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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)

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Item 5 of the provisional agenda

Reports of informal working groups

Report of the informal working group on LNG

Transmitted by the governments of the Netherlands and Switzerland^{1,2}

I. Introduction

1. On 11 and 12 May 2016 the informal working group on LNG held its first meeting at the Ministry of Infrastructure and the Environment in The Hague, the Netherlands. The meeting was attended by delegates from Germany, the Netherlands, Switzerland, Lloyds Register, the Port of Rotterdam and representatives of LNG-shipowners.
2. The informal group was formed because the Central Commission for the Navigation on the Rhine (CCNR) adopted in December 2015 legislation which allows the use of LNG as fuel for the propulsion of inland vessels. As stated earlier by the ADN Safety Committee (see ECE/TRANS/WP.15/AC.2/56 paragraph 3 and ECE/TRANS/WP.15/AC.2/58 paragraph 64), it has therefore become desirable to examine the different options how the Regulations annexed to ADN should be adjusted to allow the use of LNG as fuel for the propulsion of inland vessels carrying dangerous goods.

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² In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/2016/28/Add.1 (9.3.)).

II. Aim and scope of the meeting

3. The aim of the first meeting of the informal working group was to set the scope of the informal working group, to gain information about the legislative process concerning the use of LNG within the CCNR, to get informed about all the technical aspects and experiences with vessels using LNG as fuel, and to consider the (dis)advantages of the different options to adjust the Regulations annexed to ADN to the use of LNG, as described in informal document INF.9vof of the 28th session.

4. The participants agreed that the scope of this informal working group is "to introduce in ADN the possibility for inland vessels to use LNG as fuel for their propulsion". Guidelines for LNG as cargo will not be considered by the group for the time being.

III. Information on the use of LNG

5. At the start of the meeting of the informal working group, the participants gained information on the legislation process on LNG within the CCNR framework, which concerns:

(a) the Rhine Police Regulations (RPR), determining the operational requirements, including during the bunkering, applicable to vessels using LNG as a fuel;

(b) the Regulation for Rhine Navigation Personnel (RNP) determining additional requirements concerning the expertise of crew members (content of training courses and examinations) of inland navigation vessels using LNG as fuel;

(c) the Rhine Vessel Inspection Regulation (RVIR) creating a new Chapter 8ter including special provisions applicable to craft equipped with propulsion or auxiliary systems operating on fuels with a flashpoint equal to or lower than 55 °C, as well as an Annex T regarding supplementary provisions on LNG.

Furthermore, the CCNR has published a standard for a tailored LNG bunker checklist truck to ship, based on that published by the International Association of Ports and Harbours (IAPH), already in use by a number of river and sea ports.

6. The participants were also informed about the technical details concerning vessels equipped with a propulsion installation which use LNG as fuel, and the practical experiences with an inland vessel which uses LNG already. The information concerning the legislative process within the CCNR and the content of the relevant requirements was provided by an informal paper by Mr Benjamin Boyer of the CCNR Secretariat. The technical details were presented by Mr Bas Joormann of Lloyds Register and the practical experiences were presented by Mr Ben Maelissa, CEO of Danser Group, who runs the inland vessel Eiger on the Rhine.

7. The working group was informed by the abovementioned paper and the presentation of Mr. Joormann about the legislative LNG process within the CCNR, the relation between the CCNR legislation, the EU acquis and the ES-TRIN standard (in particular Chapter 30 and Annex 8 of ES-TRIN). In Chapter 30 the general requirements for low flashpoint fuels (below 55 °C) are described and in Annex 8 of ES-TRIN the specific requirements for the use of LNG as fuel can be found. Furthermore, Mr Joormann drew the attention to the fact that currently six inland vessels equipped with an installation which uses LNG for the propulsion, are sailing. These vessels were granted a derogation by the ADN Administrative Committee, based on documents which included a HAZID-study. These studies proved that the derogations have no negative impact on the safety level on board. In none of these cases the ADN Administrative Committee required additional safety measures for the use of LNG as fuel for the propulsion of inland vessel carrying dangerous goods, going beyond those established by the CCNR as the basis for the recommendations which the CCNR had granted

to these vessels. It was moreover noted by the participants of the informal working group that in article 1.3 of Annex 8 of ES-TRIN it is stated that every new construction concept using LNG for the propulsion of an inland vessel, should be preceded by an impact assessment showing that this new concept has no negative impact on the level of safety on board.

8. Mr. Maelissa informed the members of the working group about his experiences with the Eiger vessel. So far, the Eiger has not been confronted with serious incidents regarding the use of LNG as fuel. The Eiger is equipped with a LNG-panel on board which continually registers the performances of the LNG-system. If necessary, the manufacturer of the LNG installation has wireless access from the shore to this information so possible malfunction of the system can be identified and probably repaired immediately. Mr Maelissa also emphasized the additional training requirements which the crew has to fulfil before it can operate on a LNG-vessel. Lastly, Mr Maelissa drew the attention of the informal working group to the fact that the use of LNG as fuel currently is not economic beneficially, due to the low price of regular gasoil. This might slow the increase of LNG vessels in the forthcoming years.

IV. Options to adjust the ADN to allow the use of LNG as fuel for the propulsion of inland vessels carrying dangerous goods

9. The informal working group identified 5 options to adjust the ADN to allow the use of LNG as fuel for the propulsion of inland vessels carrying dangerous goods:

- A Deletion of the articles in the Regulations annexed to ADN which prohibit the use of fuels with a flash point below 55 °C;
- B Add to the articles in the Regulations annexed to ADN which prohibit the use of fuels with a flash point below 55 °C a general exemption for the use of LNG;
- C Add to the articles in the Regulations annexed to ADN which prohibit the use of fuels with a flash point below 55 °C an exemption for the use of LNG with a dynamic reference to Chapter 30 and Annex 8 of ES-TRIN;
- D Add to the articles in the Regulations annexed to ADN which prohibit the use of fuels with a flash point below 55 °C an exemption for the use of LNG with a static reference to a certain version of Chapter 30 and Annex 8 of ES-TRIN;
- E Copy Chapter 30 and Annex 8 of ES-TRIN into the ADN.

V. Considerations

10. Before considering the advantages and disadvantages of the described options above, the informal working group identified several starting points and/or legislative principles to be taken into account while considering the different options. These were:

- (a) No decline of safety;
- (b) International harmonization of legislation;
- (c) No blockade for other innovative products (fuel-neutral);
- (d) Respect the prerogatives of all ADN Member States, including those which are not a member of either the EU or the CCNR.

11. Although 1.1.3.3 ADN explicitly states that the requirements of ADN do not apply to substances used for the propulsion of vessels, the members of the informal working group considered option A not desirable. The deletion of these articles could open the door to all

sorts of fuels with a flash point below 55 °C on board of inland vessels carrying dangerous goods. This means that the principle "no decline of safety" cannot be guaranteed. Option E was considered undesirable as well, due to the fact that as soon as one of the legislation on this point changes, the other legislation needs to be adjusted as well. Experience shows that this quickly leads to divergence and international disharmonization of legislation.

12. The informal working group, taking into account the starting points / legislative principles, considered the three other options all acceptable (B, C and D, with a preference for option B since this option ensures quick implementation of LNG in ADN). Therefore the informal working group request the ADN Safety Committee to express which of these three options, as elaborated below, it prefers:

Option B:

Add to 7.1.3.31, 7.2.3.31.1, 9.1.0.31.1 and 9.3.X.31.1 the words "except LNG". For example in 7.1.3.31.1:

The use of engines running on fuels having a flash-point below 55 °C (e.g. petrol engines) is prohibited, **except LNG**.

The advantage of this simple solution is that it stimulates international harmonization by not duplicating legislation. Furthermore it respects the prerogatives of the ADN member states since all member states have the possibility (and all EU/CCNR member states, the obligation) to implement the ES-TRIN standards in its own legislation and to contribute to the further development of the standard in the future.

Option C:

Add to 7.1.3.31, 7.2.3.31.1, 9.1.0.31.1 and 9.3.X.31.1 a dynamic reference to Chapter 30 and Annex 8 of ES-TRIN. For example in 7.1.3.31:

The use of engines running on fuels having a flash-point below 55 °C (e.g. petrol engines) is prohibited, **unless the requirements of Chapter 30 and Annex 8 of the European Standard laying down Technical Requirements for Inland Navigation vessels are met**.

The advantage of this option is that it promotes international harmonization as the requirements for the use of LNG as fuel for the propulsion on inland vessels carrying dangerous goods are identical in all ADN member states. The disadvantage is that the Regulations annexed to ADN contain a standard to which, formally, all ADN member states can contribute but not all ADN member states can participate equally in the decision making. The ES-TRIN is developed within the framework of the European committee for drawing up common standards in the field of inland navigation (CESNI). CESNI is composed by the member states of the EU and the CCNR. Representatives of states that are not member of either the EU or the CCNR may participate in the work of CESNI without voting rights.

Option D:

Add to 7.1.3.31, 7.2.3.31.1, 9.1.0.31.1 and 9.3.X.31.1 a static reference to Chapter 30 and Annex 8 of ES-TRIN. For example in 7.1.3.31:

The use of engines running on fuels having a flash-point below 55 °C (e.g. petrol engines) is prohibited, **unless the requirements of Chapter 30 and Annex 8 of the European Standard laying down Technical Requirements for Inland Navigation vessels (edition 2015/1) are met**.

The advantage of this option is that it promotes international harmonization as the requirements for the use of LNG as fuel for the propulsion on inland vessels carrying dangerous goods are identical in all ADN member states. Nevertheless there is a risk of divergence of international legislation due to the fact that the standard should be updated in ADN every time the standard is adjusted to a new version by CESNI. This however respects

the prerogatives of all ADN member states since they can vote on every change of the legislation applicable to inland vessels carrying dangerous goods which use LNG as fuel for their propulsion.

VI. Norms and standards for LNG-bunkering procedures

13. After a discussion on the matter the informal working group came to the conclusion that it is not desirable to add norms and/or standards for LNG-bunkering devices to the Regulations annexed to ADN, since according to 1.1.3.3 ADN, the requirements of ADN do not apply to substances used for the propulsion of vessels. The participants took note of article 2.8.6 of Annex 8 of ES-TRIN where is stated that the connections of LNG-bunkering manifolds shall be in accordance with European Standard EN 1474.

VII. Conclusion and next meeting

14. Once more the informal working group requests the ADN Safety Committee to answer the question of paragraph 11, which of the three now favoured options is the most suitable to be introduced in the ADN.

15. The next meeting of the informal working group will take place on 21-22 September in The Hague. During this second meeting, Mr. Joormann will give a presentation on the possible interaction between LNG as fuel and the carried dangerous good. Furthermore, the working group will elaborate on adjusting the ADN to the use of LNG in accordance with the option which the ADN Safety Committee considers the most suitable one.
