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**GUIDELINES ON THE SAMPLING METHOD OF THICKNESS MEASUREMENTS
FOR LONGITUDINAL STRENGTH EVALUATION AND REPAIR
METHODS IN ACCORDANCE WITH ANNEX 12 TO ANNEX B
TO RESOLUTION A.744(18), AS AMENDED**

1 The Maritime Safety Committee, at its seventy-sixth session (2 to 13 December 2002), having considered the recommendation of the forty-fifth session of the Sub-Committee on Ship Design and Equipment (DE), approved draft amendments to resolution A.744(18), as amended, introducing a sampling method of thickness measurements for longitudinal strength evaluation and repair methods, with a view to adoption at a future session.

2 The Committee, convinced that the provisions contained in the aforementioned draft amendments will contribute to enhancing further the safety of oil tankers, in particular those already in service, agreed to make the said provisions immediately available to Administrations so that they may apply them in advance of the date of entry into force of the amendments, and approved the Guidelines on the sampling method of thickness measurements for longitudinal strength evaluation and repair methods in accordance with annex 12 to Annex B to resolution A.744(18), as amended, as set out in the annex.

3 Member Governments are invited to bring the annexed Guidelines to the attention of all those involved in surveying oil tankers, recommending the use of the Guidelines in the implementation of the provisions of resolution A.744(18), as amended.

ANNEX

GUIDELINES ON THE SAMPLING METHOD OF THICKNESS MEASUREMENTS FOR LONGITUDINAL STRENGTH EVALUATION AND REPAIR METHODS IN ACCORDANCE WITH ANNEX 12 TO ANNEX B TO RESOLUTION A.744(18), AS AMENDED

The condition of the hull girder for longitudinal strength should be determined in accordance with the methods specified hereunder.

1 Extent of longitudinal strength evaluation

Longitudinal strength should be evaluated within 0.4L amidships for the extent of the hull girder length that contains tanks therein and within 0.5L amidships for adjacent tanks which may extend beyond 0.4L amidships where tanks means ballast tanks and cargo tanks.

2 Sampling method of thickness measurement

2.1 Pursuant to the requirements of section 2.5 of Annex B to resolution A.744(18), as amended, transverse sections should be chosen such that thickness measurements can be taken for as many different tanks in corrosive environments as possible, e.g. ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils, other ballast tanks, cargo tanks permitted to be filled with sea water and other cargo tanks. Ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils and cargo tanks permitted to be filled with sea water should be selected where present.

2.2 The minimum number of transverse sections to be sampled should be in accordance with annex 2 to Annex B to resolution A.744(18), as amended. The transverse sections should be located where the largest thickness reductions are suspected to occur or are revealed from deck and bottom plating measurements prescribed in 2.3 and should be clear of areas which have been locally renewed or reinforced.

2.3 At least two points should be measured on each deck plate and/or bottom shell plate required to be measured within the cargo area in accordance with the requirements of annex 2 to Annex B to resolution A.744(18), as amended.

2.4 Within 0.1D (where D is the ship's depth) of the deck and bottom at each transverse section to be measured in accordance with the requirements of annex 2 to Annex B to resolution A.744(18), as amended, every longitudinal and girder should be measured on the web and face plate, and every plate should be measured at one point between longitudinals.

2.5 For longitudinal members other than those specified in 2.4 to be measured at each transverse section in accordance with the requirements of annex 2 to Annex B to resolution A.744(18), as amended, every longitudinal and girder should be measured on the web and face plate, and every plate should be measured at least in one point per strake.

2.6 The thickness of each component should be determined by averaging all of the measurements taken in way of the transverse section on each component.

3 Additional measurements where the longitudinal strength is deficient in respect of Annex B to resolution A.744(18), as amended

3.1 Where one or more of the transverse sections are found to be deficient in respect of the longitudinal strength requirements given in annex 12 to Annex B to resolution A.744(18), as amended, the number of transverse sections for thickness measurement should be increased such that each tank within the 0.5L amidships region has been sampled. Tank spaces that are partially within, but extend beyond the 0.5L region, should be sampled.

3.2 Additional thickness measurements should also be performed on one transverse section forward and one aft of each repaired area to the extent necessary to ensure that the areas bordering the repaired section also comply with the requirements of Annex B to resolution A.744(18), as amended.

4 Effective repair methods

4.1 The extent of renewal or reinforcement carried out to comply with annex 12 to Annex B to resolution A.744(18), as amended, should be in accordance with 3.2.

4.2 The minimum continuous length of a renewed or reinforced structural member should be not less than twice the spacing of the primary members in way. In addition, the thickness diminution in way of the butt joint of each joining member forward and aft of the replaced member (plates, stiffeners, girder webs and flanges, etc.) should not be within the substantial corrosion range (75% of the allowable diminution associated with each particular member). Where differences in thickness at the butt joint exceed 15% of the lower thickness, a transition taper is to be provided.

4.3 Alternative repair methods involving the fitting of straps or structural member modification should be subject to special consideration. In considering the fitting of straps, it should be limited to the following conditions:

- .1 to restore and/or increase longitudinal strength;
- .2 the thickness diminution of the deck or bottom plating to be reinforced should not be within the substantial corrosion range (75% of the allowable diminution associated with the deck plating);
- .3 the alignment and arrangement, including the termination of the straps, is in accordance with a standard recognized by the Administration;
- .4 the straps are continuous over the entire 0.5L amidships length; and
- .5 use of continuous fillet welding and full penetration welds at butt welding and, depending on the width of the strap, slot welds. The welding procedures applied should be approved by the Administration.

4.4 The existing structure adjacent to replacement areas and in conjunction with the fitted straps, etc., should be capable of withstanding the applied loads taking into account the buckling resistance and the condition of welds between the longitudinal members and hull envelope plating.