



SUB-COMMITTEE ON SHIP DESIGN AND
EQUIPMENT
50th session
Agenda item 27

DE 50/27
16 April 2007
Original: ENGLISH

REPORT TO THE MARITIME SAFETY COMMITTEE

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1 GENERAL

Introduction

1.1 The Sub-Committee held its fiftieth session from 5 to 9 March 2007 under the chairmanship of Mrs. Anneliese Jost (Germany). The Vice-Chairman, Mrs. Xiang Yang (China), was also present.

1.2 The session was attended by delegations from the following Member Governments:

ALGERIA	LATVIA
ANGOLA	LIBERIA
ANTIGUA AND BARBUDA	MALAYSIA
ARGENTINA	MALTA
AUSTRALIA	MARSHALL ISLANDS
BAHAMAS	MEXICO
BOLIVIA	MOROCCO
BRAZIL	NETHERLANDS
CANADA	NORWAY
CHILE	PANAMA
CHINA	PAPUA NEW GUINEA
COLOMBIA	PERU
CROATIA	POLAND
CUBA	REPUBLIC OF KOREA
CYPRUS	ROMANIA
DEMOCRATIC PEOPLE'S	RUSSIAN FEDERATION
REPUBLIC OF KOREA	SAUDI ARABIA
DENMARK	SINGAPORE
DOMINICA	SLOVENIA
ECUADOR	SPAIN
EGYPT	SWEDEN
FINLAND	SYRIAN ARAB REPUBLIC
FRANCE	TURKEY
GERMANY	TUVALU
GREECE	UNITED KINGDOM
IRAN (ISLAMIC REPUBLIC OF)	UNITED STATES
IRELAND	URUGUAY
ITALY	VANUATU
JAPAN	VENEZUELA

the following Associate Member of IMO:

HONG KONG, CHINA

and the following State not Member of IMO:

COOK ISLANDS

1.3 The session was also attended by observers from the following intergovernmental organization:

EUROPEAN COMMISSION (EC)

and by observers from the following non-governmental organizations in consultative status:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS (ICFTU)
BIMCO
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
ICHCA INTERNATIONAL (ICHCA)
EUROPEAN CHEMICAL INDUSTRY COUNCIL (CEFIC)
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)
INTERNATIONAL ASSOCIATION OF DRILLING CONTRACTORS (IADC)
INTERNATIONAL ASSOCIATION OF INSTITUTES OF NAVIGATION (IAIN)
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATION (IFSMA)
INTERNATIONAL LIFE-SAVING APPLIANCES MANUFACTURERS'
ASSOCIATION (ILAMA)
COMMUNITY OF EUROPEAN SHIPYARDS' ASSOCIATIONS (CESA)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS
(INTERTANKO)
CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS
(INTERCARGO)
ASSOCIATION OF EUROPEAN MANUFACTURERS OF INTERNAL
COMBUSTION ENGINES (EUROMOT)
THE INSTITUTE OF MARINE ENGINEERING, SCIENCE AND TECHNOLOGY
(IMarEST)
INTERNATIONAL PARCEL TANKERS ASSOCIATION (IPTA)
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)

Opening address

1.4 In welcoming the participants on behalf of the Secretary-General, Mr. K. Sekimizu, Director, Maritime Safety Division, noting that this was the fiftieth session of the Sub-Committee, paid tribute to its remarkable achievements during the long period of its existence and referred to its first session, which was held more than 39 years ago. He was of the view that everyone could be pleased at the progress the Sub-Committee had since made, not only in the number of Member Governments and international organizations participating in its work but also in the quality and quantity of its output, which had contributed significantly to the achievement of the objectives of the Organization.

The Director emphasized that, over those years, there had been many advances in the field of ship design and construction and that the seafarers that sailed the oceans today had at their disposal a host of new technologies, which their predecessors could only have dreamt of. Numerous instruments, guidelines and recommendations, mandatory and non-mandatory, had been developed to ensure that the design, construction, structure, equipment, machinery and electrical installations of ships and other marine structures were up to the task, significantly contributing to the enhancement of safety at sea.

The Director took the opportunity to pay tribute to all the Chairmen who had led the Sub-Committee for their committed service: Dr. Spinelli (Italy), Mr. Jansen (Norway), Prof. Doerffer (Poland), Dr. Pattofatto (Italy), Mr. Williams (Australia), Mr. Chrysostomou (Cyprus), Mr. Ponomarev (Russian Federation) and the current Chairman. He also thanked the Sub-Committee's Secretaries and other officers involved in its work such as Mr. Sasamura, Mr. Jens, Mr. Simeone, Mr. Vidigal, Mr. Spassky, Mr. Mitschka, Mr. Kobylinski, Mr. Ray, Mr. Srivastava, Mr. Palomares and, most recently, Mrs. Hoppe, for their painstaking and dedicated services.

With regard to this year's World Maritime Day, which will focus on "IMO's response to current environmental challenges", the Director stressed that this would be an opportunity to increase awareness about the threats to the environment stemming from shipping operations and, by taking appropriate preventive and remedial action, to show that the maritime sector does care about the environment and is, indeed, already at the forefront of that challenge. Over the years, Governments and the industry had adopted, through IMO, a wide range of measures to prevent and control any pollution caused by ships and to reduce the impact that shipping may have on our fragile environment. In this context, the Sub-Committee's contribution to the protection of the marine environment, through the development of pollution-preventing standards for ship design and equipment, was of great importance and should continue unabated.

Turning to important items on the agenda of this session, the Director highlighted, following the adoption, by MSC 82, of the mandatory performance standard for protective coatings of double-side skin spaces of bulk carriers, the continuing work on performance standards for protective coatings, in particular the consideration of standards for void spaces, as well as the development of guidelines for maintenance and repair of protective coatings and also corrosion protection of permanent means of access arrangements.

Concerning the development of amendments to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (resolution A.744(18)), the Director noted the Sub-Committee's undertaking to expand them considerably by including procedures for hull surveys of double-hull bulk carriers, and, with regard to the review of the SPS and MODU Codes and the Code on Alarms and Indicators, stressed the importance of this work, aimed at bringing the Codes in line with latest developments.

As far as life-saving appliances are concerned, the Director observed that there were a number of items on the agenda dealing with the matter, including consideration of measures to prevent accidents with lifeboats (in particular circular MSC.1/Circ.1206), further improvements to provisions regarding on-load release mechanisms, free-fall lifeboat launching and seating arrangements, as well as the issue of compatibility of the various life-saving appliances currently in use, and the consideration of test standards for extended service intervals of inflatable liferafts. He noted that, as a result of the adoption, at MSC 82, of a comprehensive package of SOLAS amendments concerning passenger ship safety, the Sub-Committee would commence the development of performance standards for recovery systems for all types of ships, as well as guidelines for the approval of novel life-saving appliances.

The Director referred to another important task given to the Sub-Committee by MEPC 55, namely the review of the Revised guidelines for systems for handling oily wastes in machinery spaces of ships and relevant MARPOL Annex I and Annex VI requirements, concerning legislative and implementation aspects related to the prevention of operational oil pollution from ships, as well as the consideration of proposals for a comprehensive overhaul of the regulations and related guidelines concerning handling of oil residues and oily bilge water. He stressed that

this work was very much in line with the environmental theme for this year's World Maritime Day and was hopeful that significant progress would be made on the issue.

In mentioning the development of emergency towing procedures for ships other than tankers of not less than 20,000 dwt; inspection and survey requirements for accommodation ladders; provisions for gas-fuelled ships; amendments to the Guidelines for ships operating in Arctic ice-covered waters; revision of resolution A.760(18); casualty analysis; guidelines for uniform operating limitations of high-speed craft; and the consideration of IACS unified interpretations, the Director acknowledged that they were all equally important.

In concluding, the Director, referring to the Voluntary IMO Member State Audit Scheme, updated the Sub-Committee on the audits conducted so far and, on behalf of the Secretary-General, invited those Member States that intend to offer themselves for audit to do so as soon as possible since this would greatly facilitate the planning of audits to be conducted.

Chairman's remarks

1.5 The Chairman, in thanking the Director, stated that the Secretary-General's words of encouragement as well as the advice and requests would be given every consideration by the Sub-Committee.

Statement by the delegation of Vanuatu

1.6 The delegation of Vanuatu, in relation to the IMO Audit Scheme, referred to resolution A.974(24) on Framework and Procedures for the Voluntary IMO Member State Audit Scheme and, in particular, to operative paragraph 2(a) thereof, which urges Governments to volunteer to be audited. They shared the Secretary-General's view that the Audit Scheme would contribute to the Organization's efforts to achieve consistent and effective implementation of the various instruments adopted under its auspices, expressing confidence that, with this tool, IMO would make further progress in eliminating sub-standard shipping. Stating that the Government of Vanuatu had always participated fully in all IMO initiatives and that they would like to continue to do so with the IMO Audit Scheme, and noting that Vanuatu's flag State procedures are already audited to ISO 9001-2000 international standards, they informed the Sub-Committee that the Minister of Foreign Affairs of the Republic of Vanuatu had recently signed Vanuatu's application to volunteer for audit, making it the twenty-seventh country to do so.

Adoption of the agenda

1.7 The Sub-Committee adopted the agenda for the fiftieth session (DE 50/1/Rev.1) and agreed to be guided in its work, in general, by the annotations contained in document DE 50/1/1. The agenda, as adopted, with the list of documents considered under each agenda item, is set out in document DE 50/INF.6.

2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the decisions and comments pertaining to its work made by MSC 81 and MSC 82, MEPC 54 and MEPC 55, COMSAR 10, BLG 10, FSI 14, NAV 52, SLF 49 and DSC 11, as reported in documents DE 50/2, DE 50/2/1, DE 50/2/2 and DE 50/2/3, and took them into account in its deliberations when dealing with relevant agenda items.

2.2 The Sub-Committee further noted information by the Secretariat with regard to the outcome of FP 51 and COMSAR 11 as follows:

- .1 concerning the review of the SPS Code, FP 51 decided to delay work on this item until DE 50 had considered the report of its correspondence group on the issue (DE 50/9);
- .2 concerning the development of provisions for gas-fuelled ships, FP 51 decided to delay work on this item until the draft Interim Guidelines on safety for gas-fuelled engine installation in ships had been prepared by the BLG Sub-Committee;
- .3 the outcome of FP 51's consideration of the report of the Inter-Industry Working Group (IIWG) established to study incidents of fires and explosions on chemical and product tankers is reported in document DE 50/17/2;
- .4 COMSAR 11 postponed consideration of its agenda item on "Guidelines for uniform operating limitations of high-speed craft" to COMSAR 12, when the outcome of DE 50 would be available, and invited Members to submit comments and suitable proposals for consideration at COMSAR 12; and
- .5 COMSAR 11 finalized a draft performance standard for survival craft AIS Search and Rescue Transmitter (AIS-SART) to supplement the existing SART performance standards (resolution A.802(19)); prepared consequential amendments to the MODU Code; and requested the Sub-Committee to review these amendments and incorporate them in the revision of the MODU Code.

Commencement of working groups on Monday morning

2.3 The Sub-Committee noted that MSC 81 had reaffirmed that the commencement of working groups on Monday morning was an option that should be considered with caution. However, it should be encouraged that, whenever possible, terms of reference of working groups should be agreed at the previous session of the Sub-Committee. Another option would be that the draft terms of reference of working and drafting groups issued at the beginning of the session, in accordance with paragraph 3.39 of the Guidelines on the organization and method of work, also identify items on which the groups could start work, if decided, on Monday mornings, without prior consideration of the related agenda items in plenary.

Splinter groups

2.4 The Sub-Committee noted that MSC 81 had agreed that there should be no official splinter groups. However, where the establishment of a splinter group is necessary for the facilitation and efficiency of the work, there should be unanimous agreement on its establishment and the outcome of the group's work should be considered and agreed by the Sub-Committee and incorporated in the report, as appropriate.

Increase in volume of documents

2.5 The Sub-Committee noted that MSC 81, in considering that the volume of documents had increased compared to previous sessions, had requested Member Governments and international organizations to submit documents as early as possible and not just on the deadlines for the submission of documents.

Revised Guidelines on the organization and method of work

2.6 The Sub-Committee noted that MSC 82 had approved revised Guidelines on the organization and method of work of the MSC and the MEPC and their subsidiary bodies, which have been disseminated by means of MSC-MEPC.1/Circ.1.

3 AMENDMENTS TO RESOLUTION A.744(18)

3.1 The Sub-Committee noted that MEPC 54 had considered the proposed amendments to the Condition Assessment Scheme (CAS) prepared at DE 49 and had approved them, as amended, for adoption by MEPC 55. MEPC 54 had further adopted, by resolution MEPC.147(54), the Guidelines on the assessment of residual fillet weld between deck plating and longitudinals, also prepared by DE 49, and had endorsed the view of the Sub-Committee that the thickness measurement of the residual fillet weld between deck plating and longitudinals during the course of a CAS survey could be used on an optional and voluntary basis by surveyors.

3.2 The Sub-Committee recalled that DE 49 had established a correspondence group and instructed it to prepare concrete proposals for draft amendments to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (resolution A.744(18)) (ESP Guidelines), based on the relevant IACS Unified Requirements (UR) and taking into account comments and proposals made at DE 49, concerning procedural requirements for surveyor monitoring of thickness measurements, procedures for hull surveys of double-skin bulk carriers, and requirements for provision and maintenance of as-built drawings covering items such as machinery installations, electrical installations and control systems, etc.

3.3 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/3 (Japan), containing the report of the correspondence group, providing the outcome of the work done, including comparisons made between the text of the ESP Guidelines and the IACS UR Z10 series;
- .2 DE 50/3/1 (Japan) (part of the correspondence group report), containing a comparison table between Annex A (Survey guidelines for bulk carriers) of the ESP Guidelines and IACS UR Z10.2 (Hull surveys of bulk carriers);
- .3 DE 50/3/2 (Japan) (part of the correspondence group report), containing the draft text for a new Part B (Survey guidelines for double-skin bulk carriers) of Annex A of the ESP Guidelines;
- .4 DE 50/3/3 (Japan) (part of the correspondence group report), containing a comparison table between Annex B, Part B (Survey guidelines for oil tankers) of the ESP Guidelines and IACS UR Z10.1 (Hull surveys of oil tankers);
- .5 DE 50/3/4 (Japan) (part of the correspondence group report), containing a comparison table between Annex B, Part A (Survey guidelines for double hull oil tankers) of the ESP Guidelines and IACS UR Z10.4 (Hull surveys of double hull oil tankers); and
- .6 DE 50/INF.2 (Secretariat), containing the consolidated text of the existing ESP Guidelines, incorporating all amendments adopted up to MSC 80.

3.4 The Sub-Committee, in considering the action requested by the correspondence group (DE 50/3, paragraph 16):

- .1 noted the consolidated text of the existing ESP Guidelines (DE 50/INF.2);
- .2 agreed to refer the draft new text of the ESP Guidelines for double-side skin bulk carriers, set out in the annex to document DE 50/3/2, to the working group for finalization;
- .3 noted the explanation of the co-ordinator of the correspondence group on the matter of procedural requirements for surveyor monitoring of thickness measurements;
- .4 noted the comments on the draft amendments by Japan, as annexed to the report of the correspondence group (DE 50/3); and
- .5 noted that, due to lack of time, the group had not been able to deal with the issue of as-built drawings covering items such as machinery installations, electrical installations and control systems, etc., and agreed that this should be dealt with after finalization of the draft amendments to the ESP Guidelines to be considered at this session.

3.5 With regard to the tables comparing the ESP Guidelines and IACS URs Z10.1, Z10.2 and Z10.4 (DE 50/3/1, 50/3/3 and DE 50/3/4), the Sub-Committee agreed that, while the harmonization of the ESP Guidelines with the IACS UR Z10 series has merits, it constituted an expansion of the scope of the work programme item. Consequently, the Sub-Committee instructed the working group (see paragraph 3.6) to prepare a justification for the Committee to expand the work on the amendments to resolution A.744(18) to include the harmonization exercise.

Establishment of the working group

3.6 The Sub-Committee, as agreed at DE 49, established a working group and instructed it, taking into account decisions, comments and proposals made in plenary, to:

- .1 finalize the draft text for a new part B (Survey guidelines for double-skin bulk carriers) of Annex A to the ESP Guidelines, on the basis of document DE 50/3/2;
- .2 prepare draft amendments to the ESP Guidelines, concerning procedural requirements for surveyor monitoring of thickness measurements, taking into account document DE 49/3;
- .3 prepare a justification to expand the work on the amendments to resolution A.744(18) to harmonization of the ESP Guidelines with the relevant IACS Unified Requirements (UR Z.10 series) and other issues, as appropriate; and
- .4 consider whether a correspondence group should be established and, if so, prepare draft terms of reference for the group.

Report of the working group

3.7 Having received the report of the working group (DE 50/WP.1), the Sub-Committee approved it in general and took decisions as outlined in the following paragraphs.

Draft amendments to Annex A (Survey guidelines for bulk carriers) of the ESP Guidelines (resolution A.744(18))

3.8 The Sub-Committee noted that the group had used the text contained in the existing Annex A of the ESP Guidelines as the basis for the new part B (Survey guidelines for double-skin bulk carriers), with Annex A becoming part A of Annex A.

3.9 In considering the proposed draft amendments to the title, application and definitions prepared by the group, the Sub-Committee agreed that the new part B should apply to bulk carriers of 500 gross tonnage and over having double-side skin construction. In this context, the Sub-Committee also agreed that bulk carriers having a combination of single and double-side skin construction should comply with the relevant requirements of the new parts A and B for that construction, as applicable.

3.10 The Sub-Committee noted that the group, having made a number of modifications to the various annexes prepared by the correspondence group (DE 50/3/2), had agreed to replace annexes 8, 9 and 10 of Annex A, part B, in their entirety with the standards contained in the IACS UR Z10.5 series. In this regard, the Sub-Committee noted that annex 11 (Guidelines for the gauging of vertically corrugated transverse watertight bulkheads between holds No.1 and No.2) and annex 12 (Additional annual survey requirements for the foremost cargo hold of ships subject to SOLAS regulation XII/9.1), which are contained in the existing Annex A, were not applicable to ships with double-side skin construction and, therefore, were not be included in the new part B.

3.11 Having considered the above issues, the Sub-Committee agreed to the draft amendments to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (resolution A.744(18) as amended), set out in annex 1, for submission to MSC 83 for approval and subsequent adoption. In this regard, the Sub-Committee endorsed the group's view that, after adoption by the Committee of the latest set of amendments, the Secretariat should be requested to prepare a consolidated text of the Guidelines, as amended, for publication purposes. The Sub-Committee also authorized the Secretariat to make editorial changes, as necessary, in the preparation of the consolidated text of the new part B.

Procedural requirements for surveyor monitoring of thickness measurements

3.12 The Sub-Committee noted that the group had considered the IACS procedural requirements for surveyor monitoring of thickness measurements, as set out in the annex to document DE 49/3, and had included them in the new part B, as a separate annex.

Justification to expand work on the amendments to resolution A.744(18)

3.13 The Sub-Committee agreed to the justification for expanding the scope of the existing work programme item on "Amendments to resolution A.744(18)" to harmonize the ESP Guidelines with the relevant IACS Unified Requirements (UR Z10 series) and other issues, set out in annex 2, for submission to MSC 83 for consideration and action as appropriate.

Establishment of the correspondence group

3.14 The Sub-Committee established a Correspondence Group on Amendments to resolution A.744(18), under the co-ordination of Japan[‡], and instructed it, taking into account the progress made at this session; and the outcome of the working group at DE 50 (DE 50/WP.1):

- .1 subject to the MSC 83's concurrent decision to expand the scope of the existing work item (see paragraph 3.13), to prepare draft amendments to Annexes A and B of the ESP Guidelines (resolution A.744(18), as amended), based on the relevant IACS Unified Requirements (UR Z10 series) with a view towards harmonization, taking into account documents DE 49/3/1, DE 49/3/2, DE 50/3/1, DE 50/3/3 and DE 50/3/4;
- .2 to prepare draft amendments to Annexes A and B of the ESP Guidelines to include requirements for the provision and maintenance of as-built drawings covering items such as machinery installations, electrical installations and control systems, etc.; and
- .3 to submit a report to DE 51.

4 PERFORMANCE STANDARDS FOR PROTECTIVE COATINGS

4.1 The Sub-Committee recalled that MSC 81 had approved the draft Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and of double-side skin spaces of bulk carriers and the related draft amendments to SOLAS regulations II-1/3-2 and XII/6, as prepared by DE 49, for consideration at MSC 82 with a view to adoption. The Sub-Committee noted that, with a view to an early implementation of the Performance standard, MSC 81 had also approved MSC.1/Circ.1198 on Application of SOLAS regulation XII/6.3 on corrosion prevention of double-side skin spaces and dedicated seawater ballast tanks of bulk carriers and application of the Performance standard for protective coatings for dedicated seawater ballast tanks in all new ships and double-side skin spaces of bulk carriers, inviting SOLAS Contracting Governments to apply, in advance, draft SOLAS regulation II-1/3-2 together with the Performance standard to bulk carriers of 150 m and above flying their flag, constructed on or after 1 July 2006, in lieu of SOLAS regulation II-1/3-2 adopted by resolution MSC.47(66).

4.2 The Sub-Committee noted that, consequently, MSC 82 had adopted the aforementioned Performance standard for protective coatings, by resolution MSC.215(82), which will become effective on 1 July 2008 upon entry into force of the amendments to SOLAS regulations II-1/3-2 and XII/6 adopted at MSC 82 by resolution MSC.216(82).

* **Co-ordinator:**

Mr. Koichi Yoshida
Director, International Cooperation Center
National Maritime Research Institute
6-38-1 Shinkawa
Mitaka 181-0004
Japan
Tel.: +81 422 41 3615
Fax: +81 422 41 3247
E-mail: koichiy@nmri.go.jp

4.3 The Sub-Committee recalled that DE 49, following the agreement at MSC 80 to expand the scope of the item to also cover void spaces into which seawater normally does not enter, had re-established the correspondence group and instructed it to consider the draft Performance standard for protective coatings of void spaces of all types of ships, based on document DE 49/6, and, in particular, to identify and define those void spaces to which the Performance standard should apply, considering as a priority oil tankers and bulk carriers; to identify and define those void spaces to which a different standard could apply and to develop a draft standard for such spaces for oil tankers and bulk carriers; and to identify and define those void spaces to which a different standard could apply for other types of ships.

4.4 The Sub-Committee had for its consideration the following documents:

- .1 the report of the correspondence group (DE 50/4, submitted by China), outlining the discussions concerning the void spaces to be considered, categories of void spaces and the related applicable standards and ship types to which the new draft standard should apply. The report contains, in the annex, a draft Performance standard for protective coatings for void spaces in bulk carriers and oil tankers;
- .2 DE 50/4/1 and DE 50/INF.3 (Japan), commenting on the categorization of void spaces, based on an investigation assessing the performance of coating specifications actually applied to void spaces in oil tankers and bulk carriers of more than 10 years of age (DE 50/INF.3), and commenting on the draft Performance standard for protective coatings of void spaces (DE 50/4/1);
- .3 DE 50/4/2 (CESA), commenting on the criteria which can be used to judge the corrosion hazard or probability when defining categories of void spaces and on specific technical requirements in the draft Performance standard for protective coatings of void spaces; and
- .4 DE 50/4/3 and DE 50/INF.5 (China), expressing the view that the actual conditions of void spaces should be taken into account when addressing the issue of protective coatings for void spaces; informing that they had carried out an inspection of void spaces on aged ships (DE 50/INF.5); and suggesting that the performance standard should be recommendatory.

4.5 The Sub-Committee approved the report in general and, following discussion:

- .1 noted the view of the correspondence group that only void spaces that contribute to the ship's safety in terms of the ship strength should be considered in the draft Performance standard, acknowledging the view of some delegations that void spaces should also be considered in terms of their contribution to crew safety and pollution prevention;
- .2 noted the conclusion of the correspondence group that the scope of the draft Performance standard for void spaces should be limited to bulk carriers and oil tankers, but agreed that void spaces of other types of ships should also be considered, albeit at a later point in time;
- .3 noted the discussions and outcome of the correspondence group regarding the categorization of void spaces, generally agreeing that there should be one category of void spaces, but that alternatives should be allowed, and agreed to instruct the

working group to further consider the issue and to advise whether this should become part of the performance standard;

- .4 noted the discussions and progress in the development of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, and agreed to forward the Performance standard, and the discussions in the Sub-Committee, to the working group for further consideration and finalization; and
- .5 regarding the issue of whether the Performance standard should be mandatory, noted that views on the issue were divided, with a majority of delegations being in favour of making the Performance standard mandatory, and agreed to postpone the final decision on the matter until the standard had been finalized (see paragraph 4.21).

International Symposium on Shipbuilding Technology (ISST 2007) on fabrications and coatings*

4.6 In this connection, the Sub-Committee noted information by the delegation of Japan that the Royal Institution of Naval Architects and the Japan Society of Naval Architects and Ocean Engineers would hold an International Symposium on Shipbuilding Technology (ISST 2007) on fabrications and coatings, covering the technology of protection of ship structures from corrosion, including seawater ballast tanks, void spaces, cargo hold and cargo tanks and the technology of coatings for such protection. The symposium, which should be a very good opportunity to exchange views, opinions and information on the issue, would be held in Japan on 6 and 7 September 2007 and the deadline for the submission of abstracts had been extended to the end of March 2007.

Establishment of a working group

4.7 The Sub-Committee established, as agreed at DE 49, a working group and instructed it, taking into account decisions, comments and proposals made in plenary, to:

- .1 finalize the draft Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, on the basis of the report of the correspondence group (DE 50/4) and taking into account documents DE 50/4/1, DE 50/4/2, DE 50/4/3, DE 50/INF.3 and DE 50/INF.5;
- .2 further discuss the categorization of void spaces, including alternative approaches, for the consideration of the Sub-Committee and advise whether this should become part of the Performance standard; and
- .3 consider whether a correspondence group should be established and, if so, prepare terms of reference for the group.

Report of the working group

4.8 Having received the report of the working group (DE 50/WP.2), the Sub-Committee approved it in general and took decisions as outlined in the following paragraphs.

* For more details contact Mr. K. Yoshida (koichiy@nmri.go.jp).

Categorization of void spaces

4.9 In considering how void spaces should be categorized in the draft Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, the Sub-Committee, having noted the various views expressed in paragraphs 7 to 10 of document DE 50/WP.2, agreed to the tables prepared by the group, set out in annex 2 to document DE 50/WP.2 as well as the group's consequential modifications to paragraph 4.2 (Standard application).

4.10 The delegation of the Bahamas stated that a number of delegations in the working group had strongly opposed the decision to allow bulkhead stools to be categorized as totally enclosed spaces, inaccessible for inspection and exempt from any coating requirement. There was also opposition to the development of totally enclosed spaces located behind gusset and shedder plates at the bottom of corrugated bulkheads as these would be potentially explosive spaces. It was also stated that class rules did not allow such spaces without inspection holes covered by removable plugs. The delegation of the Bahamas was of the opinion that these views had been widely supported within the Sub-Committee.

4.11 The delegation of Greece, supported by the delegations of the Bahamas, Italy, Liberia, Malta, the Marshall Islands, Panama, Peru, Spain, Venezuela and the observer from ICS, stated that the Performance standard must not be lesser for its purpose of the 15 year target life and it certainly should not be used as a means of designing or permitting newly introduced "totally enclosed spaces" (known also as "dead spaces"), which are prohibited up to now, to become part of the basic design of future bulk carriers and oil tankers.

It was the Greek delegation's understanding that totally enclosed spaces did not exist in both tankers and bulk carriers, and specifically, in cargo block areas forward of the engine-room bulkhead. The terms of reference of the working group did not include any direction whereby such spaces may be entertained in future designs. Annex 1, paragraph 2.13, of the draft Performance standard defined "totally enclosed spaces" that are without access and ventilation. Annex 2, table 1, item 1.3.1, described as "totally enclosed spaces" small spaces behind lower shedders and gussets in corrugated bulkheads and other spaces like those in hatch corners between hatch coamings and main deck in cargo holds of bulk carriers. These spaces, if encouraged to be accommodated in a bulk carrier as per this definition (i.e., without access for inspection and be able to carry out hot works), could create pockets that may be filled with flammable gases (i.e., due to liquefaction of coal) through the weld porous and also corrosion. This could cause an explosion hazard if hot work is undertaken during the vessel's life and certainly after the vessel left the building shipyard. Recognized organizations could not inspect/survey such spaces and it should be noted that gussets and shedders are structural members that form the lower fixity of the corrugation as per SOLAS regulation XII/6 and IACS URs S18 and S19. This may also be the reason, why IACS classification societies' rules did not permit pillars of hollow section (but only of solid section) to be fitted in similar spaces (i.e. liquid carrying tanks). The delegation therefore proposed that paragraph 2.13 of annex 1 and items 1.3.1, 1.4.1 and 1.5.1 in annex 2 referring to "totally enclosed spaces" should be deleted from the text. In addition, references in the text to "totally enclosed spaces" should also to be deleted accordingly (i.e., paragraph 4.2.1). Furthermore, it was noted that "void spaces in oil tankers" in item 2.9 of annex 2, table 2, were similar to those in the same annex, table 1, item 1.3 for bulk carriers. They proposed that these spaces should be coated to the same standard and indicated in the table as "PSPC/VS as far as practicable", the latter meaning that it would accommodate the closing plate of the small space.

Finally, the delegation of Greece emphasized that the lower and upper stools of bulkheads in both oil tankers and bulk carriers were extremely important structural members for ship survivability

because they supported the double bottom and upper deck structure respectively, in both longitudinal and transverse direction. Spaces in lower and upper stool were provided with ventilation and means of access in both oil tankers and bulk carriers. They were substantially larger spaces than those behind shudders and gussets and equal and/or wider than the double-side skin spaces of double-side skin bulk carriers. In addition, these spaces may serve the ballast system (i.e., pipes and valves that may leak undetectable as no means of detecting such systems were provided/required). Moisture and temperature variation often formed highly corrosive atmospheres which were very difficult to maintain in service. In addition, the IACS Common Structural Rules (CSR) (currently applied to all oil tankers over 90 m and bulk carriers over 150 m in length), allowed substantially reduced corrosion allowances for the scantlings prior to renewal of structural members in void spaces compared to ballast tanks. The Greek delegation strongly recommended that spaces in upper and lower stools be coated to the same standard as for ballast tanks (PSPC for ballast tanks already approved), due to the structural importance of these spaces for ship's survivability, their highly corrosive environment and reduced CSR corrosion allowances. Thus, they recommended to change annex 2, items 1.4 and 1.5 of table 1 and items 2.7 and 2.8 of table 2 to read "PSCP/DSBWT" instead of "PSPC/VS" in the column entitled "standard".

4.12 The delegation of the United Kingdom drew the attention of the Sub-Committee to annex 2 to document DE 50/WP.2 and, in particular, table 1 thereof and the acknowledgement therein that lower and upper transverse stools of transverse bulkheads can be totally enclosed spaces, as defined in paragraph 2.13 of the draft Performance standard under discussion. Noting the importance of these void spaces to the strength and structural integrity of bulk carriers, the United Kingdom delegation questioned whether table 1 may provide an incentive for such structures to be designed and constructed as totally enclosed spaces, as then they would not need to be coated in accordance with this Performance standard. They also questioned how annex 2 was consistent with any requirements in SOLAS, the ESP Guidelines (resolution A.744(18), as amended), or the new IACS Common Structural Rules for bulk carriers pertaining to access arrangements for such structures.

Coating Technical File

4.13 With regard to the Coating Technical File (CFT), having noted the divergent views expressed by the group on whether specifications for maintenance, repair and re-coating should be contained in the new Performance standard, the Sub-Committee, taking into account that the general principles should be the same as in the Performance standard for dedicated seawater ballast tank coatings adoption at MSC 82, decided to keep paragraphs 3.4.3 to 3.4.5 in the draft Performance standard.

Job specification

4.14 In considering matters related to minimum coating requirements and job specification, the Sub-Committee, having noted the two proposals discussed by the group, as contained in paragraph 12 of document DE 50/WP.2, agreed to leave it to the Committee to decide on the number of spray coats shown in the square brackets in table 1, item 1.4 of the draft Performance standard when adopting it (see paragraph 4.21).

Nominal total dry film thickness (NDFT)

4.15 With regard to the nominal total dry film thickness (NDFT), the Sub-Committee, having noted the group's views on the matter, as contained in paragraph 13 of document DE 50/WP.2, agreed that the NDFT should be 200 µm with a 90/10 rule.

Water soluble salt limit

4.16 In considering matters related to the water soluble salt limit, the Sub-Committee, having noted the various views expressed in the group, as contained in paragraph 14 of document DE 50/WP.2, agreed to specify 100 mg/m² in item .3.6 and 50 mg/m² in item .2.2 in table 1 of annex 1 of the draft Performance standard.

Secondary surface preparation (surface treatment)

4.17 Having considered matters related to the secondary surface preparation (surface treatment), the Sub-Committee agreed that for damaged shop primer the surface treatment should be Sa 2 or St 3 on damaged shop primer and welds.

Alternative systems

4.18 With regard to alternative systems, the Sub-Committee noted that the group had considered a proposal by Japan (DE 50/4/1) to amend section 8 (Alternative systems) of the draft Performance standard to allow Administrations to perform 5-year field tests of alternative systems and had decided not to amend the draft Performance standard to avoid having ships without an approved coating protection system for such a long time period. The Sub-Committee also noted that SOLAS regulation I/4(b) already allows such exemptions.

Test procedure for coating qualification for void spaces of bulk carriers and oil tankers

4.19 In considering matters related to the test procedure for coating qualification for void spaces of bulk carriers and oil tankers, the Sub-Committee, having noted the various views expressed within the group, as contained in paragraph 18 of document DE 50/WP.2, agreed that the test conditions should specify a 30-day exposure time, to be consistent with the NDFT requirements (see paragraph 4.15), and specify three test panels, to be consistent with the criteria for surface treatment (see paragraph 4.17).

Dry film thickness measurements

4.20 With regard to matters related to the dry film thickness (DFT) measurements, the Sub-Committee, having noted the various views expressed within the group on whether the procedures for taking dry film thickness measurements should be retained or deleted, as contained in paragraph 19 of, and annex 3 to, document DE 50/WP.2, agreed to retain the procedures for taking thickness measurements set out in annex 3 to the draft Performance standard.

Draft Performance standard for protective coatings for void spaces on bulk carriers and oil tankers

4.21 Having considered the above issues, the Sub-Committee agreed to the draft Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, and the associated draft MSC resolution, set out in annex 3, for submission to MSC 83 for adoption (see also paragraph 4.14).

Mandatory status of the performance standard

4.22 In discussing whether the Performance standard should become mandatory, the Sub-Committee, noting that views on the issue were still divided (see paragraph 4.5.5), decided to:

- .1 consider making the Performance standard mandatory in the longer perspective, after experience had been gained with its application; and
- .2 develop draft SOLAS amendments to make the Performance standard mandatory following the considerations in subparagraph .1 above,

and invited the Committee to concur with this course of action.

Retention of the item

4.23 In view of the above developments, the Sub-Committee invited MSC 83 to retain this item on the work programme as a low priority item so that it could consider, at a future session, any experience gained in the application of the standard and making the standard mandatory (see paragraphs 4.22 and 24.1.4).

5 INSPECTION AND SURVEY REQUIREMENTS FOR ACCOMMODATION LADDERS

5.1 The Sub-Committee recalled that DE 49 had discussed proposals for draft new SOLAS regulations concerning means of embarkation on and disembarkation from ships and associated guidelines regarding inspection and survey requirements for accommodation and pilot ladders by Australia and the Republic of Korea and, having supported the proposals, had invited the two delegations to submit a joint proposal for such regulations and guidelines to this session.

5.2 The Sub-Committee also recalled that DE 49, having recognized that the development of the requirements would take time, had agreed to a draft MSC circular on Means of embarkation on and disembarkation from ships, drawing the attention of Member Governments to the need for adequate maintenance and inspection of accommodation and pilot ladders, pending finalization of relevant IMO requirements, which was approved by MSC 81 for dissemination by means of MSC.1/Circ.1196.

5.3 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/5 (Australia and Republic of Korea), containing proposals for a draft new SOLAS regulation and associated guidelines on inspection and survey of accommodation and pilot ladders, based on documents MSC 77/23/1, DE 49/8, DE 49/8/1 and DE 49/INF.7, comments and proposals made during DE 49 and relevant national and international standards, including ISO standards; and
- .2 DE 50/5/1 (ILAMA), proposing amendments to the guidelines as given in document DE 50/5, in particular replacement of section 5 with the proposal attached in the annex to their document, especially concerning the carrying out of inspections only by manufacturer certified personnel, and deletion of the second sentence of paragraph 3.6.3, concerning the waiving of tests for identical ladders.

5.4 The delegation of Dominica, while stating its full support for the work underway on accommodation ladders and pilot ladders, observed that similar maintenance and testing as was being developed for pilot ladders is also needed for ships' embarkation ladders. They further noted that embarkation ladders were subject to the same environmental exposure risk as pilot ladders.

Draft new SOLAS regulation

5.5 The Sub-Committee considered annex 1 of document DE 50/5, containing a proposal for a draft new SOLAS regulation on Means of embarkation on and disembarkation from ships, and agreed:

- .1 to delete the words "on both sides of a ship" from paragraph 1 of the draft regulation and to transfer the last sentence of the paragraph to a footnote; and
- .2 to delete the reference to pilot ladders in paragraph 3 of the draft regulation, bearing in mind that MSC 82 had included, in the work programmes of the NAV and DE Sub-Committees, a high priority item on "Improved safety of pilot transfer arrangements", with two sessions needed to complete the item and assigned the NAV Sub-Committee as the co-ordinator.

5.6 Following discussion, the Sub-Committee requested an informal group to finalize the text of the draft regulation for consideration by the Sub-Committee (see paragraph 5.8).

Guidelines for construction, maintenance and inspection of accommodation ladders and gangways

5.7 The Sub-Committee considered a proposal for draft Guidelines for construction, maintenance and inspection of accommodation ladders, gangways and pilot ladders (DE 50/5, annex 2) and, having agreed:

- .1 not to include the amendments to the draft Guidelines proposed in document DE 50/5/1 (see paragraph 5.3.2); and
- .2 that all parts related to operational issues and all references to pilot ladders and to SOLAS regulation V/23 should be deleted,

requested the informal group to finalize the text of the draft Guidelines.

Report of the informal group

5.8 Having received the report of the group (DE 50/WP.8), the Sub-Committee agreed to the draft new SOLAS regulation II-1/3-9 (Means of embarkation on and disembarkation from ships), set out in annex 4, for submission to MSC 83 for approval with a view to adoption at MSC 84 and to a draft MSC circular on Guidelines for construction, maintenance and inspection of accommodation ladders and gangways, set out in annex 5, for submission to MSC 83 for approval, in principle, and final approval at MSC 84 in conjunction with the adoption of the proposed new SOLAS regulation II-1/3-9.

5.9 The delegation of Tuvalu raised concerns regarding the use of ladders as a means of embarkation/disembarkation. The delegation gave as an example a river berth with a high tidal range, where the accommodation overhangs the quay and the fixed gangway is out of position. In this case, there may be no other alternative than to use a ladder, which may not be certified or tested, but the purpose of which is ship maintenance. In the view of the delegation of Tuvalu, this concern should be addressed at a future session.

Completion of the item

5.10 Since work on the item has been completed, the Sub-Committee agreed to invite the Committee to delete it from the Sub-Committee's work programme.

6 MANDATORY EMERGENCY TOWING SYSTEMS IN SHIPS OTHER THAN TANKERS OF NOT LESS THAN 20,000 DWT

6.1 The Sub-Committee recalled that DE 49 had agreed, in principle, to draft amendments to SOLAS regulation II-1/3-4 (Emergency towing arrangements on tankers), for further consideration at this session. The Sub-Committee also recalled that DE 49 had re-established the correspondence group and instructed it to finalize the related guidelines for owners/operators on the development of emergency towing procedures, on the basis of the report of the correspondence group (annex 2 to document DE 49/7) and the report of the drafting group (DE 49/WP.5), taking into account the progress made in the drafting group after their report had been submitted and comments and proposals made in plenary.

6.2 Recalling that DE 49 had requested that the NAV Sub-Committee be informed about the ongoing work on emergency towing procedures in order to advise on possible implications with regard to navigational issues, the Sub-Committee noted that NAV 52 had considered the matter and concurred with the draft SOLAS amendment on emergency towing procedures, but had advised that existing shipboard equipment might limit the emergency towing capabilities in severe weather conditions.

6.3 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/6 (part 2 of the report of the drafting group at DE 49, submitted by the Chairman of the group), reporting on the discussion in the DE 49 drafting group after part 1 of their report (DE 49/WP.5) had been finalized and containing, in the annex, draft Guidelines for owners/operators on emergency towing procedures;
- .2 DE 50/6/1 (report of the correspondence group, submitted by Germany), containing the final draft Guidelines for owners/operators on emergency towing procedures; and
- .3 DE 50/6/2 (China), proposing to add to the draft Guidelines a paragraph concerning safe working loads of connection points.

Establishment of a drafting group

6.4 The Sub-Committee generally supported the outcome of the correspondence group and agreed to establish a drafting group, instructing it, taking into account comments and proposals made in plenary, to:

- .1 finalize the draft amendments to SOLAS regulation II-1/3-4 (Emergency towing arrangements on tankers) (DE 49/20, annex 17); and
- .2 finalize the Guidelines for owners/operators on emergency towing procedures, as prepared by the correspondence group (DE 50/6/1, annex), taking into account document DE 50/6/2, and prepare an associated draft MSC circular.

Report of the drafting group

6.5 Having received the report of the drafting group (DE 50/WP.4), the Sub-Committee approved it in general and took action as outlined in paragraphs 6.6 to 6.9.

Draft amendments to SOLAS regulation II-1/3-4

6.6 The Sub-Committee agreed to the draft amendments to SOLAS regulation II-1/3-4 (Emergency towing arrangements on tankers), set out in annex 6, for submission to MSC 83 for approval with a view to adoption at MSC 84.

Draft Guidelines for owners/operators on preparing for emergency towing procedures

6.7 The Sub-Committee agreed to the draft MSC circular on Guidelines for owners/operators on preparing for emergency towing procedures, set out in annex 7, for submission to MSC 83 for approval, in principle, and final approval at MSC 84 in conjunction with the adoption of the draft amendments to SOLAS regulation II-1/3-4 (see paragraph 6.6).

6.8 In this context, the Sub-Committee invited Member Governments and international organizations with the necessary expertise to develop a worked example for emergency towing procedures and submit it for the information of the Sub-Committee.

6.9 The Sub-Committee noted that the group had discussed the possible application of the Guidelines to high-speed craft and, while noting that the distress situation of high-speed craft drifting as dead ship is similar to that of conventional ships, had agreed that the various design specifications of different types of high-speed craft would require modifications to the Guidelines.

Completion of the item

6.10 Since work on the item has been completed, the Sub-Committee agreed to invite the Committee to delete it from the Sub-Committee's work programme.

7 DEVELOPMENT OF PROVISIONS FOR GAS-FUELLED SHIPS

7.1 The Sub-Committee recalled that DE 49 had invited Member Governments and international organizations to submit to this session comments and proposals on the development of provisions for gas-fuelled ships, taking into account the outcome of BLG 10, as appropriate.

7.2 The Sub-Committee noted information by the Secretariat (DE 50/7) on the outcome of BLG 10 and FP 51, in particular that BLG 10 had agreed to a long-term action plan for the further work on the provisions for gas-fuelled ships with a view to finalization of draft Interim Guidelines at BLG 12 (2008), taking into account the input of the DE, FP and STW Sub-Committees, for submission to MSC 84 for approval; and to starting the development of a

draft International Code of Safety for Gas-Fuelled Engine Installations in Ships (IGF Code), using these Interim Guidelines as a basis.

7.3 The Sub-Committee also noted that BLG 10 had established a correspondence group to report to BLG 11 and had instructed it to:

- .1 further develop the Interim Guidelines on safety for gas-fuelled engine installations in ships, based on the annex to document BLG 10/6 (Norway), taking into account documents DE 49/10/1 (IACS) and BLG 10/WP.5 (paragraphs 5 to 13), and the discussion at BLG 10;
- .2 commence work on the identification of the hazard scenarios, safety analysis and collection and consideration of safety analyses already performed for natural gas, taking into account documents BLG 10/6/1 (Germany) and DE 49/10/1 (IACS), with a view towards finalization at BLG 11; and
- .3 prepare a detailed action plan for the work to be carried out by other Sub-Committees and revise the long-term action plan, as appropriate.

7.4 The Sub-Committee also noted that BLG 10 had invited the Committee to assign the co-ordinator role for the item to the BLG Sub-Committee and that MSC 82 had concurred with that request.

7.5 The Sub-Committee noted that FP 51 had decided to delay work on this item until the draft Interim Guidelines on safety for gas-fuelled engine installations in ships had been prepared by the BLG Sub-Committee.

7.6 The Sub-Committee considered document DE 50/7/1 (Germany), proposing that provisions for gas-fuelled ships should be based on the principles of goal-based standards and attaching a proposal for a draft safety goal and related functional requirements. Following discussion, during which opinions were expressed that it would be premature to apply the goal-based approach and that functional requirements needed to be measurable, the Sub-Committee, nevertheless, agreed to refer the document to BLG 11 for consideration.

Extension of the target completion date

7.7 The Sub-Committee agreed to consider, at DE 51, any requests by the BLG Sub-Committee for review of the draft Interim Guidelines, as may be prepared by BLG 11, from the DE Sub-Committee's point of view. Subsequently, the Sub-Committee invited the Committee to extend the target completion date for the item to 2008.

8 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS

8.1 The Sub-Committee recalled that this was a continuous item on its work programme established by MSC 78 so that IACS could submit any newly developed or updated unified interpretations for the consideration of the Sub-Committee with a view to developing appropriate IMO interpretations.

8.2 The Sub-Committee considered document DE 50/8 (IACS), submitting the text of IACS Unified Interpretation SC213 which has been developed to identify safety arrangements for areas where remotely located survival craft are stowed and has been applied by IACS Members since 1 January 2007.

8.3 Following discussion, the Sub-Committee agreed, in principle, with the IACS Unified Interpretation and instructed the LSA Working Group established under agenda item 12 to prepare a draft MSC circular on the interpretation, giving special consideration to concerns expressed with regard to the proposed minimum number of two lifejackets and two immersion suits and the use of knotted rope as a means of embarkation enabling descent to the water in a controlled manner.

8.4 Having considered the part of the report of the LSA Working Group (DE 50/WP.3) dealing with the agenda item, the Sub-Committee agreed to a draft MSC circular on Unified interpretation of SOLAS chapter III, set out in annex 8, for submission to MSC 83 for approval.

8.5 The observer from ICS drew the Sub-Committee's attention to certain implications arising from use of the source of power supply referred to in the proposed unified interpretation of SOLAS regulation III/31.1.4 that may not have been fully considered by the working group, and stated that, therefore, further consideration of this matter would be beneficial.

9 REVIEW OF THE SPS CODE

9.1 The Sub-Committee recalled that DE 49 had established a correspondence group and instructed it to develop draft amendments to the SPS Code, which should include amendments already approved by the Committee as contained in MSC/Circ.446, MSC/Circ.478, MSC/Circ.739 and resolution MSC.183(79); draft amendments following the proposals in document DE 49/12, taking into account the comments made in plenary; draft amendments as may be finalized by the other sub-committees involved in the review; and rectification of out-of-date SOLAS references.

9.2 The Sub-Committee noted information by the Secretariat (DE 50/9/1), concerning the outcome of the work of the other sub-committees co-operating under the item as follows:

- .1 COMSAR 10 finished its consideration of chapter 9 (Radiocommunications) of the Code. The proposed amended text is contained in document COMSAR 10/16, section 9, and reproduced in document DE 50/9/1, paragraph 1;
- .2 DSC 11 instructed its Editorial and Technical Group to consider the provisions of the SPS Code relating to carriage of dangerous goods at its May 2007 meeting and report to DSC 12;
- .3 FP 51 decided to delay work on this item until DE 50 had considered the report of its correspondence group on the issue (DE 50/9);
- .4 NAV 51 finished its consideration of chapter 10 (Safety of navigation) of the Code and found that no changes to existing text were necessary; and
- .5 SLF 49 established a correspondence group to report to SLF 50 (April/May 2007, after DE 50) and referred document SLF 49/11 to the Sub-Committee for consideration.

9.3 The Sub-Committee considered the report of the correspondence group (DE 50/9), containing draft amendments to the SPS Code as set out in annexes 1 (revised text of the Code) and 2 (revised certificates) to the report. The report also contained (annex 3 of the report) a proposal by Denmark concerning definitions for "ships for training of marine personnel", "training programme" and "trainees".

9.4 The Sub-Committee also considered document DE 50/9/2 (United States), commenting on the correspondence group report, in particular on the proposed definitions of “training ship”, “trainees” and “training programmes” and supporting the aforementioned proposal by Denmark for those definitions.

9.5 The Sub-Committee, having generally agreed with the draft amendments to the Code as proposed by the correspondence group, noted comments regarding the application of the Code to class A ships; that the Code should generally have the same scope of application as the SOLAS Convention; and regarding the definition for “trainee”. Following debate, the Sub-Committee agreed that all references to class A ships and to trainees should be removed from the draft text.

Establishment of a correspondence group

9.6 Noting that the draft revised Code could not be completed at this session, due to the contributions outstanding from FP 51, SLF 50 and DSC 12, the Sub-Committee agreed to re-establish the correspondence group, under the co-ordination of Norway^{*}, with the following terms of reference:

- .1 to further develop the amendments to the SPS Code, based on the report of the correspondence group to DE 50 (DE 50/9), taking into account documents DE 50/9/2, SLF 49/11 and comments and proposals made at DE 50 and incorporating the outcome of SLF 50 and DSC 12; and
- .2 to submit a report to DE 51.

Extension of target completion date

9.7 In view of the above developments, the Sub-Committee invited the Committee to extend the target completion date for the item to 2008.

10 REVISION OF THE CODE ON ALARMS AND INDICATORS

10.1 The Sub-Committee recalled that DE 49 had invited Member Governments and international organizations to submit to this session proposals for amendments to the Code on Alarms and Indicators, taking into account the outcome of NAV 52.

Alert management

10.2 The Sub-Committee noted documents DE 50/10 (Secretariat), reporting on the outcome of NAV 52 with regard to the agenda item and DE 50/10/1 (Germany), informing on the progress made by the NAV correspondence group on INS (Integrated Navigation System) and

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Co-ordinator:

Mr. Sigurd Gude
Deputy Director General of Shipping & Navigation
Norwegian Maritime Directorate
P.O. Box 2222
N-5509 Haugesund
Tel: +47 52 74 50 00
Fax: +47 52 74 50 01
Mobile: +47 90 15 92 05
E-mail: sgu@sjofartsdir.no

IBS (Integrated Bridge System) on the development of alert management as a module of the draft revised INS performance standard.

Draft revised Code on Alarms and Indicators

10.3 The Sub-Committee considered document DE 50/10/2/Rev.1 (IACS), containing a proposal for a draft revision of the Code on Alarms and Indicators and, noting that there was general agreement on the revised Code as proposed by IACS, and recalling that MSC 79 had instructed it to co-operate on this item with appropriate sub-committees, as necessary and when requested by the Sub-Committee, agreed to refer the draft revised Code (DE 50/10/2/Rev.1) to NAV 53, DSC 12, FP 52 and BLG 12 for comments on issues under these Sub-Committees' purview.

10.4 The Sub-Committee further agreed to earmark a working or drafting group at DE 51 to finalize the draft revised Code on Alarms and Indicators and invited Member Governments and international organizations to submit comments on the draft revised Code, as contained in document DE 50/10/2/Rev.1, to DE 51.

Extension of the target completion date

10.5 Noting that the target completion date for the item was 2007, the Sub-Committee invited the Committee to extend the date to 2008.

11 AMENDMENTS TO THE MODU CODE

11.1 The Sub-Committee recalled that, at DE 49, it had established a correspondence group and instructed it, taking into account comments and proposals made in plenary, to further develop the draft amendments to the MODU Code on the basis of document DE 49/14, giving also consideration to the proposals in documents SLF 48/9 (IADC) and SLF 48/9/2 (IACS) and to developments in ICAO concerning helicopter facilities on board ships; and to consider whether other sub-committees should be requested to review certain parts of the Code where their expertise was required and advise the Sub-Committee accordingly.

11.2 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/11 (report of the correspondence group, submitted by Liberia), attaching in the annex draft amendments to the MODU Code, identifying the parts of the proposed amendments which should be considered by other sub-committees, namely COMSAR and SLF (paragraphs 6, 7 and 9 of the report) and listing issues that need to be further considered by the Sub-Committee (paragraph 9 of the report);
- .2 DE 50/11/1 and DE 50/11/2 (IADC), containing, respectively, a proposal for a revision of chapter 13 (Helicopter facilities) of the MODU Code, in particular concerning helideck marking and landing aids, taking into account the new helideck provisions recently adopted by ICAO and a proposal for amendments to paragraph 9.6 (Portable fire extinguishers in accommodation, service and working spaces) of the MODU Code in order to provide guidance by specifying the minimum recommended portable fire extinguisher locations on board MODUs;

- .3 DE 50/11/3 (United States), proposing amendments to chapter 10 (Life-saving appliances and equipment) of the Code to take into account the most recent amendments to SOLAS chapter III, adopted at MSC 82; and
- .4 DE 50/11/4 (IACS), informing the Sub-Committee that IACS members certify helicopter decks on MODUs by applying chapter 13 of the MODU Code, when required by the flag or coastal State as part of issuing a MODU Safety Certificate to a unit, and by applying the rules of the society, which incorporate IACS Unified Requirement D3 (Requirements concerning MODUs – General design parameters).

11.3 The Sub-Committee agreed to request SLF 50 and COMSAR 12 to review the parts of the draft amendments to the Code as identified in paragraphs 6, 7 and 9 of the correspondence group report (DE 50/11), noting that this would mean that the revision of the Code cannot be finalized at this session. The Sub-Committee further considered that the draft amendments to the Code could also be referred to NAV 53 and FP 52 for their comments.

11.4 The Sub-Committee discussed whether the MODU Code should be made mandatory, especially in view of the long years of experience that had been gained with its implementation, and agreed that this matter should be discussed after the amendments to the Code have been finalized.

11.5 Regarding the requirements for helicopter facilities and their harmonization with relevant recently amended ICAO requirements, the Sub-Committee noted that other instruments might also be affected by these amendments to the ICAO Convention (i.e., resolution A.855(20) on standards for on-board helicopter facilities, SOLAS regulation III/28, etc.) and agreed that the drafting group should consider the issue further and advise the Sub-Committee accordingly.

Establishment of a drafting group

11.6 Following debate, the Sub-Committee established a drafting group and instructed it to:

- .1 consider the draft amendments to the MODU Code on the basis of document DE 50/11, taking into account documents DE 50/11/1, DE 50/11/2 and DE 50/11/3 and comments and proposals made in plenary and paying special attention to the matters requiring further consideration as identified in paragraph 9 of the report of the correspondence group (DE 50/11);
- .2 advise the Sub-Committee with regard to other instruments that might be affected by the amendments to the ICAO Convention (i.e., resolution A.855(20), SOLAS regulation III/28, etc.);
- .3 advise whether a correspondence group should be established and, if so, prepare terms of reference for the group;
- .4 submit part 1 of the report, briefly reporting on the discussions of the group, by Thursday, 8 March 2007; and
- .5 submit part 2 of the report, containing the draft amendments to the MODU Code as agreed by the group, to DE 51, as soon as possible after this session.

Report of the drafting group

11.7 Having received part 1 of the report of the drafting group (DE 50/WP.5), the Sub-Committee approved it in general and took action as outlined in the following paragraphs.

Fire-fighting provisions for helicopter facilities

11.8 The Sub-Committee, noting that the relevant IMO and ICAO requirements should be harmonized, and having been advised of the outcome of the ICAO Helideck Design Working Group and the availability of the resulting amendments in the first part of 2007, noted the view of the group that, because the amendments may affect the design of proposed helidecks, they should be given due consideration when they become available.

11.9 The Sub-Committee also noted that the group, taking into account the uncertain publication date and the contents of the above amendments, had agreed that it would be premature to identify other IMO instruments that might be affected by them. The Sub-Committee requested the Secretariat to liaise with ICAO and forward the amendments to Annex 14, Volume II of the ICAO International Standards and Recommended Practices, when they become available, to the correspondence group (see paragraph 11.11).

Draft amendments to the Code to be referred to other bodies

11.10 The Sub-Committee considered the draft amendments to the Code that the group recommended for referral to other bodies and agreed to refer:

- .1 the items relating to deadweight surveys for column-stabilized units, the 1988 Load Line Protocol, subdivision and damage stability of surface and self-elevating units, and ballast pumping arrangements on column stabilized units (DE 50/WP.5, paragraphs 9 and 10), to the SLF Sub-Committee;
- .2 the items relating to fire-extinguishing systems and portable fire extinguishers (DE 50/WP.5, paragraph 11), to the FP Sub-Committee; and
- .3 the items relating to radiocommunication installations (DE 50/WP.5, paragraph 12), to the COMSAR Sub-Committee,

for further consideration and comments as appropriate.

Establishment of a correspondence group

11.11 Having considered the recommendations of the drafting group, the Sub-Committee agreed to re-establish the Correspondence Group on Amendments to the MODU Code, under the co-ordination of Liberia*, and instructed it, taking into account the relevant decisions taken at DE 50, to:

* **Co-ordinator:**
Mr. Anthony Dupree
Liberian International Ship & Corporate Registry
8619 Westwood Centre Drive
Vienna, Virginia 22182, USA
E-mail: Technical@LISCR.com
TDupree@LISCR.com
Alan.Spackman@IADC.org

- .1 finalize the draft amendments to the MODU Code on the basis of part 1 (DE 50/WP.5) and part 2 of the report of the drafting group, taking into account document DE 50/11/4 and:
 - .1.1 the amendments placed in square brackets by the drafting group, including associated text and comments supplied by China, Norway, the United States and IADC;
 - .1.2 the outcome of SLF 50; and
 - .1.3 the amendments to Annex 14, Volume II of the ICAO International Standards and Recommended Practices;
- .2 identify any changes necessary to the MODU Code to implement the SOLAS amendments adopted by resolution MSC.216(82); and
- .3 submit a report to DE 51.

Mandatory status of the MODU Code

11.12 The Sub-Committee discussed the view of several delegations that the MODU Code should be made mandatory and agreed that the current work programme item only referred to the development of amendments to the Code. Realizing that making the Code mandatory would require a complete review of the Code, the Sub-Committee invited interested Member Governments to submit to the Committee a proposal for a relevant new work programme item, in accordance with the Guidelines on the organization and method of work.

Extension of target completion date

11.13 Noting that the target completion date for the item was 2007, the Sub-Committee invited the Committee to extend the date to 2008.

12 MEASURES TO PREVENT ACCIDENTS WITH LIFEBOATS

12.1 The Sub-Committee recalled that MSC 80, in view of the heavy workload of the Sub-Committee, had transferred this item from the provisional agenda for DE 49 to that for FP 50 and that the results of the considerations of the item at FP 50 had been reported to MSC 81.

12.2 The Sub-Committee noted that MSC 81 had taken the following action concerning the agenda item:

- .1 approved MSC.1/Circ.1205 on Guidelines for developing operation and maintenance manuals for lifeboat systems;
- .2 approved MSC.1/Circ.1206 on Measures to prevent accidents with lifeboats;
- .3 referred matters related to the issue of whether the provisions of MSC.1/Circ.1206 should be made mandatory under the SOLAS Convention and/or the ISM Code to the FSI and STW Sub-Committees for consideration and appropriate action;

- .4 approved MSC.1/Circ.1207 on Early implementation of the draft SOLAS regulation III/19.3.3.4; and
- .5 approved draft amendments to SOLAS chapter III, the LSA Code and the Revised recommendation on testing of life-saving appliances, for consideration, with a view to adoption, at MSC 82.

12.3 The Sub-Committee also noted that MSC 82 had taken the following actions concerning the item:

- .1 adopted amendments to SOLAS chapter III, by resolution MSC.216(82); to the LSA Code, by resolution MSC.218(82); and to the Revised recommendation on testing of life-saving appliances, by resolution MSC.226(82);
- .2 referred the proposed amendments to SOLAS regulation III/3 (Definitions) with regard to the new definition for the term “unfavourable conditions of trim and list” back to the DE and SLF Sub-Committees for further consideration; and
- .3 recognizing the existing difficulties in the implementation of the provisions of MSC.1/Circ.1206, agreed to keep the circular non-mandatory at this stage and referred the matter to the DE Sub-Committee for detailed consideration and advice, in order that the final decision of the Committee on the matter would become effective by 2010, at the latest.

12.4 The Sub-Committee further noted that, although FP 50 had made significant improvements to the requirements for on-load release mechanisms in the LSA Code, it had found that there was still research and development in progress to improve the test procedures for this equipment and that there was also still a need for improvements to free-fall lifeboat launching and seating arrangements, particularly from high-launch heights.

12.5 The Sub-Committee noted documents DE 50/12 and DE 50/12/6 (Secretariat), reporting on the outcome of FP 50, MSC 81 and MSC 82 with regard to the agenda item.

Seating space in free-fall lifeboats

12.6 The Sub-Committee considered document DE 50/12/1 (United States), proposing amendments to the anthropometric criteria for the design of free-fall lifeboat seats and seating space in the LSA Code and the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)) and, following consideration, agreed to instruct the Working Group on Life-Saving Appliances (LSA) to develop such amendments, based on document DE 50/12/1.

Design problems with on-load release gear

12.7 The Sub-Committee considered the following documents:

- .1 DE 50/12/2 (United Kingdom), proposing the inclusion of a new section on lifeboat release gear in the LSA Code in order to address design flaws of on-load release hooks and also the development of interim solutions such as safety restraint systems (strops) to be used with on-load release arrangements during lifeboat drills. The document informed of the ongoing research and that results thereof would be reported to the Sub-Committee; and

- .2 DE 50/12/5 (ILAMA), proposing the review and development of present and future requirements on on-load release systems and informing the Sub-Committee of their intention to start a project for the development of such new requirements, requesting the support of all IMO Member States for it.

12.8 The proposals made in document DE 50/12/2 were generally supported, however, views were divided with regard to the proposed phasing-out of existing on-load release hooks. In this context, a number of delegations advocated the development of a standard hook by manufacturers.

12.9 The Sub-Committee agreed to refer the proposals made in document DE 50/12/2 to the LSA Working Group for the development of relevant draft amendments to the LSA Code and for advice regarding interim solutions such as wire cutters and safety restraint systems (strops) to be used with on-load release arrangements during lifeboat drills, taking into account comments by a number of delegations with regard to the possible risk of injury when using such solutions. In this context, the Sub-Committee welcomed the aforementioned initiative by ILAMA (see paragraph 12.7.2) and encouraged Member Governments and international organizations to support ILAMA in its undertaking.

Implementation of MSC.1/Circ.1206

12.10 The Sub-Committee recalled that MSC 82 (DE 50/12/6, paragraphs 4 to 7) had recognized the existing difficulties in the implementation of the provisions of MSC.1/Circ.1206 and, while expressing support for the principle of making all or part of the provisions mandatory when these difficulties have been overcome, had agreed to keep the circular non-mandatory at this stage and instructed the Sub-Committee to consider the matter in detail and advise the Committee, in order that the final decision of the Committee on the matter would become effective by 2010, at the latest.

12.11 The Sub-Committee considered document DE 50/12/4 (ILAMA), expressing the view that the introduction of MSC.1/Circ.1206 contributed to the protection of the lives of seafarers and that, in the longer term, rule makers, shipowners, manufacturers and seafarers gained from its provisions and, therefore, making the circular mandatory would greatly enhance their safety. In this regard, the Sub-Committee recalled the discussions at MSC 82, in particular the consideration of documents MSC 82/10/2 (United Kingdom), MSC 82/10/5 (Republic of Korea), MSC 82/10/7 (IACS), MSC 82/10/8 (United States), MSC 82/10/10 (ICS) and MSC 82/10/11 (INTERTANKO and INTERCARGO), describing some practical difficulties in the implementation of MSC.1/Circ.1206, mainly related to the training and certification of servicing personnel by the manufacturer and the geographical coverage of manufacturers' representation and putting forward proposals on the way provisions related to measures to prevent accident with lifeboats could become mandatory, including proposed amendments to SOLAS regulation III/20.11 and the development of guidance for approval of servicing stations for carrying out thorough examination and overhaul of on-load release mechanisms.

12.12 Several delegations and international organizations expressed concerns about making MSC.1/Circ.1206 mandatory, being of the view that this was premature and that the circular should remain recommendatory, pending the establishment of a worldwide manufacturers' service network which was currently not available.

12.13 The Sub-Committee, noting that these concerns had already been identified during the discussions at MSC 82 and were one of the main reasons why the circular had been approved as recommendatory at that session, recalled that it was also the clear intention of the Committee that the circular would be made mandatory after sufficient experience has been gained and that the target date for mandatory implementation should be 2010 as a suitable and achievable compromise. The Sub-Committee noted that it had been tasked to identify the method and process by which this could be achieved and to report to the Committee on a proposed way forward, which may include urging and encouraging the industry to develop their own processes and methods in order to achieve what is required. It may also involve taking, in the meantime, action as Administrations to ensure that interim arrangements are in place. However, the aim was to achieve a mandatory implementation of the circular by 2010, or possibly even at an earlier date.

12.14 Following debate, the Sub-Committee agreed, in general, that the circular should become mandatory in 2010 at the latest and instructed the LSA Working Group to prepare the position of the Sub-Committee on how it would deal with the circular, aiming at making it mandatory prior to 2010, for submission to MSC 83. It also instructed the working group to include in the terms of reference for the LSA Correspondence Group to be established (see paragraph 12.40.1), the development of guidance for the use of recognized organizations in the inspection of life-saving appliances.

12.15 The delegation of Dominica stated that they continued to be of the opinion that making MSC.1/Circ.1206 mandatory, as presently drafted, was premature and that the provisions requiring that only manufacturers service lifeboats and associated launching gear were too restrictive. In their view, MSC.1/Circ.1206 should be amended to allow Administrations to authorize “independent” competent service facilities to service this equipment before the circular is made mandatory.

12.16 The delegation of the Marshall Islands, supported by the observers from ICS and CLIA, concurred with the delegation of Dominica that making MSC.1/Circ.1206 mandatory was premature. Until such time when the Organization decided to make the provisions of the circular mandatory, Administrations should authorize other competent individuals and organizations to carry out the required servicing, maintenance and testing.

Definition of “unfavourable conditions of trim and list”

12.17 The Sub-Committee recalled that MSC 82, having considered several submissions on the issue as well as the recommendations of its Drafting Group on Amendments to Mandatory Instruments (MSC 82/WP.3) concerning the proposed amendments to SOLAS regulation III/3 (Definitions), in particular with regard to the new definition for the term “unfavourable conditions of trim and list”, decided to refer the following draft amendments back to the DE and SLF Sub-Committees for further consideration:

- .1 SOLAS chapter III: draft amendments to regulations 3.25, 13, 15 and 16; and
- .2 LSA Code chapter VI: draft amendments to paragraphs 6.1.7.6 and 6.2.

The Sub-Committee noted that the concrete text of the draft SOLAS chapter III and LSA Code amendments that needed to be reconsidered was set out in the annex of document DE 50/12/6.

12.18 The Sub-Committee instructed the LSA Working Group to consider the above-mentioned amendments and prepare a new definition for the term “unfavourable conditions of trim and list” for consideration by the Sub-Committee and subsequent referral to the SLF Sub-Committee for comments and submission to the Committee.

Guidance concerning the term “reduced degree of hazard” and the application of the B/5 value to the subdivision standards in SOLAS chapter II-1

12.19 The Sub-Committee noted that FP 50 had noted that the draft amendments prepared at that session included amendments to SOLAS regulation II-1/6.2.4 concerning relaxation from the life-saving requirements for passenger ships engaged in short international voyages; and that, with regard to the term “reduced degree of hazard” and the application of the B/5 value to the subdivision standards in SOLAS chapter II-1, FP 50 had noted the views of the correspondence group (FP 50/15/1) and had referred the matter to the DE Sub-Committee for further consideration and action as appropriate.

12.20 Subsequently, the Sub-Committee, noting that the FP 50 correspondence group (FP 50/15/1, paragraphs 51 and 52) had advised:

- .1 with regard to the term “reduced degree of hazard”, that SOLAS regulation II-1/6.2.4 adopted by resolution MSC.194(80) is the same as regulation 2(d) of the Annex to resolution A.265(VIII) and, therefore, the Explanatory Notes for resolution A.265(VIII) contained in MSC/Circ.153, could be used as a basis for guidance on applying SOLAS regulation II-1/6.2.4; and
- .2 with regard to the application of the term B/5 to the subdivision standards, that resolution A.265(VIII) has kept the B/5 requirements pertaining to watertight doors and bilge pumps and piping as contained in SOLAS 1960, no reason being provided not to maintain them in the latest amendments and that the transverse damage penetrations required by SOLAS regulation II-1/8.3 adopted by resolution MSC.194(80) should be taken into account if amendments are to be considered,

instructed the LSA Working Group to consider the term “reduced degree of hazard” and the application of the term B/5 to the subdivision standards and prepare any guidance considered necessary.

Target completion date for the item

12.21 The Sub-Committee considered a proposal by ILAMA (DE 50/12/3) to establish a continuous item on lifeboat issues on the work programme of the Sub-Committee and, recalling the relevant provisions in the Guidelines on the organization and method of work (MSC-MEPC.1/Circ.1) which state that subsidiary bodies should be discouraged from proposing continuous and umbrella items for inclusion in their work programmes and agendas, however, where this was not possible, should provide an appropriate justification for the Committee’s consideration, agreed not to establish a continuous item and consider an extension of the target completion date for the item at DE 51.

Establishment of the LSA Working Group

12.22 The Sub-Committee established the LSA Working Group and instructed it, taking into account decisions, comments and proposals made in plenary, to:

- .1 develop amendments to the anthropometric criteria for the design of free-fall lifeboat seats and seating space in the LSA Code and the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)), based on document DE 50/12/1;
- .2 develop amendments to the LSA Code concerning lifeboat release gear, based on document DE 50/12/2;
- .3 consider interim solutions such as safety restraint systems (strops) to be used with on-load release arrangements during lifeboat drills and advise the Sub-Committee accordingly;
- .4 consider how MSC.1/Circ.1206 could be made mandatory prior to 2010 and advise the Sub-Committee accordingly;
- .5 consider the draft amendments to SOLAS chapter III as set out in document DE 50/12/6 and prepare a new definition for the term “unfavourable conditions of trim and list”;
- .6 consider the term “reduced degree of hazard” and the application of the term B/5 to the subdivision standards, based on document FP 50/15/1 and prepare any guidance considered necessary; and
- .7 consider whether there is a need to establish a correspondence group and, if so, prepare terms of reference for the group.

Report of the working group

12.23 Having received the report of the working group (DE 50/WP.3), the Sub-Committee approved it in general and took decisions as outlined in the following paragraphs.

Design of free-fall lifeboat seats and seating space

12.24 The Sub-Committee noted that the group had agreed to the following:

- .1 the design criteria for free-fall lifeboat seats should be updated with larger size/weight criteria based on document DE 50/12/1, on the basis that sizes of mariners have increased globally and that a larger seat provides better restraint and support and is safer for a large occupant, in terms of avoiding head and back injuries;
- .2 that, in addition to maximum size criteria, seats should be evaluated for their suitability for smaller persons as well, e.g., by means such as adjustable securing arrangements;
- .3 the seat size in a lifeboat should be uniform, bearing in mind that differentiated large seats (like “XXL”) could cause confusion in an emergency;
- .4 that, in addition to the sizes of the seats, the area around the seats needs to be taken into account as well, with regard to clearances from potential hazards; and

- .5 any amendments to the requirements should principally apply only to new ships, although non-mandatory retrofits to existing lifeboats (e.g., seat back extensions) could be possible in some cases.

12.25 The Sub-Committee agreed that the correspondence group should prepare draft amendments to the LSA Code and the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)), on the basis of document DE 50/12/1 (see paragraph 12.40), endorsing the group's view that consideration might also need to be given to reviewing other aspects of ship design and equipment (e.g., manholes) which might be similarly affected.

Lifeboat release gear

12.26 The Sub-Committee, after consideration of proposed amendments to the LSA Code concerning lifeboat release gear contained in document DE 50/12/2, agreed to refer the matter to the correspondence group for further development, taking into account that the amendments to the same provisions of the LSA Code adopted at MSC 82 by resolution MSC.218(82) would not enter into force until 1 July 2008.

12.27 Concerning the proposal for phased replacement of on-load release hooks not complying with the proposed new requirements that are installed on existing ships, the Sub-Committee noted that the group had not supported the proposal, taking into account the various designs of hooks on existing ships, and the potential impact of implementation of MSC.1/Circ.1206 in due course.

12.28 Regarding the proposals for replacement of hatchets by wire-cutters, and for the use of secondary safety restraint systems (strops) with on-load release arrangements during lifeboat drills as an interim measure, the Sub-Committee noted that they were not supported by the group, considering that those measures may introduce new potential hazards.

12.29 The delegation of the United Kingdom stated that they were pleased to note that their proposal to review the requirements relevant to on-load release hooks would be further considered in the LSA Correspondence Group. However, they were disappointed that the LSA Working Group had proposed that the fitting of "fail safe", i.e. "fail close", release hooks should be restricted to new ships. Paragraphs 11 and 12 of the report of the group (DE 50/WP.3) indicated that the group did not consider that any action should be taken to address the incidences, sometimes with fatal consequences, of inadvertent release of the "fail unsafe" hooks that were fitted to vessels and would continue to be fitted until any new requirements enter into force. A "fail unsafe" system was certainly an anathema to engineers. They urged the Sub-Committee not to reject so prematurely the retrofitting of "fail safe" on-load release hooks fit for purpose in the marine environment to existing as well new ships.

Regarding consideration of interim operational measures, for which the United Kingdom had proposed that one solution might be the use of "training pennants", again the delegation expressed its disappointment at the rejection by the LSA Working Group of the idea, in principle, of providing a backup system, of whatever type, in the event of unintended release of an on-load hook while the lifeboat was being launched or recovered. Also of relevance were the Organization's Guidelines for the application of the human element analysis process (HEAP), which the Committee had instructed its subsidiary bodies to take into account in the regulatory development process. They drew the Sub-Committee's attention to two of the questions from the

flowchart in the guidelines that should be asked regarding, in this case, on-load release hooks. First, “Does the solution address safeguards to avoid single person error?”, in other words, did we have a system that had a back up if a crew member made the single error of incorrectly resetting the hooks? The HEAP Guidelines also asked to consider the question “Does the solution address latent failures and underlying factors?” Latent failures and underlying factors were explained as being “pre-existing conditions including design, that may exist within systems, which given the right combination of circumstances, may contribute to an unsafe situation”. In both of these cases, the answer could only be no. The use of such tools as HEAP indicated that on-load release hooks required a more fundamental and holistic consideration than proposed by the LSA Working Group. Therefore, the delegation of the United Kingdom proposed to make it clear in the report of the Sub-Committee that paragraphs 11 and 12 of the report of the group had not, at this time, been endorsed when the correspondence group proceeded in accordance with its terms of reference on this issue.

Implementation of MSC.1/Circ.1206

12.30 Having noted that consistent application of the provisions relating to training and certification of servicing personnel and organizations by the manufacturer and adequate geographical coverage of manufacturers’ representation are essential prerequisites for the rapid and mandatory implementation of MSC.1/Circ.1206, the Sub-Committee agreed that the correspondence group should develop guidance for qualification and certification of personnel or organizations carrying out servicing and maintenance of lifeboats, launching appliances and on-load release gear, in line with the system described in the Recommendation on conditions for the approval of servicing stations for inflatable liferafts (resolution A.761(18)), particularly with regard to the approval of personnel and facilities in accordance with annex 1, paragraph 9 of the aforementioned circular.

12.31 The Sub-Committee, having noted that the group had affirmed its understanding that the issue of mandatory application of the circular should concern only annex 1 to the circular, dealing with servicing and maintenance of lifeboats, launching appliances and on-load release gear, concurred with the group’s view that, in drafting the aforementioned guidance, it should be borne in mind that:

- .1 the contents of annex 1 to MSC.1/Circ.1206 would be made mandatory, in principle, as a whole (holistic approach) rather than in stages;
- .2 in specifying that, in general, critical replacement parts should be as supplied or specified by the manufacturer, the guidance should clearly define such critical parts, and also those repairs or replacements not requiring manufacturer involvement (e.g., routine GRP and steel repairs, replacement of wire rope falls); and
- .3 the framework of MSC.1/Circ.1206, requiring that certification of personnel or organization should be issued by the manufacturer in accordance with an established system for training and authorization, should be maintained, except for those cases addressed in paragraph 9 of annex 1 to the circular.

12.32 The Sub-Committee noted that the group had agreed that ILAMA should report to DE 51 on progress in the establishment of servicing coverage worldwide, including co-ordination with non-ILAMA members and further noted that, while a number of delegations were of the view that early implementation of MSC.1/Circ.1206 could be facilitated by amending it, as proposed

by ICS *et al* in documents MSC 82/10/2, MSC 82/10/5, MSC 82/10/7, MSC 82/10/8, MSC 82/10/10 and MSC 82/10/11, the group, as a whole, had not supported amendments to MSC.1/Circ.1206 at this time, and had not further considered these documents.

12.33 The observer from INTERTANKO stated that they could not agree with the majority of the working group on how MSC.1/Circ.1206 could become mandatory prior to 2010, as INTERTANKO was of the opinion that the fastest and most effective way to have a mandatory inspection scheme in force was to amend the circular to allow for independent service providers to carry out the work on the same basis as original manufacturers. INTERTANKO raised a number of concerns with the requirements to only allow the original manufacturers to carry out mandatory inspections and maintenance and to require the use of original manufacturer's spare parts. INTERTANKO was concerned that this would create a monopoly market which may hamper any improvement and development of the materials and design and would not enhance the safety of seafarers.

Unfavourable conditions of trim and list

12.34 The Sub-Committee, having noted that the group had had an extensive discussion on various points related to the definition of "unfavourable conditions of trim and list", in particular whether to include, in the definition, a reference to additional guidelines and discretion by the Administration, endorsed the group's views that:

- .1 the definition should be clear and stand-alone so as not to require reference to additional guidelines;
- .2 the definition should not explicitly rely on the satisfaction of the Administration; and
- .3 the purpose of the definition is not to change the design criteria for life-saving appliances, but to define the conditions for their installation to ensure that they will operate when needed,

and agreed, in principle, to the following draft definition:

"Unfavourable conditions of trim and list is trim of up to 10° and list of up to 20° either way; or alternatively, the worst combinations of maximum trim and list angles at which the life-saving appliance is expected to be deployed, if this is less."

12.35 The Sub-Committee agreed that this definition should be reviewed by the correspondence group with a view to determining any need for further refinement or clarification, having agreed that the draft definition should also be referred to the SLF Sub-Committee for information and advice, as appropriate.

Reduced degree of hazard and the application of the term B/5

12.36 The Sub-Committee noted that the group had considered the term "reduced degree of hazard" in the revised SOLAS regulation II-1/6.2.4, based on the report of the correspondence group (FP 50/15/1), which suggested consideration of the following, based on SOLAS 1960, as a possible basis for interpretation of the term:

“A lesser value of N, but in no case less than $N = N_1 + N_2$, may be allowed at the discretion of the Administration for:

- .1 passenger ships, which in the course of their voyages, do not proceed more than 20 miles from the nearest land;
- .2 passenger ships less than 91.5 metres in length, which only undertake short international voyages; or
- .3 passenger ships, which only undertake short international voyages, and carry appreciable quantities of cargo.”

12.37 The Sub-Committee endorsed the following conclusions of the group:

- .1 regarding the criterion of 20 miles from the nearest land (paragraph 12.36.1), whilst some delegations expressed the view that the reduction in hazard could vary according to such factors as availability of rescue facilities and safe haven, the majority of the group agreed that the 20-mile criterion had long been accepted in the SOLAS Convention as a basis for exemptions by Administrations and is still valid;
- .2 regarding other criteria (paragraphs 12.36.2 and 12.36.3), the group, having recognized that they were based on SOLAS 1960, agreed that these criteria have become obsolete, taking into account developments in ship safety, and should therefore be deleted; and
- .3 consequently, the group agreed to the following interpretation of the term “reduced degree of hazard” in the revised SOLAS regulation II-1/6.2.4:

“A lesser value of N, but in no case less than $N = N_1 + N_2$, may be allowed at the discretion of the Administration for passenger ships, which, in the course of their voyages, do not proceed more than 20 miles from the nearest land”,

and requested the Secretariat to inform the SLF Sub-Committee of this interpretation for consideration, with a view to its inclusion in the Explanatory Notes to the revised SOLAS chapter II-1 subdivision and damage stability regulations.

12.38 The Sub-Committee, acknowledging recent developments in the design and capability of life-saving appliances, in particular with regard to liferafts and launching systems, agreed that the possible impact of such developments on the term “ $N = N_1 + 2N_2$ ” in the formula for the required subdivision index R should be further investigated, and decided to refer this matter to the LSA Correspondence Group.

12.39 With regard to the application of the B/5 value to the subdivision standards in SOLAS chapter II-1, the Sub-Committee, having noted that the group had also considered the outcome of the correspondence group (FP 50/15/1), agreed, on the basis of the information available, that no change is needed to the application of the B/5 value and that this conclusion should be referred to the SLF Sub-Committee. The Secretariat was requested to act accordingly.

Establishment of a correspondence group

12.40 Having considered the above matters, the Sub-Committee agreed to establish the LSA Correspondence Group, under the co-ordination of the United States¹, and instructed the group, taking into account the comments made and decisions taken at DE 50:

- .1 with regard to the anthropometric criteria for the design of free-fall lifeboat seats and seating space, to prepare draft amendments to the LSA Code and the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)), on the basis of document DE 50/12/1;
- .2 with regard to lifeboat on-load release gear, to further consider amendments to the LSA Code and corresponding amendments to resolution MSC.81(70), on the basis of document DE 50/12/2;
- .3 with regard to the implementation of MSC.1/Circ.1206 on Measures to prevent accidents with lifeboats, to develop guidance for qualification and certification of personnel or organizations carrying out servicing and maintenance of lifeboats, launching appliances and on-load release gear, in line with the system described in resolution A.761(18);
- .4 with regard to the definition of the term “unfavourable conditions of trim and list”, to determine any need for further refinement or clarification and prepare a revised definition, as appropriate;
- .5 to further investigate the possible impact of recent developments in the design and capability of life-saving appliances on the term “ $N = N1 + 2N2$ ” in the formula for the required subdivision index R; and
- .6 to submit a report to DE 51.

Extension of target completion date

12.41 Taking into account the progress made at this session and bearing in mind that the correspondence group will further consider issues related to this item, the Sub-Committee agreed to invite the Committee to extend the target completion date of the item to 2008.

* **Co-ordinator:**
Mr. K. Heinz
Office of Design and Engineering Standards
U.S. Coast Guard (CG-3PSE-4)
2100 Second Street, S.W.
Washington, D.C. 20593
United States of America
Tel.: +1 202 267 0176
Fax: +1 202 267 1069
E-mail: Kurt.J.Heinz@uscg.mil

13 COMPATIBILITY OF LIFE-SAVING APPLIANCES

13.1 The Sub-Committee recalled that MSC 80, in view of the heavy work load of the Sub-Committee, had transferred this item from the provisional agenda of DE 49 to that of FP 50 and that the results of the considerations of the item at FP 50 had been reported to MSC 81.

13.2 The Sub-Committee noted that FP 50 had considered proposals by Canada (FP 50/14 and FP 50/INF.3) and the United Kingdom (FP 50/14/1) for an increase of the mass of an average person in the LSA Code from the current value of 75 kg, based on statistical data analysis. This was generally supported, however, FP 50 agreed that changing the average weight would have an impact on other provisions in the LSA Code, including lifeboat capacity, and that the statistical data available did not allow a thorough analysis of the issue at that point in time. FP 50, therefore, invited Member Governments and international organizations to submit to DE 50 relevant proposals and also any statistical information, especially concerning the weight of people fully clothed and equipped.

13.3 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/13 (Secretariat), reporting on the outcome of FP 50 and MSC 81 with regard to the agenda item;
- .2 DE 50/13/1 (United States), proposing to consider differing requirements for the capacity of survival craft on cargo ships and passenger ships; the addition of shoulder breadth as an additional design criterion, taking into account whether “overlapping” of shoulders is an acceptable condition; and whether any adjustments are needed to passenger ship seating to accommodate persons at the large end of the percentile range, taking into account that this generally applies to davit-launched lifeboats and that, in this respect, separate consideration should be given to liferafts and free-fall lifeboats;
- .3 DE 50/13/2 (ILAMA), identifying the need to differentiate, based on anthropometric comparisons, the average mass of occupants and the seating size in a survival craft depending on the type of ship and making concrete proposals concerning occupants’ weight and seat and shoulder width; and
- .4 DE 50/13/3 (Japan), informing about the results of trials of the embarkation on lifeboats by persons wearing immersion suits and concluding that many immersion suits did not fit the test persons and that, therefore, several sizes of immersion suits to fit various physical constitutions should be provided and that the current lifeboat design was not suitable for seated persons wearing immersion suits and, therefore, the design requirements for lifeboat seating should be reconsidered.

13.4 The Sub-Committee acknowledged that larger size individuals could cause problems for the operation of life-saving appliances, in particular with regard to immersion suits. Also, the wearing of immersion suits in conjunction with lifejackets in enclosed lifeboats could cause problems due to overheating, as the recent case of the evacuation of the **MSC Napoli** had shown. One delegation was of the view that it was premature to consider amendments to IMO instruments at this stage and that further anthropometric studies were necessary.

13.5 Following debate, the Sub-Committee instructed the LSA Working Group, established under agenda item 12, to consider the proposals made in documents DE 50/13/1, DE 50/13/2 and DE 50/13/3 further and, in particular, to advise which life-saving appliances related IMO instruments should be amended accordingly and, if time allows, draft appropriate amendments.

Report of the LSA working group

13.6 Having considered the part of the report of the LSA Working Group (DE 50/WP.3) dealing with the agenda item, the Sub-Committee took decisions as outlined in the following paragraphs.

13.7 The Sub-Committee noted that, in considering the proposals concerning compatibility of life-saving appliances contained in documents DE 50/13/1, DE 50/13/2 and DE 50/13/3, the group, having noted that the design criteria of free-fall lifeboat seats should be updated with larger size/weight criteria, in particular that the assumption of the weight should be 82.5 kg, had agreed to differentiate the design criteria of davit-launched lifeboats on passenger ships and cargo ships as follows:

- .1 design criteria of lifeboats on passenger ships should not change, considering that currently available data do not demonstrate a compelling need; and
- .2 design criteria of lifeboats on cargo ships should be adjusted to take into account the increasing size of seafarers globally,

and agreed that the LSA Correspondence Group should prepare draft amendments to the LSA Code, on the basis of documents DE 50/13/1 and DE 50/13/2, and to the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)).

13.8 On the basis of its consideration of document DE 50/13/3 and information provided regarding the recent **MSC Napoli** casualty, the Sub-Committee agreed, in principle, that:

- .1 wearing an inherently buoyant lifejacket in a free-fall lifeboat as shown in photograph 5 of document DE 50/13/3 is not safe due to the potential for neck injury; and
- .2 guidance concerning the wearing of immersion suits in totally enclosed lifeboats should be developed, with regard to the risk of dehydration and over-heating.

13.9 The Sub-Committee also agreed to refer the matter raised in paragraph 13.8.2 to the LSA Correspondence Group, established under agenda item 12, with a view to developing suitable guidance.

Instructions to the LSA Correspondence Group

13.10 Consequently, the Sub-Committee instructed the LSA Correspondence Group, taking into account the comments made and decision taken at DE 50, with regard to compatibility of life-saving appliances, to:

- .1 prepare draft amendments to the LSA Code and to the associated testing and evaluation procedures in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)), on the basis of documents DE 50/13/1 and DE 50/13/2, and consider the need to apply the underlying principle also to other life-saving appliances;
- .2 develop guidance concerning the wearing of immersion suits in totally enclosed lifeboats, taking into account document DE 50/13/3; and
- .3 submit a report to DE 51.

Extension of target completion date

13.11 In view of the above developments, the Sub-Committee agreed to invite the Committee to extend the target completion date of the item to 2008.

14 TEST STANDARDS FOR EXTENDED SERVICE INTERVALS OF INFLATABLE LIFERAFTS

14.1 The Sub-Committee recalled that MSC 80, in view of the heavy work load of the Sub-Committee, had transferred this item from the provisional agenda of DE 49 to that of FP 50 and that the results of the considerations of the item at FP 50 had been reported to MSC 81.

14.2 The Sub-Committee noted that FP 50 had considered submissions by Denmark (FP 50/16 and FP 50/17), containing a proposed test standard for approving extended service intervals of inflatable liferafts for inclusion in the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)) and ensuing amendments to SOLAS chapter III, the LSA Code and the Recommendation on conditions for the approval of servicing stations for inflatable liferafts (resolution A.761(18)). FP 50 noted the proposed amendments and agreed that they should be finalized at DE 50, when the Danish results regarding the proposed shock/vibration test would be available. FP 50 also agreed that harmonization of approval and service requirements was necessary and invited Member Governments and international organizations to submit appropriate proposals to DE 50.

14.3 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/14 (Secretariat), recapitulating the outcome of FP 50 on the issue;
- .2 DE 50/14/1 and DE 50/14/2 (Denmark), further elaborating on the proposals submitted to FP 50, including the results obtained from the collection of vibration and shock impact data from seagoing ships, and containing in the annex the final versions of the amendments as referred to in paragraph 14.2;
- .3 DE 50/14/3 (ILAMA), commenting on the proposals by Denmark and requesting the establishment of a working/drafting group to consider them in detail; and
- .4 DE 50/14/4 (United States), expressing the view that the proposals by Denmark need further detailed consideration and that Administrations should have an opportunity to gain experience with them before they are adopted.

14.4 In considering the issue, the Sub-Committee noted that some delegations were in favour of extended service intervals while other delegations were of the opinion that it would be premature to extend them. In this connection, the Sub-Committee noted concerns expressed with regard to the fact that many liferafts do not meet the current approval standards, advocating caution in dealing with extended service intervals. Regarding the proposed type approval requirements, it was noted that very few manufacturers would be able to comply with them.

Instructions to the LSA Working Group

14.5 The Sub-Committee agreed that the LSA Working Group, established under agenda item 12, should consider the proposals further in the light of the plenary discussions and advise the Sub-Committee on a way forward, in particular giving consideration to the inclusion of the matter in the terms of reference of the LSA Correspondence Group.

Report of the LSA Working Group

14.6 Having considered the part of the report of the LSA Working Group dealing with the agenda item (DE 50/WP.3), the Sub-Committee agreed with the proposal of the group to include the issue of extended service intervals of inflatable liferafts in the terms of reference for the LSA Correspondence Group, established under agenda item 12, and instructed it, taking into account documents DE 50/14, DE 50/14/1, DE 50/14/2, DE 50/14/3 and DE 50/14/4, to:

- .1 validate the technical assumptions forming the basis for the current proposals;
- .2 further develop relevant amendments to SOLAS chapter III, the LSA Code, the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)) and the Recommendation on conditions for the approval servicing stations for inflatable liferafts (resolution A.761(18)), taking into account wider industry input and the need to address expiry dates of survival equipment in the liferaft; and
- .3 submit a report to DE 51.

Extension of target completion date

14.7 The Sub-Committee invited the Committee to extend the target completion date for the item to 2008.

15 AMENDMENTS TO THE GUIDELINES FOR SHIPS OPERATING IN ARCTIC ICE-COVERED WATERS

15.1 The Sub-Committee noted that MSC 79 had considered a request by the XXVIIth Antarctic Treaty Consultative Meeting (ATCM) (MSC 79/8/2 and MSC 79/INF.2) for IMO to consider amending the Guidelines for ships operating in Arctic ice-covered waters (MSC/Circ.1056 – MEPC/Circ.399) so that they would also be applicable to ships operating in ice-covered waters in the Antarctic Treaty Area. In addition to the proposed replacement of the term “Arctic” by “Arctic and Antarctic” in the Guidelines, the Antarctic Treaty Consultative Parties further wished to draw IMO’s attention to whether full double bottom construction was necessary for all classes of ships operating in Antarctic ice-covered waters or if there were other ways of ensuring the same standards of ship stability and safe operation. MSC 79 had referred the above two documents to the Sub-Committee for detailed consideration.

15.2 Noting that there was support for a revision of the Guidelines in order to make them also applicable to the Antarctic region, the Sub-Committee considered, in particular, the changes to the Guidelines proposed by ATCM, as set out in the annex to document MSC 79/INF.2, and agreed that, in addition to the inclusion of provisions relating to operation of ships in the Antarctic region, the Guidelines also needed to be generally updated in order to take into account technical developments since their approval in 2002, especially with regard to damage stability, double bottoms and the carriage of pollutants in spaces adjacent to the outer hull. This update should also consider the particularities of the Southern hemisphere with regard to environmental and port State control issues and should take account of the IACS Unified Requirements for polar ships and the Finnish ice navigation rules. The Sub-Committee noted the view that special consideration should be given to passenger ships that only visit the Polar regions in summer.

15.3 In order to progress the matter, the Sub-Committee invited Member Governments and international organizations to submit concrete proposals for amendments to the Guidelines, taking into account document MSC 79/INF.2 and the comments made in the plenary discussions, to DE 51.

16 REVISION OF RESOLUTION A.760(18)

16.1 The Sub-Committee recalled that FP 47, noting that the ISO standard 17631:2002 – Shipboard plans for fire protection, life-saving appliances and means of escape – had been finalized and published in 2002, had agreed to a draft Assembly resolution on Graphical symbols for shipboard fire control plans, which was adopted by the twenty-third session of the Assembly as resolution A.952(23). Noting that the Assembly resolution addressed only matters related to fire protection, FP 47 had invited the Sub-Committee to consider taking similar actions with regard to the use of the graphical symbols contained in the standard as they relate to life-saving appliances and arrangements, as required by SOLAS chapter III.

16.2 The Sub-Committee also recalled that there was general agreement at DE 46 that resolution A.760(18) on Symbols related to life-saving appliances and arrangements should be revised taking into account the then new ISO standard, as recommended by the FP Sub-Committee.

16.3 In considering document DE 50/16 (Secretariat), the Sub-Committee recalled the decision of DE 48 to introduce an infant lifejacket symbol in resolution A.760(18) and, pending the development of appropriate amendments to the resolution, and having considered the recommendations of the LSA Working Group (DE 50/WP.3), agreed in the meantime on a draft MSC circular on Symbol of infant lifejacket, for submission to MSC 83 for approval.

16.4 The Sub-Committee further noted information by the observer from ISO that a new standard on shipboard signs (24409) was currently under development, which may form a more appropriate basis for amendments to resolution A.760(18) than ISO 17631:2002, and that ISO would keep the Sub-Committee updated on the progress made.

16.5 Consequently, the Sub-Committee included in the terms of reference for the LSA Correspondence Group established under item 12 the revision of resolution A.760(18), taking into account document DE 50/16 and developments in ISO. The ISO observer expressed their intention to participate in the work of the correspondence group.

17 CASUALTY ANALYSIS

17.1 The Sub-Committee noted that MSC 81 had considered documents MSC 81/8/1 and MSC 81/INF.8 (ICS, IAPH, IACS, CEFIC, OCIMF, INTERTANKO and IPTA), containing the report of the Inter-Industry Working Group (IIWG), established to study the reported incidents of explosions on chemical and product tankers. The IIWG had concluded that the failure to follow procedures was the primary cause of the incidents in question and had established a Human Factors Task Group which was looking into ways of addressing this issue in the context of tankers. The IIWG had also recommended that, as an additional safety measure, the MSC should give consideration to amending SOLAS to provide for the application of inert gas to new chemical tankers and new product tankers of less than 20,000 dwt.

17.2 MSC 81, based on the recommendations listed in paragraphs 13 to 17 of document MSC 81/8/1, referred the two documents to the joint MSC/MEPC Working Group on Human Element and to BLG 11, DE 50, FP 51, FSI 14 and STW 38 for review and, in particular, agreed to refer:

- .1 the human element issues identified to the joint MSC/MEPC Working Group on the Human Element;
- .2 the issues related to the proposals on inert gas (MSC 81/8/1, paragraphs 6.9 and 14) to FP 51 and DE 50, for consideration and reporting to MSC 83;
- .3 the issues related to ignition sources (MSC 81/8/1, paragraphs 6.5, 6.6, 9 and 16), taking into account the willingness expressed by IACS to develop a unified requirement on the subject, to FP 51 and DE 50, for consideration and reporting to MSC 83; and
- .4 the issues relating to availability of casualty data (MSC 81/8/1, paragraphs 3 and 17) to FSI 14, for review and reporting to MSC 83.

17.3 The Sub-Committee also noted that MSC 82, having considered a proposal by Norway (MSC 82/21/15) for a new work programme item and comments by Singapore (MSC 82/21/20) related to fires and explosions on chemical and product tankers, had agreed to refer the two documents to FP 51 and DE 50 for consideration and advice, so that MSC 83 could take appropriate action on the matter.

17.4 The Sub-Committee, noting document DE 50/17 (Secretariat) giving background information regarding the instructions of MSC 81, considered the following documents:

- .1 MSC 81/8/1 and MSC 81/INF.8 (ICS, IAPH, IACS, CEFIC, OCIMF, INTERTANKO and IPTA) (see paragraph 17.1), recommending that the Committee consider amending SOLAS to provide for the application of inert gas to new oil tankers of less than 20,000 dwt and new chemical tankers and emphasizing that the application of inert gas to existing ships should be based on the principles of resolution A.900(21) on Objectives of the Organization in the 2000s, including an FSA study and a cost/benefit analysis;
- .2 MSC 82/21/15 (Norway), referring to a number of accidents and indicating the need to address the risk of explosion and fire accident on board tankers carrying chemicals and petroleum products and proposing to review SOLAS regulation II-2/4.5.5 and the relevant requirements in SOLAS and other IMO

instruments, including a review of the principles on which the present requirements are based, with a view to developing new requirements based on principles outlined in their document so that the decisive factors should be the properties and the inherent danger of cargo, with due consideration given to the human element;

- .3 MSC 82/21/20 (Singapore), outlining their intervention at MSC 81 during the discussion of the report of the IIWG, supporting the proposal by Norway to establish a new item in the BLG Sub-Committee's work programme;
- .4 DE 50/17/1 (Japan), presenting the results of a preliminary FSA study on the application of requirements for inert gas systems (IGSs) to tankers of less than 20,000 dwt and offering to conduct further FSA studies on the issue if requested by the Sub-Committee. It was emphasized that the analysis had not justified the installation of IGSs on tankers of this size; and
- .5 DE 50/17/2 (Secretariat), reporting on the outcome of MSC 82 and FP 51 on the subject.

Application of inert gas to new oil tankers of less than 20,000 dwt and to new chemical tankers

17.5 The Sub-Committee noted that FP 51 had discussed, at length, how to proceed with the matter and, having recognized that it would require detailed consideration, taking into account the complexity of the matter, including the disadvantages (i.e., affixation) and the potential benefits (i.e., reduced risk of explosion) of application of inert gas systems and the practical safety-related implications to the operation of chemical tankers and product tankers of less than 20,000 dwt, and had agreed to recommend to the Committee to include a new item on "Measures to prevent explosions on oil and chemical tankers transporting low flashpoint cargoes" in the FP Sub-Committee's work programme, with two sessions needed to complete this item, in co-operation with the BLG and DE Sub-Committees.

17.6 In this context, the Sub-Committee also noted that FP 51 had agreed that, under the proposed work programme item, it should first consider measures for new ships and, depending on the outcome of the consideration of the aforementioned measures, could consider appropriate measures for existing oil and chemical tankers transporting low flashpoint cargoes.

17.7 Following consideration, as requested by MSC 81, of the issues related to the proposal by the IIWG to consider amending SOLAS to provide for the application of inert gas to new oil tankers of less than 20,000 dwt and to new chemical tankers (paragraphs 3 and 4 of document DE 50/17) and the outcome of the discussion of the issues by FP 51, referred to in paragraphs 17.5 and 17.6, the Sub-Committee supported the aforementioned recommendations of FP 51.

17.8 In the course of the discussion, several delegations, noting that the prime cause of the incidents was failure to follow established operational procedures, stressed the importance of addressing the human element in the context of the issue, and that this would merit special consideration.

International safety standards for the design and operation of in-tank pumps

17.9 The Sub-Committee discussed the proposal of the IIWG to develop international safety standards for the design and operation of in-tank pumps (paragraphs 5 to 8 of document DE 50/17). Noting that IACS had expressed the intention to develop a relevant unified requirement, the Sub-Committee agreed to recommend to the Committee to consider the issue after IACS had finalized this work and invited IACS to submit the results to the Committee. The Sub-Committee requested the Secretariat to inform ISO of these developments.

18 GUIDELINES FOR UNIFORM OPERATING LIMITATIONS OF HIGH-SPEED CRAFT

General

18.1 The Sub-Committee recalled that DE 49 had agreed that an MSC circular should be prepared to guide Administrations in determining operational limitations of high-speed craft in a consistent manner and to clarify the intent of new annex 12 (Factors to be considered in determining craft operating limitations) of the 2000 HSC Code. Consequently, MSC 81 agreed to include, in the Sub-Committee's work programme and the provisional agenda for this session, a high priority item on "Guidelines for uniform operating limitations of high-speed craft", with a target completion date of 2009, and also in the work programmes of the COMSAR, NAV and SLF Sub-Committees and the provisional agendas for COMSAR 11, NAV 53 and SLF 50, with a target completion date of 2008.

18.2 The Sub-Committee noted a brief oral report by the Secretariat on the outcome of COMSAR 11 with regard to the agenda item, informing it that COMSAR 11 had postponed consideration of the agenda item to COMSAR 12, when the outcome of DE 50 would be available, and invited Member Governments to submit comments and suitable proposals for consideration at COMSAR 12.

Consideration of documents

18.3 The Sub-Committee had for its consideration document DE 50/18 (China), proposing that a permanent board showing the relation curve of "significant wave height – speed limitations" be placed on the bridge of high-speed craft, that the formula set out in paragraph 6 of the document for determining the relation curve be adopted and that this be included in the guidelines for uniform operating limitations of high-speed craft to be developed.

18.4 The Sub-Committee also revisited documents DE 49/5/3 and DE 49/INF.5 (RINA), which had been considered at DE 49 and were proposing the development of an MSC circular to guide Administrations in determining the operating limitations in a consistent manner, together with document DE 49/INF.5 providing additional background information in relation to the setting of operating limitations for high-speed craft.

18.5 While discussing the proposals for limitations to be included in the guidelines, the Sub-Committee, in considering the proposal by China, agreed that it needed further thorough consideration, since it was referring to one aspect of operating limitations for high-speed craft only, namely speed, and that many more limitations, including, *inter alia*, wash waves, wind force, temperature, following seas, etc., needed to be identified and considered.

Establishment of a correspondence group

18.6 The Sub-Committee agreed to establish a Correspondence Group on Uniform Operating Limitations of High-Speed Craft, under the co-ordination of Australia*, with the following terms of reference:

- .1 to develop draft Guidelines for uniform operating limitations of high-speed craft, taking into account documents DE 50/18, DE 49/5/3 and DE 49/INF.5 and comments and proposals made in plenary, as well as contributions from the COMSAR, NAV and SLF Sub-Committees as they become available; and
- .2 to submit a report to DE 51.

19 GUIDELINES FOR MAINTENANCE AND REPAIR OF PROTECTIVE COATINGS

General

19.1 The Sub-Committee noted that MSC 81, in the context of its consideration of draft amendments to SOLAS regulation II-1/3-2 concerning maintenance of coatings, had agreed that the Sub-Committee should develop guidelines for maintenance and repair of protective coatings and, consequently, included in the Sub-Committee's work programme and the provisional agenda for this session a high priority item on "Guidelines for maintenance and repair of protective coatings", with a target completion date of 2008.

Establishment of a correspondence group

19.2 Noting that no documents had been submitted under the agenda item, the Sub-Committee, after a brief discussion, agreed to establish a correspondence group, under the co-ordination of China**, and instructed it to consider the issue, taking into account document MSC 81/7/13 (China) and to submit a report to DE 51.

* **Co-ordinator:**
Mr. R. Gehling
Consultant (Technical)
Marine Standards
Maritime Safety & Environmental Strategy
Australian Maritime Safety Authority
Level 1, 25 Constitution Avenue
GPO Box 2181
Canberra ACT 2601, Australia
Tel: +61 2 6279 5696
E-mail: rcg@amsa.gov.au

** **Co-ordinator:**
Mrs. Xiang Yang
CCS Mansion
9 Dhongzhimen Nan Da Jie
Beijing 100007, China
Tel.: +86 10 5811 2131
Fax: +86 10 5811 2857
E-mail: imocgcoating@ccs.org.cn

20 REQUIREMENTS AND STANDARD FOR CORROSION PROTECTION OF PERMANENT MEANS OF ACCESS ARRANGEMENTS

20.1 The Sub-Committee noted that MSC 81, in the context of its discussion on performance standards for protective coatings, had agreed that consideration should be given to the development of requirements and standards for corrosion protection of permanent means of access arrangements that are not part of structural strength elements. Consequently, MSC 81 included in the Sub-Committee's work programme and the provisional agenda for this session a high priority item on "Requirements and standard for corrosion protection of permanent means of access arrangements", with a target completion date of 2008.

20.2 Noting that no documents had been submitted under the agenda item, the Sub-Committee briefly debated the issue and noted the following views:

- .1 the Performance standard for protective coatings for dedicated seawater ballast tanks, adopted at MSC 82, makes reference to the coating to be applied to means of access in ballast tanks;
- .2 it would be prudent to consider the issue of means of access arrangements in void spaces taking into account the outcome of the current deliberations on the performance standard for protective coatings for void spaces (see section 4), so as to provide a compatible level;
- .3 an IACS/industry working group has been discussing coating requirements for cargo oil tanks in oil tankers, and the outcome is expected to be submitted to the Sub-Committee in conjunction with the current work on developing a relevant new SOLAS regulation;
- .4 the remaining outstanding issues concerning means of access in bulk carrier holds may require separate consideration; and
- .5 the word "permanent" should be deleted from the title of the agenda item in order to align it with the wording of SOLAS regulation II-1/3-6,

and agreed to refer the issue to the correspondence group, established under agenda item 19, for consideration and recommendations to the Sub-Committee as appropriate, taking into account the views expressed in the plenary discussions.

21 PERFORMANCE STANDARDS FOR RECOVERY SYSTEMS

21.1 The Sub-Committee noted that MSC 81, in the context of its considerations of passenger ship safety, bearing in mind concerns expressed regarding the difficulties in rescuing persons at sea, had agreed that the Sub-Committee should develop performance standards for recovery systems for all types of ships, taking into account the relevant parts of document MSC 81/WP.6, with a view to preparing mandatory requirements for implementation by 1 July 2012 for all types of new and existing ships. MSC 81 also agreed that the STW Sub-Committee should develop relevant training standards after the aforementioned standards have been finalized. Consequently, MSC 81 included, in the Sub-Committee's work programme and the provisional agenda for this session, a high priority item on "Performance standards for recovery systems", with a target completion date of 2008.

21.2 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/21 (Germany), expressing Germany's views regarding primary and secondary requirements for recovery systems and containing in the annex a draft outline for relevant performance standards;
- .2 DE 50/21/1 (Japan), proposing to revise draft SOLAS regulation III/17-1 (Recovery arrangements for rescuing persons), and to develop draft performance standards for recovery systems (annex 1 to the document), describing also the basic assumptions used to develop the performance standards (annex 2 to the document);
- .3 DE 50/21/2 (United Kingdom), suggesting to use the draft Performance standards proposed by Japan (DE 50/21/1) as base document for further consideration and stressing that the item is of a high priority and should be finalized expeditiously; and
- .4 DE 50/21/3 (ICS, BIMCO, INTERCARGO and INTERTANKO), expressing concerns with regard to a mandatory requirement for recovery systems for all SOLAS ships and requesting that the matter should be reconsidered.

21.3 Concerning document DE 50/21/3, the Sub-Committee noted, as indicated in paragraph 21.1, that MSC 81 had agreed that the Sub-Committee should develop performance standards for recovery systems for all types of ships with a view to preparing mandatory requirements for implementation by 1 July 2012 for all types of new and existing ships. Therefore, the matter of whether such standards should be prepared was no longer open to debate and any comments in this regard should be addressed to the Committee.

21.4 The Sub-Committee considered the proposals submitted, and, while generally supporting the draft Performance standards proposed by Japan (DE 50/21/1) as a base document, acknowledged that the matter was very complex, requiring thorough and careful consideration, and should start with the development of functional requirements and procedures in order to develop broad standards which should not be too prescriptive. In this context, the Sub-Committee agreed that the STW Sub-Committee should be invited to co-operate with regard to drills to be included in the Performance standards.

21.5 In the course of the above considerations, the Sub-Committee noted concerns expressed:

- .1 with respect to additional maintenance, drills and certificates that would become necessary;
- .2 that the matter should only be considered after experience in the use of recovery systems had been gained;
- .3 that relevant equipment which could be different for different types of ships was not generally available at the current time;
- .4 that systems as proposed for consideration and fitting to all ships are inappropriate; and
- .5 regarding the danger to seafarers that might arise from the operation of recovery systems.

Instructions to the LSA Working Group

21.6 The Sub-Committee, in view of the above discussions, instructed the LSA Working Group to prepare terms of reference for the correspondence group on the basis of document DE 50/21/1, taking into account documents MSC 81/WP.6, DE 50/21, DE 50/21/2 and DE 50/21/3.

Report of the LSA Working Group

21.7 Having considered the part of the report of the LSA Working Group (DE 50/WP.3) dealing with the agenda item, the Sub-Committee took decisions as outlined in the following paragraphs.

21.8 The Sub-Committee concurred with the view of the group that the development of the Performance standards for recovery systems should not exclude the possibility of utilizing various existing life-saving facilities as a part of the system at this stage, e.g., rescue boats, fast rescue boats, davit-launched liferafts, marine evacuation systems (MES), etc.

Instructions to the LSA Correspondence Group

21.9 The Sub-Committee instructed the LSA Correspondence Group, established under agenda item 12, taking into account comments and proposals made in plenary, to:

- .1 prepare a revised draft SOLAS regulation III/17-1 and draft amendments to SOLAS regulation III/26.4;
- .2 prepare draft Performance standards for recovery systems as functional requirements supported by procedures, on the basis of document DE 50/21, taking into account documents MSC 81/WP.6, DE 50/21/1, DE 50/21/2 and DE 50/21/3, addressing the human element in accordance with resolution A.947(23) on Human element vision, principles and goals for the Organization; and
- .3 submit a report to DE 51.

21.10 In considering the above instructions to the correspondence group, a number of delegations expressed the view that the proposal by COMSAR 10 that a recovery system which:

- .1 excludes the use of rescue boats;
- .2 is to be operated from the ship itself;
- .3 must be capable of operating in a 3 m significant wave height; and
- .4 must rescue helpless persons directly from the sea (which implies deploying a trained rescue seafarer),

is not technically or operationally practicable. It was also the view of those delegations that such a system would be unsafe for both those rescued and the rescuers and the ship itself. Accordingly, the delegations suggested that these design parameters should be returned, through the MSC, to the COMSAR Sub-Committee for reconsideration, as it was their view that even professional rescue services would be unable to undertake such operations. In addition, it was also suggested that a further task be given to the correspondence group, namely to consider

proposals for criteria for a recovery system from a practical design and equipment perspective, taking into account the various ship types.

22 GUIDELINES FOR THE APPROVAL OF NOVEL LIFE-SAVING APPLIANCES

General

22.1 The Sub-Committee noted that MSC 81, in the context of its consideration of passenger ship safety, in particular concerning amendments to SOLAS chapter III with respect to alternative design and arrangements, had agreed that the Sub-Committee should be instructed to develop guidelines for the approval of novel life-saving appliances. Consequently, MSC 81 included, in the Sub-Committee's work programme and the provisional agenda for this session, a high priority item on "Guidelines for the approval of novel life-saving appliances", with a target completion date of 2008.

22.2 The Sub-Committee noted that work on the guidelines would need to be completed by 1 January 2010 when new SOLAS regulation III/38 (Alternative design and arrangements), adopted at MSC 82, is expected to enter into force and would probably entail a revision of the Code of practice for the evaluation, testing and acceptance of prototype novel life-saving appliances and arrangements (resolution A.520(13)).

Instructions to the LSA Correspondence Group

22.3 Noting that no documents had been submitted under the agenda item, the Sub-Committee, after a brief discussion which indicated that resolution A.520(13) would be a good starting point for this work, agreed to instruct the LSA Correspondence Group, established under agenda item 12, to develop draft guidelines for the approval of novel life-saving appliances, on the basis of resolution A.520(13).

23 REVIEW OF MEPC.1/CIRC.511 AND RELEVANT MARPOL ANNEX I AND ANNEX VI REQUIREMENTS

Review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements

23.1 The Sub-Committee noted (DE 50/23 by the Secretariat) that MEPC 55 had instructed it to review MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements, concerning legislative and implementation aspects related to prevention of operational oil pollution from ships, based on the submission by Denmark (MEPC 55/6/1) and taking into account the comments made by BIMCO (MEPC 55/6/6), India (MEPC 55/6/10), Sweden (MEPC 55/6/11) and INTERTANKO and INTERCARGO (MEPC 55/6/12).

23.2 Denmark (MEPC 55/6/1) proposed a comprehensive overhaul of the regulations and related guidelines concerning handling of oil residues and oily bilge water. In their view, the zero tolerance approach to MARPOL violations adopted by maritime authorities worldwide had made seafarers and shipping companies vulnerable to criminal prosecutions and all efforts should be made to ensure that MARPOL provisions were clear (including definitions of key concepts in the regulations which are now absent) so that they could easily be translated into actual operational practice aboard ships. Consequently, Denmark proposed to:

- .1 develop clear definitions for oil residues (sludge) and bilge water holding tanks;

- .2 develop unified interpretations on how letter codes (A to H) in the Oil Record Book, Part I, should be used;
- .3 develop amendments to the IOPP Certificate Supplement, Form A (Ships other than oil tankers) and Form B (Oil tankers);
- .4 develop supplementary Guidelines concerning approval of bilge and sludge handling systems; and
- .5 update the Revised Guidelines for systems for handling oily wastes in machinery spaces of ships, approved at MEPC 54 (MEPC.1/Circ.511).

23.3 The Sub-Committee noted that the above proposals by Denmark, together with the comments by BIMCO, India, Sweden, INTERTANKO and INTERCARGO, had been discussed in detail at MEPC 55 and that the MEPC had recognized that the regulatory changes put forward by Denmark constituted a sound basis for further advance with the aim of preventing marine pollution from ships' operations.

23.4 The Sub-Committee had for its consideration the following documents jointly submitted by BIMCO and INTERTANKO which revisited the proposal by Denmark (MEPC 55/6/1), taking into account the other submissions and the discussions at MEPC 55:

- .1 DE 50/23/1, proposing amendments to the definitions for oil residues (sludge) holding tanks, bilge water holding tanks and engine-room bilge water in the revised MARPOL Annex I;
- .2 DE 50/23/2, proposing amendments to the form of the IOPP Certificate Supplement in Appendix II of the revised MARPOL Annex I;
- .3 DE 50/23/3, proposing unified interpretations on how the codes and letters in the "list of items to be recorded" should be used in Appendix III of the revised MARPOL Annex I: Oil Record Book, Part I – Machinery space operations and also an amendment to regulation 16 of MARPOL Annex VI to specify minimum capacity for incinerators; and
- .4 DE 50/23/4, proposing to develop supplementary Guidelines on approval of bilge and sludge handling systems for compliance with the revised MARPOL Annex I to be taken into account by Administrations when approving bilge water and oil residues (sludge) handling systems.

23.5 In the ensuing discussion, the Sub-Committee recognized that the proposed amendments to mandatory instruments and the development of unified interpretations and guidelines should strive to facilitate compliance with MARPOL requirements without unnecessarily overburdening ships' crews with increased workloads and paperwork. The concept of Integrated Bilge Water Treatment Systems (IBTS), as described in MEPC.1/Circ.511, formed a good basis upon which further improvement could be built.

23.6 Following the discussion, the Sub-Committee agreed to establish a correspondence group, under the co-ordination of Denmark*, to progress the work on the issue intersessionally and instructed it to:

- .1 develop, on the basis of documents MEPC 55/6/1 and DE 50/23/1 to DE 50/23/4, taking into account documents MEPC 55/6/6, MEPC 55/6/10, MEPC 55/6/11 and MEPC 55/6/12 and comments and proposals made in plenary:
 - .1.1 draft amendments to MARPOL Annex I concerning definitions for engine-room bilge water, oil residues (sludge), bilge water holding tanks and oil residues (sludge) holding tanks;
 - .1.2 draft amendments to the IOPP Certificate, Form A (Ships other than oil tankers) and Form B (Oil tankers);
 - .1.3 draft amendments to regulation 16 of MARPOL Annex VI concerning incinerator capacity;
 - .1.4 draft unified interpretations on how letter codes (A to H) in the Oil Record Book Part I and Part II should be used;
 - .1.5 draft Supplementary Guidelines on approval of bilge and sludge handling systems for compliance with the revised MARPOL Annex I; and
 - .1.6 draft amendments to the Revised Guidelines for systems for handling oily wastes in machinery spaces of ships (MEPC.1/Circ.511); and
- .2 submit a report to DE 51.

Harmonized implementation of the Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships (resolution MEPC.107(49))

23.7 The Sub-Committee noted that MEPC 54 had considered a proposal by Germany (MEPC 54/6/1/Rev.1) to issue an MEPC circular providing guidance concerning the type approval process as described in the Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships (resolution MEPC.107(49)) with the aim of ensuring that realistic on-board operating conditions were taken into account during the tests and had referred the proposal to the Sub-Committee for further consideration.

23.8 The Sub-Committee noted document DE 50/25 (Secretariat), informing of the outcome of MEPC 54 on the matter and attaching in the annex the draft MEPC circular proposed by Germany in document MEPC 54/6/1/Rev.1.

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Co-ordinator:

Mr. Palle Kristensen
Special Adviser
Centre for Maritime Regulation
Danish Maritime Authority
Vermundsgade 38 C
DK-2100 København Ø, Denmark
Tel.: +45 3917 4562
E-mail: pk@dma.dk

23.9 The Sub-Committee noted also document DE 50/23/5 (BIMCO), supporting the main thrust of the proposal by Germany. In addition, BIMCO suggested that resolution MEPC.107(49) be amended with regard to Test Fluid "C" so as to reflect a more realistic composition of the actual bilge water that the oily water separator (OWS) system should be able to handle.

23.10 The delegation of the United States stated that although they believed the guidance provided in the draft MEPC circular by Germany in document MEPC 54/6/1/Rev.1 would be beneficial, they were concerned about the interpretation in paragraph 1.2.9.6 regarding interruptions of the testing sequence during type-approval testing. In particular, it was unclear as to whether the interpretation allowed interruptions for automatic functions only or if interruptions requiring human interaction with the system were also allowed. The United States delegation did not support human interaction during testing and believed that maintaining the requirement for continuous and automatic operation without interruption would ensure that approved systems were capable of producing the desired results over extended periods of time. The delegations of China and Japan supported this view.

23.11 The Sub-Committee, whilst recognizing that improvements could and should be made to the specification for OWS systems, concurred that resolution MEPC.107(49) was quite recent and that there was not much type-approved equipment in operation. The Sub-Committee, accordingly, agreed not to amend resolution MEPC.107(49) for the time being, pending further experience with its performance.

23.12 Following debate, the Sub-Committee agreed to instruct the correspondence group, referred to in paragraph 23.6, to develop a draft MEPC circular on Harmonized implementation of the Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships, during the type-approval process, on the basis of document DE 50/25 (Secretariat), taking into account documents MEPC 54/6/1/Rev.1 (Germany) and DE 50/23/5 (BIMCO) and comments and proposals made in plenary, for consideration at DE 51.

24 WORK PROGRAMME AND AGENDA FOR DE 51

24.1 The Sub-Committee revised its work programme (DE 50/WP.6) based on that approved by MSC 82 (DE 50/2/3, annex) and, taking into account the progress made during this session, prepared a draft revised work programme and a draft provisional agenda for DE 51. While reviewing the work programme, the Sub-Committee invited the Committee and the MEPC, as appropriate, to:

- .1 delete the following work programme items, as work on them has been completed:
 - .1.1 item H.4 – Inspection and survey requirements for accommodation ladders; and
 - .1.2 item H.5 – Mandatory emergency towing systems in ships other than tankers of not less than 20,000 dwt;
- .2 extend the target completion date of the following work programme items:
 - .2.1 item H.1 – Amendments to resolution A.744(18), to 2008;
 - .2.2 item H.7 – Review of the SPS Code, to 2008;

- .2.3 item H.8 – Development of provisions for gas-fuelled ships, to 2008;
- .2.4 item H.9 – Test standards for extended service intervals of inflatable liferafts, to 2008;
- .2.5 item H.11 – Revision of the Code on Alarms and Indicators, to 2008; and
- .2.6 item H.12 – Amendments to the MODU Code, to 2008;
- .3 replace the number of sessions needed for completion with a target completion date of 2009 for work programme item H.20 on Review of SOLAS requirements on new installation of materials containing asbestos, as it has been selected for inclusion in the provisional agenda for DE 51:
- .4 replace the target completion date with two sessions needed for completion and change priority from high (H) to low (L) for work programme item H.3 on Performance standards for protective coatings, as it will be retained in the work programme but has not been selected for inclusion in the provisional agenda for DE 51, and include the following two sub-items under the item:
 - .4.1 Mandatory application of the Performance Standard for protective coatings for void spaces on bulk carriers and oil tankers; and
 - .4.2 Performance Standard for protective coatings for void spaces on all types of ships;
- .5 delete the word “permanent” from the title of work programme item H.15 on Requirements and standard for corrosion protection of permanent means of access arrangements, in order to align it with the wording of SOLAS regulation II-1/3-6; and
- .6 renumber the work programme items accordingly.

24.2 The Committee was also invited to approve the draft revised work programme and the draft provisional agenda for DE 51, set out in annex 10.

Arrangements for the next session

24.3 The Sub-Committee agreed to establish at its next session working/drafting groups on subjects selected from among the following:

- .1 protection coatings;
- .2 amendments to resolution A.744(18);
- .3 life-saving appliances;
- .4 review of the SPS Code;
- .5 amendments to the MODU Code;

- .6 revision of the Code on Alarms and Indicators; and
- .7 review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements,

and also agreed that the Chairman, in consultation with the Secretariat, taking into account the volume of documentation submitted on the above subjects, would undertake the final selection, and would inform the Sub-Committee accordingly in time for the next meeting.

24.4 The Sub-Committee established correspondence groups on the following subjects, due to report to DE 51:

- .1 protection coatings;
- .2 amendments to resolution A.744(18);
- .3 life-saving appliances;
- .4 review of the SPS Code;
- .5 amendments to the MODU Code;
- .6 guidelines for uniform operating limitations of high-speed craft; and
- .7 review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements.

24.5 The Sub-Committee noted that its fifty-first session had been tentatively scheduled to take place from 18 to 22 February 2008 at a venue to be announced.

25 ANY OTHER BUSINESS

Harmonized implementation of the Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships (resolution MEPC.107(49))

25.1 The Sub-Committee recalled that it had dealt with the matter under agenda item 23 (Review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements) (see paragraphs 23.7 to 23.12).

Definition of bulk carrier and approval for the carriage of dry cargoes in bulk

25.2 As instructed by MSC 81, the Sub-Committee considered the views, recommendations and decisions of the FSI Sub-Committee concerning the definition of bulk carrier, noting that FSI 13 had recommended that further consideration of the definition should be directed to an appropriate IMO body other than itself, also taking into account the question on whether a ship which is not a bulk carrier, as shown by its statutory certificates, but carries cargo in bulk, is in compliance with SOLAS, if the corresponding loading case is part of its loading and stability manual approved by the Administration.

25.3 The Sub-Committee noted that MSC 81 had, in this connection, also considered a related submission by IACS (MSC 81/8/3) which recommended that the terms “constructed generally” and “intended primarily to carry dry cargo in bulk” would need to be clarified, and also the

requirements/standards to be applied for compliance with the revised SOLAS chapter XII for non-conventional bulk carriers. Consequently, MSC 81 had referred the FSI Sub-Committee's recommendations concerning the definition of bulk carrier and the approval for the carriage of dry cargoes in bulk, as well as document MSC 81/8/3, to this session for consideration and reporting to MSC 83.

25.4 The Sub-Committee had for its consideration the following documents:

- .1 DE 50/25/1 (Secretariat), giving background information on the issue, following the agreement of the Committee that there is a need to develop a suitable working definition of the term "bulk carrier" and a common interpretation thereof;
- .2 DE 50/25/4 (Chairman), proposing a draft MSC resolution on an interpretation of the term "bulk carrier" in order to provide guidance for a more uniform application of the term, including guidance to port State control officers, by proposing attributes to establish whether a particular ship is to be considered a bulk carrier or not and, thus, as to the applicability of SOLAS chapter XII and resolution A.744(18), as amended;
- .3 MSC 81/8/3 and DE 50/25/6 (IACS), as outlined in paragraph 25.3 above, and discussing the principle on which certain types of ships intended primarily to carry certain types of dry cargo in bulk could be excluded from being categorized as bulk carriers under SOLAS chapter XII and other SOLAS requirements applicable to bulk carriers; and
- .4 DE 50/25/10 (United Kingdom), providing the chronology of the SOLAS regulations related to bulk carriers, discussing the definitions of bulk carrier in SOLAS and related MSC resolutions and circulars and proposing to harmonize these definitions for new ships by way of an MSC resolution.

25.5 In considering the matter, the Sub-Committee, noting the difficulties experienced by the industry, agreed that this issue needed to be urgently resolved, not only with regard to port State control (PSC) but also with a view to providing guidance to Administrations regarding the identification of ships carrying dry cargoes in bulk as bulk carriers to which the requirements of the revised SOLAS chapter XII should apply. In this context, the Sub-Committee considered that, for PSC purpose, the ship type is stated in the relevant SOLAS safety certificates issued by Administrations and, therefore, officials exercising port State control should accept the relevant statement in the certificate and act accordingly.

25.6 Noting the limited time available to discuss the issue and being aware that any clarification should better be prepared by a group of experts, the Sub-Committee requested an informal group to develop an interpretation of the term "bulk carrier" for the consideration of the Sub-Committee, with a view to referral to the Committee for adoption by means of an MSC resolution.

25.7 Having received the report of the group (DE 50/WP.9), the Sub-Committee considered the proposed interpretation of the term "bulk carrier" as defined in SOLAS regulation XII/1.1, prepared by the group, but could not agree on the interpretation and invited the Committee to note this outcome of its considerations.

Guidance on providing safe working conditions for securing of containers

25.8 The Sub-Committee noted that DSC 11 had requested it to comment on the views of its Correspondence Group on Guidance on providing safe working conditions for securing of containers (DSC 11/13) concerning the identification of best practice to ensure that containerships have suitable and safe securing access and identifying best design criteria for new containerships to ensure such access.

25.9 The Sub-Committee considered document DE 50/25/2 (Secretariat), containing the part of the report of the DSC correspondence group it had been requested to comment on. The following views were expressed:

- .1 with regard to paragraph 5.1 of the report, it was considered that to fit as many containers as possible in enclosed spaces would mean an increase in steel weight and fuel consumption, when other means (e.g., lashing mechanisms) could be more effective;
- .2 any review of the 1969 Tonnage Measurement Convention, as currently carried out by the SLF Sub-Committee, should not apply to existing ships;
- .3 concerns regarding the safety of securing lashings;
- .4 the size of containerships needed to be considered, i.e. requirements should be appropriate for smaller containerships engaged in the feeder trade; and
- .5 any design considerations needed to be considered carefully.

25.10 The Sub-Committee requested the Secretariat to convey the above views to the DSC Sub-Committee.

Vague expressions in SOLAS chapter II-1, Part C

25.11 The Sub-Committee recalled that DE 49 had considered document DE 49/19/3 (Germany), expressing concerns regarding relaxations granted with respect to SOLAS regulation II-1/32.1 which states the specific need for redundancy of safety valves for steam boiler and boiler feed systems. Germany had drawn the Sub-Committee's attention to the fact that there was no guidance for a relaxation of the explicit SOLAS requirement for a redundancy. Following discussion, DE 49 had agreed on the need for guidance in the matter and had invited the delegation of Germany to submit an interpretation to regulation II-1/32.1 to this session for consideration.

25.12 Having considered document DE 50/25/3 (Germany), proposing a unified interpretation of SOLAS regulation II-1/32.1, the Sub-Committee did not agree to the proposed interpretation and invited Member Governments and international organizations to submit further proposals on the matter to DE 51.

Results of tests on inflatable liferafts

25.13 The Sub-Committee considered document DE 50/25/5 (Japan), reporting that Japan had conducted tests on inflatable liferafts to examine compliance with the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)) and had found that some certified inflatable liferafts were not in compliance with the Revised recommendation. Japan also

conducted tests on search and rescue radar transponders (SARTs) for survival craft and, likewise, found that some certified equipment was not in compliance with applicable IMO, ITU and/or IEC standards.

25.14 The Sub-Committee noted the information provided by Japan and re-iterated its agreement at DE 48, which was endorsed by MSC 81 (MSC 81/25, paragraph 7.5), that Member Governments should instruct the notifying bodies engaged in the tests of life-saving appliances to approve only products complying with the relevant test procedures and criteria.

Coating of cargo oil tanks of double hull oil tankers

25.15 The Sub-Committee noted that MSC 82 had considered a proposal by Austria *et al* (MSC 82/23/4) to introduce mandatory coating of cargo oil tanks of new oil tankers under SOLAS, including the development of a relevant performance standard. Subsequently, MSC 82 included in the work programme of the Sub-Committee and the provisional agenda for DE 51 a high priority item on “Cargo oil tank coating and corrosion protection”, with a target completion date of 2009, which would include the development of a draft new SOLAS regulation and an associated performance standard for cargo oil tank coating for corrosion protection, instructing DE 50 to give preliminary consideration to the issue.

25.16 Having noted document DE 50/25/13 (Secretariat), giving background information on the discussions at MSC 82 with regard to the issue, the Sub-Committee considered:

- .1 document MSC 82/23/4 (Austria *et al*), proposing a new SOLAS regulation II-1/3-9 introducing mandatory coating of cargo oil tanks of new oil tankers; and
- .2 documents DE 50/25/7 and DE 50/25/8 (Japan), expanding on the information given in document MSC 82/3/8 (Japan), suggesting that the use of anti-corrosion steel should be considered as one option of the corrosion prevention measures for cargo oil tanks of tankers and providing a draft outline for a performance standard for anti-corrosion steel for cargo oil tanks of oil tankers.

25.17 The observer from the European Commission recalled that, as a strong promoter of double-hull oil tankers, whilst recognizing associated potential problems, they had set up a High-Level Panel of Experts on Double Hull Tankers and the results of the Panel had been presented to A 24, at whose invitation a proposal to address and resolve corrosion protection of cargo tanks by introducing mandatory coating by means of a new SOLAS regulation was submitted to MSC 82 (MSC 82/23/4). MSC 82 had established this issue as a new work programme item on the agenda of DE 50. Given the accelerated phase-out of single hull tankers and the consequent building programme of double hull tankers, they emphasized the urgency of the matter, as measures to prevent or reduce corrosion are generally best applied during building. Proposals received included the use of corrosion-resistant steel and a more goal-based approach. The observer informed that an improved version of the proposed SOLAS regulation, incorporating the principle that all options should be based on standards developed by IMO and not by Administrations, was prepared too late for submission to this session, however, expressed willingness to submit this improved version to the relevant correspondence group (see paragraph 25.18).

25.18 The Sub-Committee referred the above documents and comments and proposals made in plenary to the correspondence group on coatings, established under agenda item 19, and instructed the group to further develop the draft new SOLAS regulation set out in the annex to document MSC 82/23/4. The development of an associated performance standard for cargo oil tank coating will be further considered at DE 51.

Review of SOLAS requirements on new installation of materials containing asbestos

25.19 The Sub-Committee noted that MSC 82, having considered document MSC 82/21/6 (Japan), proposing to delete from SOLAS regulation II-1/3-5.2 any exceptions allowing the installation of materials containing asbestos, in order to prohibit the use of asbestos on all ships, had added a high priority item on “Review of SOLAS requirements on new installation of materials containing asbestos” to its work programme, with two sessions needed to complete the item.

25.20 The Sub-Committee considered document DE 50/25/9 (Japan), providing information on the current situation related to the prohibition of asbestos and suggesting that the item be included in the provisional agenda for DE 51 and, while welcoming the information provided and generally supporting the Japanese proposal, agreed to consider the inclusion of the item in the provisional agenda for DE 51 under agenda item 24 (Work programme and agenda for DE 51) (see paragraph 24.1.3.1).

25.21 In the context of the item, the Sub-Committee noted further information by the delegation of Japan on a “Manual concerning appropriate handling of asbestos in ships”, published by the Japan Ship Technology Research Association (JSTRA), which was developed with the aim of reducing the risk for workers handling asbestos during repair or dismantling of ships.

Amendments to the 1994 and 2000 HSC Codes

25.22 The Sub-Committee noted document DE 50/25/11 (Greece), proposing to harmonize the regulations of the 1994 and 2000 HSC Codes relating to the inspection and maintenance of falls and release mechanisms with the amended SOLAS regulation III/20 adopted at MSC 78 by resolution MSC.152(78) and providing a relevant proposal for amendments in the annex to the document, suggesting that it be forwarded to MSC 83 for approval with a view to adoption.

25.23 In this respect, the Sub-Committee, having noted that MSC 82 (MSC 82/24, paragraph 3.127) had noted the aforementioned proposal for amendments to the 1994 and 2000 HSC Codes and had invited the delegation of Greece to submit an appropriate proposal for circulation with a view to consideration and adoption, by the Committee, in accordance with SOLAS article VIII, agreed to take no further action.

Interpretation of SOLAS regulations II-1/1.3 and II-1/3-6

25.24 The Sub-Committee noted that MSC 82, with regard to the applicability of SOLAS regulation II-1/3-6 to single-hull tankers being converted to double-hull tankers, had endorsed the view of DE 49 that the regulation should not apply to tankers converting from single-hull to double-hull or tankers converting to FPSOs/FSUs and that, if in the course of the conversion substantial new structures were to be added, these new structures should comply with the regulation.

25.25 The Sub-Committee further noted that MSC 82, in the context of this issue, had considered document MSC 82/7/1, in which IACS proposed interpretations of SOLAS regulation II-1/1.3, concerning the term “repairs, alterations and modifications of a major character”, and of SOLAS regulation II-1/3-6 concerning the applicability of the regulation to single-hull tankers being converted to double-hull tankers and the term “substantial new structures”. MSC 82 included in the Sub-Committee’s work programme a high priority item on “Interpretation of SOLAS regulations II-1/1.3 and II-1/3-6”, with a target completion date of 2008 and instructed DE 50 to give preliminary consideration to the item under this agenda item and to include it in the provisional agenda for DE 51.

25.26 The delegation of Germany stated that they supported the development of an interpretation as proposed by IACS, however, with regard to the issue of conversions from single hull to double hull tankers, they noted that there were a large number of such conversions, the purpose of which was to substantially increase the service life of tankers which otherwise would be phased out in accordance with MARPOL. They noted that DE 49 had already addressed the issue, based on an IACS proposal and had agreed that SOLAS regulation II-1/3-6 concerning means of access to tankers did not need to be applied to tankers converting from single hull to double hull. The delegation suggested that such conversions might be considered as a major conversion in accordance with SOLAS chapter II-1, except where the Organization had already agreed explicit SOLAS exemptions. The delegation of Germany strongly recommended that, in the meantime, pending final conclusion of the issue, recognized organizations should closely liaise with Administrations when approving and supervising such conversion work and that Administrations should aim at safety standards as high as deemed reasonable and practicable when applying SOLAS regulation II-1/1.3.1. The delegations of Cyprus, Greece, Italy, Malta, the Marshall Islands, the Netherlands, Norway, Poland, Spain and the United Kingdom associated themselves with the statement.

25.27 The delegation of the United States stated that, in their view, there should not be an automatic exemption from incorporating SOLAS regulation II-1/3-6 “means of access” features into single-hull tankers being converted to double hull. Although the delegation did not necessarily support an interpretation to retrofit new means of access into existing/unmodified areas, they found it reasonable to add means of access features to new structures being added. Following conversion, the newly created spaces would require inspection, and access should be provided.

25.28 The IACS observer informed the Sub-Committee that they would take into account the comments made in plenary when submitting relevant proposals to DE 51.

Research on evacuation of disabled persons

25.29 The Sub-Committee noted document DE 50/INF.4 (Japan), inviting it to note the necessity to further consider the safety of elderly/disabled passengers, in particular regarding emergency evacuation procedures, and providing an outline of the results of research on the use of an evacuation aid for disabled persons conducted by the Japan Ship-Machinery Quality Control Association (JSMQA) with a view to the enhancing safety of passenger ships.

ALERT project

25.30 The delegation of the Bahamas informed the Sub-Committee about a two-year project known as ALERT (Assessment of the Life-cycle Effect of Repairs on Tankers), funded by the

European Union, which will investigate such issues as present repair practices, the effect of joining old and new steel, metal fatigue, stresses caused by repairs and a number of related issues. Completion of the project is expected for 2008. The project, to which the IMO Secretariat is invited as an observer, intends to report to IMO at appropriate intervals. The partners involved in the project are: Newcastle University, University of Glasgow and Strathclyde, Hamburg University of Technology, Bureau Veritas, Lisnave Shipyard Portugal, INTERTANKO, Materiaal Metingen Europe Netherlands, Alpha Marine Services Greece and the Bahamas Maritime Authority.

Expressions of appreciation

25.31 The Sub-Committee expressed appreciation to the following delegates, who had recently been transferred to other duties, for their invaluable contributions to its work and wished them every success in their new duties:

- Captain Carlos Salgado (Chile);
- Mr. Heru Prasetyo (Indonesia);
- Capt. Esteban Pacha (Spain);
- Mr. Fikret Hakgüden (Turkey); and
- Captain Carlos Ormaechea (Uruguay).

26 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2008

26.1 In accordance with the Rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mrs. Anneliese Jost (Germany) as Chairman and Mrs. Xiang Yang (China) as Vice-Chairman, both for 2008.

27 ACTION REQUESTED OF THE COMMITTEES

27.1 The Maritime Safety Committee, at its eighty-third session, is invited to:

- .1 approve the draft amendments to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (resolution A.744(18)) with a view to subsequent adoption (paragraph 3.11 and annex 1);
- .2 endorse the recommendation of the Sub-Committee that, after adoption of the above amendments to the ESP Guidelines, a consolidated text of the amended Guidelines should be published and request the Secretariat to take appropriate action (paragraph 3.11);
- .3 consider the Sub-Committee's justification for an expansion of the scope of the existing work programme item on "Amendments to resolution A.744(18)" to include the harmonization of the ESP Guidelines with the relevant IACS Unified Requirements (UR Z.10 series) and take action as appropriate (paragraph 3.13 and annex 2);
- .4 adopt the draft MSC resolution on Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, deciding on the number of spray coats in square brackets (paragraphs 4.14, 4.21 and annex 3);

- .5 concur with the decision of the Sub-Committee that it would consider making the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers mandatory, through the development of relevant draft SOLAS amendments, in the longer perspective, after experience has been gained with its application (paragraph 4.22);
- .6 approve the draft new SOLAS regulation II-1/3-9 (Means of embarkation on and disembarkation from ships), with a view to adoption at MSC 84 (paragraph 5.8 and annex 4);
- .7 approve, in principle, the draft MSC circular on Guidelines for construction, maintenance and inspection of accommodation ladders and gangways, for final approval at MSC 84 in conjunction with the adoption of the proposed new SOLAS regulation II-1/3-9 (paragraph 5.8 and annex 5);
- .8 approve the draft amendments to SOLAS regulation II-1/3-4 (Emergency towing arrangements on tankers), with a view to adoption at MSC 84 (paragraph 6.6 and annex 6);
- .9 approve, in principle, the draft MSC circular on Guidelines for owners/operators on preparing for emergency towing procedures, for final approval at MSC 84 in conjunction with the adoption of the draft amendments to SOLAS regulation II-1/3-4 (paragraph 6.7 and annex 7);
- .10 approve the draft MSC circular on Unified interpretation of SOLAS chapter III (paragraph 8.4 and annex 8);
- .11 note the outcome of the Sub-Committee with regard to the implementation and mandatory application of MSC.1/Circ.1206 on Measures to prevent accidents with lifeboats (paragraphs 12.10 to 12.16, 12.30 to 12.32 and 12.40.3) and, in particular, concur with the Sub-Committee's decisions that:
 - .1 only annex 1 to the circular, dealing with servicing and maintenance of lifeboats, launching appliances and on-load release, should be made mandatory (paragraph 12.31.1); and
 - .2 guidance for qualification and certification of personnel or organization carrying out servicing and maintenance of lifeboats, launching appliances and on load release gear should be developed (paragraph 12.30);
- .12 note the action taken by the Sub-Committee with regard to the draft SOLAS chapter III and LSA Code amendments concerning the definition of "unfavourable conditions of trim and list" referred back to the Sub-Committee by MSC 82 (paragraphs 12.34 and 12.35);
- .13 note that the Sub-Committee agreed to an interpretation of the term "reduced degree of hazard" in the revised SOLAS regulation II-1/6.2.4 for referral to the SLF Sub-Committee for inclusion in the Explanatory Notes to the SOLAS chapter II-1 subdivision and damage stability regulations (paragraph 12.37);
- .14 concur with the Sub-Committee's decision to investigate the impact of recent developments in the design and capability of life-saving appliances, in particular

- liferafts and launching systems, on the term “ $N = N1 + 2N2$ ” in the formula for the required subdivision index R (paragraph 12.38);
- .15 note the view of the Sub-Committee that no change is needed to the application of the B/5 value to the subdivision standards in SOLAS chapter II-1 (paragraph 12.39);
 - .16 approve the draft MSC circular on Symbol of infant lifejacket (paragraph 16.3 and annex 9);
 - .17 note that, with regard to the proposal by the IIWG concerning the application of inert gas to new oil tankers of less than 20,000 dwt and to new chemical tankers, the Sub-Committee supported the relevant recommendations of FP 51 (paragraph 17.7);
 - .18 note the Sub-Committee’s recommendation that the Committee consider developing international safety standards for the design and operation of in-tank pumps after IACS has submitted to the Committee the result of their work on a relevant unified requirement and take action as appropriate (paragraph 17.9);
 - .19 approve the proposed revised work programme of the Sub-Committee and the provisional agenda for DE 51 (paragraph 24.1 and annex 10);
 - .20 note the outcome of the Sub-Committee’s discussions concerning the definition of the term “bulk carrier”, in particular that the Sub-Committee could not agree on such definition (paragraphs 25.2 to 25.7); and
 - .21 approve the report in general.

27.2 The Marine Environment Protection Committee, at its fifty-sixth session, is invited to note the progress made in the review MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements (section 23).

ANNEX 1

**DRAFT AMENDMENTS TO THE GUIDELINES ON THE ENHANCED PROGRAMME
OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS
(RESOLUTION A.744(18), AS AMENDED)**

Contents

- 1 After the existing title of “ANNEX A” the following new title is inserted:

“Part A

**GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS
DURING SURVEYS OF BULK CARRIERS HAVING SINGLE-SIDE SKIN
CONSTRUCTION”**

- 2 After the existing list of contents for “ANNEX A”, the following is inserted:

“Part B

**GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS
DURING SURVEYS OF BULK CARRIERS HAVING DOUBLE-SIDE SKIN
CONSTRUCTION**

1 General

- 1.1 Application
- 1.2 Definitions
- 1.3 Repairs
- 1.4 Surveyors

2 Renewal survey

- 2.1 General
- 2.2 Dry-dock survey
- 2.3 Space protection
- 2.4 Hatch covers and coamings
- 2.5 Extent of overall and close-up surveys
- 2.6 Extent of thickness measurements
- 2.7 Extent of tank pressure testing

3 Annual survey

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6 Documentation on board

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- 8.1 Evaluation of survey report
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Annex 1 Requirements for close-up survey at renewal surveys

Annex 2 Requirements for thickness measurements at renewal surveys

Annex 3 Owner's inspection report

Annex 4A Survey programme

Annex 4B Survey planning questionnaire

Annex 5 Procedures for certification of a company engaged in thickness measurement of hull structures

Annex 6 Survey reporting principles

- Annex 7 Condition evaluation report
- Annex 8 Recommended procedures for thickness measurements
- Annex 9 Guidelines for technical assessment in conjunction with planning for enhanced surveys of bulk carriers relevant survey
- Annex 10 Requirements for extent of thickness measurements at those areas of substantial corrosion of bulk carriers with double-side skin construction within the cargo length area
- Annex 11 Strength of cargo hatch cover securing arrangements for bulk carriers
- Annex 12 Procedural requirements for thickness measurements”

ANNEX A

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS

- 3 After the above, the following is inserted:

“Part A

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS HAVING SINGLE-SIDE SKIN CONSTRUCTION”

1.1 Application

- 4 The existing text of paragraph 1.1.1 is replaced by the following:

“1.1.1 The Guidelines should apply to all self-propelled bulk carriers of 500 gross tonnage and above having single-side skin construction. Where a bulk carrier has a combination of single- and double-side skin construction, the relevant requirements of parts A and B should apply to that construction, as applicable.”

- 5 The following new part B is inserted after part A:

“Part B

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS HAVING DOUBLE-SIDE SKIN CONSTRUCTION

1 General

1.1 Application*

1.1.1 The Guidelines should apply to all self-propelled bulk carriers of 500 gross tonnage and above having double-side skin construction. Where a bulk carrier has a combination of single- and double-side skin construction, the relevant requirements of parts A and B should apply to that construction, as applicable.

1.1.2 The Guidelines should apply to surveys of hull structure and piping systems in way of cargo holds, cofferdams, pipe tunnels, void spaces within the cargo length area and all ballast tanks. The surveys should be carried out during the surveys prescribed by regulation I/10 of the Convention.

1.1.3 The Guidelines contain the extent of examination, thickness measurements and tank testing. The survey should be extended when substantial corrosion and/or structural defects are found and include additional close-up survey when necessary.

1.2 Definitions

1.2.1 *Bulk carrier* is a ship which is constructed generally with single deck, topside tanks and hopper side tanks in cargo spaces, and is intended primarily to carry dry cargo in bulk and includes such types as ore carriers and combination carriers.**

1.2.2 *Ballast tank* is a tank which is used for water ballast and includes side ballast tanks, ballast double bottom spaces, topside tanks, hopper side tanks and peak tanks. A double-side tank should be considered, for survey purposes, as a separate tank even if it is in connection to either the topside tank or the hopper side tank.

1.2.3 *Spaces* are separate compartments including holds and tanks.

1.2.4 *Overall survey* is a survey intended to report on the overall condition of the hull structure and determine the extent of additional close-up surveys.

1.2.5 *Close-up survey* is a survey where the details of structural components are within the close visual inspection range of the surveyor, i.e., preferably within reach of hand.

* The intention of these Guidelines is to ensure that an appropriate level of review of plans and documents is conducted and consistency in application is attained. Such evaluation of survey reports, survey programmes, planning documents, etc., should be carried out at the managerial level of the Administration or organization recognized by the Administration.

** For combination carriers, additional requirements are specified in the Guidelines on the enhanced programme of inspections during surveys for oil tankers, set out in Annex B.

1.2.6 *Transverse section* includes all longitudinal members such as plating, longitudinals and girders at the deck, sides, bottom, inner bottom, hopper sides, inner sides, top wing inner sides and longitudinal bulkheads.

1.2.7 *Representative spaces* are those which are expected to reflect the condition of other spaces of similar type and service and with similar corrosion prevention systems. When selecting representative spaces, account should be taken of the service and repair history on board and identifiable critical and/or suspect areas.

1.2.8 *Suspect areas* are locations showing substantial corrosion and/or are considered by the surveyor to be prone to rapid wastage.

1.2.9 *Substantial corrosion* is an extent of corrosion such that assessment of corrosion pattern indicates a wastage in excess of 75% of allowable margins, but within acceptable limits.

1.2.10 A *corrosion prevention system* is normally considered a full hard coating.

Protective coating should usually be epoxy coating or equivalent. Other coating systems may be considered acceptable as alternatives provided that they are applied and maintained in compliance with the manufacturer's specifications.

Where soft coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed.

1.2.11 *Coating condition* is defined as follows:

GOOD	condition with only minor spot rusting;
FAIR	condition with local breakdown of coating at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for POOR condition;
POOR	condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration.

1.2.12 *Critical structural areas* are locations which have been identified from calculations to require monitoring or from the service history of the subject ship or from similar or sister ships to be sensitive to cracking, buckling or corrosion which would impair the structural integrity of the ship.

1.2.13 *Cargo length area* is that part of the ship which includes all cargo holds and adjacent areas including fuel tanks, cofferdams, ballast tanks and void spaces.

1.2.14 *Intermediate survey* is a survey carried out either at the second or third annual survey or between these surveys.

1.2.15 A *prompt and thorough repair* is a permanent repair completed at the time of survey to the satisfaction of the surveyor, therein removing the need for the imposition of any associated condition of classification or recommendation.

1.2.16 *Convention* means the International Convention for the Safety of Life at Sea, 1974, as amended.

1.2.17 *Specially considered* means sufficient close-up inspection and thickness measurements are taken to confirm the actual average condition of the structure under coating.

1.3 Repairs

1.3.1 Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affects or, in the opinion of the Administration, will affect the ship's structural, watertight or weathertight integrity, should be promptly and thoroughly repaired. Areas which should be considered include:

- .1 side shell frames, their end attachments or adjacent shell plating;
- .2 deck structure and deck plating;
- .3 bottom structure and bottom plating;
- .4 watertight or oiltight bulkheads; and
- .5 hatch covers or hatch coamings.

Where adequate repair facilities are not available, the Administration may allow the ship to proceed directly to a repair facility. This may require discharging the cargo and/or temporary repairs for the intended voyage.

1.3.2 Additionally, when a survey results in the identification of corrosion or structural defects, either of which, in the opinion of the Administration, will impair the ship's fitness for continued service, remedial measures should be implemented before the ship continues in service.

1.4 Surveyors

For bulk carriers of 20,000 tons deadweight and above, two surveyors should jointly carry out the first scheduled renewal survey after the bulk carrier passes 10 years of age, and all subsequent renewal surveys and intermediate surveys. If the surveys are carried out by a recognized organization, the surveyors should be exclusively employed by such recognized organizations.

2 Renewal survey

2.1 General

2.1.1 The renewal survey may be commenced at the fourth annual survey and be progressed during the succeeding year with a view to completion by the fifth anniversary date.

2.1.2 As part of the preparation for the renewal survey, the survey programme should be dealt with in advance of the survey. The thickness measurement should not be held before the fourth annual survey.

2.1.3 The survey should include, in addition to the requirements of the annual survey, examination, tests and checks of sufficient extent to ensure that the hull and related piping is in a satisfactory condition and is fit for its intended purpose for the new period of validity of the Cargo Ship Safety Construction Certificate, subject to proper maintenance and operation and to renewal surveys being carried out.

2.1.4 All cargo holds, ballast tanks, including double bottom and double-side tanks, pipe tunnels, cofferdams and void spaces bounding cargo holds, decks and outer hull should be examined, and this examination should be supplemented by thickness measurement and testing, as required by 2.6 and 2.7, to ensure that the structural integrity remains effective. The examination should be sufficient to discover substantial corrosion, significant deformation, fractures, damages or other structural deterioration.

2.1.5 All piping systems within the above spaces should be examined and operationally tested under working conditions to ensure that the condition remains satisfactory.

2.1.6 The survey extent of ballast tanks converted to void spaces should be specially considered in relation to the requirements for ballast tanks.

2.2 Dry-dock survey

2.2.1 A survey in dry dock should be a part of the renewal survey. There should be a minimum of two inspections of the outside of the ship's bottom during the five-year period of the certificate. In all cases, the maximum interval between bottom inspections should not exceed 36 months.

2.2.2 For ships of 15 years of age and over, inspection of the outside of the ship's bottom should be carried out with the ship in dry dock. For ships of less than 15 years of age, alternate inspections of the ship's bottom not conducted in conjunction with the renewal survey may be carried out with the ship afloat. Inspection of the ship afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably qualified staff are available.

2.2.3 If a survey in dry-dock is not completed in conjunction with the enhanced survey during renewal survey or if the 36 month maximum interval referred to in 2.2.1 is not complied with, the Cargo Ship Safety Construction Certificate should cease to be valid until a survey in dry-dock is completed.

2.3 Space protection

Where provided, the condition of the corrosion prevention system of ballast tanks should be examined. For ballast tanks, excluding double bottom tanks, where a coating is found in POOR condition as defined in 1.2.11, and it is not renewed, or where a soft coating has been applied, or where a coating has not been applied, the tanks in question should be examined at annual intervals. When such breakdown of coating is found in ballast double bottom tanks, or where a soft coating has been applied or where a coating has not been applied, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurement should be carried out. Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered.

2.4 Hatch covers and coamings

2.4.1 A thorough inspection of the items listed in 3.3 should be carried out.

2.4.2 Checking of the satisfactory operation of all mechanically operated hatch covers should be made, including:

- .1** stowage and securing in open condition;
- .2** proper fit and efficiency of sealing in closed condition;
- .3** operational testing of hydraulic and power components, wires, chains and link drives.

2.4.3 The effectiveness of sealing arrangements of all hatch covers by hose testing or equivalent should be checked.

2.4.4 Thickness measurement of the hatch cover and coaming plating and stiffeners should be carried out as given in annex 2.

2.5 Extent of overall and close-up surveys

2.5.1 An overall survey of all spaces excluding fuel oil tanks should be carried out at the renewal survey. Fuel oil tanks in way of cargo holds should be sufficiently examined to ensure that their condition is satisfactory.

2.5.2 Each renewal survey should include a close-up examination of sufficient extent to establish the condition of the cargo holds and ballast tanks as indicated in annex 1.

2.6 Extent of thickness measurements

2.6.1 The requirements for thickness measurements at the renewal survey are given in annex 2.

2.6.2 Representative thickness measurements to determine both general and local levels of corrosion in the transverse web frames in all water ballast tanks should be carried out. Thickness measurements should also be carried out to determine the corrosion levels on the transverse bulkhead plating. The thickness measurements may be dispensed with provided the surveyor is satisfied by the close-up examination that there is no structural diminution, and the coating where applied remains efficient.

2.6.3 The surveyor may extend the thickness measurements as deemed necessary. Provisions for extended measurements for areas with substantial corrosion as defined in 1.2.9 are given in annex 10.

2.6.4 For areas in spaces where coatings are found to be in GOOD condition as defined in 1.2.11, the extent of thickness measurements according to annex 2 may be specially considered by the Administration. Where a protective coating is provided in cargo holds and is found in good condition, the extent of close-up surveys and thickness measurements may be specially considered.

2.6.5 Transverse sections should be chosen where the largest reductions are suspected to occur or are revealed from deck plating measurements.

2.7 Extent of tank pressure testing

2.7.1 All boundaries of ballast tanks, deep tanks and cargo holds used for ballast within the cargo hold length should be pressure tested. Representative tanks for fresh water, fuel oil and lubrication oil should also be pressure tested.

2.7.2 Generally, the hydrostatic pressure should correspond to a water level to the top of hatches for ballast/cargo holds, or top of air pipes for ballast tanks or fuel tanks.

3 Annual survey

3.1 General

The annual survey should consist of an examination for the purpose of ensuring, as far as practicable, that the hull hatch covers, coamings and piping are maintained in a satisfactory condition and should take into account the service history, condition and extent of the corrosion prevention system of ballast tanks and areas identified in the survey report file.

3.2 Examination of the hull

3.2.1 Examination of the hull plating and its closing appliances should be carried out as far as can be seen.

3.2.2 Examination of watertight penetrations should be carried out as far as practicable.

3.3 Examination of hatch covers and coamings

3.3.1 It should be confirmed that no unapproved changes have been made to the hatch covers, hatch coamings and their securing and sealing devices since the last survey.

3.3.2 A thorough survey of cargo hatch covers and coamings is only possible by examination in the open as well as closed positions and should include verification of proper opening and closing operation. As a result, at least the hatch covers sets within the forward 25% of the ship's length and at least one additional set, such that all the sets on the ship are assessed at least once in every 5-year period, should be surveyed open, closed and in operation to the full extent in each direction at each annual survey, including:

- .1** stowage and securing in open condition;
- .2** proper fit and efficiency of sealing in closed condition; and
- .3** operational testing of hydraulic and power components, wires, chains and link drives.

The closing of the covers should include the fastening of all peripheral, and cross joint cleats or other securing devices. Particular attention should be paid to the condition of hatch covers in the forward 25% of the ship's length, where sea loads are normally greatest.

3.3.3 If there are indications of difficulty in operating and securing hatch covers, additional sets above those required by 3.3.2, at the discretion of the surveyor, should be tested in operation.

3.3.4 Where the cargo hatch securing system does not function properly, repairs should be carried out under the supervision of the Administration. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should be upgraded to comply with annex 13.

3.3.5 For each cargo hatch cover set, at each annual survey, the following items should be surveyed:

- .1 cover panels, including side plates, and stiffener attachments that may be accessible in the open position by close-up survey (for corrosion, cracks, deformation);
- .2 sealing arrangements of perimeter and cross joints (gaskets for condition and permanent deformation, flexible seals on combination carriers, gasket lips, compression bars, drainage channels and non-return valves);
- .3 clamping devices, retaining bars, cleating (for wastage, adjustment, and condition of rubber components);
- .4 closed cover locating devices (for distortion and attachment);
- .5 chain or rope pulleys;
- .6 guides;
- .7 guide rails and track wheels;
- .8 stoppers;
- .9 wires, chains, tensioners and gypsies;
- .10 hydraulic system, electrical safety devices and interlocks; and
- .11 end and interpanel hinges, pins and stools where fitted.

3.3.6 At each hatchway, at each annual survey, the coamings, with plating, stiffeners and brackets should be checked for corrosion, cracks and deformation, especially of the coaming tops.

3.3.7 Where considered necessary, the effectiveness of sealing arrangements may be proved by hose or chalk testing supplemented by dimensional measurements of seal compressing components.

3.3.8 Where portable covers, wooden or steel pontoons are fitted, the satisfactory condition of the following should be confirmed:

- .1 wooden covers and portable beams, carriers or sockets for the portable beam, and their securing devices;
- .2 steel pontoons, including close-up survey of hatch cover plating;
- .3 tarpaulins;
- .4 cleats, battens and wedges;
- .5 hatch securing bars and their securing devices;
- .6 loading pads/bars and the side plate edge;
- .7 guide plates and chocks;
- .8 compression bars, drainage channels and drain pipes (if any).

3.4 Examination of cargo holds

3.4.1 For bulk carriers over 10 years of age, the following should be carried out:

- .1 overall survey of two selected cargo holds. Where a protective coating is provided in cargo holds and is found in GOOD condition, the extent of close-up surveys and thickness measurements may be specially considered; and
- .2 when considered necessary by the surveyor, thickness measurement should be carried out. If the results of these thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10.

3.4.2 For bulk carriers over 15 years of age, the following should be carried out:

- .1 overall survey of all cargo holds. Where a protective coating is provided in cargo holds and is found in GOOD condition, the extent of close-up surveys and thickness measurements may be specially considered; and
- .2 when considered necessary by the surveyor, thickness measurement should be carried out. If the results of these thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10.

3.4.3 All piping and penetrations in cargo holds, including overboard piping, should be examined for bulk carriers over 10 years of age.

3.5 Examination of ballast tanks

Examination of ballast tanks should be carried out when required as a consequence of the results of the renewal survey and intermediate survey. When considered necessary by the surveyor, thickness measurement should be carried out. If the results of these thickness measurements

indicate that substantial corrosion is found, the extent of thickness measurements should be increased in accordance with annex 10.

4 Intermediate survey

4.1 General

4.1.1 Notwithstanding the provisions of 1.1.2, items that are additional to the requirements of the annual survey may be surveyed either at the second or third annual survey or between these surveys.

4.1.2 The extent of survey is dependent upon the age of the ship as specified in 4.2, 4.3 and 4.4.

4.2 Bulk carriers 5 to 10 years of age

4.2.1 Ballast tanks

4.2.1.1 For spaces used for salt water ballast, an overall survey of representative spaces selected by the surveyor should be carried out. If such inspections reveal no visible structural defects, the examination may be limited to a verification that the protective coating remains efficient.

4.2.1.2 Where POOR coating condition, corrosion or other defects are found in salt water ballast spaces or where protective coating was not applied from the time of construction, the examination should be extended to other ballast spaces of the same type.

4.2.1.3 In salt water ballast spaces other than double bottom tanks, where a protective coating is found in POOR condition and it is not renewed, or where soft coating has been applied, or where a protective coating was not applied from the time of construction, the tanks in question should be examined and thickness measurements carried out as considered necessary at annual intervals. When such breakdown of coating is found in salt water ballast double bottom tanks, where a soft coating has been applied, or where a coating has not been applied, the tanks in question should be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements should be carried out.

4.2.1.4 In addition to the above requirements, areas found to be suspect areas at the previous renewal survey should be overall and close-up surveyed.

4.2.2 Cargo holds

4.2.2.1 An overall survey of all cargo holds should be carried out.

4.2.2.2 Where considered necessary by the surveyor as a result of the overall survey of any one cargo hold as described in 4.2.2.1, the survey should be extended to include a close-up survey of that cargo hold as well as a close-up survey of sufficient extent of those areas of the structure as deemed necessary.

4.2.3 Extent of thickness measurement

4.2.3.1 Thickness measurement should be carried out to an extent sufficient to determine both general and local corrosion levels at areas subject to close-up survey as described in 4.2.2.1. The minimum requirement for thickness measurements at the intermediate survey are areas found to be suspect areas at the previous renewal survey.

4.2.3.2 Where substantial corrosion is found, the extent of thickness measurements should be increased in accordance with the requirements of annex 10.

4.2.3.3 The thickness measurement may be dispensed with provided the surveyor is satisfied by the close-up survey, that there is no structural diminution and the protective coating, where applied, remains effective.

4.3 Bulk carriers 10 to 15 years of age

4.3.1 Ballast tanks

4.3.1.1 For bulk carriers:

All salt water ballast tanks should be examined. If such inspections reveal no visible structural defects, the examination may be limited to a verification that the protective coating remains efficient.

4.3.1.2 For ore carriers:

- .1 all web frame rings – in one ballast wing tank;
- .2 one deck transverse – in each of the remaining ballast wing tanks;
- .3 both transverse bulkheads – in one ballast wing tank; and
- .4 one transverse bulkhead – in each remaining ballast wing tank.

4.3.1.3 In addition, the requirements described in 4.2.1.2 to 4.2.1.4 apply.

4.3.2 Cargo holds

4.3.2.1 An overall survey of all cargo holds should be carried out.

4.3.2.2 Where considered necessary by the surveyor as a result of the overall survey of any one cargo hold as described in 4.3.2.1, the survey should be extended to include a close-up survey of that cargo hold as well as a close-up survey of sufficient extent of those areas of the structure as deemed necessary.

4.3.3 Extent of thickness measurement

4.3.3.1 Thickness measurement should be carried out to an extent sufficient to determine both general and local corrosion levels at areas subject to close-up survey as described in 4.3.2.1.

The minimum requirement for thickness measurements at the intermediate survey are areas found to be suspect areas at the previous renewal survey.

4.3.3.2 In addition, the requirements described in 4.2.3.2 and 4.2.3.3 apply.

4.4 Bulk carriers exceeding 15 years of age

4.4.1 The requirements of the intermediate survey should be to the same extent as the previous renewal survey required in 2 and 5.1. However, pressure testing of tanks and cargo holds used for ballast is not required unless deemed necessary by the attending surveyor.

4.4.2 In application of 4.4.1, the intermediate survey may be commenced at the second annual survey and be progressed during the succeeding year with a view to completion at the third annual survey in lieu of the application of 2.1.1.

5 Preparations for survey

5.1 Survey programme

5.1.1 A specific survey programme should be worked out in advance of the renewal survey by the owner in co-operation with the Administration. The survey programme should be in a written format based on the information in annex 4A. The survey should not commence until the survey programme has been agreed.

5.1.2 Prior to the development of the survey programme, the survey planning questionnaire should be completed by the owner based on the information set out in annex 4B, and forwarded to the Administration.

5.1.3 In developing the survey programme, the following documentation should be collected and consulted with a view to selecting tanks, holds, areas and structural elements to be examined:

- .1** survey status and basic ship information;
- .2** documentation on board, as described in 7.2 and 7.3;
- .3** main structural plans (scantlings drawings), including information regarding use of high-tensile steels (HTS);
- .4** relevant previous survey and inspection reports from both the classification society and the owner;
- .5** information regarding the use of ship's holds and tanks, typical cargoes and other relevant data;
- .6** information regarding corrosion protection level on the new building; and
- .7** information regarding the relevant maintenance level during operation.

5.1.4 The submitted survey programme should account for, and comply, as a minimum, with the provisions of annexes 1 and 2 and paragraph 2.7 for close-up survey, thickness measurement and tank testing, respectively, and should include relevant information, including at least:

- .1 basic ship information and particulars;
- .2 main structural plans (scantling drawings), including information regarding use of high-tensile steels (HTS);
- .3 plan of holds and tanks;
- .4 list of holds and tanks with information on use, protection and condition of coating;
- .5 conditions for survey (e.g., information regarding tank cleaning, gas-freeing, ventilation, lighting, etc.);
- .6 provisions and methods for access to structures;
- .7 equipment for surveys;
- .8 nomination of holds and tanks and areas for close-up survey (per annex 1);
- .9 nomination of sections for thickness measurement (per annex 2);
- .10 nomination of tanks for testing (per 2.7); and
- .11 damage experience related to ship in question.

5.1.5 The Administration should advise the owner of the maximum acceptable structural corrosion diminution levels applicable to the ship.

5.1.6 Use may also be made of the Guidelines for technical assessment in conjunction with the planning of enhanced surveys for bulk carriers, contained in annex 9. These Guidelines are a recommended tool which may be invoked at the discretion of the Administration, when considered necessary and appropriate, in conjunction with the preparation of the required survey programme.

5.2 Conditions for survey

5.2.1 The owner should provide the necessary facilities for a safe execution of the survey.

5.2.2 In order to enable the attending surveyors to carry out the survey, provisions for proper and safe access, should be agreed between the owner and the Administration.

5.2.3 Details of the means of access should be provided in the survey planning questionnaire.

5.2.4 In cases where the provisions of safety and required access are judged by the attending surveyors not to be adequate, the survey of the spaces involved should not proceed.

5.2.5 Cargo holds, tanks and spaces should be safe for access. Cargo holds, tanks and spaces should be gas free and properly ventilated. Prior to entering a tank, void or enclosed space, it should be verified that the atmosphere in the tank is free from hazardous gas and contains sufficient oxygen.

5.2.6 Cargo holds, tanks and spaces should be sufficiently clean and free from water, scale, dirt, oil residues, sediments, etc., to reveal corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating. In particular, this applies to areas which are subject to thickness measurement.

5.2.7 Sufficient illumination should be provided to reveal corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

5.2.8 The surveyor(s) should always be accompanied by, at least, one responsible person, assigned by the owner, experienced in tank and enclosed spaces inspection. In addition, a back-up team of at least two experienced persons should be stationed at the hatch opening of the tank or space that is being surveyed. The back-up team should continuously observe the work in the tank or space and should keep life-saving and evacuation equipment ready for use.

5.2.9 A communication system should be arranged between the survey party in the cargo hold, tank or space being examined, the responsible officer on deck and, as the case may be, the navigation bridge. The communication arrangements should be maintained throughout the survey.

5.3 Access to structures*

5.3.1 For overall survey, means should be provided to enable the surveyor to examine the structure in a safe and practical way.

5.3.2 For close-up survey, one or more of the following means for access, acceptable to the surveyor, should be provided:

- .1** permanent staging and passages through structures;
- .2** temporary staging and passages through structures;
- .3** lifts and moveable platforms;
- .4** portable ladders;
- .5** other equivalent means.

* Refer to the Guidelines on the means of access to structures for inspection and maintenance of oil tankers and bulk carriers (MSC/Circ.686).

5.4 Equipment for survey

5.4.1 Thickness measurements should normally be carried out by means of ultrasonic test equipment. The accuracy of the equipment should be proven to the surveyor as required.

5.4.2 One or more of the following fracture detection procedures may be required if deemed necessary by the surveyor:

- .1** radiographic equipment;
- .2** ultrasonic equipment;
- .3** magnetic particle equipment;
- .4** dye penetrant;
- .5** other equivalent means.

5.4.3 Explosimeter, oxygen-meter, breathing apparatus, lifelines, riding belts with rope and hook and whistles together with instructions and guidance on their use should be made available during the survey. A safety check-list should be provided.

5.4.4 Adequate and safe lighting should be provided for the safe and efficient conduct of the survey.

5.4.5 Adequate protective clothing should be made available and used (e.g., safety helmet, gloves, safety shoes, etc.) during the survey.

5.5 Survey at sea or at anchorage

5.5.1 Survey at sea or at anchorage may be accepted provided the surveyor is given the necessary assistance from the personnel on board. Necessary precautions and procedures for carrying out the survey should be in accordance with 5.1, 5.2, 5.3 and 5.4.

5.5.2 A communication system should be arranged between the survey party in the spaces and the responsible officer on deck.

5.5.3 When rafts or boats will be used for close-up survey, the following conditions should be observed:

- .1** only rough duty, inflatable rafts or boats, having satisfactory residual buoyancy and stability even if one chamber is ruptured, should be used;
- .2** the boat or raft should be tethered to the access ladder and an additional person should be stationed down the access ladder with a clear view of the boat or raft;
- .3** appropriate lifejackets should be available for all participants;
- .4** the surface of water in the tank or hold should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed 0.25 m)

and the water level either stationary or falling. On no account should the level of the water be rising while the boat or raft is in use;

- .5 the tank, hold or space should contain clean ballast water only. Even a thin sheen of oil on the water is not acceptable; and
- .6 at no time should the water level be allowed to be within 1 m of the deepest under deck web face flat so that the survey team is not isolated from a direct escape route to the tank hatch. Filling to levels above the deck transverses should only be contemplated if a deck access manhole is fitted and open in the bay being examined, so that an escape route for the survey party is available at all times. Other effective means of escape to the deck may be considered.

5.5.4 Rafts or boats alone may be allowed for inspection of the under deck areas for tanks or spaces, if the depth of the webs is 1.5 m or less.

5.5.5 If the depth of the webs is more than 1.5 m, rafts or boats alone may be allowed only:

- .1 when the coating of the under deck structure is in GOOD condition and there is no evidence of wastage; or
- .2 if a permanent means of access is provided in each bay to allow safe entry and exit. This means of access should be direct from the deck via a vertical ladder with a small platform fitted approximately 2 m below the deck. Other effective means of escape to the deck may be considered.

If neither of the above conditions are met, then staging or other equivalent means should be provided for the survey of the under deck areas.

5.5.6 The use of rafts or boats alone in 5.5.4 and 5.5.5 does not preclude the use of boats or rafts to move about within a tank during a survey.

5.6 Survey planning meeting

5.6.1 The establishment of proper preparation and the close co-operation between the attending surveyor(s) and the owner's representatives onboard prior to and during the survey are an essential part in the safe and efficient conduct of the survey. During the survey on board safety meetings should be held regularly.

5.6.2 Prior to commencement of any part of the renewal and intermediate survey, a survey planning meeting should be held between the attending surveyor(s), the owner's representative in attendance, the thickness measurement company operator (as applicable) and the master of the ship for the purpose to ascertain that all the arrangements envisaged in the survey programme are in place, so as to ensure the safe and efficient conduct of the survey work to be carried out.

5.6.3 The following is an indicative list of items that should be addressed in the meeting:

- .1 schedule of the ship (i.e. the voyage, docking and undocking manoeuvres, periods alongside, cargo and ballast operations, etc.);

- .2 provisions and arrangements for thickness measurements (i.e., access, cleaning/de-scaling, illumination, ventilation, personal safety);
- .3 extent of the thickness measurements;
- .4 acceptance criteria (refer to the list of minimum thicknesses);
- .5 extent of close-up survey and thickness measurement considering the coating condition and suspect areas/areas of substantial corrosion;
- .6 execution of thickness measurements;
- .7 taking representative readings in general and where uneven corrosion/pitting is found;
- .8 mapping of areas of substantial corrosion; and
- .9 communication between attending surveyor(s) the thickness measurement company operator(s) and owner's representative(s) concerning findings.

6 Documentation on board

6.1 General

6.1.1 The owner should obtain, supply and maintain on board the ship documentation as specified in 6.2 and 6.3, which should be readily available for the surveyor. The condition evaluation report referred to in 6.2 should include a translation into English.

6.1.2 The documentation should be kept on board for the lifetime of the ship.

6.2 Survey report file

6.2.1 A survey report file should be a part of the documentation on board consisting of:

- .1 reports of structural surveys (annex 6);
- .2 condition evaluation report (annex 7); and
- .3 thickness measurement reports (annex 8).

6.2.2 The survey report file should be available also in the owner's and the Administration offices.

6.3 Supporting documents

6.3.1 The following additional documentation should be available on board:

- .1 main structural plans of holds and ballast tanks;
- .2 previous repair history;

- .3 cargo and ballast history;
- .4 inspections by ship's personnel with reference to:
 - .4.1 structural deterioration in general;
 - .4.2 leakages in bulkheads and piping;
 - .4.3 condition of coating or corrosion prevention system, if any. A guidance for reporting is shown in annex 3;
- .5 survey programme as required by 5.1 until such time as the renewal survey has been completed,

and any other information that would help to identify critical structural areas and/or suspect areas requiring inspection.

6.4 Review of documentation on board

Prior to survey, the surveyor should examine the completeness of the documentation on board, and its contents as a basis for the survey.

7 Procedures for thickness measurements

7.1 General

7.1.1 The required thickness measurements, if not carried out by the recognized organization acting on behalf of the Administration, should be witnessed by a surveyor of the recognized organization. The surveyor should be on board to the extent necessary to control the process.

7.1.2 The thickness measurement company should be part of the survey planning meeting to be held prior to commencing the survey.

7.1.3 In all cases the extent of the thickness measurements should be sufficient as to represent the actual average condition.

7.1.4 Procedural requirements for thickness measurements are set out in annex 12.

7.2 Certification of thickness measurement company

The thickness measurements should be carried out by a qualified company certified by an organization recognized by the Administration according to principles stated in annex 5.

7.3 Reporting

7.3.1 A thickness measurement report should be prepared and submitted to the Administration. The report should give the location of measurements, the thickness measured as well as corresponding original thickness. Furthermore, the report should give the date when the measurements were carried out, type of measuring equipment, names of personnel and their

qualifications and be signed by the operator. The thickness measurement report should follow the principles as specified in the recommended procedures for thickness measurements set out in annex 8.

7.3.2 The surveyor should verify and countersign the thickness measurement reports.

8 Reporting and evaluation of survey

8.1 Evaluation of survey report

8.1.1 The data and information on the structural condition of the ship collected during the survey should be evaluated for acceptability and continued structural integrity of the ship.

8.1.2 The analysis of data should be carried out and endorsed by the Administration and the conclusions of the analysis should form a part of the condition evaluation report.

8.2 Reporting

8.2.1 Principles for survey reporting are shown in annex 6.

8.2.2 When a survey is split between different survey stations, a report should be made for each portion of the survey. A list of items examined and/or tested (pressure testing, thickness measurements etc.) and an indication of whether the item has been credited, should be made available to the next attending surveyor(s), prior to continuing or completing the survey.

8.2.3 A condition evaluation report of the survey and results should be issued to the owner as shown in annex 7 and placed on board the ship for reference at future surveys. The condition evaluation report should be endorsed by the Administration.

ANNEX 1

REQUIREMENTS FOR CLOSE-UP SURVEY AT RENEWAL SURVEYS

AGE ≤ 5 years	5 < AGE ≤ 10 years	10 < AGE ≤ 15 years	AGE > 15 years
1	2	3	4
<p>One transverse web with associated plating and longitudinals in two representative water ballast tanks of each type. This is to include the foremost topside and double-side water ballast tanks on either side. (A)</p> <p>Two selected cargo hold transverse bulkheads, including internal structure of upper and lower stools, where fitted. (C)</p> <p>All cargo hold hatch covers and coaming. (D)</p>	<p>One transverse web with associated plating and longitudinals as applicable in each water ballast tank. (A)</p> <p>Forward and aft transverse bulkhead including stiffening system in a transverse section including topside, hopper side and double-side ballast tanks. (A)</p> <p>25% of ordinary transverse frames in the foremost double-side tanks. (B)</p> <p>One transverse bulkhead in each cargo hold, including internal structure of upper and lower stools, where fitted. (C)</p> <p>All cargo hold hatch covers and coamings. (D)</p> <p>All deck plating and under deck structures inside line of hatch openings between cargo hold hatches. (E)</p>	<p>All transverse webs with associated plating and longitudinals as applicable in each water ballast tank. (A)</p> <p>All transverse bulkheads including stiffening system in each water ballast tank. (A)</p> <p>25% of ordinary transverse frames in the foremost double-side tanks. (B)</p> <p>All cargo hold transverse bulkheads including internal structure of upper and lower stools, where fitted. (C)</p> <p>All cargo hold hatch covers and coamings. (D)</p> <p>All deck plating and under deck structures inside line of hatch openings between cargo hold hatches. (E)</p>	<p>All transverse webs with associated plating and longitudinals as applicable in each water ballast tank. (A)</p> <p>All transverse bulkheads including stiffening system in each water ballast tank. (A)</p> <p>All ordinary transverse frames in all double-side tanks. (B)</p> <p>Areas (C) – (E) as for column 3</p>

- (A) Transverse web or watertight transverse bulkhead in topside, hopper side and double-side ballast tanks. In fore and aft peak tanks transverse web means a complete transverse web frame ring including adjacent structural members.
- (B) Ordinary transverse frame in double-side tanks.
- (C) Cargo hold transverse bulkheads, platings, stiffeners and girders.
- (D) Cargo hold hatch covers and coamings.
- (E) Deck plating and under deck structure inside line of hatch openings between cargo hold hatches.

Note: Close-up survey of transverse bulkheads to be carried out at four levels:

- Level (a) Immediately above the inner bottom and immediately above the line of gussets (if fitted) and shedders for ships without lower stool.
- Level (b) Immediately above and below the lower stool shelf plate (for those ships fitted with lower stools), and immediately above the line of the shedder plates.
- Level (c) About mid-height of the bulkhead.
- Level (d) Immediately below the upper deck plating and immediately adjacent to the upper wing tank, and immediately below the upper stool shelf plate for those ships fitted with upper stools, or immediately below the topside tanks.

ANNEX 2

REQUIREMENTS FOR THICKNESS MEASUREMENTS AT RENEWAL SURVEYS

AGE ≤ 5 years	5 < AGE ≤ 10 years	10 < AGE ≤ 15 years	AGE > 15 years
1	2	3	4
<p>1 Suspect areas</p>	<p>1 Suspect areas</p> <p>2 Within the cargo length area: two transverse sections of deck plating outside line of cargo hatch openings</p> <p>3 Measurement, for general assessment and recording of corrosion pattern, of those structural members subject to close-up survey according to annex 1</p> <p>4 All cargo holds hatch covers and coamings (plating and stiffeners)</p> <p>5 All deck plating inside line of openings between cargo hold hatches</p> <p>6 Wind and water strakes in way of transverse sections considered under point 2 above</p>	<p>1 Suspect areas</p> <p>2 Within the cargo length area:</p> <p>.1 each deck plate outside line of cargo hatch openings</p> <p>.2 two transverse sections, one of which should be in the amidship area, outside line of cargo hatch openings</p> <p>3 Measurement, for general assessment and recording of corrosion pattern, of those structural members subject to close-up survey according to annex 1</p> <p>4 All cargo hold hatch covers and coamings (plating and stiffeners)</p> <p>5 All deck plating inside line of openings between cargo hold hatches</p> <p>6 All wind and water strakes within the cargo length area</p> <p>7 Selected wind and water strakes outside the cargo length area</p>	<p>1 Suspect areas</p> <p>2 Within the cargo length area:</p> <p>.1 each deck plate outside line of cargo hatch openings</p> <p>.2 three transverse sections, one of which should be in the amidship area, outside line of cargo hatch openings</p> <p>.3 each bottom plate</p> <p>3 Points 3 to 7 referred to in column 3</p>

ANNEX 3

OWNER'S INSPECTION REPORT

Structural condition

Ship's name: OWNER'S INSPECTION REPORT - Structural condition For tank/hold no.: Grade of steel: deck: side: bottom: longitudinal bulkhead:						
Elements	Cracks	Buckles	Corrosion	Coating condition	Pitting	Modification/ Other repair
Deck: Bottom: Side: Side framing: Longitudinal bulkheads: Transverse bulkheads:						
Repairs carried out due to: Thickness measurements carried out (dates): Results in general: Overdue surveys: Outstanding conditions of class: Comments:						
Date of inspection: Inspected by: Signature:						

ANNEX 4A

SURVEY PROGRAMME

Basic information and particulars

Name of ship:
IMO number:
Flag State:
Port of registry:
Gross tonnage:
Deadweight (metric tonnes):
Length between perpendiculars (m):
Shipbuilder:
Hull number:
Recognized organization (RO):
RO ship identity:
Date of delivery of the ship:
Owner:
Thickness measurement company:

1 Preamble

1.1 Scope

1.1.1 The present survey programme covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo length area, cargo holds, ballast tanks, including fore and aft peak tanks, required by the Guidelines.

1.1.2 The arrangements and safety aspects of the survey should be acceptable to the attending surveyor(s).

1.2 Documentation

All documents used in the development of the survey programme should be available onboard during the survey as required by section 6.

2 Arrangement of cargo holds, tanks and spaces

This section of the survey programme should provide information (either in the form of plans or text) on the arrangement of cargo holds, tanks and spaces that fall within the scope of the survey.

3 List of cargo holds, tanks and spaces with information on their use, extent of coatings and corrosion protection system

This section of the survey programme should indicate any changes relating to (and should update) the information on the use of the holds and tanks of the ship, the extent of coatings and the corrosion protective system provided in the Survey Planning Questionnaire.

4 Conditions for survey

This section of the survey programme should provide information on the conditions for survey, e.g. information regarding cargo hold and tank cleaning, gas freeing, ventilation, lighting, etc.

5 Provisions and method of access to structures

This section of the survey programme should indicate any changes relating to (and should update) the information on the provisions and methods of access to structures provided in the Survey Planning Questionnaire.

6 List of equipment for survey

This section of the survey programme should identify and list the equipment that will be made available for carrying out the survey and the required thickness measurements.

7 Survey requirements

7.1 Overall survey

This section of the survey programme should identify and list the spaces that should undergo an overall survey for this ship in accordance with 2.4.1 and 2.5.1.

7.2 Close-up survey

This section of the survey programme should identify and list the hull structures that should undergo a close-up survey for this ship in accordance with 2.5.2.

8 Identification of tanks for tank testing

This section of the survey programme should identify and list the cargo holds and tanks that should undergo tank testing for this ship in accordance with 2.7.

9 Identification of areas and sections for thickness measurements

This section of the survey programme should identify and list the areas and sections where thickness measurements should be taken in accordance with 2.6.1.

10 Minimum thickness of hull structures

This section of the survey programme should specify the minimum thickness for hull structures of this ship that are subject to survey, according to .1 or .2:

- .1 Determined from the attached wastage allowance table and the original thickness to the hull structure plans of the ship;
- .2 Given in the following table(s):

Area or location	Original thickness (mm)	as-built	Minimum thickness (mm)	Substantial thickness (mm)	corrosion
Deck					
Plating					
Longitudinals					
Longitudinal girders					
Cross deck plating					
Cross deck stiffeners					
Bottom					
Plating					
Longitudinals					
Longitudinal girders					
Inner bottom					
Plating					
Longitudinals					
Longitudinal girders					
Floors					
Ship side in way of topside tanks					
Plating					
Longitudinals					
Ship side in way of hopper side tanks					
Plating					
Longitudinals					
Ship side in way of double-side tanks (if applicable)					
Plating					
Longitudinals or ordinary transverse frames					
Longitudinal stringers					
Longitudinal bulkhead (if applicable)					
Plating					
Longitudinals (if applicable)					
Longitudinal girders (if applicable)					
Transverse bulkheads					
Plating					
Stiffeners (if applicable)					
Upper stool plating					
Upper stool stiffeners					
Lower stool plating					
Lower stool stiffeners					
Transverse web in topside tanks					
Plating					
Flanges					
Stiffeners					

Transverse web in hopper tanks			
Plating			
Flanges			
Stiffeners			
Transverse web in double-side tanks			
Plating			
Flanges			
Stiffeners			
Hatch covers			
Plating			
Stiffeners			
Hatch coamings			
Plating			
Stiffeners			

Note: The wastage allowance tables should be attached to the survey programme.

11 Thickness measurement company

This section of the survey programme should identify changes, if any, relating to the information on the thickness measurement company provided in the Survey Planning Questionnaire.

12 Damage experience related to the ship

This section of the survey programme should, using the tables provided below, provide details of the hull damages for at least the last three years in way of the cargo holds, ballast tanks and void spaces within the cargo length area. These damages are subject to survey.

Hull damages sorted by location for this ship

Cargo hold, tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair

Hull damages for sister or similar ships (if available) in the case of design related damage

Cargo hold, tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair

13 Areas identified with substantial corrosion from previous surveys

This section of the survey programme should identify and list the areas of substantial corrosion from previous surveys.

14 Critical structural areas and suspect areas

This section of the survey programme should identify and list the critical structural areas and the suspect areas, when such information is available.

15 Other relevant comments and information

This section of the survey programme should provide any other comments and information relevant to the survey.

Appendices

Appendix 1 – List of plans

The provisions of 5.1.4.2 require that the main structural plans of cargo holds and ballast tanks (scantling drawings), including information regarding the use of high-tensile steel (HTS), should be available. This appendix of the survey programme should identify and list the main structural plans which form part of the survey programme.

Appendix 2 – Survey Planning Questionnaire

The Survey Planning Questionnaire (annex 4B), which has been submitted by the owner, should be appended to the survey programme.

Appendix 3 – Other documentation

This part of the survey programme should identify and list any other documentation that forms part of the plan.

Prepared by the owner in co-operation with the Administration for compliance with 5.1.4.

Date: (name and signature of authorized owner's representative)

Date: (name and signature of authorized representative of the Administration)

ANNEX 4B

SURVEY PLANNING QUESTIONNAIRE

1 The following information will enable the owner, in co-operation with the Administration, to develop a Survey Plan complying with the requirements of the Guidelines. It is essential that the owner provides, when completing the present questionnaire, up-to-date information. The present questionnaire, when completed, should provide all information and material required by the Guidelines.

Particulars

Ship's name:
IMO number:
Flag State:
Port of registry:
Owner:
Recognized organization:
Gross tonnage:
Deadweight (metric tonnes):
Date of delivery:

Information on access provision for close-up surveys and thickness measurement

2 The owner should indicate, in the table below, the means of access to the structures subject to close-up survey and thickness measurement. A close-up survey is an examination where the details of structural components are within the close visual inspection range of the attending surveyor, i.e. preferably within reach of hand.

Hold/Tank No.	Structure	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore peak					
A.P.	Aft peak					
Cargo holds	Hatch side coamings					
	Topside sloping plate					
	Upper stool plating					
	Cross deck					
	Double-side tank plating					
	Transverse bulkhead					
	Hopper tank plating					
	Lower stool					
Topside tanks	Tank top					
	Under deck structure					
	Side shell and structure					
	Sloping plate and structure					
Hopper tanks	Webs and bulkheads					
	Hopper sloping plate and structure					
	Side shell and structure					
	Bottom structure					
Double-side tanks	Webs and bulkheads					
	Side shell and structure					
	Inner skin and structure					
	Double bottom structure					
	Upper stool internal structure					
	Lower stool internal structure					
Wing tanks of double ore carriers	Under deck and structure					
	Side shell and structure					
	Side shell vertical web and structure					
	Longitudinal bulkhead and structure					
	Longitudinal bulkhead web and structure					
	Bottom plating and structure					
	Cross ties/stringers					

History of bulk cargoes of a corrosive nature (e.g. high sulphur content)

Owner's inspections

3 Using a format similar to that of the table below (which is given as an example), the owner should provide details of the results of their inspections, for the last 3 years – in accordance with the Guidelines – on all CARGO holds and BALLAST tanks and VOID spaces within the cargo area.

Tank/Hold No.	Corrosion protection (1)	Coating extent (2)	Coating condition (3)	Structural deterioration (4)	Hold and tank history (5)
Cargo holds					
Topside tanks					
Hopper tanks					
Double-side skin tanks					
Double bottom tanks					
Upper stools					
Lower stools					
Wing tanks (ore carriers)					
Fore peak					
Aft peak					
Miscellaneous other spaces:					

Note: Indicate tanks which are used for oil/ballast.

- 1) HC = hard coating; SC = soft coating; A = anodes; NP = no protection
- 2) U = upper part; M = middle part; L = lower part; C = complete
- 3) G = good; F = fair; P = poor; RC = recoated (during the last 3 years)
- 4) N = no findings recorded; Y = findings recorded, description of findings should be attached to this questionnaire
- 5) DR = damage and repair; L = leakages; CV = conversion (description to be attached to this questionnaire)

<p>Name of owner's representative:</p> <p>.....</p> <p>Signature:</p> <p>Date:</p>
--

Reports of port State control inspections

List the reports of port State control inspections containing hull structural related deficiencies, relevant information on rectification of the deficiencies:

Safety management system

List non-conformities related to hull maintenance, including the associated corrective actions:

Name and address of the approved thickness measurement company:

ANNEX 5

PROCEDURES FOR CERTIFICATION OF A COMPANY ENGAGED IN THICKNESS MEASUREMENT OF HULL STRUCTURES

1 Application

This guidance applies for certification of the company which intends to engage in the thickness measurement of hull structures of ships.

2 Procedures for certification

Submission of documents

2.1 The following documents should be submitted to an organization recognized by the Administration for approval:

- .1** outline of the company, e.g. organization and management structure;
- .2** experience of the company on thickness measurement of hull structures of ships;
- .3** technicians' careers, i.e., experience of technicians as thickness measurement operators, technical knowledge and experience of hull structure, etc. Operators should be qualified according to a recognized industrial NDT Standard;
- .4** equipment used for thickness measurement such as ultrasonic testing machines and their maintenance/calibration procedures;
- .5** a guide for thickness measurement operators;
- .6** training programmes for technicians for thickness measurement;
- .7** Measurement record format in accordance with recommended procedures for thickness measurements (see annex 8).

Auditing of the company

2.2 Upon reviewing the documents submitted with satisfactory results, the company should be audited in order to ascertain that the company is duly organized and managed in accordance with the documents submitted, and eventually is capable of conducting thickness measurement of the hull structure of ships.

2.3 Certification is conditional upon an on-board demonstration of thickness measurement as well as satisfactory reporting.

3 Certification

3.1 Upon satisfactory results of both the audit of the company referred to in 2.2 and the demonstration tests referred to in 2.3, the Administration or organization recognized by the Administration should issue a certificate of approval as well as a notice to the effect that the thickness measurement operation system of the company has been certified.

3.2 Renewal/endorsement of the certificate should be made at intervals not exceeding three years by verification that original conditions are maintained.

4 Report of any alteration to the certified thickness measurement operation system

In cases where any alteration to the certified thickness measurement operation system of the company is made, such an alteration should be immediately reported to the organization recognized by the Administration. Re-audit should be made where deemed necessary by the organization recognized by the Administration.

5 Withdrawal of the certification

The certification may be withdrawn in the following cases:

- .1** where the measurements were improperly carried out or the results were improperly reported;
- .2** where the surveyor found any deficiencies in the approved thickness measurement operation systems of the company; and
- .3** where the company failed to report any alteration referred to in 4 to the organization recognized by the Administration as required.

ANNEX 6

SURVEY REPORTING PRINCIPLES

As a principle, for bulk carriers subject to the Guidelines, the surveyor should include the following contents in his report for survey of hull structure and piping systems, as relevant for the survey.

1 General

1.1 A survey report should be generated in the following cases:

- .1** in connection with commencement, continuation and/or completion of periodical hull surveys, i.e. annual, intermediate and renewal surveys, as relevant;
- .2** when structural damages/defects have been found;
- .3** when repairs, renewals or modifications have been carried out; and
- .4** when condition of class (recommendation) has been imposed or has been deleted.

1.2 The reporting should provide:

- .1** evidence that prescribed surveys have been carried out in accordance with applicable requirements;
- .2** documentation of surveys carried out with findings, repairs carried out and condition of class (recommendation) imposed or deleted;
- .3** survey records, including actions taken, which should form an auditable documentary trail. Survey reports should be kept in the survey report file required to be on board;
- .4** information for planning of future surveys; and
- .5** information which may be used as input for maintenance of classification rules and instructions.

1.3 When a survey is split between different survey stations, a report should be made for each portion of the survey. A list of items surveyed, relevant findings and an indication of whether the item has been credited, are to be made available to the next attending surveyor, prior to continuing or completing the survey. Thickness measurement and tank testing carried out is also to be listed for the next surveyor.

2 Extent of the survey

2.1 Identification of compartments where an overall survey has been carried out.

2.2 Identification of locations, in each ballast tank and cargo hold including hatch covers and coamings, where a close-up survey has been carried out, together with information on the means of access used.

2.3 Identification of locations, in each ballast tank and cargo hold including hatch covers and coamings, where thickness measurement has been carried out.

Note: As a minimum, the identification of location of close-up survey and thickness measurement should include a confirmation with description of individual structural members corresponding to the extent of requirements stipulated in Annex A based on type of periodical survey and the ship's age.

Where only partial survey is required, e.g., one transverse web, two selected cargo hold transverse bulkheads, the identification should include location within each ballast tank and cargo hold by reference to frame numbers.

2.4 For areas in ballast tanks and cargo holds where protective coating is found to be in good condition and the extent of close-up survey and/or thickness measurement has been specially considered, structures subject to special consideration should be identified.

2.5 Identification of tanks subject to tank testing.

2.6 Identification of piping systems on deck and within cargo holds, ballast tanks, pipe tunnels, cofferdams and void spaces where:

- .1** examination including internal examination of piping with valves and fittings and thickness measurement, as relevant, has been carried out; and
- .2** operational test to working pressure has been carried out.

3 Result of the survey

3.1 Type, extent and condition of protective coating in each tank, as relevant (rated GOOD, FAIR or POOR) including identification of tanks fitted with anodes.

3.2 Structural condition of each compartment with information on the following, as relevant:

- .1** identification of findings, such as:
 - .1.1** corrosion with description of location, type and extent;
 - .1.2** areas with substantial corrosion;
 - .1.3** cracks/fractures with description of location and extent;
 - .1.4** buckling with description of location and extent; and
 - .1.5** indents with description of location and extent;

- .2 identification of compartments where no structural damages/defects are found. The report may be supplemented by sketches/photos; and
- .3 thickness measurement report should be verified and signed by the surveyor controlling the measurements on board.

4 Actions taken with respect to findings

4.1 Whenever the attending surveyor is of the opinion that repairs are required, each item to be repaired should be identified in a numbered list. Whenever repairs are carried out, details of the repairs effected should be reported by making specific reference to relevant items in the numbered list.

4.2 Repairs carried out should be reported with identification of:

- .1 compartment;
- .2 structural member;
- .3 repair method (i.e. renewal or modification), including:
 - .3.1 steel grades and scantlings (if different from the original); and
 - .3.2 sketches/photos, as appropriate;
- .4 repair extent; and
- .5 non-destructive test (NDT)/tests.

4.3 For repairs not completed at the time of survey, condition of class/recommendation should be imposed with a specific time limit for the repairs. In order to provide correct and proper information to the surveyor attending for survey of the repairs, condition of class/recommendation should be sufficiently detailed with identification of each item to be repaired. For identification of extensive repairs, reference may be made to the survey report.

ANNEX 7

CONDITION EVALUATION REPORT
Issued upon completion of renewal survey

General particulars

Ship's name: Class/Administration identity number:
Previous class/Administration identity number(s):
IMO number:

Port of registry: National flag:
Previous national flag(s):

Deadweight (metric tonnes): Gross tonnage:
National:
ITC (1969):

Date of build: Classification notation:

Date of major conversion:

Type of conversion: Owner:
Previous owner(s)

- 1 The survey reports and documents listed below have been reviewed by the undersigned and found to be satisfactory
- 2 The renewal survey has been completed in accordance with the present Guidelines on (date)

Condition evaluation report completed by	Name Signature	Title
Office	Date	
Condition evaluation report verified by	Name Signature	Title
Office	Date	

Attached reports and documents:

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)

Contents of condition evaluation report

- Part 1 – General particulars: – *See front page*
- Part 2 – Report review: – Where and how survey was done
- Part 3 – Close-up survey: – Extent (which tanks/holds)
- Part 4 – Thickness measurements:
 - Reference to thickness measurement report
 - Summary of where measured
 - Separate form indicating the spaces with substantial corrosion, and corresponding:
 - thickness diminution
 - corrosion pattern
- Part 5 – Tank corrosion prevention system:
 - Separate form indicating:
 - location of coating/anodes
 - condition of coating (if applicable)
- Part 6 – Repairs: – Identification of spaces/areas
- Part 7 – Condition of class/flag State requirements:
- Part 8 – Memoranda:
 - Acceptable defects
 - Any points of attention for future surveys, e.g., for suspect areas
 - Extended annual/intermediate survey due to coating breakdown
- Part 9 – Conclusion: – Statement on evaluation/verification of survey report

Extract of thickness measurements

Reference is made to the thickness measurement report:

Position of substantially corroded tanks/areas ¹ or areas with deep pitting ³	Thickness diminution [%]	Corrosion pattern ²	Remarks: e.g. (e.g., ref. attached sketches)

Notes:

- 1 Substantial corrosion, i.e., 75% – 100% of acceptable margins wasted.
- 2 P = Pitting
C = Corrosion in general
- 3 Any bottom plating with a pitting intensity of 20% or more, with wastage in the substantial corrosion range or having an average depth of pitting of 1/3 or more of actual plate thickness should be noted.

Tank/hold corrosion prevention system

Tank/hold Nos. ¹	Tank/hold corrosion prevention system ²	Coating condition ³	Remarks

Notes:

- 1 All ballast tanks and cargo holds should be listed.
- 2 C = Coating A = Anodes NP = No protection
- 3 Coating condition according to the following standard:
 - GOOD condition with only minor spot rusting.
 - FAIR condition with local breakdown of coating at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for POOR condition.
 - POOR condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration.

If coating condition POOR is given, extended annual surveys should be introduced. This should be noted in part 7 of the Contents of condition evaluation report.

ANNEX 8

RECOMMENDED PROCEDURES FOR THICKNESS MEASUREMENTS

- 1 This annex should be used for recording thickness measurements as required by part B of Annex A.
- 2 Thickness measurement sheet forms TM1-DSBC, TM2-DSBC, TM3-DSBC, TM4-DSBC, TM5-DSBC and TM6-DSBC (appendices 2 to 5) should be used, as appropriate, for recording thickness measurements and these sheets should be bound with the cover sheet of the report of GENERAL PARTICULARS in appendix 1. The maximum allowable diminution should be stated. The maximum allowable diminution could be stated in an attached document.
- 3 Appendices 3 to 5 are guidance diagrams and notes relating to the reporting forms and the procedure for the thickness measurements.

APPENDIX 1
THICKNESS MEASUREMENT REPORT
GENERAL PARTICULARS

Ship's name:
IMO Number:
Administration Identification Number:
Port of registry:
Gross tonnage:
Deadweight:
Date of build:
Classification society:

Name of Company performing the thickness measurement:
Thickness measurement company certified by:
Certificate No.:
Certificate valid from: to
Place of measurement:
First date of measurement:
Last date of measurement:
Renewal survey/intermediate survey* due:
Details of measurement equipment:
Qualification of operator:

Report Number:
Consisting of Forms

Name of operator:	Name of surveyor:
Signature of operator:	Signature of surveyor:
Company official stamp:	Administration official stamp:

* Delete as appropriate.

APPENDIX 2

TM1-DSBC Report on THICKNESS MEASUREMENT OF ALL DECK PLATING, ALL BOTTOM SHEEL PLATING AND SIDE SHELL PLATING*
(* - delete as appropriate)

Ship's name Class Identity No. Report No. IMO No.

STRAKE POSITION	No. or Letter	Org. Thk. mm	Forward Reading				Aft Reading				Mean Diminution %							
			Gauged P	Gauged S	Diminution P mm	Diminution S mm	Diminution P %	Diminution S %	Diminution P mm	Diminution S mm	Diminution P %	Diminution S %	P	S	mm			
12th forward																		
11th																		
10th																		
9th																		
8th																		
7th																		
6th																		
5th																		
4th																		
3rd																		
2nd																		
1st																		
Amidships																		
1st aft																		
2nd																		
3rd																		
4th																		
5th																		
6th																		
7th																		
8th																		
9th																		
10th																		
11th																		
12th																		

Operator's Signature NOTES - See Reverse

NOTES TO REPORT TM1–DSBC

- 1 This report should be used for recording the thickness measurement of:
 - .1 all strength deck plating within cargo length area;
 - .2 all keel, bottom shell plating and bilge plating within the cargo length area;
 - .3 side shell plating including selected wind and water strakes outside cargo length area; and
 - .4 all wind and water strakes within cargo length area.
- 2 The strake position should be cleared as follows:
 - .1 for strength deck indicate the number of the strake of plating inboard from the stringer plate;
 - .2 for bottom plating indicate the number of the strake of plating outboard from the keel plate; and
 - .3 for side shell plating give number of the strake of plating sheerstrake and letter as shown on shell expansion.
- 3 Only the deck plating strakes outside line of openings are to be recorded.
- 4 Measurements should be taken at the forward and aft areas of all plates and where plates cross ballast/cargo tank boundaries separate measurements for the area of plating in way of each type of tank should be recorded.
- 5 The single measurements recorded are to represent the average of multiple measurements.
- 6 The maximum allowable diminution could be stated in an attached document.

TM2-DSBC(i) Report on THICKNESS MEASUREMENT OF SHELL AND DECK PLATING at transverse sections (one, two or three transverse sections)

Ship's name Class Identity No. Report No. IMO No.

STRAKE POSITION	STRENGTH DECK AND SHEERSTRAKE PLATING																	
	FIRST TRANSVERSE SECTION AT FRAME NUMBER				SECOND TRANSVERSE SECTION AT FRAME NUMBER				THIRD TRANSVERSE SECTION AT FRAME NUMBER									
	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %
Stringer Plate																		
1st strake inboard																		
2nd																		
3rd																		
4th																		
5th																		
6th																		
7th																		
8th																		
9th																		
10th																		
11th																		
12th																		
13th																		
14th																		
centre strake																		
sheer strake																		
TOPSIDE TOTAL																		

Operator's Signature NOTES - See Reverse

NOTES TO REPORT TM2-DSBC(i)

- 1 This report should be used for recording the thickness measurement of:

Strength deck plating and sheerstrake plating transverse sections:

One, two or three sections within the cargo length area, comprising the structural items (0), (1) and (2) as shown on the diagrams of typical transverse sections (Appendices 3 and 4).
- 2 Only the deck plating strakes outside line of hatch openings should be recorded.
- 3 The top side area comprises deck plating, stringer plate and sheerstrake (including rounded gunwales).
- 4 The exact frame station of measurement should be stated.
- 5 The single measurements recorded should represent the average of multiple measurements.
- 6 The maximum allowable diminution could be stated in an attached document.

TM2-DSBC(ii) Report on THICKNESS MEASUREMENT OF SHELL AND DECK PLATING at transverse sections (one, two or three transverse sections)

Ship's name: _____ Class Identity No. _____ Report No. _____ IMO No. _____

STRAKE POSITION	SHELL PLATING																		
	FIRST TRANSVERSE SECTION AT FRAME NUMBER				SECOND TRANSVERSE SECTION AT FRAME NUMBER				THIRD TRANSVERSE SECTION AT FRAME NUMBER										
	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %	No. or Letter	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged P S	Diminution P mm %	Diminution S mm %	
1st below sheer strake																			
2nd																			
3rd																			
4th																			
5th																			
6th																			
7th																			
8th																			
9th																			
10th																			
11th																			
12th																			
13th																			
14th																			
15th																			
16th																			
17th																			
18th																			
19th																			
20th																			
keel strake																			
BOTTOM TOTAL																			

Operator's Signature _____ NOTES - See Reverse

NOTES TO REPORT TM2-DSBC(ii)

- 1 This report should be used for recording the thickness measurement of:

Shell plating at transverse sections:

One, two or three sections within the cargo length area, comprising the structural items (3), (4), (5) and (6) as shown on the diagrams of typical transverse sections in appendices 3 and 4.
- 2 The bottom area comprises keel, bottom and bilge plating.
- 3 The exact frame station of measurement should be stated.
- 4 The single measurements recorded should represent the average of multiple measurements.
- 5 The maximum allowable diminution could be stated in an attached document.

NOTES TO REPORT TM3-DSBC

- 1 This report should be used for recording the thickness measurement of:

Longitudinal members at transverse sections:

Two, or three sections within the cargo length area comprising the appropriate structural items (10) to (25) as shown on diagrams of typical transverse sections in appendices 3 and 4.
- 2 The exact frame station of measurement should be stated.
- 3 The single measurements recorded should represent the average of multiple measurements.
- 4 The maximum allowable diminution could be stated in an attached document.

NOTES TO REPORT TM4-DSBC

- 1 This report should be used for recording the thickness measurement:

Transverse structural members, comprising the appropriate structural items (30) to (34) as shown on diagrams of typical transverse sections illustrated in appendices 3 and 4.
- 2 Guidance for areas of measurements is indicated in appendix 5.
- 3 The single measurements recorded should represent the average of multiple measurements.
- 4 The maximum allowable diminution could be stated in an attached document.

NOTES TO REPORT TM5-DSBC

- 1 This report should be used for recording the thickness measurement of:
Watertight transverse bulkheads in cargo holds.
- 2 Guidance for areas of measurements is indicated in appendix 3.
- 3 The single measurements recorded should represent the average of multiple measurements.
- 4 The maximum allowable diminution could be stated in an attached document.

NOTES TO REPORT TM6-DSBC

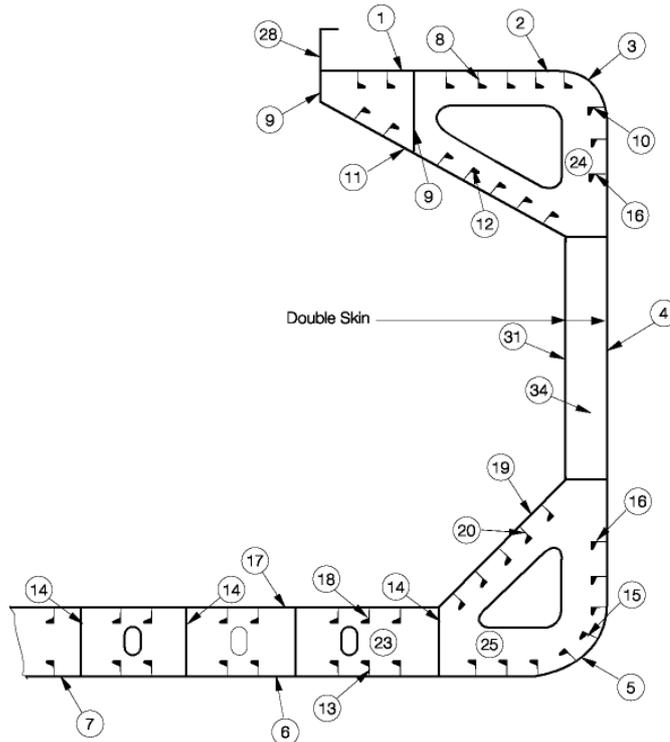
- 1 This report should be used for recording the thickness measurement of:

Miscellaneous structural members including the structural items (40), (41) and (42) as shown on diagrams of typical transverse sections illustrated in Appendix 3.
- 2 Guidance for areas of measurements is indicated in appendix 5.
- 3 The single measurements recorded should represent the average of multiple measurements.
- 4 The maximum allowable diminution could be stated in an attached document.

APPENDIX 3

THICKNESS MEASUREMENT – DOUBLE-SIDE SKIN CONSTRUCTION

Typical transverse section of a double skin bulk carrier with indication of longitudinal and transverse members.



Report on TM2-DSBC(i) and (ii)	
1	Strength deck plating
2	Stringer plate
3	Sheerstrake
4	Side shell plating
5	Bilge plating
6	Bottom shell plating
7	Keel plate

Report on TM3-DSBC			
8	Deck longitudinals	17	Inner bottom plating
9	Deck girders	18	Inner bottom longitudinals
10	Sheerstrake longitudinals	19	Hopper plating
11	Topside tank sloping plating	20	Hopper longitudinals
12	Topside tank sloping plating longitudinals	31	Inner side plating
13	Bottom longitudinals		- Inner side longitudinals, if any
14	Bottom girders		- Horizontal girders in wing ballast tanks
15	Bilge longitudinals		
16	Side shell longitudinals, if any		

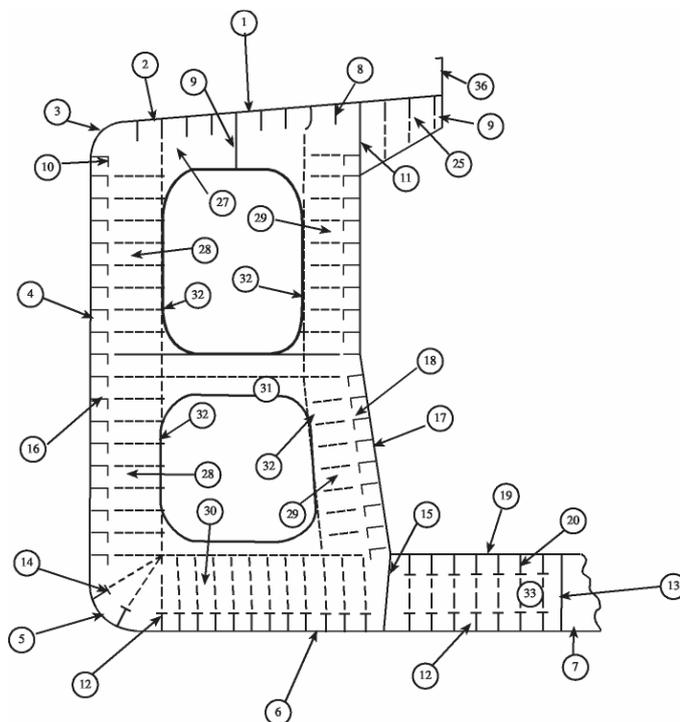
Report on TM4-DSBC	
23	Double bottom tank floors
25	Hopper side tank transverse
34	Transverse web frame
	- Topside tank transverse

Report on TM6-DSBC	
28	Hatch coamings
	- Deck plating between hatches
	- Hatch covers

APPENDIX 4

THICKNESS MEASUREMENT - ORE CARRIERS

Typical transverse section of an ore carrier with indication of longitudinal and transverse members.



Report on TM2-DSBC(i) and (ii)	
1	Strength deck plating
2	Stringer plate
3	Sheerstrake
4	Side shell plating
5	Bilge plating
6	Bottom shell plating
7	Keel plate

Report on TM6-DSBC	
36	Hatch coamings
37	Deck plating between hatches
38	Hatch covers
39	
40	

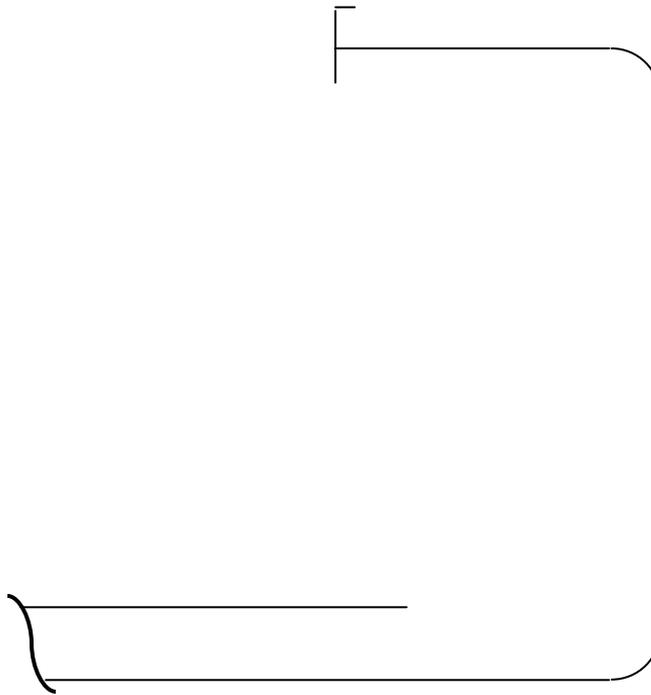
Report on TM3-DSBC	
8	Deck longitudinals
9	Deck girders
10	Sheerstrake longitudinals
11	Longitudinal bulkhead top strake
12	Bottom longitudinals
13	Bottom girders
14	Bilge longitudinals
15	Longitudinal bulkhead lower strake
16	Side shell longitudinals
17	Longitudinal bulkhead plating (remainder)
18	Longitudinal bulkhead longitudinals
19	Inner bottom plating
20	Inner bottom longitudinals
21	
22	
23	
24	

Report on TM4-DSBC	
25	Deck transverse centre tank
26	Bottom transverse centre tank
27	Deck transverse wing tank
28	Side shell vertical web
29	Longitudinal bulkhead vertical web
30	Bottom transverse wing tank
31	Struts
32	Transverse web face plate
33	Double bottom floors
34	
35	

APPENDIX 5

THICKNESS MEASUREMENT – DOUBLE-SIDE SKIN CONSTRUCTION

Transverse section outline: the diagram may be used for those ships where the diagrams given in appendices 3 and 4 are not suitable.



Report on TM2-DSBC(i) and (ii)	
1	Strength deck plating
2	Stringer plate
3	Sheerstrake
4	Side shell plating
5	Bilge plating
6	Bottom shell plating
7	Keel plate

Report on TM3-DSBC	
8	Deck longitudinals
9	Deck girders
10	Sheerstrake longitudinals
11	Topside tank sloping plating
12	Topside tank sloping plating longitudinals
13	Bottom longitudinals
14	Bottom girders
15	Bilge longitudinals
16	Side shell longitudinals, if any

17	Inner bottom plating
18	Inner bottom longitudinals
19	Hopper plating
20	Hopper longitudinals
31	Inner side plating
	- Inner side longitudinals, if any
	- Horizontal girders in wing ballast tanks

Report on TM4-DSBC	
23	Double bottom tank floors
25	Hopper side tank transverses
34	Transverse web frame
	- Topside tank transverses

Report on TM6-DSBC	
28	Hatch coamings
	- Deck plating between hatches
	- Hatch covers

ANNEX 9

GUIDELINES FOR TECHNICAL ASSESSMENT IN CONJUNCTION WITH PLANNING FOR ENHANCED SURVEYS OF BULK CARRIERS

1 INTRODUCTION

These guidelines contain information and suggestions concerning technical assessments, which may be of use in conjunction with the planning of enhanced surveys of double skin bulk carriers. As indicated in 5.1.6, the guidelines are a recommended tool which may be invoked at the discretion of the Administration, when considered necessary and appropriate, in conjunction with the preparation of the required survey programme.

2 PURPOSE AND PRINCIPLES

2.1 Purpose

2.1.1 The purpose of the technical assessments described in these guidelines is to assist in identifying critical structural areas, nominating suspect areas and in focusing attention on structural elements or areas of structural elements which may be particularly susceptible to, or evidence a history of, wastage or damage. This information may be useful in nominating locations, areas holds and tanks for thickness measurement, close-up survey and tank testing.

2.1.2 Critical structural areas are locations which have been identified from calculations to require monitoring or from the service history of the subject ship or from similar or sister ships (if available) to be sensitive to cracking, buckling or corrosion which would impair the structural integrity of the ship.

2.2 Minimum requirements

However, these guidelines may not be used to reduce the requirements pertaining to thickness measurement, close-up survey and tank testing contained in annexes 1 and 2 of part B and in paragraph 2.7, respectively, which, in all cases, should be complied with as a minimum.

2.3 Timing

As with other aspects of survey planning, the technical assessments described in these guidelines should be worked out by the owner or operator in co-operation with the Administration well in advance of the commencement of the renewal survey, i.e. prior to commencing the survey and normally at least 12 to 15 months before the survey's completion due date.

2.4 Aspects to be considered

2.4.1 Technical assessments, which may include quantitative or qualitative evaluation of relative risks of possible deterioration, of the following aspects of a particular ship may be used as a basis for the nomination of holds, tanks and areas for survey:

- .1 design features such as stress levels on various structural elements, design details and extent of use of high-tensile steel;
- .2 former history with respect to corrosion, cracking, buckling, indents and repairs for the particular ship as well as similar vessels, where available; and
- .3 information with respect to types of cargo carried, use of different holds/tanks for cargo/ballast, protection of holds and tanks and condition of coating, if any.

2.4.2 Technical assessments of the relative risks of susceptibility to damage or deterioration of various structural elements and areas are to be judged and decided on the basis of recognized principles and practices, such as may be found in references 2, 3 and 4.

3 TECHNICAL ASSESSMENT

3.1 General

3.1.1 There are three basic types of possible failure, which may be the subject of technical assessment in connection with planning of surveys; corrosion, cracks and buckling. Contact damages are not normally covered by the survey planning since indents are usually noted in memoranda and assumed to be dealt with as a normal routine by surveyors.

3.1.2 Technical assessments performed in conjunction with the survey planning process should, in principle, be as shown schematically in figure 1. The approach is basically an evaluation of the risk in the following aspects based on the knowledge and experience related to:

- .1 design; and
- .2 corrosion.

3.1.3 The design should be considered with respect to structural details, which may be susceptible to buckling or cracking as a result of vibration, high stress levels or fatigue.

3.1.4 Corrosion is related to the ageing process, and is closely connected with the quality of corrosion prevention systems fitted at new building, and subsequent maintenance during the service life. Corrosion may also lead to cracking and/or buckling.

3.2 Methods

3.2.1 Design details

3.2.1.1 Damage experience related to the ship in question and sister and/or similar ships, where available, is the main source of information to be used in the process of planning. In addition, a selection of structural details from the design drawings is to be included.

3.2.1.2 Typical damage experience to be considered will consist of:

- .1 number, extent, location and frequency of cracks; and
- .2 location of buckles.

3.2.1.3 This information may be found in the survey reports and/or the owner's files, including the results of the owner's own inspections. The defects should be analyzed, noted and marked on sketches.

3.2.1.4 In addition, general experience should be utilized. Also, reference should be made to reference 2, which contains a catalogue of typical damages and proposed repair methods for various structural details on single skin bulk carriers. Reference should also be made to reference 3, which contains catalogues of typical damages and proposed repair methods for double hull oil tanker structural details which may to some extent be similar to structural details in double skin bulk carriers. Such figures should be used together with a review of the main drawings, in order to compare with the actual structure and search for similar details that may be susceptible to damage. In particular, chapter 3 of reference 3 deals with various aspects specific to double hull tankers, such as stress concentration locations, misalignment during construction, corrosion trends, fatigue considerations and areas requiring special attention, while chapter 4 of reference 3 addresses experience gained on structural defects in double hulls (chemical tankers, OBO carriers, ore/oil carriers, gas carriers), which should also be considered in working out the survey planning.

3.2.1.5 The review of the main structural drawings, in addition to using the above-mentioned figures, should include checking for typical design details where cracking has been experienced. The factors contributing to damage should be carefully considered.

3.2.1.6 The use of high-tensile steel (HTS) is an important factor. Details showing good service experience where ordinary, mild steel has been used may be more susceptible to damage when HTS, and its higher associated stresses, are utilized. There is extensive and, in general, good experience, with the use of HTS for longitudinal material in deck and bottom structures. Experience in other locations, where the dynamic stresses may be higher, is less favourable, e.g. side structures.

3.2.1.7 In this respect, stress calculations of typical and important components and details, in accordance with relevant methods, may prove useful and should be considered.

3.2.1.8 The selected areas of the structure identified during this process should be recorded and marked on the structural drawings to be included in the Survey Programme.

3.2.2 Corrosion

3.2.2.1 In order to evaluate relative corrosion risks, the following information should generally be considered:

- .1** usage of tanks, holds and spaces;
- .2** condition of coatings;
- .3** cleaning procedures;
- .4** previous corrosion damage;

- .5 ballast use and time for cargo holds;
- .6 risk of corrosion in cargo holds and ballast tanks; and
- .7 location of ballast tanks adjacent to heated fuel oil tanks.

3.2.2.2 Reference 4 gives definitive examples which can be used for judging and describing coating condition, using typical pictures of conditions.

3.2.2.3 The evaluation of corrosion risks should be based on information in both reference 2 and reference 4, as far as applicable to double-side skin construction, together with relevant information on the anticipated condition of the ship as derived from the information collected in order to prepare the Survey Programme and the age of the ship. The various holds, tanks and spaces should be listed with the corrosion risks nominated accordingly.

3.2.3 Locations for close-up survey and thickness measurement

3.2.3.1 On the basis of the table of corrosion risks and the evaluation of design experience, the locations for initial close-up survey and thickness measurement (areas and sections) may be nominated.

3.2.3.2 The sections subject to thickness measurement should normally be nominated in tanks, holds and spaces where corrosion risk is judged to be the highest.

3.2.3.3 The nomination of tanks, holds and spaces for close-up survey should initially be based on highest corrosion risk, and should always include ballast tanks. The principle for the selection should that the extent is increased by age or where information is insufficient or unreliable.

REFERENCES

- 1** IACS, “Unified Requirement Z10.5, “Hull Surveys of Double Skin Bulk Carriers””
- 2** IACS, “Bulk Carriers: Guidelines for Surveys, Assessment and Repair of Hull Structures, January 2002”
- 3** TSCF, “Guidelines for the Inspection and Maintenance of Double Hull Tanker Structures, 1995”
- 4** TSCF, “Guidance Manual for Tanker Structures, 1997”

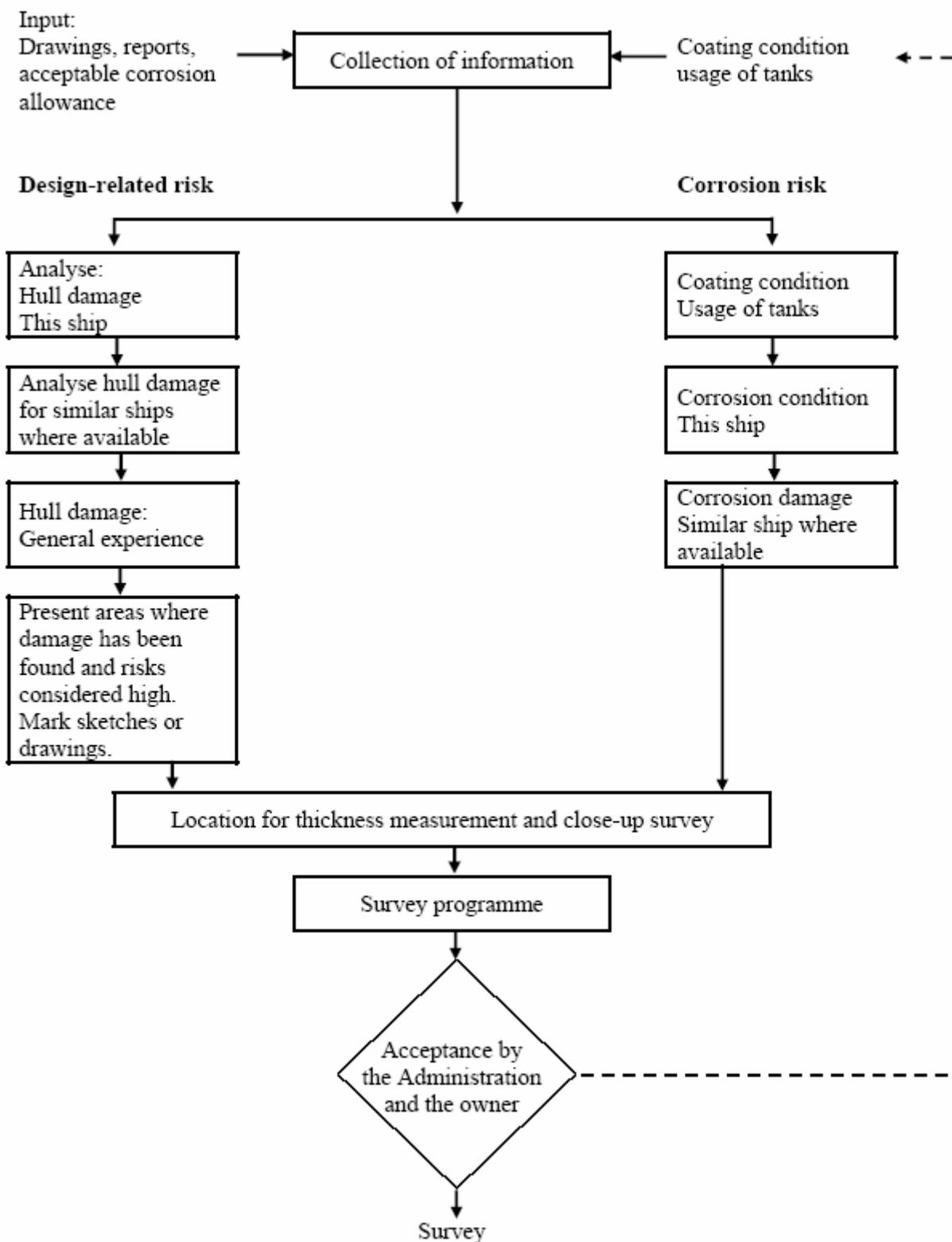


Figure 1 – Technical assessment and the survey planning process

ANNEX 10

REQUIREMENTS FOR EXTENT OF THICKNESS MEASUREMENTS AT THOSE AREAS OF SUBSTANTIAL CORROSION OF BULK CARRIERS WITH DOUBLE-SIDE SKIN CONSTRUCTION WITHIN THE CARGO LENGTH AREA

TABLE 1 – BOTTOM, INNER BOTTOM AND HOPPER STRUCTURE		
Structural member	Extent of measurement	Pattern of measurement
Bottom, inner bottom and hopper structure plating	Minimum of three bays across double bottom tank, including aft bay Measurements around and under all suction bell mouths	Five-point pattern for each panel between longitudinals and floors
Bottom, inner bottom and hopper structure longitudinals	Minimum of three longitudinals in each bay where bottom plating measured	Three measurements in line across flange and three measurements on the vertical web
Bottom girders, including the watertight ones	At fore and aft watertight floors and in centre of tanks	Vertical line of single measurements on girder plating with one measurement between each panel stiffener, or a minimum of three measurements
Bottom floors, including the watertight ones	Three floors in the bays where bottom plating measured, with measurements at both ends and middle	Five-point pattern over two square metre area
Hopper structure web frame ring	Three floors in bays where bottom plating measured	Five-point pattern over one square metre of plating Single measurements on flange
Hopper structure transverse watertight bulkhead or swash bulkhead	– lower 1/3 of bulkhead	– five-point pattern over one square metre of plating
	– upper 2/3 of bulkhead	– five-point pattern over two square metre of plating
	– stiffeners (minimum of three)	– For web, five-point pattern over span (two measurements across web at each end and one at centre of span). For flange, single measurements at each end and centre of span
Panel stiffening	Where applicable	Single measurements

TABLE 2 – DECK STRUCTURE INCLUDING CROSS STRIPS, MAIN CARGO HATCHWAYS, HATCH COVERS, COAMINGS AND TOPSIDE TANKS		
Structural member	Extent of measurement	Pattern of measurement
Cross deck strip plating	Suspect cross deck strip plating	Five-point pattern between under deck stiffeners over 1 metre length
Under deck stiffeners	Transverse members Longitudinal member	Five-point pattern at each end and mid span Five-point pattern on both web and flange
Hatch covers	Side and end skirts, each three locations Three longitudinal bands, outboard strakes (2) and centreline strake (1)	Five-point pattern at each location Five-point measurement each band
Hatch coamings	Each side and end of coaming, one band lower 1/3, one band upper 2/3 of coaming	Five-point measurement each band i.e. end or side coaming
Topside ballast tanks	a) watertight transverse bulkheads: - Lower 1/3 of bulkhead - Upper 2/3 of bulkhead - Stiffeners	Five-point pattern over 1 sq. metre of plating Five-point pattern over 1 sq. metre of plating Five-point pattern over 1 metre length
Topside ballast tanks	b) two representative swash transverse bulkheads: - Lower 1/3 of bulkhead - Upper 2/3 of bulkhead - Stiffeners	Five-point pattern over 1 sq. metre of plating Five-point pattern over 1 sq. metre of plating Five-point pattern over 1 metre length
Topside ballast tanks	c) three representative bays of slope plating: - Lower 1/3 of tank - Upper 2/3 of tank	Five-point pattern over 1 sq. metre of plating Five point pattern over 1 sq. metre of plating
Topside ballast tanks	d) Longitudinals, suspect and adjacent	Five point pattern on both web and flange over 1 metre length
Main deck plating	Suspect plates and adjacent (4)	Five-point pattern over 1 sq. metre of plating
Main deck longitudinal	Suspect plates	Five point pattern on both web and flange over 1 metre length
Web frames/transverses	Suspect plates	Five-point pattern over 1 sq. metre

TABLE 3 – STRUCTURE IN DOUBLE-SIDE BALLAST TANKS		
Structural member	Extent of measurement	Pattern of measurement
Side shell and inner plating: – Upper strake and strakes in way of horizontal girders – All other strakes	– Plating between each pair of transverse frames / longitudinals in a minimum of three bays (along the tank) – Plating between every third pair of longitudinals in same three bays	– Single measurement – Single measurement
Side shell and inner side transverse frames / longitudinals on: – upper strake – all other strakes	– Each transverse frame / longitudinal in same three bays – Every third transverse frame / longitudinal in same three bays	– Three measurements across web and 1 measurement on flange – Three measurements across web and 1 measurement on flange
Transverse frames / longitudinals: – brackets	Minimum of three at top, middle and bottom of tank in same three bays	Five-point pattern over area of bracket
Vertical web and transverse bulkheads: – strakes in a way of horizontal girders – other strakes	– Minimum of two webs and both transverse bulkheads – Minimum of two webs and both transverse bulkheads	– Five-point pattern over approx. two square metre area – Two measurements between each pair of vertical stiffeners
Horizontal girders	Plating on each girder in a minimum of three bays	Two measurements between each pair of longitudinal girder stiffeners
Panel stiffening	Where applicable	Single measurements

TABLE 4 – TRANSVERSE BULKHEADS IN CARGO HOLDS

Structural member	Extent of measurement	Pattern of measurement
Lower stool, where fitted	<ul style="list-style-type: none"> – Transverse band within 25 mm of welded connection to inner bottom – Transverse bands within 25 mm of welded connection to shelf plate 	<ul style="list-style-type: none"> – Five-point pattern between stiffeners over one metre length – Five-point pattern between stiffeners over one metre length
Transverse bulkheads	<ul style="list-style-type: none"> – Transverse band at approximately mid height – Transverse band at part of bulkhead adjacent to upper deck or below upper stool shelf plate (for those ships fitted with upper stools) 	<ul style="list-style-type: none"> – Five-point pattern over one square metre of plating – Five-point pattern over one square metre of plating

ANNEX 11

**STRENGTH OF CARGO HATCH COVER SECURING ARRANGEMENTS
FOR BULK CARRIERS**

1 Securing devices

The strength of securing devices should comply with the following requirements:

- .1 Panel hatch covers should be secured by appropriate devices (bolts, wedges or similar) suitably spaced alongside the coamings and between cover elements. Arrangement and spacing should be determined with due attention to the effectiveness for weather-tightness, depending upon the type and the size of the hatch cover, as well as on the stiffness of the cover edges between the securing devices.

- .2 The net sectional area of each securing device is not to be less than:

$$A = 1.4 a / f \text{ (cm}^2\text{)}$$

where:

- a = spacing between securing devices not to be taken less than 2 metres
- f = $(\sigma_Y / 235)^e$
- σ_Y = specified minimum upper yield stress in N/mm^2 of the steel used for fabrication, not to be taken greater than 70% of the ultimate tensile strength
- e = 0.75 for $\sigma_Y > 235$
= 1.0 for $\sigma_Y \leq 235$

Rods or bolts should have a net diameter not less than 19 mm for hatchways exceeding 5 m^2 in area.

- .3 Between cover and coaming and at cross-joints, a packing line pressure sufficient to obtain weathertightness should be maintained by the securing devices. For packing line pressures exceeding 5 N/mm, the cross section area should be increased in direct proportion. The packing line pressure should be specified.

- .4 The cover edge stiffness should be sufficient to maintain adequate sealing pressure between securing devices. The moment of inertia, I, of edge elements be less than:

$$I = 6 p a^4 \text{ (cm}^4\text{)}$$

where:

- p = packing line pressure in N/mm, minimum 5 N/mm
- a = spacing in m of securing devices

- .5 Securing devices should be of reliable construction and securely attached to the hatchway coamings, decks or covers. Individual securing devices on each cover are to have approximately the same stiffness characteristics.
- .6 Where rod cleats are fitted, resilient washers or cushions should be incorporated.
- .7 Where hydraulic cleating is adopted, a positive means should be provided to ensure that it remains mechanically locked in the closed position in the event of failure of the hydraulic system.

2 Stoppers

- 2.1 Nos. 1 and 2 hatch covers should be effectively secured, by means of stoppers, against the transverse forces arising from a pressure of 175 kN/m^2 .
- 2.2 No. 2 hatch covers should be effectively secured, by means of stoppers, against the longitudinal forces acting on the forward end arising from a pressure of 175 kN/m^2 .
- 2.3 No. 1 hatch cover should be effectively secured, by means of stoppers, against the longitudinal forces acting on the forward end arising from a pressure of 230 kN/m^2 . This pressure may be reduced to 175 kN/m^2 if a forecandle is fitted.
- 2.4 The equivalent stress in stoppers and their supporting structures and calculated in the throat of the stopper welds is not to exceed the allowable value of $0.8 \sigma_Y$.

3 Materials and welding

Where stoppers or securing devices are fitted to comply with this annex, they should be manufactured of materials, including welding electrodes, to the satisfaction of the Administration.

ANNEX 12

PROCEDURAL REQUIREMENTS FOR THICKNESS MEASUREMENTS

1 General

Thickness measurements required in the context of hull structural surveys, if not carried out by the society itself should be witnessed by a surveyor. The attendance of the surveyor should be recorded. This also applies to thickness measurements taken during voyages.

2 Survey meeting

2.1 Prior to commencement of the renewal or intermediate survey, a meeting should be held between the attending surveyor(s), the owner's representative(s) in attendance and the thickness measurement firm's representative(s) so as to ensure the safe and efficient execution of the surveys and thickness measurements to be carried out on board.

2.2 Communication with the thickness measurement operator(s) and owner's representative(s) should be agreed during the meeting, with respect to the following:

- .1** reporting of thickness measurements on regular basis;
- .2** prompt notification to the surveyor in case of findings such as:
 - .2.1** excessive and/or extensive corrosion or pitting/grooving of any significance;
 - .2.2** structural defects like buckling, fractures and deformed structures;
 - .2.3** detached and/or holed structure; and
 - .2.4** corrosion of welds.

2.3 The survey report should indicate where and when the meeting took place and who attended (the name of the surveyor(s), the owner's representative(s) and the thickness measurement firm's representative(s)).

3 Monitoring of the thickness measurement process onboard

3.1 The surveyor should decide final extent and location of thickness measurements after overall survey of representative spaces onboard.

3.2 In case the owner prefers to commence the thickness measurements prior to the overall survey, then the surveyor should advise that the planned extent and locations of thickness measurements are subject to confirmation during the overall survey. Based on findings, the surveyor may require additional thickness measurements to be taken.

3.3 The surveyor should direct the gauging operation by selecting locations such that readings taken represent, on average, the condition of the structure for that area.

3.4 Thickness measurements taken mainly to evaluate the extent of corrosion, which may affect the hull girder strength, should be carried out in a systematic manner such that all longitudinal structural members are gauged, as required.

3.5 Where thickness measurements indicate substantial corrosion or wastage in excess of allowable diminution, the surveyor should direct locations for additional thickness measurements in order to delineate areas of substantial corrosion and to identify structural members for repairs/renewals.

3.6 Thickness measurements of structures in areas where close-up surveys are required should be carried out simultaneously with close-up survey.

4 Review and verification

4.1 Upon completion of the thickness measurements, the surveyor should confirm that no further gaugings are needed, or specify additional gaugings.

4.2 Where these guidelines allow the extent of thickness measurements to be reduced after special considerations by the surveyor, these special considerations should be reported, where appropriate.

4.3 In case thickness measurements are partly carried out, the extent of remaining thickness measurements should be reported for the use of the next surveyor.”

ANNEX 2

JUSTIFICATION FOR EXPANDING THE SCOPE OF THE WORK PROGRAMME ITEM ON AMENDMENTS TO RESOLUTION A.744(18)

1 Scope of the proposal

1.1 Annex A of the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (ESP Guidelines) (resolution A.744(18), as amended), for bulk carriers having single-side skin construction should be further amended in order to harmonize it with the newly developed part B of Annex A of the aforementioned guidelines, once adopted.

1.2 Annex B of the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (ESP Guidelines) (resolution A.744(18), as amended), for double-hull and single-hull oil tankers should be further reviewed and amended, if adopted, in order to:

- .1 resolve the situation where different requirements exist in the ESP Guidelines (resolution A.744(18) and relevant IACS survey guidelines (UR Z10 series)); and
- .2 harmonize the relevant provisions with the IACS survey guidelines (UR Z.10 series), as presented in document DE 49/3/2, which have been well established for conducting surveys in a thorough, uniform and transparent manner.

2 Compelling need

An expansion of the work programme item is necessary to enable the Sub-Committee to develop amendments to the ESP Guidelines to harmonize the requirements contained in the aforementioned guidelines with those of the relevant IACS Unified Requirements (UR Z.10 series) in order to ensure consistent implementation of the relevant IMO instruments.

3 Analysis of the issues involved, having regard to the costs to the maritime industry and global legislative and administrative burdens

3.1 The purpose of this harmonization would be primarily to ensure a consistent application of the requirements by ship surveyors, which have been complicated by the different provisions in IMO instruments and IACS Unified Requirements (UR Z.10 series).

3.2 Since any proposed new provisions will be related to ship surveys, there will not be any cost or administrative or legal burden.

4 Benefits

Administrations or recognized organizations acting on their behalf, will apply the aforementioned requirements in a uniform manner, and shipowners and surveyors will benefit by being provided with consistent and unambiguous requirements.

5 Priority and target completion date

5.1 This matter should have a high priority in view of the considerable concern of Administrations, recognized organizations and shipowners and in order to provide for uniform methods to survey oil tankers and bulk carriers.

5.2 It is expected that two sessions will be needed to properly deal with this matter in the DE Sub-Committee.

6 Specific indication of action required

Develop a set of amendments to the ESP Guidelines to harmonize the relevant IMO and IACS survey requirements.

7 Remarks on the criteria for general acceptance

- .1 The subject of the proposal is within the scope of IMO's objectives.
- .2 The item is within the relevant provisions of the Strategic plan for the Organization and the High-level action plan.
- .3 Adequate industry standards do exist, but do not fully conform with the IMO requirements.
- .4 It is believed that the benefits do justify the proposed action.

8 Identification of which subsidiary bodies are essential to complete the work

The work should be accomplished by the DE Sub-Committee.

ANNEX 3

**DRAFT RESOLUTION MSC.[...](83)
(adopted on [...] October 2007)**

**ADOPTION OF PERFORMANCE STANDARD FOR PROTECTIVE COATINGS
FOR VOID SPACES ON BULK CARRIERS AND OIL TANKERS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

HAVING ADOPTED, by resolution MSC.215(82), the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers and by resolution MSC.216(82), amended SOLAS regulation II-1/3-2 to make the performance standard mandatory;

RECOGNIZING the need to also develop a performance standard for protective coatings for void spaces on bulk carriers and oil tankers,

HAVING CONSIDERED, at its [eighty-third] session, the proposed Performance standard for protective coatings for void spaces on bulk carriers and oil tankers,

1. ADOPTS the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers, the text of which is set out in the Annex to the present resolution;
2. INVITES Member Governments to utilize the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers when applying protective coatings to void spaces on bulk carriers and oil tankers.

ANNEX

PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR VOID SPACES ON BULK CARRIERS AND OIL TANKERS

1 PURPOSE

This standard provides technical requirements for protective coatings for void spaces constructed of steel in bulk carriers and oil tankers.

2 DEFINITIONS

For the purpose of this standard, the following definitions apply:

- 2.1 *Dew point* is the temperature at which air is saturated with moisture.
- 2.2 *DFT* is dry film thickness.
- 2.3 *Dust* is loose particle matter present on a surface prepared for painting, arising from blast-cleaning or other surface preparation processes, or resulting from the action of the environment.
- 2.4 *Edge grinding* is the treatment of edge before secondary surface preparation.
- 2.5 “*GOOD*” *condition* is the condition with minor spot rusting as defined in resolution A.744(18).
- 2.6 *Hard coating* is a coating that chemically converts during its curing process or a non-convertible air drying coating which may be used for maintenance purposes. It can be either inorganic or organic.
- 2.7 *NDFT* is the nominal dry film thickness. 90/10 practice means that 90% of all thickness measurements should be greater than or equal to NDFT and none of the remaining 10% measurements should be below 0.9 x NDFT.
- 2.8 *Primer coat* is the first coat of the coating system applied in the shipyard after shop primer application.
- 2.9 *Shop primer* is the prefabrication primer coating applied to steel plates, often in automatic plants (and before the first coat of a coating system).
- 2.10 *Stripe coating* is painting of edges, welds, hard to reach areas, etc., to ensure good paint adhesion and proper paint thickness in critical areas.
- 2.11 *Target useful life* is the target value, in years, of the durability for which the coating system is designed.

2.12 *Technical Data Sheet* is paint manufacturers' Product Data Sheet which contains detailed technical instruction and information relevant to the coating and its application.

2.13 *Totally enclosed space* is a space which has no means of access and no ventilation.

2.14 *Void space* is an enclosed space below the bulkhead deck, within and forward of, the cargo area of oil tankers or the cargo length area of bulk carriers, excluding:

- .1 a dedicated seawater ballast tank;
- .2 a space for the carriage of cargo;
- .3 a space for the storage of any substance (e.g., oil fuel, fresh water, provisions);
- .4 a space for the installation of any machinery (e.g., cargo pump, ballast pump, bow thruster);
- .5 any space in normal use by personnel; and
- .6 a double-side skin space of bulk carriers of 150 m in length and upwards which shall comply with the Performance standard for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers adopted by MSC.215(82).

For the purpose of this regulation, "cargo area" and "cargo length area" are as defined in resolution A.744(18).

3 GENERAL PRINCIPLES

3.1 The ability of the coating system to reach its target useful life depends on the type of coating system, steel preparation, application and coating inspection and maintenance. All these aspects contribute to the good performance of the coating system.

3.2 Inspection of surface preparation and coating processes should be agreed upon between the shipowner, the shipyard and the coating manufacturer and presented to the Administration for review. Clear evidence of these inspections should be reported and be included in the Coating Technical File (CTF) (see paragraph 3.4).

3.3 When considering the standard provided in section 4, the following should be taken into account:

- .1 it is essential that specifications, procedures and the various different steps in the coating application process (including, but not limited to, surface preparation) are strictly applied by the shipbuilder in order to prevent premature decay and/or deterioration of the coating system;
- .2 the coating performance can be improved by adopting measures at the ship design stage such as reducing scallops, using rolled profiles, avoiding complex geometric

configurations and ensuring that the structural configuration permits easy access for tools and to facilitate cleaning, drainage and drying of the space to be coated; and

- .3 the coating performance standard provided in this document is based on experience from manufacturers, shipyards and ship operators; it is not intended to exclude suitable alternative coating systems, providing a performance at least equivalent to that specified in this Standard is demonstrated. Acceptance criteria for alternative systems are provided in section 8.

3.4 Coating Technical File

3.4.1 Specification of the coating system applied to void spaces in bulk carriers and oil tankers, record of the shipyard's and shipowner's coating work, detailed criteria for coating selection, job specifications, inspection, maintenance and repair should be documented in the Coating Technical File, which should be reviewed by the Administration or an organization recognized by the Administration.

3.4.2 *New construction stage*

The Coating Technical File should contain at least the following items relating to this Standard and should be delivered by the shipyard at the new ship construction stage:

- .1 copy of Statement of Compliance or Type Approval Certificate;
- .2 copy of Technical Data Sheet, including:
 - .1 product name and identification mark and/or number;
 - .2 materials, components and composition of the coating system, colours;
 - .3 minimum and maximum dry film thickness;
 - .4 application methods, tools and/or machines;
 - .5 condition of surface to be coated (de-rusting grade, cleanliness, profile, etc.); and
 - .6 environmental limitations (temperature and humidity);
- .3 shipyard work records of coating application, including:
 - .1 applied actual space and area (in square metres) of each void space;
 - .2 applied coating system;
 - .3 time of coating, thickness, number of layers, etc.;
 - .4 ambient condition during coating; and
 - .5 method of surface preparation;
- .4 procedures for inspection and repair of coating system during ship construction;
- .5 coating log issued by the coating inspector, stating that the coating was applied in accordance with the specifications to the satisfaction of the coating supplier representative and specifying deviations from the specifications (example of daily log and non-conformity report, see annex 2);

- .6 shipyard's verified inspection report, including:
 - .1 completion date of inspection;
 - .2 result of inspection;
 - .3 remarks (if given);
 - .4 inspector signature; and
- .7 procedures for in-service maintenance and repair of coating system.

3.4.3 Maintenance, repair and partial re-coating

Maintenance, repair and partial re-coating activities should be recorded in the Coating Technical File in accordance with the relevant section of the guidelines for coating maintenance and repair*.

3.4.4 Re-coating

If full re-coating is carried out, the items specified in paragraph 3.4.2 should be recorded in the Coating Technical File.

3.4.5 The Coating Technical File should be kept on board and maintained throughout the life of the ship.

3.5 Health and safety

The shipyard is responsible for implementation of national regulations to ensure the health and safety of individuals and to minimize the risk of fire and explosion.

4 COATING STANDARD

4.1 Performance standard

This Standard is based on specifications and requirements which intend to provide a target useful coating life of 15 years, which is considered to be the time period, from initial application, over which the coating system is intended to remain in "GOOD" condition. The actual useful life will vary, depending on numerous variables including actual conditions encountered in service.

4.2 Standard application

4.2.1 Protective coatings for the following void spaces should comply with the requirements in this Standard:

- .1 in bulk carriers:
 - .1 double bottom pipe passages / pipe tunnels;

* To be developed by the Organization.

- .2 small void spaces located behind gusset or shedder plates at the bottom of corrugation bulkheads with the exception of totally enclosed spaces;
 - .3 other small void spaces in cargo tanks, with the exception of totally enclosed spaces;
 - .4 lower transverse stool of transverse bulkheads, with the exception of totally enclosed spaces; and
 - .5 upper transverse stool of transverse bulkheads, with the exception of totally enclosed spaces; and
- .2 in oil tankers:
- .1 forward cofferdam/cofferdam separating cargo from forepeak;
 - .2 cofferdam in cargo area/cofferdam separating incompatible cargoes;
 - .3 aft cofferdam;
 - .4 duct keel/pipe tunnels;
 - .5 lower bulkhead stools; and
 - .6 upper bulkhead stools.

4.2.2 Protective coatings for the following void spaces should comply with the requirements in the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers (resolution MSC.215(82)):

- .1 in bulk carriers:
 - .1 double-side skin spaces in ships of less than 150 m in length; and
 - .2 upper and lower side void spaces and double bottoms void spaces in cargo area; and
- .2 in oil tankers:

double-side skin (DSS) voids including sides, bottoms/double hull voids spaces protecting cargo oil tanks.

4.2.3 No requirements are contained in this standard for protective coatings for the following void spaces in oil tankers and bulk carriers:

- .1 totally enclosed spaces located behind gusset or shedder plates at the bottom of corrugation bulkheads and other small totally enclosed spaces in cargo tanks;
- .2 lower transverse stool of transverse bulkheads that are totally enclosed spaces;

- .3 upper transverse stool of transverse bulkheads that are totally enclosed spaces;
- .4 transducer voids; and
- .5 any spaces not specifically mentioned in paragraphs 4.2.1 and 4.2.2.

4.3 Special application

4.3.1 This standard covers protective coating requirements for the ship steel structure. It is noted that other independent items are fitted within the tanks to which coatings are applied to provide protection against corrosion.

4.3.2 It is recommended that this standard be applied, to the extent possible, to those portions of permanent means of access provided for inspection, not integral to the ship structure, such as rails, independent platforms, ladders, etc. Other equivalent methods of providing corrosion protection for the non-integral items may also be used, provided they do not impair the performance of the coatings of the surrounding structure. Access arrangements that are integral to the ship structure, such as increased stiffener depths for walkways, stringers, etc., should fully comply with this standard.

4.3.3 It is also recommended that supports for piping, measuring devices, etc., be coated in accordance with the non-integral items indicated in paragraph 4.3.2.

4.4 Basic coating requirements

4.4.1 The requirements for protective coating systems, which should be applied at ship construction to void spaces in bulk carriers and oil tankers meeting the standard specified in paragraph 4.1, are listed in table 1.

4.4.2 Coating manufacturers should provide a specification of the protective coating system to satisfy the requirements of table 1.

4.4.3 The Administration or an organization recognized by the Administration should verify the Technical Data Sheet and Statement of Compliance or Type Approval Certificate for the protective coating system.

4.4.4 The shipyard should apply the protective coating in accordance with the verified Technical Data Sheet and its own verified application procedures.

Table 1 - Basic coating system requirements for void spaces in bulk carriers and oil tankers

	Characteristic	Requirement
1 Design of coating system		
.1	Selection of the coating system	<p>The selection of the coating system should be considered by the parties involved with respect to the service conditions and planned maintenance. The following aspects, among other things should be considered:</p> <ul style="list-style-type: none"> .1 location of space relative to heated surfaces; .2 required surface conditions; .3 required surface cleanliness and dryness; .4 relative humidity; .5 access and maintenance; and .6 mechanical ventilation. <p>Coating manufacturers should have products with documented satisfactory performance records and technical data sheets. The manufacturers should also be capable of rendering adequate technical assistance. Performance records, technical data sheet and technical assistance (if given) should be recorded in the Coating Technical File.</p> <p>Coatings for application underneath sun-heated decks or on bulkheads forming boundaries of heated spaces should be able to withstand repeated heating and/or cooling without becoming brittle.</p>
.2	Coating type	<p>Epoxy-based systems.</p> <p>Other coating systems with performance according to the test procedure in annex 1.</p> <p>When a multi-coat system is applied, contrasting colour is recommended for each coat.</p> <p>The top coat should be of a light colour in order to facilitate in-service inspection.</p>

	Characteristic	Requirement
.3	Coating pre-qualification test	<p>Epoxy-based systems tested prior to the date of adoption of this standard in a laboratory by a method corresponding to the test procedure in annex 1 or equivalent, which, as a minimum, meets the requirements for rusting and blistering may be accepted;</p> <p>or any coating system which meets the requirements in table 1.1.3 of the Performance standard for protective coating for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers (resolution MSC.215(82)), is accepted and may be applied in accordance with this Performance standard;</p> <p>or which have documented field exposure for 5 years with a final coating condition of not less than “GOOD” may also be accepted.</p> <p>For other systems, including epoxy-based systems tested after the adoption of this Standard, testing according to the procedure in annex 1 to this Standard should be required.</p>
.4	Job specification	<p>There should be a minimum of one stripe coat and [one] [two] spray coat. The stripe coat should be applied on thermally cut free edges and small holes only.</p> <p>Surface contaminants such as rust, grease, dust, salt, oil, etc., should be removed prior to painting with proper methods according to the paint manufacturer’s recommendation. Abrasive inclusions embedded in the coating should be removed. Job specifications should include the dry-to-recoat times and walk-on time given by the manufacturer.</p>
.5	NDFT (nominal total dry film thickness) ¹	<p>NDFT 200 µm with a 90/10 rule for epoxy based coatings, other systems to coating manufacturer’s specifications.</p> <p>Maximum total dry film thickness according to manufacturer’s detailed specifications.</p> <p>Care should be taken to avoid increasing the thickness in an exaggerated way. Wet film thickness should be regularly checked during application.</p> <p>Thinner should be limited to those types and quantities recommended by the manufacturer.</p>

¹ Type of gauge and calibration in accordance with SSPC-PA2:2004. Paint Application Specification No.2.

	Characteristic	Requirement
2 PSP (Primary surface preparation)		
.1	Blasting and profile ^{2,3}	<p>Sa 2½; with profiles between 30-75 µm.</p> <p>Blasting should not be carried out when:</p> <p>.1 the relative humidity is above 85%; or</p> <p>.2 the surface temperature of steel is less than 3°C above the dew point.</p> <p>Checking of the steel surface cleanliness and roughness profile should be carried out at the end of the surface preparation and before the application of the primer, in accordance with the manufacturer's recommendations.</p>
.2	Water soluble salt limit equivalent to NaCl ⁴	≤ 50 mg/m ² of sodium chloride.
.3	Shop primer	<p>Zinc containing inhibitor free zinc silicate based or equivalent.</p> <p>Compatibility with main coating system should be confirmed by the coating manufacturer.</p>
3 SSP (Secondary surface preparation)		
.1	Steel condition	<p>The steel surface should be prepared so that the coating selected can achieve an even distribution at the required NDFT and have an adequate adhesion by removing sharp edges, grinding weld beads and removing weld spatter and any other surface contaminant⁵.</p> <p>Edges to be smooth, subject to one pass grinding or at least equivalent process before painting⁶.</p>

² Reference standard: ISO 8501-1:1988/Suppl:1994. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness.

³ Reference standard: ISO 8503-1/2:1988. Preparation of steel substrate before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates.

⁴ Conductivity measured in accordance with ISO 8502-9:1998. Preparation of steel substrate before application of paints and related products – Test for the assessment of surface cleanliness.

⁵ Reference standard: ISO 8501-3:2001 (grade P1). Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness.

⁶ Reference standard: ISO 8501-3:2001 (grade P2). Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness.

	Characteristic	Requirement
.2	Surface treatment ²	<p>For damaged shop primer:</p> <p>Sa 2 or St 3 on damaged shop primer and welds;</p> <p>For intact shop primer:</p> <p>Sa 2 removing at least 70% of intact shop primer, which has not passed a pre-qualification certified by test procedures in table 1.1.3.</p> <p>If the complete coating system comprising epoxy-based main coating and shop primer has passed a pre-qualification certified by test procedures in table 1.1.3 intact shop primer may be retained provided the same epoxy coating system is used. The retained shop primer should be cleaned by sweep blasting, high pressure water washing or other methods in accordance with the manufacturer's recommendation.</p> <p>If a zinc silicate shop primer has passed the pre-qualification test of table 1.1.3 as part of an epoxy coating system, it may be used in combination with other epoxy coatings certified under table 1.1.3, provided that the compatibility has been confirmed by the manufacturer by the test in accordance with paragraph 1.7 of appendix 1 to annex 1 of the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers, without wave movement.</p>
.3	Surface treatment after erection ²	<p>St 3 or better or Sa 2 where practicable on butts and damages.</p> <p>Coating in overlap to be feathered.</p>
.4	Profile requirements ³	In case of full or partial blasting 30-75 µm, otherwise as recommended by the coating manufacturer.
.5	Dust ⁷	Dust quantity rating "2" for dust size class "3", "4" and "5".
.6	Water soluble salts limit equivalent to NaCl after blasting/grinding ⁴	≤ 100 mg/m ² of sodium chloride.

⁷ Reference standard: ISO 8502-3:1993. Preparation of steel substrate before application of paints and related products – Test for the assessment of surface cleanliness.

	Characteristic	Requirement
.7	Oil contamination	No oil contamination.
4 Miscellaneous		
.1	Ventilation	Adequate ventilation is necessary for the proper drying and curing of coating. Ventilation should be maintained throughout the application process and for a period after application is completed, as recommended by the coating manufacturer.
.2	Environmental conditions	Coating should be applied under controlled humidity and surface conditions, in accordance with the manufacturer's specifications. In addition, coating should not be applied when: <ul style="list-style-type: none"> .1 the relative humidity is above 85%; or .2 the surface temperature is less than 3°C above the dew point.
.3	Testing of coating ¹	Destructive testing should be avoided. Dry film thickness should be measured after each coat for quality control purposes and the total dry film thickness should be confirmed after completion of final coat, using appropriate thickness gauges.
.4	Repair	Any defective areas, e.g. pin-holes, bubbles, voids, etc. should be marked up and appropriate repairs effected. All such repairs should be re-checked and documented.

5 COATING SYSTEM APPROVAL

Results from prequalification tests (table 1.1.3) of the coating system should be documented, and a Statement of Compliance or Type Approval Certificate should be issued if found satisfactory by a third party, independent of the coating manufacturer.

6 COATING INSPECTION REQUIREMENTS

6.1 General

6.1.1 To ensure compliance with this Standard, the following should be carried out by qualified coating inspectors certified to NACE Coating Inspector Level 2, FROSIO Inspector level III or equivalent as verified by the Administration⁸.

⁸ In accordance with SOLAS regulation I/6, for the purposes of this standard, the Administration may entrust a recognized organization acting on its behalf to determine compliance with the provisions of this standard.

6.1.2 Coating inspectors should inspect surface preparation and coating application during the coating process by carrying out, as a minimum, those inspection items identified in section 6.2 to ensure compliance with this Standard. Emphasis should be placed on initiation of each stage of surface preparation and coatings application, as improper work is extremely difficult to correct later in the coating progress. Representative structural members should be non-destructively examined for coating thickness. The inspector should verify that appropriate collective measures have been carried out.

6.1.3 Results from the inspection should be recorded by the inspector and should be included in the CTF (refer to annex 2, Example of Daily Log and Non-conformity Report).

6.2 Inspection items

Construction stage		Inspection items
Primary surface preparation	1	The surface temperature of steel, the relative humidity and the dew point should be measured and recorded before the blasting process starts and at times of sudden changes in weather.
	2	The surface of steel plates should be tested for soluble salt checked for oil, grease and other contamination.
	3	The cleanliness of the steel surface should be monitored in the shop primer application process.
	4	The shop primer material should be confirmed to meet the requirements of 2.3 of table 1.
Thickness		If compatibility with the main coating system has been declared, then the thickness and curing of the zinc silicate shop primer should be confirmed to conform to the specified values.
Block assembly	1	After completing construction of the block and before secondary surface preparation starts, a visual inspection for steel surface treatment including edge treatment should be carried out. Any oil, grease or other visible contamination should be removed.
	2	After blasting/grinding/cleaning and prior to coating, a visual inspection of the prepared surface should be carried out. On completion of blasting and cleaning and prior to the application of the first coat of the system, the steel surface should be tested for levels of remaining soluble salts in at least one location per block.
	3	The surface temperature, the relative humidity and the dew point should be monitored and recorded during the coating application and curing.

Construction stage	Inspection items
	4 Inspection should be performed of the steps in the coating application process mentioned in table 1.
	5 DFT measurements should be taken to prove that the coating has been applied to the thickness as specified and outlined in annex 3.
Erection	1 Visual inspection for steel surface condition, surface preparation and verification of conformance to other requirements in table 1, and the agreed specification should be performed.
	2 The surface temperature, the relative humidity and the dew point should be measured and recorded before coating starts and regularly during the coating process.
	3 Inspection should be performed of the steps in the coating application process mentioned in table 1.

7 VERIFICATION REQUIREMENTS

The following should be carried out by the Administration prior to reviewing the Coating Technical File for the ship subject to this Performance Standard:

- .1 check that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with the Standard;
- .2 check that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet and Statement of Compliance or Type Approval Certificate;
- .3 check that the inspector is qualified in accordance with the qualification standards in paragraph 6.1.1;
- .4 check that the inspector's reports of surface preparation and the coating's application indicate compliance with the manufacturer's Technical Data Sheet and Statement of Compliance or Type Approval Certificate; and
- .5 monitor implementation of the coating inspection requirements.

8 ALTERNATIVE SYSTEMS

8.1 All systems that are not an epoxy-based system applied according to table 1 of this Standard are defined as an alternative system.

8.2 This Standard is based on recognized and commonly used coating systems. It is not meant to exclude other, alternative, systems with proven equivalent performance, for example non epoxy-based systems.

8.3 Acceptance of alternative systems should be subject to documented evidence that they ensure a corrosion prevention performance at least equivalent to that indicated in this Standard.

8.4 As a minimum, the documented evidence should consist of satisfactory performance corresponding to that of a coating system which conforms to the Standard as described in section 4, a target useful life of 15 years in either actual field exposure for five years with final coating condition not less than “GOOD” or laboratory testing. Laboratory tests should be conducted in accordance with the test procedure given in annex 1 of this Standard.

ANNEX 1

TEST PROCEDURE FOR COATING QUALIFICATION FOR VOID SPACES OF BULK CARRIERS AND OIL TANKERS

1 Scope

This procedure provides details of the test procedure referred to in section 4, table 1, items .1.2 and .1.3 and paragraph 8.3 of this Standard.

2 Definition

Coating specification means the specification of coating systems which includes the type of coating system, steel preparation, surface preparation, surface cleanliness, environmental conditions, application procedure, acceptance criteria and inspection.

3 Test

Coating specification should be verified by a condensation chamber test in accordance with the procedures specified in this section.

3.1 Test condition

Condensation chamber tests should be conducted in accordance with ISO 6270.

- .1 The exposure time should be 30 days.
- .2 There should be 3 test panels.
- .3 The size of each test panel should be 150 mm x 150 mm x 3 mm. All of the panels should be treated according to the Performance standard, tables 1, 2 and 3, and coating system applied according to table 1.1.4 and 1.1.5. At the primer stage, two of the panels should be weathered for at least 2 months and cleaned by low pressure washing or other mild method. Blast sweep or high pressure washing, or other primer removal methods should not be used. The third plate should have the primer removed to St 3 before the top coat is applied. Weathering method and extent should take into consideration that the primer should be the foundation for a 15 year target life system. To facilitate innovation, alternative preparation, coating systems and dry film thicknesses may be used when clearly defined.
- .4 The reverse side of the test piece should be painted appropriately, in order not to affect the test results.

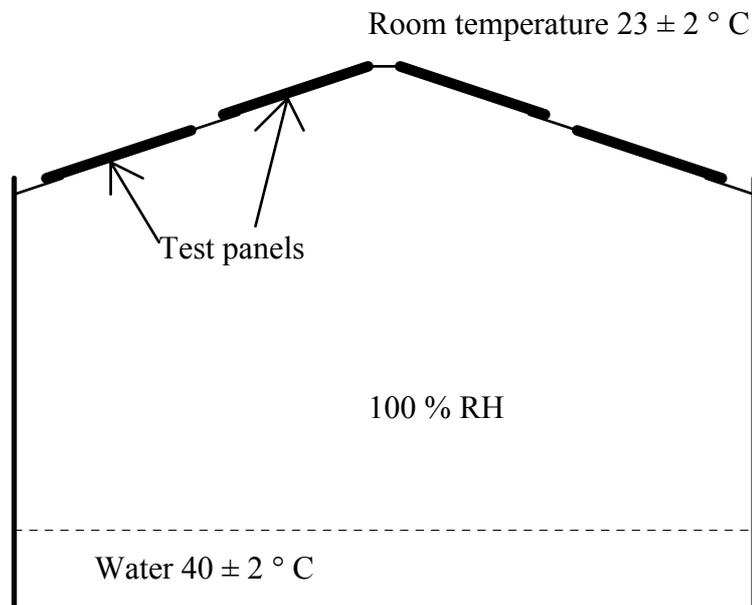


Figure 1: Condensation chamber

3.2 Test results

3.2.1 Prior to the testing, the following measured data of the coating system should be reported:

- .1 infrared (IR) identification of the base and hardener components of the coating;
- .2 specific gravity, according to ISO 2811-74, of the base and hardener components of the paint; and
- .3 number of pinholes, low voltage detector at 90 V.

3.2.2 After the testing, the following measured data should be reported:

- .1 blisters and rust according to ISO 4628/2 and ISO 4628/3;
- .2 dry film thickness (DFT) (use of a template);
- .3 adhesion value according to ISO 4624;
- .4 flexibility according to ASTM D4145, modified according to panel thickness (3 mm steel, 300 μm coating, 150 mm cylindrical mandrel gives 2% elongation) for information only.

3.3 Acceptance criteria

3.3.1 The test results based on section 2 should satisfy the following criteria:

Item	Acceptance criteria for epoxy-based systems applied according to table 1 of this standard	Acceptance criteria for alternative systems
Blisters on panel	No blisters	No blisters
Rust on panel	Ri 0 (0%)	Ri 0 (0%)
Number of pinholes	0	0
Adhesive failure	> 3.5 MPa Adhesive failure between substrate and coating or between coats for 60% or more of the areas	> 5 MPa Adhesive failure between substrate and coating or between coats for 60% or more of the areas
Cohesive failure	> 3 MPa Cohesive failure in coating for 40% or more of the area	> 5 MPa Cohesive failure in coating for 40% or more of the area

3.3.2 Epoxy-based systems tested prior to the date of adoption of this Standard should satisfy only the criteria for blistering and rust in the table above.

3.3.3 Epoxy-based systems tested when applied according to table 1 of this Standard should satisfy the criteria for epoxy-based systems as indicated in the table above.

3.3.4 Alternative systems not necessarily epoxy-based and/or not necessarily applied according to table 1 of this Standard should satisfy the criteria for alternative systems as indicated in the table above.

3.4 Test report

The test report should include the following information:

- .1 name of the manufacturer;
- .2 date of tests;
- .3 product name/identification of both paint and primer;
- .4 batch number;

- .5 data of surface preparation on steel panels, including the following:
 - .1 surface treatment;
 - .2 water soluble salts limit;
 - .3 dust; and
 - .4 abrasive inclusions;

- .6 application data of coating system, including the following:
 - .1 shop primed;
 - .2 number of coats;
 - .3 recoat interval* ;
 - .4 dry film thickness (DFT) prior to testing* ;
 - .5 thinner* ;
 - .6 humidity* ;
 - .7 air temperature* ; and
 - .8 steel temperature;

- .7 test results according to section 2; and

- .8 judgment according to section 3.

* Both of actual specimen data and manufacturer's requirement/recommendation.

ANNEX 2

EXAMPLE OF DAILY LOG AND NON-CONFORMITY REPORT

DAILY LOG

Sheet No:

Ship:			Void No:			Database:			
Part of structure:									
SURFACE PREPARATION									
Method:					Area (m²):				
Abrasive:					Grain size:				
Surface temperature:					Air temperature:				
Relative humidity (max):					Dew point:				
Standard achieved:									
Rounding of edges:									
Comments:									
Job No.:			Date:			Signature:			
COATING APPLICATION:									
Method:									
Coat No.	System	Batch No.	Date	Air temp.	Surf temp.	RH%	Dew point	DFT* Meas.*	Specified
* Measured minimum and maximum DFT. DFT readings to be attached to daily log									
Comments:									
Job No:			Date:			Signature:			

NON-CONFORMITY REPORT

Sheet No:

Ship:	Void No:	Database:
Part of structure:		
DESCRIPTION OF THE INSPECTION FINDINGS TO BE CORRECTED		
Description of findings:		
Reference document (daily log):		
Action taken:		
Job No.:	Date:	Signature:

ANNEX 3

DRY FILM THICKNESS MEASUREMENTS

The following verification check points of DFT should be taken:

- .1 one gauge reading per 5 m² of flat surface areas;
- .2 one gauge reading at 2 to 3 m intervals and as close as possible to tank boundaries, but not further than 15 mm from edges of tank boundaries;
- .3 longitudinal and transverse stiffener members:

One set of gauge readings as shown below, taken at 2 to 3 m run and not less than two sets between primary support members;

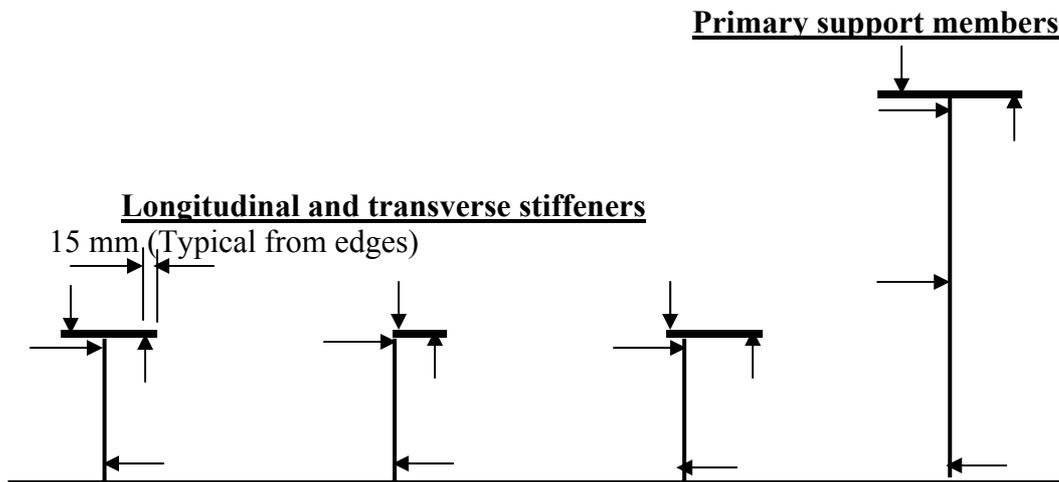


Figure 2

Note: Arrows of diagram indicate critical areas and should be understood to mean indication for both sides.

- .4 three gauge readings for each set of primary support members and two gauge readings for each set of other members as indicated by the arrows in the diagram;
- .5 for primary support members (girders and transverses) one set of gauge readings for 2 to 3 m run as shown in figure 3 above but not less than three sets;
- .6 around openings one gauge reading from each side of the opening;
- .7 five gauge readings per square metre (m²) but not less than three gauge readings taken at complex areas (i.e. large brackets of primary support members); and
- .8 additional spot checks should be taken to verify coating thickness for any area considered necessary by the coating inspector.

ANNEX 4

DRAFT AMENDMENTS TO SOLAS CHAPTER II-1

CHAPTER II-1

CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY, MACHINERY
AND ELECTRICAL INSTALLATIONS

- 1 The following new regulation 3-9 is added after the existing regulation II-1/3-8:

“Regulation 3-9**Means of embarkation on and disembarkation from ships**

1 Ships constructed on or after [date of entry into force] shall be provided with means of embarkation on and disembarkation from ships for use in port and in port-related or pilotage operations, such as gangways and accommodation ladders, in accordance with paragraph 2, unless the Administration deems that compliance with a particular provision is unreasonable or impractical*.

2 The means of embarkation and disembarkation required in paragraph 1 shall be constructed and installed based on the guidelines developed by the Organization.**

3 For all ships the means of embarkation and disembarkation shall be inspected and maintained** in suitable condition for their intended purpose, taking into account any restrictions related to safe loading. All wires used to support the means of embarkation and disembarkation shall be maintained as specified in regulation III/20.4.”

* Circumstances where compliance may be deemed unreasonable or impractical may include where the ship:

- .1 has small freeboards and is provided with boarding ramps; or
- .2 is engaged in voyages between designated ports where appropriate shore accommodation/embarkation ladders (platforms) are provided.

** Refer to the Guidelines for construction, maintenance and inspection of accommodation ladders and gangways (MSC.1/Circ....).

ANNEX 5**DRAFT MSC CIRCULAR****GUIDELINES FOR CONSTRUCTION, MAINTENANCE AND INSPECTION OF
ACCOMMODATION LADDERS AND GANGWAYS**

1 The Maritime Safety Committee, at its [eighty-fourth session (... to ... May 2008)], with a view to providing more specific guidance on the construction, installation, maintenance and inspection/survey of accommodation ladders and gangways required under regulation II-1/3-9 of the 1974 SOLAS Convention, approved the Guidelines for construction, maintenance and inspection of accommodation ladders and gangways, prepared by the Sub-Committee on Ship Design and Equipment at its fiftieth session, as set out in the annex.

2 Member Governments are invited to bring the attached Guidelines to the attention of shipowners, ship builders, designers, manufacturers, port State control authorities and other parties concerned.

ANNEX

GUIDELINES FOR CONSTRUCTION, MAINTENANCE AND INSPECTION OF ACCOMMODATION LADDERS AND GANGWAYS

1 APPLICATION

This document is intended to provide guidelines for the construction, installation, maintenance and inspection/survey of accommodation ladders and gangways required under regulation II-1/3-9 of the 1974 SOLAS Convention, adopted by resolution MSC.[...(...)].

2 CONSTRUCTION

2.1 Equipment and arrangements for accommodation ladders or gangways which are provided on board ships on or after [date of entry into force of SOLAS amendment] should meet applicable international standards such as ISO 5488-1979 *Shipbuilding – accommodation ladders*, ISO 7061:1993 *Shipbuilding – aluminium shore gangways for seagoing vessels* and/or national standards and/or other requirements recognized by the Administration. Equipment and arrangements for accommodation ladders or gangways of ships constructed before [date of entry into force of SOLAS amendment] which are replaced after that date should, in so far as reasonable and practicable, comply with these guidelines.

2.2 The structure of the ladders and their fittings and attachments should be such as to allow regular inspection, maintenance of all parts and, if necessary, lubrication of their pivot pin. Special care should be taken to ensure that the welding connection works are properly performed.

2.3 The construction and test of the accommodation ladder winch should be in accordance with applicable international standards such as ISO 7364:1983 *Shipbuilding and marine structures – deck machinery – accommodation ladder winches*.

3 INSTALLATION

3.1 Location

As far as practicable, the boarding arrangements should be sited clear of the working area and should not be placed where cargo or other suspended load may pass overhead.

3.2 Lighting

Adequate lighting should be provided to illuminate the boarding equipment, the position on deck where persons embark or disembark and the controls of the arrangement.

3.3 Lifebuoy

A lifebuoy equipped with a self-igniting light and a buoyant lifeline should be available for immediate use in the vicinity of the boarding arrangement in use. This paragraph does not intend to prescribe additional lifebuoys other than those required under SOLAS chapter III.

3.4 Arrangement

3.4.1 Upon installation, the arrangement and appropriateness of the ladders and associated davit, storing facilities, winch and other fittings should be confirmed.

3.4.2 Each ladder should be of such a length to ensure that, at a maximum design operating angle of inclination, the lowest platform will be not more than 600 mm above the waterline in the lightest seagoing condition, as defined in SOLAS regulation III/3.13.

3.4.3 For ships on which the height of the embarkation/disembarkation deck exceeds 20 m above the waterline specified in paragraph 3.4.2 and on other ships for which the Administration considers compliance with the provisions of paragraph 3.4.2 impractical, an alternative means of providing safe access to the ship or supplementary means of safe access to the bottom platform of the accommodation ladder may be accepted.

3.5 Marking

3.5.1 Each gangway or accommodation ladder should be clearly marked at each end with a plate visible to any person approaching either end and showing the restrictions on the safe operation and loading, including the maximum permitted design angle of inclination, design loading, maximum load on bottom end plate, etc. Where the maximum operational loading is less than the design loading, it should also be shown on the marking plate.

3.5.2 Additional information, which need not be included in the marking required by paragraph 3.5.1 but should be shown in the ship's planned maintenance records, should include the date of the most recent inspection, the name of the person or body who carried out that inspection, the due date for the next inspection and the dates of renewal of wires used to support the boarding arrangement.

3.6 Test

3.6.1 After installation, the winch and the accommodation ladder should be operationally tested to confirm proper operation and condition of the winch and the ladder after the test.

3.6.2 The winch should be tested as a part of the complete accommodation ladder unit through a minimum of two times hoisting and lowering of the accommodation ladder in accordance with the on-board test requirement specified in applicable international standards such as ISO 7364:1983.

3.6.3 Every new accommodation ladder should be subjected to a static load test of the specific maximum working load upon installation.

3.7 Positioning

3.7.1 Gangways should not be used at an angle of inclination greater than 30° from the horizontal and accommodation ladders should not be used at an angle greater than 55° from the horizontal, unless designed and constructed for use at angles greater than these and marked as such, as specified in paragraph 3.5.1.

3.7.2 Gangways and other access equipment should never be secured to a ship's guardrails unless they have been designed for that purpose. If positioned through an open section of bulwark or railings, any remaining gaps should be adequately fenced.

3.7.3 Adequate lighting for boarding equipment and the immediate approaches should be ensured from the ship and/or the shore in hours of darkness.

3.8 Rigging (safety net)

A safety net should be mounted by way of the boarding equipment whenever possible where a person may fall from boarding equipment or between the ship and quayside.

4 MAINTENANCE

4.1 Gangways and accommodation ladders, including associate winch and fittings, should be properly maintained and inspected by competent persons at appropriate intervals as specified in SOLAS regulation III/20.7, in accordance with manufacturers' instructions. Additional checks should be made each time the ladder is rigged, looking out for signs of distortion, cracks and corrosion. Close examination for possible corrosion should be carried out, especially when an aluminium ladder has fittings made of mild steel.

4.2 Bent stanchions should be replaced or repaired and guard ropes should be inspected for wear and renewed where necessary.

4.3 Moving parts should be free to turn and should be greased as appropriate.

4.4 The lifting equipment should be inspected, tested and maintained paying careful attention to the condition of the hoist wire. The wires used to lift the boarding equipment should be renewed when necessary, as required by SOLAS regulation II-1/3-9.

4.5 Arrangements should also be made to examine the underside of gangways and accommodation ladders at regular intervals.

4.6 All inspections, maintenance work and repairs of accommodation ladders and gangways should be recorded in order to provide an accurate history for each appliance.

5 EXAMINATION AND OPERATIONAL TEST DURING SURVEYS REQUIRED BY SOLAS REGULATIONS I/7 AND I/8

5.1 Accommodation ladders/gangways and davits

5.1.1 Accommodation ladder

5.1.1.1 The following items should be thoroughly examined during annual surveys required by SOLAS regulations I/7 and I/8 and checked for satisfactory condition of the accommodation ladder:

- .1 steps;
- .2 platforms;
- .3 all support points such as pivots, rollers, etc;
- .4 all suspension points such as lugs, brackets, etc;
- .5 stanchions, rigid handrails, hand ropes and turntables;
- .6 davit structure, wire and sheaves, etc.; and
- .7 any other relevant provisions stated in these guidelines.

5.1.1.2 At every five-yearly survey, upon completion of the examination specified in paragraph 5.1.1.1, the accommodation ladder should be operationally tested with the specific maximum operational load of the ladder.

5.1.2 Gangway

5.1.2.1 The following items should be thoroughly examined during annual surveys required by SOLAS regulations I/7 and I/8 and checked for satisfactory condition of the gangway:

- .1 treads;
- .2 side stringers, cross-members, decking, deck plates, etc.;
- .3 all support points such as wheel, roller, etc.;
- .4 stanchions, rigid handrails, hand ropes; and
- .5 any other relevant provisions stated in these guidelines.

5.1.2.2 At every five-yearly survey, upon completion of the examination specified in paragraph 5.1.2.1, the gangway should be operationally tested with the specific maximum operational load of the ladder.

5.2 Winch

5.2.1 During annual surveys required by SOLAS regulations I/7 and I/8, the following items should be examined for satisfactory condition:

- .1 brake mechanism including condition of brake pads and band brake, if fitted;
- .2 remote control system; and
- .3 power supply system (motor).

5.2.2 At every five-yearly survey, upon completion of the examination specified in paragraph 5.2.1, the winch should be operationally tested with the specific maximum operational load of the accommodation ladder.

5.3 Fittings and davits

All fittings and davits on the ship's deck associated with accommodation ladders should be examined for satisfactory condition.

5.4 Means of access to deck

The fittings or structures for means of access to decks such as handholds in a gateway or bulwark ladder and stanchions should be examined for satisfactory condition.

ANNEX 6

DRAFT AMENDMENTS TO SOLAS REGULATION II-1/3-4

CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISIONS AND STABILITY, MACHINERY
AND ELECTRICAL INSTALLATIONS

Regulation 3-4 – Emergency towing arrangements on tankers

1 The existing title of the regulation is replaced by the following:

“Emergency towing arrangements and procedures”

2 The existing paragraphs 1 to 3 are replaced by the following:

“1 Emergency towing arrangements on tankers

1.1 Emergency towing arrangements shall be fitted at both ends on board every tanker of not less than 20,000 tonnes deadweight.

1.2 For tankers constructed on or after 1 July 2002:

.1 the arrangements shall, at all times, be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship. At least one of the emergency towing arrangements shall be pre-rigged ready for rapid deployment; and

.2 emergency towing arrangements at both ends shall be of adequate strength taking into account the size and deadweight of the ship, and the expected forces during bad weather conditions. The design and construction and prototype testing of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization*.

1.3 For tankers constructed before 1 July 2002, the design and construction of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization*.

2 Emergency towing procedures on ships

2.1 This paragraph applies to:

.1 all passenger ships not later than 1 January 2010;

.2 cargo ships constructed on or after 1 January 2010; and

* Refer to the Guidelines on emergency towing arrangements for tankers, adopted by the Maritime Safety Committee by resolution MSC.35(63), as may be amended.

.3 cargo ships constructed before 1 January 2010 not later than 1 January 2012.

2.2 Ships shall be provided with a ship-specific emergency towing procedure. Such a procedure shall be carried aboard the ship for use in emergency situations and shall be based on existing arrangements and equipment available on board the ship.

2.3 The procedure* shall include:

- .1 drawings of fore and aft deck showing possible emergency towing arrangements;
- .2 inventory of equipment on board that can be used for emergency towing;
- .3 means and methods of communication; and
- .4 sample procedures to facilitate the preparation for and conducting of emergency towing operations.”

* Refer to the Guidelines for owners/operators on preparing for emergency towing procedures (MSC.1/Circ....).

ANNEX 7

DRAFT MSC CIRCULAR

**GUIDELINES FOR OWNERS/OPERATORS ON PREPARING FOR
EMERGENCY TOWING PROCEDURES**

1 The Maritime Safety Committee, at its [eighty-fourth session (... to ... May 2008)], following a recommendation of the fiftieth session of the Sub-Committee on Ship Design and Equipment, approved Guidelines for owners/operators on preparing for emergency towing procedures, set out in the annex, aimed at assisting owners/operators in preparing ship-specific emergency towing procedures for ships subject to SOLAS regulation II-1/3-4.

2 The Guidelines are intended to help owners/operators to carry out the necessary steps in establishing emergency towing procedures, provide information on the scope of the emergency towing booklet and give guidance towards creating procedures for towage.

3 The procedures developed by means of these Guidelines aim at supporting the crew in establishing the safest and most efficient course of action to be taken when confronted with an emergency that requires towing.

4 Member Governments are invited to bring the annexed Guidelines to the attention of all parties concerned for application in conjunction with SOLAS regulation II-1/3-4 (Emergency towing arrangements and procedures).

ANNEX

GUIDELINES FOR OWNERS/OPERATORS ON PREPARING FOR EMERGENCY TOWING PROCEDURES

1 PURPOSE

The purpose of these Guidelines is to assist owners/operators in preparing ship-specific emergency towing procedures for ships subject to SOLAS regulation II-1/3-4. The procedures should be considered as part of the emergency preparedness requirements specified in paragraph 8 of part A of the International Safety Management (ISM) Code.

2 OBSERVATIONS

2.1 Owners, operators and crews should take into consideration that the nature of an emergency does not allow time for deliberation. Accordingly, the procedures should be practiced beforehand.

2.2 The towing procedures should be maintained on board the ship for ready use by the ship's crew in preparing their ship for towage in an emergency.

2.3 Equipment stowage location and accessibility should be common knowledge to the crew. Any identified improvements to stowage arrangements should be implemented.

2.4 Crew dealing with an emergency situation should be aware of power availability. This will be required for winches and tools, as well as for deck lighting (for bad/low visibility and night time situations).

2.5 It is recognized that not all ships will have the same degree of shipboard equipment, so that there may be limits to possible towing procedures. Nevertheless, the intention is to predetermine what can be accomplished, and furnish this information to the ship's crew in a ready-to-use format (booklet, plans, poster, etc.).

3 SHIP EVALUATION

3.1 The owner/operator should ensure that the ship is inspected and its capability to be towed under emergency situations is evaluated. Both equipment on board and available procedures should be reviewed. Items that need to be inspected are described in the following paragraphs:

3.2 The ability of the ship to be towed from bow and stern should be evaluated, and the following items should be reviewed:

- .1 line handling procedures (passing and receiving messenger lines, toelines, bridles); and
- .2 layout, structural adequacy and safe working loads of connection points (fairleads, chocks, winches, bitts, bollards), etc.

3.3 The on-board tools and equipment available for assembling the towing gear and their locations should be identified. These should include, but not be limited to:

- .1 chains;
- .2 cables;
- .3 shackles;
- .4 stoppers;
- .5 tools; and
- .6 line throwing apparatus.

3.4 The availability and characteristics of radio equipment, in order to enable communication between deck crew, bridge and the towing/salvage ship, should be identified.

3.5 For connection points with identified safe working loads, such capacities should be introduced; for connection points without identified safe working loads, such capacities should be determined by engineering analysis reflecting the on-board conditions of the ship. MSC/Circ.1175 on Guidance on shipboard towing and mooring equipment may be used for guidance.

3.6 The evaluation should be performed by persons knowledgeable in towing equipment and operations.

4 EMERGENCY TOWING BOOKLET

4.1 The Emergency Towing Booklet (ETB) should be ship specific and should be presented in a clear, concise and ready-to-use format (booklet, plan, poster, etc.), and be easy to read and interpret.

4.2 Ship-specific data should include but not be limited to:

- .1 ship's name;
- .2 call sign;
- .3 IMO number;
- .4 anchor details (shackle, connection details, weight, type, etc.);
- .5 cable and chain details (lengths, connection details, proof load, etc.);
- .6 height of mooring deck(s) above base;
- .7 draft range; and
- .8 displacement range.

4.3 All procedures developed in accordance with section 5 should be presented in a clear and easy to understand format, which will aid their smooth and swift application in an emergency situation.

4.4 Comprehensive diagrams and sketches should be available and include the following:

- .1 assembly and rigging diagrams;
- .2 towing equipment and strong point locations; and
- .3 equipment and strong point capacities and safe working loads (SWLs).

4.5 A copy should be kept at hand by the owners/operators in order to facilitate the passing on of information to the towage company as early as possible in the emergency. A copy should also be kept in a common electronic file format, which will allow faster distribution to the concerned parties.

4.6 A minimum of three copies should be kept on board in:

- .1 the bridge;
- .2 a forecastle space; and
- .3 the ship's office or cargo control room.

5 DEVELOPING PROCEDURES

5.1 Ship-specific procedures should be identified during the ship's evaluation and entered accordingly in the ETB. The procedures should include, but not be limited to, the following:

- .1 a quick-reference decision matrix that summarizes options under various emergency scenarios, such as weather conditions (mild, severe), availability of shipboard power (propulsion, on-deck power), imminent danger of grounding, etc.;
- .2 organization of deck crew (personnel distribution, equipment distribution, including radios, safety equipment, etc.);
- .3 organization of tasks (what needs to be done, how it should be done, what is needed for each task, etc.);
- .4 diagrams for assembling and rigging bridles, tow lines, etc., showing possible emergency towing arrangements for both fore and aft;
- .5 rigged lines should be lead such that they avoid sharp corners, edges and other points of stress concentration;
- .6 power shortages and dead ship situations must be taken into account, especially for the heaving across of heavy towing lines;
- .7 a communications plan for contacting the salvage/towing ship should exist. This plan should list all information that the ship's master needs to communicate to the salvage/towing ship. This list should include but not be limited to:
 - .1 damage or seaworthiness;
 - .2 status of ship steering;
 - .3 propulsion;
 - .4 on deck power systems;
 - .5 on board towing equipment;
 - .6 existing emergency rapid disconnection system;

- .7 forward and aft towing point locations;
 - .8 safe working load (SWL);
 - .9 towing equipment dimensions and capacities; and
 - .10 ship particulars.
-
- .8 existing equipment, tools and arrangements on board the ship should be evaluated for possible use in rigging a towing bridle and securing a towline;
 - .9 identify any minor tools or equipment providing significant improvements to the “towability” of the ship;
 - .10 inventory and location of equipment on board that can be used during an emergency towing situation;
 - .11 other preparations (locking rudder and propeller shaft, ballast and trim, etc.); and
 - .12 other relevant information (limiting sea states, towing speeds, etc.).

ANNEX 8

DRAFT MSC CIRCULAR

UNIFIED INTERPRETATION OF SOLAS CHAPTER III

1 The Maritime Safety Committee, at its [eighty-third session (... to ... October 2007)], approved a unified interpretation of the provisions of SOLAS chapter III, as set out in the annex, following the recommendations made by the Sub-Committee on Ship Design and Equipment at its fiftieth session, with a view to ensuring a uniform approach towards the application of SOLAS regulation III/31.1.4 concerning arrangements for remotely located survival craft.

2 Member Governments are invited to use the annexed interpretation when applying the relevant provisions of SOLAS chapter III, and to bring it to the attention of all parties concerned.

ANNEX

UNIFIED INTERPRETATION OF SOLAS CHAPTER III

Regulation III/31.1.4

Liferafts, if located at the aft/forward end of the ship and at a distance more than 100 m from the closest survival craft, as required by SOLAS regulation III/31.1.4, should be regarded as “remotely located survival craft” with regard to SOLAS regulation III/7.2.1.2.

The area where these remotely located survival craft are stowed should be provided with:

- .1 a minimum number of 2 lifejackets and 2 immersion suits;
- .2 adequate means of illumination complying with SOLAS regulation III/16.7, either fixed or portable, which should be capable of illuminating the liferaft stowage position as well as the area of water into which the liferaft should be launched. Portable lights, when used, should have brackets to permit their positioning on both sides of the ship; and
- .3 an embarkation ladder or other means of embarkation enabling descent to the water in a controlled manner in accordance with SOLAS regulation III/11.7.

ANNEX 9

DRAFT MSC CIRCULAR

SYMBOL OF INFANT LIFEJACKET

1 The Maritime Safety Committee, at its [eighty-third session (... to ... October 2007)], approved the symbol of infant lifejacket, for use in addition to Symbols related to life-saving appliances and arrangements (resolution A.760(18)), as set out in the annex, following the recommendations made by the Sub-Committee on Ship Design and Equipment at its fiftieth session.

2 Member Governments are invited to use the annexed symbol when applying the relevant provisions of SOLAS chapter III, and to bring it to the attention of all parties concerned.

ANNEX

SYMBOL OF INFANT LIFEJACKET



Infant lifejacket

ANNEX 10

**DRAFT REVISED WORK PROGRAMME OF THE SUB-COMMITTEE
AND PROVISIONAL AGENDA FOR DE 51**

DRAFT REVISED WORK PROGRAMME OF THE SUB-COMMITTEE

		Target completion date/number of sessions needed for completion	Reference
1	Casualty analysis (co-ordinated by FSI)	Continuous	MSC 70/23, paragraphs 9.17 and 20.4
2	Consideration of IACS unified interpretations	Continuous	MSC 78/26, paragraph 22.12
H.1	Amendments to resolution A.744(18)	2007 2008	DE 45/27, paragraphs 7.18 and 7.19; DE 49/20, paragraphs 3.4 to 3.8; DE 50/27, section 3
H.2	Measures to prevent accidents with lifeboats (in co-operation with FSI, NAV and STW)	2008	MSC 74/24, paragraph 21.34; DE 48/25, section 5; FP 50/21, section 13; DE 50/27, section 12
H.3 L.4	Performance standards for protective coatings	2007 2 sessions	MSC 76/23, paragraphs 20.41.2 and 20.48; DE 49/20, section 6; DE 50/27, section 4
	.1 Mandatory application of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers		
	.2 Performance standard for void spaces on all types of ships		
H.4	Inspection and survey requirements for accommodation ladders	2007	MSC 77/26, paragraph 23.32; DE 49/20, section 8
H.5	Mandatory emergency towing systems in ships other than tankers of not less than 20,000 dwt	2007	MSC 77/26, paragraph 23.33; DE 49/20, section 7

* **Notes:**

- 1 "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.
- 2 Struck-out text indicates proposed deletion and shaded text shows proposed additions or changes.
- 3 Items printed in bold letters have been selected for the provisional agenda for DE 51.

		Target completion date/number of sessions needed for completion	Reference
H.6 H.43	Compatibility of life-saving appliances	2008	DE 47/15, paragraph 5.3; MSC 78/26, paragraph 24.37.1; DE 48/25, section 8; FP 50/21, section 14; DE 50/27, section 13
H.7 H.54	Review of the SPS Code (in co-operation with DSC, FP, NAV, COMSAR and SLF)	2007 2008	MSC 78/26, paragraph 24.9; DE 49/20, section 12; DE 50/27, section 9
H.8 H.65	Development of provisions for gas-fuelled ships (co-ordinated by BLG)	2007 2008	MSC 78/26, paragraph 24.39; DE 49/20, section 10; DE 50/27, section 7
H.9 H.76	Test standards for extended service intervals of inflatable liferafts	2007 2008	MSC 78/26, paragraph 24.41; DE 48/25, section 20; FP 50/20, section 16; DE 50/27, section 14
H.10 H.87	Amendments to the Guidelines for ships operating in Arctic ice-covered waters (in co-operation with SLF, as necessary)	2008	MSC 79/23, paragraph 8.25; DE 50/27, section 15
H.11 H.98	Revision of the Code on Alarms and Indicators (in co-operation with appropriate sub-committees, as necessary)	2007 2008	MSC 79/23, paragraph 20.28; DE 49/20, section 13; DE 50/27, section 10
H.12 H.109	Amendments to the MODU Code	2007 2008	MSC 79/23, paragraph 22.51; DE 49/20, section 14; DE 50/27, section 11
H.13 H.44 10	Guidelines for uniform operating limitations of high-speed craft (in co-operation with COMSAR, NAV and SLF)	2009	DE 49/20, section 5; MSC 81/25, paragraph 23.45; DE 50/27, section 18
H.14 H.12 11	Guidelines for maintenance and repair of protective coatings	2008	MSC 81/25, paragraph 23.48.1; DE 50/27, section 19
H.15 H.13 12	Requirements and standard for corrosion protection of permanent means of access arrangements	2008	MSC 81/25, paragraph 23.48.2; DE 50/27, section 20
H.16 H.14 13	Performance standards for recovery systems	2008	MSC 81/25, paragraph 23.49.1; DE 50/27, section 21

		Target completion date/number of sessions needed for completion	Reference
H.17 H.15 14	Guidelines for the approval of novel life-saving appliances	2008	MSC 81/25, paragraph 23.49.2; DE 50/27, section 22
H.18 H.16 15	Review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements	2008	MEPC 55/23, paragraph 6.16; DE 50/27, section 23
H.19 H.17 16	Guidance to ensure consistent policy for determining the need for watertight doors to remain open during navigation	2 sessions	SLF 49/17, paragraph 3.11; MSC 82/24, paragraph 21.47
H.20 H.18 17	Review of SOLAS requirements on new installation of materials containing asbestos	2 sessions 2009	MSC 82/24, paragraph 21.48; DE 50/27, paragraphs 25.19 to 25.21
H.21 H.19 18	Development of a new framework of requirements for life-saving appliances (in co-operation with FP and COMSAR, as necessary and when requested by DE)	4 sessions	MSC 82/24, paragraph 21.49
H.22 H.20 19	Improved safety of pilot transfer arrangements (co-ordinated by NAV)	2 sessions	MSC 82/24, paragraph 21.50
H.23 H.21 20	Cargo oil tank coating and corrosion protection	2009	MSC 82/24, paragraphs 21.51 and 23.12; DE 50/27, paragraphs 25.15 to 25.18
H.24 H.22 21	Development of safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III	3 sessions	MSC 82/24, paragraphs 3.92 and 21.52
H.25 H.23 22	Interpretation of SOLAS regulations II-1.3 and II-1/3-6	2008	MSC 82/24, paragraphs 7.8 and 21.53; DE 50/27, paragraphs 25.24 to 25.28
L.1	Revision of resolution A.760(18)	2008	DE 46/32, paragraph 31.23; DE 47/25, paragraph 22.6; DE 50/27, section 16

		Target completion date/number of sessions needed for completion	Reference
L.2	Free-fall lifeboats with float-free capabilities	1 session	MSC 76/23, paragraphs 20.41.3 and 20.48; DE 47/25, paragraph 22.6
L.3	Guidelines on equivalent methods to reduce on-board NO _x emission	2 sessions	MEPC 41/20, paragraph 8.22.1; BLG 10/19, paragraph 12.3; MEPC 55/23, paragraph 19.9

DRAFT PROVISIONAL AGENDA FOR DE 51*

- Opening of the session
- 1 Adoption of the agenda
 - 2 Decisions of other IMO bodies
 - 3 Amendments to resolution A.744(18)
 - 4 Development of provisions for gas-fuelled ships
 - 5 Review of the SPS Code
 - 6 Revision of the Code on Alarms and Indicators
 - 7 Amendments to the MODU Code
 - 8 Measures to prevent accidents with lifeboats
 - 9 Compatibility of life-saving appliances
 - 10 Test standards for extended service intervals of inflatable liferafts
 - 11 Amendments to the Guidelines for ships operating in Arctic ice-covered waters
 - 12 Revision of resolution A.760(18)
 - 13 Guidelines for uniform operating limitations of high-speed craft
 - 14 Guidelines for maintenance and repair of protective coatings
 - 15 Requirements and standard for corrosion protection of means of access arrangements
 - 16 Performance standards for recovery systems
 - 17 Guidelines for the approval of novel life-saving appliances
 - 18 Review of MEPC.1/Circ.511 and relevant MARPOL Annex I and Annex VI requirements
 - 19 Cargo oil tank coating and corrosion protection
 - 20 Interpretation of SOLAS regulations II-1.3 and II-1/3-6

* Agenda item numbers do not indicate priorities.

- 21 Review of SOLAS requirements on new installation of materials containing asbestos
 - 22 Consideration of IACS unified interpretations
 - 23 Work programme and agenda for DE 52
 - 24 Election of Chairman and Vice-Chairman for 2009
 - 25 Any other business
 - 26 Report to the Maritime Safety Committee
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