Safety recommendation no. 145

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Safety deficit	On 16 September 2016 at 16:38 a near miss occurred between a city train (S-Bahn) and a shunting locomotive at St. Margrethen. A shunting locomotive travelling from St. Margrethen to Au SG remained briefly at a standstill in Au station due to a fault. This prevented a city train (S-Bahn), which was travelling in the opposite direction to St. Margrethen, from continuing its journey and the train had to wait at Au SG station before continuing its journey. As a remedial measure, the faulty shunting locomotive was pushed into Au SG station with the aid of a second shunting locomotive stationed at St. Margrethen, whose movement from St. Margrethen to Au should have been carried out as a shunting movement along the line. In the meantime, the fault in the stranded shunting locomotive was rectified, whereupon it continued its journey. The city train (S-Bahn) was then given the all-clear to continue to St. Margrethen. Shortly before St. Margrethen the driver of the city train (S-Bahn) saw a shunting locomotive standing on his line and carried out emergency braking, stopping just short of the shunting locomotive. Lack of clarity and misunderstandings between the two shunting teams and the dispatcher in resolving the disruption to operations resulted in the shunting locomotive travelling along the line beyond the shunting limit, which was prohibited, while the city train (S-Bahn) travelled along the same line in compliance with the signals, almost causing a collision. The following contributed to the course of events: • Partial hesitation in handing over and accepting managerial responsibility respectively for the movement between young inexperienced employees in charge and older, more experienced colleagues with lesser authorisations or competences. • The handling of safety-relevant aspects by the parties involved, who accepted uncertainties and a lack of clarity without actively determining the facts. • The lack of awareness by the parties involved that they were caught between two sets of duties: the duty on the one hand to follow procedures, and on the other to question instructions, which required them to use their own judgement and perceptions constantly, and act accordingly. The duty to follow instructions was given too much weight by the parties involved. Even persons exceeding their competences were tolerated. • The parties involved were too intensely focused on remedying the disruption to normal operation as quickly as possible in order to minimise any effects on (passenger) traffic and their other duties, and gave too much priority to the time factor in the conflict between ensuring safety and time pressure. • The parties involved had different levels of knowledge of the situation and how to resolve it but were unaware of this, since there were no means of common simultaneous communication available.

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	• With the advance information from shunting supervisor 1 and the instructions passed on before the movement, shunting supervisor 2 mistakenly thought himself entitled to carry out the shunting movement on the line when the signals transmitted the movement authority. • Confusion regarding the phone number of a called party, which was not clarified by the party called in error. • The plan laid down in advance for resolving disruption was not cancelled clearly enough for all the parties involved before normal operation was restored. Shunting supervisor 1 implicitly assumed the lead to resolve the disruption. The dispatcher did not ask any further questions as to what the best solution might be. Shunting supervisor 2 overestimated his abilities and engine driver 2 did not intervene. Shunting supervisor 2 was not sure about the destination of the movement but then made an unreliable assumption because the dispatcher seemed impatient. Even the driver of the city train (S-Bahn) created additional disruption with an unplanned enquiry into the status of the disruption resolution measures. These were all understandable reactions in themselves in which all the parties involved pursued the totally legitimate objective of clearing the line as quickly as possible. The trend for people to have stress response, an unconsidered readiness to take risks and a lack of communication between the parties involved were also major factors. This resulted in chains of errors which in the present case were not broken. Incidents are hardly ever caused by a single error by a single person. In most cases accidents result from a chain of errors by a number of parties involved. Consequently, incidents can be prevented if the parties involved are in a position to interrupt the chain of errors. The abilities to recognise errors and interrupt chains of errors can and must be practised. A core precondition is empowering employees to speak openly about events which disturb or could potentially distract them. Targeted training and practice of these abilities for persons with safetyrelevant activities has not to date been a systematic part of the training in public transport.
Safety recommendation	The Federal Office of Transport (FOT) should lay down mandatory requirements for persons with safety-relevant duties so that their initial training and periodic professional development covers ways of thinking and behaving when dealing with disruption, similar to the position in aviation with TRM training.
Addressees	Bundesamt für Verkehr
Stage of the implementation	Implemented: The Federal Office of Transport (FOT) responds as follows: The FOT supports the safety recommendation in that it agrees that the thinking and behavioural skills of people conducting safety-relevant activities must be improved. Overarching requirements in this regard can already be found in EU Regulation 2018/762 (CSM SMS), which focuses on the aspects of human and organisational factors (HOFs) as part of the safety management system and the safety culture as a whole. The FOT verifies how the companies ensure competence and safety awareness, taking into account human and organisational factors. Since 2023, the FOT has also monitored the development of a positive safety culture within the companies.
Investigation report concerning the safety recommendation	Schlussbericht

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