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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)****Twentieth session**

Geneva, 23–27 January 2012

Item 4 (b) of the provisional agenda

Proposals for amendments to the Regulations annexed to ADN: Other proposals**Use of liquefied natural gas (LNG) for propulsion^{1,2}****Transmitted by the Government of the Netherlands****Introduction**

1. With document ECE/TRANS/WP.15/AC.2/2011/38, the Netherlands introduced the development of projects whereby four ships will use LNG as fuel for their propulsion systems (Informal documents INF.1, 2, 3 and 13 issued at the nineteenth session).
2. The recommendations to make this possible were discussed during the nineteenth session of the Safety Committee in August 2011. During that meeting it was decided to work out a proposal for such recommendations during an informal working group to be hosted by the Netherlands.
3. This informal working group was held on 10 and 11 October 2011 in Amsterdam. Present were representatives of Germany, Austria, Switzerland, Netherlands, Europaia and the Classification Societies involved: Bureau Veritas and Lloyds Register.

¹ Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR/ZKR/ADN/WP.15/AC.2/2012/15.

² In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106, ECE/TRANS/2010/8, programme activity 02.7 (b)).

4. The working group started with a presentation by a representative of TNO, the Dutch Organization for Applied Scientific Research, which evaluated the HAZID studies of the projects. The following observations were made by TNO:

- (a) All identified risks can be handled.
- (b) Collision calculations need further attention for ship-ship/ship-bridge scenarios.
- (c) The crashworthiness of the cryogenic tank needs to be reviewed. Look at road-rail transport equal test data?
- (d) The CFD calculation needs to be verified by a smoke test (for the tank vessel Argonon recently concluded successfully).
- (e) LNG spill on deck with the foreseen equipment (2" hose, 10 m length) is not a big issue (calculations showing a 15 degree temperature drop of deck material). The same calculation should be made for use of other equipment.

5. After the informal working group most outstanding issues were addressed and the full report from TNO for the tank vessel Argonon is attached (the TNO reports on the other projects will follow).

6. The informal working group continued to discuss the basis for the recommendations. It was decided that the basis for the recommendations would not be the procedure for equivalents in 1.5.3.1 but derogations based on 1.5.3.2. The premise for this change however is that at the moment there is no restriction foreseen with regard to the number of ships that could use this derogation since a change of the regulation that fuel has to have a flash point above 55° C is not feasible until 2017. For the recipients of these derogations there is the risk that later identified issues that lead to requirements in the legislation may need to be resolved at that time.

7. The possible safety distance was discussed, but no examples were mentioned during the meeting.

8. The informal working group identified several issues that were specific to ADN:

- (a) The influence of fire: cargo on LNG tank and vice versa;
- (b) The chemical influence of cargo on LNG and vice versa;
- (c) Training should include emergency scenarios on the specific hazard in the case of transport of dangerous goods and the grounding/collision of the vessel;
- (d) The influence of an LNG spill on the deck due to the calculated temperature drop of part of the vessel's construction materials;
- (e) The need for emergency response personnel to have information on the presence of LNG.

9. The conclusions on these issues were as follows:

- (a) If there is a fire of the cargo, the LNG tank will not explode but rather blow off and this blow off will also ignite adding negligibly to the fire. A fire of the LNG tank itself is not possible; only a leakage could ignite and that would burn out very fast.

(b) The United States Coast Guard chemical data guide for bulk shipment by water, COMDINST M16616.6A, dated 8 November 1990, concluded that LNG (included in the group Parafines) does not react with any other group³.

(c) These are now included in Annex 5 of the recommendations.

(d) Calculations show (verified by TNO) that a spillage from a 2" hose with a length of 10 m poses no significant danger. For use of other hoses new calculations should be made. A temperature drop of more than 40 degrees should be avoided.

(e) The short-term solution is found in the report to Vessel Traffic Management Systems (IVS90, MIB etc.) where the name of the ship will be followed by the words "LNG powered". The long-term solution will be to include a field in the Electronic Reporting International Notification Message (ERINOT) (matter taken up, but will take a few years).

10. In Informal documents INF.1, INF.2, INF.3 and INF.4 issued for the current session, the proposals for recommendations including all annexes for the above-mentioned projects can be found.

Proposal

11. The Working Party is invited to discuss the proposals for derogations and, if agreement is reached, forward them to the Administrative Committee for adoption at its eighth session on 27 January 2012.

³ To be found at www.uscg.mil/directives/cim/1600-16999/cim_16616_6A.pdf.