

## **SAFETY RECOMMENDATIONS ISSUED IN 2020**

***Derailment of Mercitalia train no. 63887, at Portomaggiore (FE) station, on the Ferrara - Ravenna line, on 02.07.2018, causing serious damage to rolling stock and infrastructure:***

### **Recommendation no. 1**

It is recommended that the National Agency for Railway Safety consider the opportunity for infrastructure managers to undertake study and research activities aimed at improving the methods and devices for assessing the level of hydrogeological pollution of the railway line, useful for strengthening surveillance in the territories identified in their risk database and for verifying the effectiveness of measures related to the variability of the characteristics of railway operations.

### **Recommendation no. 2**

It is recommended that the National Agency for Railway Safety ensure that the infrastructure managers identify and periodically check the territories that, like the section of line affected by the derailment, present a greater hydrogeological risk and implement actions to mitigate the phenomena of degradation of the structural and geometric characteristics of the railway line.

### **Recommendation no. 3**

It is recommended that the National Agency for Railway Safety verify that the infrastructure managers implement appropriate training, audit and inspection activities on their personnel, with particular reference to the knowledge of the instructions and procedures to be followed in the event of non-compliance found during line visits and the definition of appropriate timeframes for the activation of maintenance solutions.

### **Recommendation no. 4**

It is recommended that the National Agency for Railway Safety verify that railway undertakings implement appropriate training, skills maintenance and supervision of the correct execution of tasks for the driving personnel, drawing attention to procedures to be implemented in the event of inconsistent behaviour of the rolling stock with respect to the pre-set running conditions, due to causes that are not immediately apparent from the on-board instrumentation (e.g. prolonged decrease in speed of a rolling stock in the absence of conventional leveling or cornering resistance).

### **Recommendation no. 5**

It is recommended that the National Agency for Railway Safety monitor the experiments on Derailment Detection Devices (DDD) that are still in progress and, in the event of positive results also in consideration of technological evolution, to assess, together with DiGIFeMa, the opportunity to re-propose their adoption on railway vehicles in international fora.

***Collision between Trenord regional train no. 1665 and 1670, on 28.03.2019, near Inverigo station, Inverigo - Merone section, Milano Nord Cadorna - Canzo Asso line, causing some injuries and damage to rolling stock:***

**Recommendation no. 1**

It is recommended that the National Agency for Railway Safety verify that railway undertakings have provided, in the training process for train driving and train crew personnel, detailed provisions concerning in particular:

- the criteria for identifying the personnel (tutors) appointed to work alongside the new staff members qualified to conduct and guard trains (trainees) during the planned training and internship phases, so as to guarantee them a complete and correct transmission of information and skills;
- the identification of the specific activities and tasks and the assignment of the relative responsibilities to the personnel involved in the training process (instructors, tutors and trainees);
- the drafting of an assessment document in which the individual activities carried out by trainees in the training process are reported together with the relevant results.

**Recommendation no. 2**

It is recommended that the National Agency for Railway Safety consider updating the criteria necessary to guarantee an adequate level of reliability and traceability of the processes of training, maintenance of qualifications and certification of personnel employed in tasks related to the safety of railway traffic.

**Recommendation no. 3**

It is recommended that the National Agency for Railway Safety ensure that the RU Trenord S.r.l. and the IM FerrovieNord S.p.A. check whether their regulations, instructions and provisions contain any discrepancies or misalignments concerning the procedures to be followed and the activities to be carried out by the train driver and train conductor for the departure of a train from a signal protected station.

If so, the necessary changes must be made to standardise the regulatory texts with each other and in accordance with the safety principles in force, in order to eliminate possible misbehaviour on the part of on-board staff due to an incorrect understanding of these texts. The National Agency for Railway Safety should also consider extending this verification to other infrastructure managers and railway undertakings.

**Recommendation no. 4**

It is recommended that the National Agency for Railway Safety consider whether on single-track sections that are not equipped with an automatic train protection system, the verification of the appearance of departure signals should be appropriately enhanced.

**Recommendation no. 5**

It is recommended that the National Agency for Railway Safety verify that railway undertakings conduct monitoring activities, with adequate frequency, using the control of the

Electronic Tachygraphic Zone (EZ) and verifying the constant presence and efficiency of individual service technological equipment.

**Recommendation no. 6**

It is recommended that the National Agency for Railway Safety require infrastructure managers and railway undertakings to verify the effectiveness of:

- training, auditing and inspection activities on their staff regarding the procedures to be followed in the event of an emergency, in order to guarantee passenger safety and prevent further emergencies arising from the original emergency;
- communication initiatives and activities aimed at instructing passengers on the procedures to be followed and the correct behaviour to adopt in the event of an emergency (accident, incident, train stopped on the line or in a tunnel, etc.), shared between the IM and RU.

***Derailment of EAV's regional train no. 3416 on 06.04.2019 entering Benevento Station, causing damage to rolling stock and infrastructure:***

**Recommendation no. 1**

It is recommended that the National Agency for Railway Safety ensure that the parties concerned introduce, in their vehicle maintenance plans, methods for the verification and control of components that have a direct influence on the safety of railway operations that are oriented towards the integrated use of several types of Non-Destructive Testing (NDT) (Visual (VT), Magnetic Particle (MT), Liquid Penetrant (PT), Ultrasonic (US), Radiography (RT), Eddy Current (ET)].

**Recommendation no. 2**

It is recommended that the National Agency for Railway Safety ensure that the parties concerned define detailed Technical Specifications for the execution of Non-Destructive Testing, which, in accordance with current sector regulations, contain at least:

- the type of instrumentation to be used and the relative methods for carrying out inspections, with an explanation of all the necessary reference parameters;
- the skills of the operating personnel employed, in any case in compliance with the relevant ANSF Guidelines Rev.1 of 12/09/2018;
- the prior planning of the activities for the entire duration of the service;
- the methods for monitoring, during execution, the activities of the NDT operators, implemented, in any case, by staff with adequate skills;
- the methods for recording the results of the testing, so as to provide documentary evidence of the values of the parameters measured and in any case guarantee the subsequent performance of comparative analyses of the results of tests performed at different times.

It is also necessary to define, in the event of entrusting the service to an external supplier:

- the methods for managing the interface and monitoring, including prior acquisition of the external supplier's risk assessment document, in order to ascertain that the external supplier has adequately assessed the risks associated with its activities and implemented the corresponding control measures, ascertaining their consistency with those implemented by the railway operator on the basis of its own risk assessment.

**Recommendation no.3**

Considering the fact that, among the activities envisaged in the maintenance plans, visual inspections are quantitatively prevalent, it is recommended that the National Agency for Railway Safety (ANSF) ensure that the parties concerned implement suitable training, skills maintenance and verification of the correct execution of tasks activities for the personnel assigned to performing such inspections, also assuming the possible subjection of the aforementioned personnel to structured qualification processes, in accordance with the relevant ANSF Guidelines.

**Recommendation no. 4**

It is recommended that the National Agency for Railway Safety ensure that the parties concerned ascertain whether there are any inconsistencies in the maintenance schedules of the vehicles with regard to the (time/kilometre) deadlines for scheduled maintenance, including checks and inspections, of components that have a direct influence on the safety of railway operations, providing for their resolution if necessary.

**Recommendation no. 5**

It is recommended that the National Agency for Railway Safety ensure that the parties concerned initiate benchmarking activities aimed at the implementation of traceability systems for non-destructive testing of components with a direct influence on the safety of railway operations.

***Near miss at level crossing involving Trenitalia regional train no. 7210, on 24.05.2019, at Casabianca, on the Ciampino - Velletri line:***

**Recommendation no. 1**

It is recommended that the National Agency for Railway Safety ensure that the infrastructure managers define the obstacles, such as road vehicles, not interfering within the barriers of the level crossings and identify the mitigating actions that may be necessary to allow the passing of railway vehicles with acceptable risk - also considering the risk of displacement of the obstacle - when the driver can promptly stop the train within the barriers.

***Derailment of Trenitalia passenger train 9595, HS/HC Milano – Bologna Line, AT PM Livraga, on 06.02.2020.***

**Recommendation no. 1**

It is recommended that the National Agency for Railway, Road Infrastructure and Motorway Safety request railway infrastructure:

- • introducing, instead of a simple visual inspection of the wiring, a functional test that verifies the correct input-output connection at the different positions of the actuator contact shaft;
- • verifying the completeness of the "Complete actuator test" and "Complete actuator final functional test" phases.

**Recommendation no. 2**

It is recommended that the National Agency for Railway, Road Infrastructure and Motorway Safety require railway infrastructure managers to adapt the reference documentation and related training activities so that it is clearly stated that all maintenance activities on switches, which involve work on the relevant command and control circuits, must always conclude with a verification of concordance between the physical configuration of the switch on the yard and the remotely controlled one, proven by visual documentation of the evidence.

**Recommendation no. 3**

It is recommended that the National Agency for Railway, Road Infrastructure and Motorway Safety require railway infrastructure managers to adapt the reference documentation and related training activities so that the return to operation of a switch, or any other safety device, at the end of any maintenance activity on it, in cases where anomalous behaviour of the devices is manifested, is carried out by those involved, always drawing inspiration from the precautionary principle, i.e. adopting the most restrictive measure to protect safety.

**Recommendation no. 4**

It is recommended that the National Agency for Railway, Road Infrastructure and Motorway Safety require railway infrastructure managers to reorganise their internal procedures for the use of switch restraints by maintenance staff.

**Recommendation no. 5**

It is recommended that the National Agency for Railway, Road Infrastructure and Motorway Safety request the railway infrastructure managers to initiate a process aimed at the design, realisation and implementation of hydraulic switches with a control circuit capable of signalling the position of each actuator constituting the switch, as well as the adaptation of the ACC's operating logic aimed at appropriately managing the control parameters that govern the operation of the switch.