immensee and the Brunnmatt track crossover and therefore responsibilities for driving on the route between Immensee and the Brunnmatt track crossover.</p> <p>Contributing factors to the accident were:</p> <ul style="list-style-type: none">- Discrepancies were not questioned and several people behaved without regard for safety.- There were preexisting defects in the radio equipment of shunting supervisor 2 in terms of the slug-gishness of the transmit button.- A control tone was activated, giving the impression that the operator was still conscious or able to act. <p>For longer journeys by indirectly guided shunting movements where the shunting supervisor does not give instructions to the train driver, a control tone is the only signal that exists between the shunting supervisor and the train driver and is used for monitoring the connection. However, reception of the control tone does not guarantee that the radio operator is still conscious or able to act.</p>
Safety recommendation	The STSB recommends that the FOT discontinue technical connection monitoring, such as the control tone, for safetyrelevant communication connections unless it is ensured that these are dependent on active action by the operator.
Addressees	Bundesamt für Verkehr
Stage of the implementation	Partially implemented. The FOT notes that, in the present case,

there is a difference regarding application of the operating process pursuant to clause 9.4.5, R 300.3, Swiss Train Operating Regulations (FDV) as to whether the connection is monitored by the shunting supervisor by telephone with the words “come” or “go” or technically with the control tone. The telephone version also includes monitoring of the status of the shunting supervisor: If the supervisor stops speaking (e.g. due to unconsciousness), the connection monitoring fails and the locomotive driver reacts accordingly. An activated control tone – in the version used in this incident – continues to sound if the shunting supervisor is no longer able to switch it off manually.

In the FOT's assessment, the operational process and the Swiss Train Operating Regulations (FDV) are complete and the detail of regulation is appropriate.

With regard to Art. 38 of the Railways Ordinance (RailO), AB 38.1, para. 4 of the Implementing Provisions to the Railways Ordinance (IP-RailO) contains the following overarching legal basis in the context of the safety recommendation:

”The features of the fail-safe and telematics applications must be harmonised with the operating processes and regulations.”

However, the official technical specifications (RailO/IP-RailO) do not currently contain any further requirements for technical connection monitoring.

When developing the regulations (RailO/IP-RailO & FDV) further, the FOT will analyse whether the official technical specifications and the context with the operational rules are adequate and, if necessary, make appropriate adjustments.

**Investigation report concerning
the safety recommendation**

Vorbericht
Schlussbericht
