

Analysis of risks associated with direct traffic control

In connection with its plan to introduce direct traffic control on selected stretches of railway that are still outfitted with old interlocking technology, DB Netz AG commissioned EBP to carry out an analysis of the associated risks, ascertain the need for any additional measures and determine the extent to which it would be possible to implement the plan while maintaining compliance with the relevant safety standards.

Given that replacing the old interlocking technology along low-load stretches of railway operated by Deutsche Bahn with new computer-based interlocking systems (CBI) would require a sizeable investment, it is likely that it would make more sense – i.e. in light of the relatively simple operational needs – to use a less sophisticated system, so long as doing so would not involve any undue safety risks.

One possibility would be to introduce direct traffic control (DTC) on the low-load stretches and to augment the DTC with simple forms of technical support. However, given that this would entail dismantling the automatic-blocking systems and the old, mostly mechanical, interlocking systems, the question arises as to whether the changes could be made without compromising safety. In other words, under what circumstances and additional measures might a DTC system be an entirely acceptable solution?

In order to answer this question, EBP carried out an analysis of the associated risks and ascertained what additional measures would be necessary in the case of a DTC system to ensure a sufficient level of safety.

In the context of analyzing the risk, EBP examined the safety of the existing systems (mechanical interlocking and automatic blocking) along the stretches of railway in question and evaluated this safety in terms of tolerable hazard rates (THRs) per interlocking function. Using a fault tree analysis, the EBP team was then able to determine whether the ascertained hazard rates could also be maintained after introducing direct traffic control, for instance, by implementing additional safety measures.

The analysis of the risk gives DB Netz AG a sound basis for making decisions on the viability of introducing direct traffic control on selected stretches of railway. Moreover, DB Netz AG can continue to use the risk analysis in the context of its formal risk-management procedure as per Regulation (EU) 402/2013 CSM for Risk Assessment.

Client

DB Netz AG

Facts

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