OTIF

ORGANISATION INTERGOUVERNEMENTALE POUR LES TRANSPORTS INTERNATIONAUX FERROVIAIRES

ZWISCHENSTAATLICHE ORGANISATION FÜR DEN INTERNATIONALEN EISENBAHNVERKEHR

INTERGOVERNMENTAL ORGANISATION FOR INTERNATIONAL CARRIAGE BY RAIL

OTIF/RID/CE/GTP/2014/1

10 February 2014

Original: German and French

RID: **3rd Session of the RID Committee of Experts' standing working group** (Berne, 20 and 21 May 2014)

Subject: **Detection of derailments**

Proposal transmitted by Switzerland

Reference documents

- OTIF/RID/CE/2007/17 + informal document INF.9 from the RID Committee of Experts in November 2009 + informal document INF.15 from the RID Committee of Experts in May 2012;
- OTIF/RID/CE/2012-A (final report of the 51st session of the RID Committee of Experts, Berne, 30 and 31 May 2012);
- Assessment of freight train derailment risk reduction measures, DNV, Part A Final report 21.07.2011, Part B Final report 20.10.2011, Part B3 Top ten ranking of safety measures, 21.09.2011;
- Prevention and mitigation of freight train derailment at short and medium term, Final report, European Railway Agency, 14.02.2012.

Introduction

1. In response to the discussions that have taken place so far and the decisions that are pending in connection with the introduction of provisions on the detection of derailments, Switzerland would like to submit the following up-to-date information and its views, and submits a proposal for the continuation of the work.

2. Numerous freight wagons and passenger coaches are already equipped with derailment detectors. In Switzerland for example, freight wagons thus equipped have been operating for several years, and private wagon owners also fit derailment detectors to some of their vehicles on a voluntary basis. Even the automatically operated (driverless) metro system in Copenhagen, which the RID Committee of Experts' standing working group visited in November 2013, is fitted with such devices. According to the Directives in force[1], driverless passenger railways must have devices which bring the train to a stop immediately in the event of a derailment. Several derailment detection systems are currently on the market and others are in the process of being developed. In Switzerland's view therefore, derailment detection represents the current state of safety technology.

3. The studies carried out by ERA in 2011 and 2012 refer to the disadvantages and possible risks of this measure as being false alarms and emergency braking. However, at its 51st session in May 2012, the RID Committee of Experts decided to include a note in RID Chapter 7.1 to allow the voluntary use of detection devices which indicate or react to a derailment. In so doing, the Committee of Experts confirmed that such devices are sufficiently reliable and that no further inadmissible risks are expected in terms of emergency braking.

4. New studies confirm these facts: in recent years, there have been intensive investigations into the way train compositions react in the event of emergency braking. In particular, the longitudinal forces that occur in emergency braking activated by a derailment detector have been simulated. The results, which are shortly to be published, show in particular that these forces remain within acceptable limits.

5. The systems used at present are virtually one hundred percent reliable and false activation where there is no derailment occurs very seldom or never, depending on the system being used, and is also not random. In systems that use vertical acceleration as a signal, false activation can theoretically occur at spots where the infrastructure is defective. However, such defects are potential sources of actual derailments; only when they are removed, which is vital, will the risk of false activation be eliminated once and for all.

6. The ERA studies referred to indicate that equipping railway vehicles with derailment detectors has a positive cost/benefit ratio. This is the case if wagons carrying particularly dangerous goods are equipped and also if all freight wagons are equipped. Some other measures offer even better cost/benefit ratios, although they are of the same order of magnitude. In Switzerland for example, one preventive measure that has been invested in heavily, among others, is the construction of a dense network of various train control devices. In absolute terms though, the studies referred to show that derailment detection has the greatest potential to avoid the serious consequences of derailments (mitigation). Switzerland is of the view that measures with a better cost/benefit ratio should be given priority, but considers that extensive planning and vision are essential. Waiting for final implementation of a particular measure before considering the next measure would not achieve the desired result.

7. New products offer a high level of development potential that can lead to further cost reductions and new functions. In order for such developments to be carried out quickly, the industry needs a clear signal. In other branches, such as the car industry, the legislator sets out the medium term aims and introduces the necessary developments. For example, European emissions standards for motor vehicles become increasingly stringent, but as they are enacted sufficiently early, there is enough time to develop the innovations required.

[1] See, e.g., the German Federal Regulations on the Construction and Operation of Light Rail Transit Systems (BOStrab) "Guidelines for driverless vehicle operations".

8. Ultimately, after the next serious accident, which we would of course prefer to avoid, it will be very difficult to explain why a reliable safety system which is available with the current state of technology, and which has a positive cost/benefit ratio, was deliberately left aside and not even included in a long term plan.

Proposal 1

Delete the square brackets that are still in OTIF/RID/CE/2012-A (final report of the 51st session of the RID Committee of Experts, Berne, 30 and 31 May 2012), Annex 1 C – Amendments for a date of entry into force of 1 January 2015. Consequently, newly built wagons for particularly dangerous goods should be fitted with derailment detectors.

Proposal 2

As a consequential step or as an alternative to proposal 1:

- Draw up an overall timetable for the gradual equipping of all freight wagons with derailment detectors over a long-term time frame in cooperation with the other bodies concerned. To achieve this, the RID Committee of Experts should work together with ERA. In particular, the programme of action to be prepared should set out the deadlines anticipated for implementing the other measures that offer a better cost/benefit ratio than fitting derailment detectors.

- Based on the overall timetable, the (transitional) provisions for the gradual fitting of dangerous goods wagons with derailment detectors should be laid down.

Justification

These proposals enable comprehensive implementation of a safety measure that has a positive cost/benefit ratio. They also give the industry a clear signal so that they can reduce production costs further and bring innovative systems to the market.