

**Economic and Social Council**Distr.: General
9 November 2023

Original: English

Economic Commission for Europe**Inland Transport Committee****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)
(ADN Safety Committee)****Forty-third session**

Geneva, 22-26 January 2024

Item 6 of the provisional agenda

Reports of informal working groups**Report of the third meeting of the informal working group on
loading and unloading instructions****Transmitted by the Government of the Netherlands* *****Summary*

Related documents: Informal document INF.12 of the thirty-fourth session
ECE/TRANS/WP.15/AC.2/70 (Paragraphs 16-17)
Informal document INF.9 of the thirty-fifth session
ECE/TRANS/WP.15/AC.2/72 (Paragraphs 14-16)
ECE/TRANS/WP.15/AC.2/2020/37
ECE/TRANS/WP.15/AC.2/76 (Paragraphs 71-72)
ECE TRANS/WP15/AC.2/2021/26
ECE/TRANS/WP.15/AC.2/78 (Paragraphs 35-36)
ECE/TRANS/WP.15/AC.2/2022/14
ECE/TRANS/WP.15/AC.2/80 (Paragraph 66)
Informal document INF.13 of the fortieth session
ECE/TRANS/WP.15/AC.2/82 (Paragraph 68)
ECE/TRANS/WP.15/AC.2/2023/41
ECE/TRANS/WP.15/AC.2/86 (Paragraph 74)

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CCNR-ZKR/ADN/WP.15/AC.2/2024/12

** A/78/6 (Sect. 20), table 20.5



Introduction

1. The informal working group on loading and unloading instructions held its third meeting on 18 – 19 October 2023 in Bilthoven in a hybrid format, members of the German, Dutch and Luxembourg delegations, and representatives of European Chemical Industry Council (Cefic), European Barge Union (EBU), European Skippers Organization (ESO), FuelsEurope, The Dutch Association of Tank Storage Companies (VOTOB) and Bureau Veritas attended the meeting. The informal working group continued its discussions on the items that were agreed to be the terms of reference during the thirty-ninth session of the ADN Safety Committee.

I. Reflection on the work of the first two meetings

2. The Chair briefly recalled the discussion of the last meetings, where the group proposed to make a clear distinction between the ship-based information and the operational loading and unloading instruction. The loading and unloading instruction could therefore become a purely operational document provided by the carrier, containing information on the maximum initial loading speed and the maximum middle loading speed. The group recalled that during the initial loading phase, electrostatic build-up is the main factor to consider, while during the middle phase, the build-up of an over-pressure could lead to the undesirable opening of the pressure relief valve. Furthermore, it was recalled that the calculation of 9.3.2.25.9 and 9.3.3.25.9 was developed before loading with a vapour return piping was commonplace. The calculation is based on the assumption that the vapour return piping is completely cut-off; an event rarely seen in practice. Also the vapour density data necessary for the calculation are not available for complex mixtures. Some members commented that the calculation is theoretical and drifts away from practice, where the risks of an undesirable build-up of pressure in the cargo tanks is already managed.

3. The group also recalled that the calculation for the maximum middle speed is but one of the safety measures in place to prevent the build-up of pressure during this phase and that therefore the calculation could be separated from the determination of the maximum safe loading speed in the middle phase. Nevertheless, an extensive discussion on the calculation took place within the informal working group. The members concluded that the maximum safe loading speed for the middle phase reflected in the loading and unloading instruction should reflect the maximum volume of liquid the barge could take in and the maximum volume of gas/vapours that could be led away through the venting piping (on board), the lowest safe maximum (between these two) should be reflected in the loading and unloading instruction. The shore side has their own information on the maximum volume of liquid they can load and the maximum volume of gas/vapours they can receive through the vapour return piping (on shore). The lowest value determines the actual loading speed to be agreed before the loading commences.

4. Some members of the informal working group requested a comparison between two calculations; one with the assumption that the vapour return line is completely cut off, and one with the assumption that the vapour return line is completely open and the shore side has enough capacity to receive the gas/vapours resulting from the loading operation. The comparison could give the group valuable insights to determine how to proceed.

5. The group had an initial discussion if, based on the comparison, it could be an option to replace the calculation 9.3.x.25.9 requiring unclear parameters, by alternative measures to ensure the safety during the loading and unloading process. For instance a pure operational instruction when and how to stop loading and unloading accompanied with additional technical safety features like additional alarms about increasing pressure in the cargo tanks or in the piping. The lowering of the activation level of the alarm described in 9.3.x.21.7 (a) from 1.15 times the pressure of the pressure relief valve to 0.8 times that pressure, including an automatic shut-off of the loading process was taken into account.

6. On the discussion how to reflect the considerations of the group in the ADN, it was proposed that a highly detailed way, such as adding a model for the loading and unloading instruction to Chapter 8.6 of the ADN was undesirable. The group preferred a more general

way to describe the requirements of the loading and unloading instruction. A description of the process on how the loading and unloading instruction should be drawn up, who is responsible for which step, and a list of items to be considered during the process could be included in the ADN.

II. Process of drawing up the loading and unloading instructions

7. It was recalled that during the first meeting a separation between “the vessel bound information” and the “operation document (the loading and unloading instruction)” would enable the group to require the approval/verification of the classification societies on the vessel bound information. The carrier should be responsible for drafting the loading and unloading instruction on the basis of the vessel bound information, provided by the ship builder or the wharf respectively, and subsequently verified by the classification societies which supervises the vessel. The loading and unloading instruction should be a single, practical document that could be used to determine the safe loading velocities for all cargoes for the vessel.

8. The group also had a discussion on the vessel bound data that should be verified by the classification societies. The items that should be verified were:

- (a) The configuration of the piping for loading and unloading, including the length and the diameter of the piping;
- (b) The configuration of the venting piping, including the length and the diameter of the piping;
- (c) The distance between the opening of the piping for loading and the bottom of the cargo tank;
- (d) Whether the opening of the piping for loading is vertical or horizontal; and
- (e) The information on the equipment connected to the pipings and cargo tanks, including the information on the flame arresters and the information on (the configuration of) the pressure relief valves (autonomous protection systems).

9. Based on this information the carrier should draw up the loading and unloading instruction. The loading and unloading instruction should include:

- (a) The maximum safe loading velocity for the initial phase;
- (b) The maximum safe loading velocity for the middle phase; and
- (c) The minimum volume of cargo that should be loaded during the initial phase.

10. The maximum safe loading velocities should be based on the maximum safe loading flow described in the International Safety Guide for Inland Navigation Tank-barges and Terminals (ISGINNT) (1 m/s for the initial phase and 7 m/s for the middle phase). For the middle phase the maximum safe loading velocity should also be limited by the maximum flow of vapours/gases through the venting piping.

III. Next meeting

11. If the ADN Safety Committee can endorse the proposed process for the drafting of the loading and unloading instructions, including the division of responsibilities and the items to be considered during the different steps in the process, the informal working group would like to draft proposals for amendment of the ADN to reflect these considerations during the next meeting of the group. During that meeting, the group could also reflect on the comparison between the calculations described in paragraph 4 of this report.

12. The next meeting of the informal working group will be 10 –11 April 2024 in Utrecht.

IV. Action to be taken

13. The ADN Safety Committee is requested to consider the report of the informal working group, and to take action as it deems appropriate.
