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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 4 (b) of the provisional agenda

**Proposals for amendments to the Regulations annexed to ADN:
Other proposals**

Intact stability of Type N tankers using double hull compartments for ballast (cargo tank width < 0,7 B)

Transmitted by the Recommended ADN Classification Societies¹

Introduction

1. The current rules for intact stability read as follows:

"9.3.3.14.1 For vessels with independent cargo tanks and for double-hull constructions with cargo tanks integrated in the frames of the vessel, the requirements for intact stability resulting from the damage stability calculation shall be fully complied with.

9.3.3.14.2 For vessels with cargo tanks of more than 0.70 B in width, proof shall be furnished that the following stability requirements have been complied with:

(a) In the positive area of the righting lever curve up to immersion of the first non-watertight opening there shall be a righting lever (GZ) of not less than 0.10 m;

(b) The surface of the positive area of the righting lever curve up to immersion of the first non-watertight opening and in any event up to an angle of heel < 27° shall not be less than 0.024 m.rad;

¹ Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2015/23.

- (c) The metacentric height (GM) shall be not less than 0.10 m.

These conditions shall be met bearing in mind the influence of all free surfaces in tanks for all stages of loading and unloading."

Discussion

2. For a Type N tanker with a centerline longitudinal bulkhead and a double hull used for ballasting, the intact stability could be highly impacted by the free surface moment caused by the ballast.

3. It is only for vessels with cargo tanks of more than 0,7B in width that specific intact stability criteria have to be fulfilled (9.3.3.14.2).

4. For a Type N tanker with a centerline longitudinal bulkhead (cargo tank width < 0,7B) and a double hull, intact stability only has to comply with the requirements for damage stability (9.3.3.14.1) which is not safe in this case.

5. This situation probably results from the fact that ADN provisions for Type N tankers were originally intended for single hull Type N tankers. Complementary provisions for Type N double hull tankers were drawn up without adaptation of the stability provisions.

Proposal

6. It is proposed to modify 9.3.3.14.2 as follows:

"9.3.3.14.2 For vessels with cargo tanks of more than 0.70 B in width or when the double hull is used for ballasting, proof shall be furnished that the following stability requirements have been complied with:

(a) In the positive area of the righting lever curve up to immersion of the first non-watertight opening there shall be a righting lever (GZ) of not less than 0.10 m;

(b) The surface of the positive area of the righting lever curve up to immersion of the first non-watertight opening and in any event up to an angle of heel < 27° shall not be less than 0.024 m.rad;

- (c) The metacentric height (GM) shall be not less than 0.10 m.

These conditions shall be met bearing in mind the influence of all free surfaces in tanks for all stages of loading and unloading."
