COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the
Transport of Dangerous Goods

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MISCELLANEOUS PROPOSALS OF AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Information provided to supplement document ST/SG/AC.10/C.3/2008/82

Impact testing of UN portable tanks, section 41.2 of the Manual of Tests and Criteria

Transmitted by the International Tank Container Organisation (ITCO)

1. This note explains the basis for the ITCO recommendation to UN Sub-Committee of Experts on the Transport of Dangerous Goods to harmonise rules relating to “Rail Impact Testing: Permitted increase in capacity” with reference to Paper ST/SG/AC.10/C.3/2008/82.

2. In February 2006, ISO published Amendment 1 to ISO 1496-3 which introduced the normative Annex D “Dynamic Longitudinal Impact Test” and rules giving “Permitted Variations” for production portable tanks. The UN model regulation and this ISO standard are in harmony with each other with the exception of “Permitted Variations” for production models. ITCO recommend that the committee adopt the latest ISO “Permitted Variations” which post date the current UN Model regulation.

3. Specifically, on the issue of variation in capacity (volume), this note explains why a “Permitted Variation” of a 20 % increase in capacity (volume) without any increase in “Maximum Gross Mass”, will result in a reduction of membrane stresses compared to that experienced by the prototype.

4. The figures below show two typical styles of tank container. The reader will see that, for the same gross mass in both examples, an increase in diameter (DIAM) will result in a decrease in the couple effect (LEVER ARM) between the Rail Impact Load (RIL) and the reactions at the tank wall (TL and TR). This reduction in the “off set” lever arm dimension leads to a general reduction in tank membrane stresses compared to that experienced by the prototype.

5. Therefore ITCO recommends that the UN SCETDG adopt the ISO 1496-3 “permitted variations” including the +20 % and –10 % variation in capacity.

Figure 1: Typical Frame Tank Container

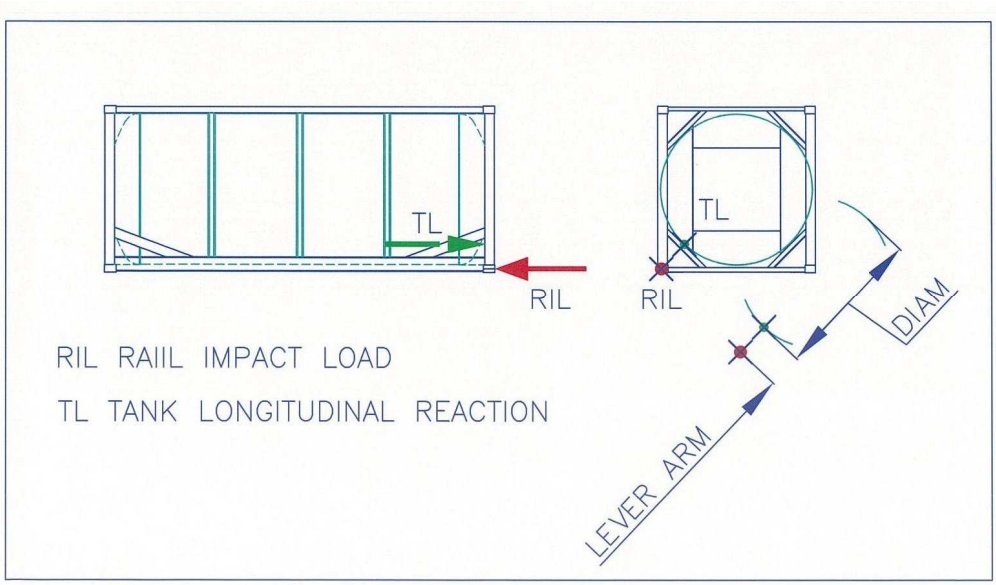

Figure 2: Typical Beam Tank Container