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**Economic Commission for Europe****Inland Transport Committee**

20 December 2017

**Working Party on the Transport of Dangerous Goods****Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)****Thirty-second session**

Geneva, 22-26 January 2018

Item 4c of the provisional agenda

**Implementation of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN):  
Interpretation of the Regulations annexed to ADN**

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**Discussion paper on the use of the vapour return piping during unloading****Transmitted by the Government of the Netherlands***Summary*

<b>Executive summary:</b>	The document discusses the possibility to prescribe the use of the vapour return piping during the unloading of tank vessels
<b>Action to be taken:</b>	Discussion in the ADN Safety Committee
<b>Related documents:</b>	ECE/TRANS/WP.15/AC.2/2017/19 WP.15/AC.2/31/INF.32 ECE/TRANS/WP.15/AC.2/64 (Paragraphs 34 - 35)

**Introduction**

1. During its thirty-first session, the ADN Safety Committee discussed a document from the Austrian delegation with the proposal to clarify the obligations of the filler and the unloader, which was adopted. The document contained another proposal to describe in the ADN Checklist (8.6.3) that both during loading and unloading, the venting piping, if required or exists, must be connected to the vapour return piping. This second proposal raised a short discussion under which circumstances the use of the vapour return piping during unloading ought to be obliged.

2. Last spring, similar discussions evolved in the Netherlands between the inspection bodies and the carrying industry. Therefore the Dutch delegation had been requested by the ADN Safety Committee to draft for the next meeting a discussion document on the use of the vapour return piping during unloading.

**Current practice**

3. During unloading, most vessels (type C and type N closed) use the safety device (vacuum valve) of 9.3.2.22.4 (a) and 9.3.3.22.4 (a) to protect the cargo tank against unacceptable negative internal pressure. Through this valve atmospheric air is sucked into the cargo tank to bring the internal pressure back to an acceptable level. If the vacuum valve fails, the

instrument for measuring the pressure of the vapour phase inside the cargo tanks (9.3.2.21.1 (e) and 9.3.3.21.1 (e)) will be activated according 9.3.2.21.7 and 9.3.3.21.7.

4. This practice raises two questions about safety:

- Is it desirable that a safety device like the vacuum valve is used during normal operations?
- Is it desirable that atmospheric air is sucked into the cargo tank which could create an explosive mixture with the vapours of the unloaded cargo?

5. These safety questions could easily be solved by prescribing the use of the vapour return piping during unloading, with which the vessel receives the vapours back of the substance which it is currently unloading.

## **ADN requirements**

6. The Regulations annexed to ADN seem a bit ambiguous regarding the use of the vapour return piping during unloading. On the one hand 1.4.3.7.1 (i) prescribe that the unloader should check whether the vapour return piping, when prescribed in 7.2.4.25.5, contains a flame-arrester. On the other hand, 7.2.4.25.5 prescribes the use of the vapour return piping only during loading. The ADN checklist, which Austria proposed to amend with ECE/TRANS/WP.15/AC.2/2017/19, is currently also limited to the loading of the vessel although Austria proposed to include unloading as well.

7. Furthermore it is worthwhile to emphasize that subsection 7.2.3.22 of the Regulations annexed to ADN sets the general principle that cargo tanks shall remain closed. More specific, the subsections 7.2.4.16.9 and 7.2.4.16.10 prescribe under which conditions the safety devices of 9.3.2.22.4 (a) and 9.3.3.22.4 (a) may be used. It could be derived from these subsections that it is explicitly forbidden to use these safety devices during the loading and unloading of so-called closed substances.

8. It might be necessary to clearly identify if and under which circumstances the use of the vapour return piping during unloading is obliged. Based on 7.2.4.16.10 the Dutch delegation supports the use of the vapour return piping to protect cargo tanks against unacceptable negative internal pressure during unloading of closed substances. At the same time the delegation realizes that the preferable option in which the vessel receives the vapours back of the substance which it is currently unloading (or a compatible product), depends on the quality of the vapour return installation on the shore. The scope of ADN prevents the ADN Safety Committee to set specific requirements for vapour return installations. The Regulations annexed to ADN could however oblige the use of the vapour return installation during unloading only in case the vapour return piping is able to return the vapours of the unloaded substance. The Contracting Parties to ADN could prescribe such requirements in their regional and/or local legislation on the environment, work place safety and/or spatial planning.

## **Follow-up**

9. The Safety Committee is invited to discuss this paper and to take action as it deems appropriate.